3 PROJECT DESCRIPTION

This chapter presents a detailed description of the proposed amendments (Amendment No. 2 or project) to the Land Use Permit (LUP) for the existing Recology Hay Road (RHR) Landfill, which is operated by the applicant, RHR. The proposed project would include an expansion of the existing municipal solid waste (MSW) disposal area within the RHR property boundary; a modification to the boundary of the Jepson Prairie Organics (JPO) facility; a correction to disposal footprint of existing Disposal Module-1; temporary storage of baled recyclable materials; a modification to landfill peak tonnage limits; authorization for construction and demolition (C&D) sorting operations; a change in location of friable asbestos disposal; deepening and widening the existing soil borrow pit; and the addition of an enclosed landfill gas flare. This chapter describes RHR's objectives related to the project, existing and proposed facilities and operations, and the anticipated schedule for project construction and operation.

3.1 PROJECT LOCATION

The RHR Landfill (project site) is located on a 640-acre property (property) at 6426 Hay Road, immediately west of State Route (SR) 113 and south of Hay Road, in the unincorporated area of Solano County. The site is approximately 5 miles southeast of the City of Vacaville and 8 miles south of the City of Dixon (Figure 3-1). As shown in Figure 3-2, the 256-acre permitted landfill disposal footprint is located within the larger 640-acre property. The RHR Landfill consists of three parcels, which are County Assessor's parcel numbers (APNs) 042-020-060, 042-020-280, and 042-020-020. The site is located in Section 2, Township 5 North, Range 1 East on the U.S. Geological Survey Dozier 7.5-minute quadrangle.

The property is bound by Hay Road and irrigated row crop and pastureland uses to the north; irrigated pasture uses and Burke Ranch Conservation Preserve to the south and west; and SR 113 and irrigated row crop and pasture-land uses east of the project site. The nearest residential uses are located approximately 1 mile north of the project site.

3.2 PROJECT BACKGROUND

The landfill has been operating at the site since 1964, although it was initially known as the B&J Drop Box. RHR is an integrated resource recovery company that currently owns and operates the landfill. Facilities at the project site associated with landfill operations include monitoring and control systems (e.g., groundwater, landfill gas, leachate), storm water retention ponds, flood control berms, groundwater dewatering facilities, materials handling and processing areas, various structures, access roads, and a borrow pit (CVRWQCB 2016). The JPO composting facility is also located within the RHR property and serves San Francisco, surrounding Bay Area communities, and several municipalities within Solano County (Recology n.d.). The landfill provides solid waste disposal services for both municipal and commercial customers in the San Francisco Bay Area and the Sacramento Valley, but primarily serves San Francisco as well as Solano County (i.e., cities of Vacaville and Dixon and portions of the unincorporated County) (Recology n.d.). Under the current Land Use Permit U-11-09/Solid Waste Facility Permit 48-AA-0002, the landfill has a maximum allowable height limit of 215 feet above mean sea level (msl), a maximum limit for disposal depth of 20 feet below msl, and a total disposal design capacity of 37 million cubic yards (Solano County 2013). In 2016, the RHR Landfill had an average daily throughput of 1,682 tons per day (tpd). In 2017, fires in Sonoma County, an emergency condition, resulted in the need to accept fire debris at local landfills, including the RHR Landfill. As a result, annual throughput at the RHR Landfill increased to 1,947 tpd in response to the emergency condition. As of May 2018, 24.9 million cubic yards of disposal capacity was available for solid waste disposal (Golder 2018).

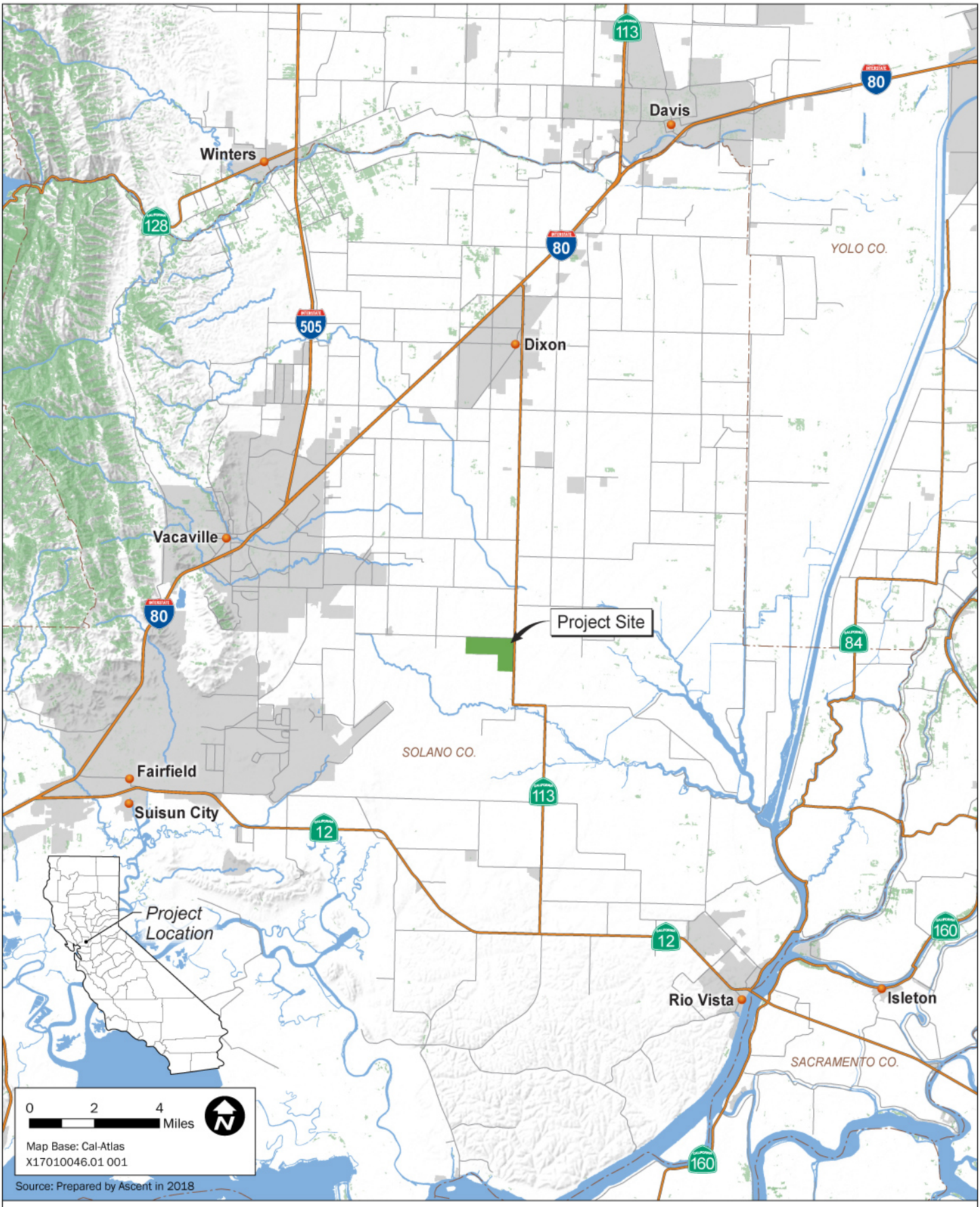


Figure 3-1 Regional Location

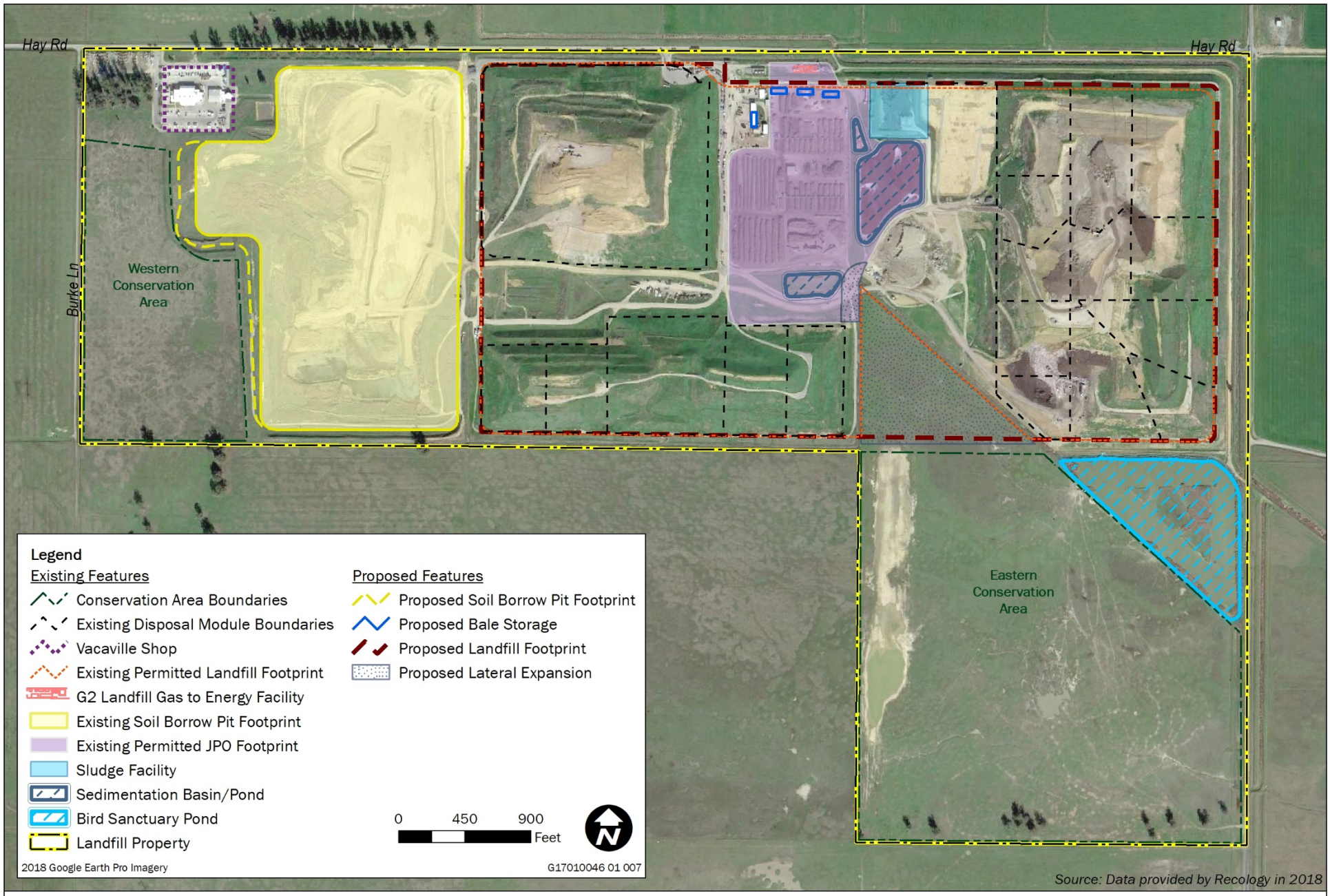


Figure 3-2 Recology Hay Road Landfill Site Plan

Included on top of the 256-acre permitted landfill is the JPO Compost Facility. The permitted footprint of JPO is 39 acres (CalRecycle 2018). JPO is permitted to process manure, orchard and vineyard prunings, crop residue, post-consumer food waste, and yard waste; however, no biosolids are permitted for composting. The maximum annual composting capacity of the JPO facility is 172,600 cubic yards (Solano County 2018). JPO currently utilizes two types of composting processes: windrow and Aerated Static Piles (ASP). The windrow process is used for the composting of green waste by piling organic matter or biodegradable waste in long rows. The ASP system is used to compost food and green waste, and employs covers, fans, and several biofilters within different composting zones. Before 2009, JPO utilized the AgBag© vessel reactor system but switched methods due to lower VOC emissions associated with the ECS system (i.e., a reduction of approximately 50%) (Sullivan 2011). Facilities associated with JPO operations include a 22-acre engineered composting pad; leachate collection ditches and sumps, two leachate ponds (Pond A and B), leachate storage tanks, and storm water controls, various structures, and access roads (CVRWQCB 2016).

Features within the property located outside of the permitted landfill disposal boundary include a borrow pit area (used for RHR Landfill operations); a Bird Sanctuary Pond (BSP) that collects some of the stormwater discharges from the landfill as well as groundwater pumped from the onsite borrow pit; areas of undeveloped land, including two specific areas which are currently being placed under a permanent conservation easement to preserve biological habitat values, which are identified as the Eastern and Western Conservation Areas in Figure 3-2. The Recology Vacaville-Solano fleet maintenance shop (Vacaville Shop) is located in the northwestern portion of the property.

3.3 PREVIOUS CEQA DOCUMENTATION

As disposal and diversion methods and needs have evolved since initial operation of the RHR Landfill, amendments to existing permits, including the currently proposed amendments to the landfill's LUP with the County, have necessitated environmental analysis pursuant to CEQA. RHR Landfill operations have been previously evaluated under CEQA in two environmental impact reports prepared in 1993 and 2005, one Initial Study/Negative Declaration (IS/ND) prepared in 2011, and three Initial Study/Mitigated Negative Declarations (IS/MNDs) prepared in 1995, 2001, and 2012. A summary of these documents are provided below. The setting discussion and summary of project impacts and mitigation measures included in the CEQA documents listed below are hereby incorporated by reference into this Subsequent Environmental Impact Report (SEIR), consistent with State CEQA Guidelines Section 15150. A compact disc (CD) of the documents incorporated into this SEIR will be made available to the public for inspection at the Solano County Government Center (675 Texas Street, Suite 5500, Fairfield, CA 94533) during the 45-day public review period of this Draft SEIR March 5, 2018 through April 18, 2018.

3.3.1 1993 EIR

In April 1993, the County certified the Final EIR (SCH# 92063112) for the B&J Landfill Master Development Plan (Brown and Caldwell 1992), in conjunction with Solano County's approval of Use Permit #U-91-28. The 1993 EIR included an evaluation of the following operational changes:

1. an overall expansion of landfill operations and development of the 640-acre project site,
2. a vertical expansion of the landfill to a maximum height of 150 feet above the natural ground surface (170 feet above msl),
3. a lateral expansion onto an adjacent 160-acre parcel,
4. creation of a soil borrow pit to provide soil for landfill cover,
5. relocation of the landfill entrance and new landfill entrance facilities,
6. and revised landfill operations,
7. increased landfill disposal capacity from 6.0 to 26.4 million cubic yards,
8. an increase in the average daily throughput to 780 tons per day (tpd), and

9. modification to the landfill gas and treatment system to control additional landfill gas generation from the operational changes.

3.3.2 1995 AND 2001 IS/MNDs

Following the 1993 EIR, two IS/MNDs, issued in September 1995 (SCH# 1995093048) and March 2001 (SCH# 2001032035), were prepared to evaluate further revisions to the LUP at the RHR Landfill and were subsequently adopted by Solano County. The 1995 MND evaluated the following operational changes:

1. the addition of a composting facility for green waste and food waste,
2. the receipt and drying of sewage sludge,
3. a household hazardous waste acceptance facility,
4. a change in the landfill classification from Class III to Class II to accept designated waste, and
5. an increase in the peak tonnage of waste accepted (up to 2,400 tpd with an average of 1,200 tpd).

The 2001 MND evaluated the following changes at RHR Landfill:

1. changes in the landfill design and operations,
2. a change in the hours of operation,
3. the use of alternative daily cover materials, and
4. an increase in the permitted amount of friable asbestos received at the site.

3.3.3 2005 SEIR

In March 2005, the County certified the Final SEIR (SCH#2004032138) for the NorCal Waste Systems, Inc. Hay Road Landfill Project (EDAW 2005), in conjunction with approval of further revisions to the use permit at that time. The 2005 SEIR included an evaluation of the following operational changes:

1. a landfill support facility, including a maintenance facility and corporation yard;
2. composting operation modifications;
3. addition of a recyclables loading area where both the public and collection vehicles deliver collected recyclables before transport to an offsite materials recovery facility;
4. a revised landfill final cover design meeting existing Central Valley Regional Water Quality Control Board (CVRWQCB) Waste Discharge Requirements (WDRs) and increasing the final permitted landfill height by 50 feet to the current 215 feet above msl; and
5. revision and update of the 1995 Solano County Use Permit covering the landfill operations.

3.3.4 2011 IS/ND

In 2011, an IS/ND that evaluated the addition of a landfill-gas-to-energy facility at the RHR Landfill was adopted. The IS/ND evaluated the addition of a 7,500-square-foot facility with an internal combustion engine, adjacent to the existing landfill gas flare. The facility, upon completion, was estimated to provide up to 1.6 megawatts (MW) per year of renewable electricity supplies. Any excess landfill gas would be burned in the existing flare.

3.3.5 2012 IS/MND

Finally, in October 2012, an IS/MND (SCH#2004032138) that evaluated further revisions to the use permit at the RHR Landfill was adopted. The 2012 revisions included:

1. elimination of the landfill's average permitted tonnage limit;
2. the modification of the landfill's gas management system consistent with Yolo Solano Air Quality Management District (YSAQMD) Rule 3-4;
3. 12 additional onsite employees;
4. an upgrade of landfill equipment used in the disposal operations;
5. an increase in the landfill's active working face (i.e. the area where waste is deposited within the portion of the landfill actively being filled);
6. a reduction in the existing soil deficit at the site by using alternative daily cover (ex., C&D debris); and
7. implementation of odor management requirements.

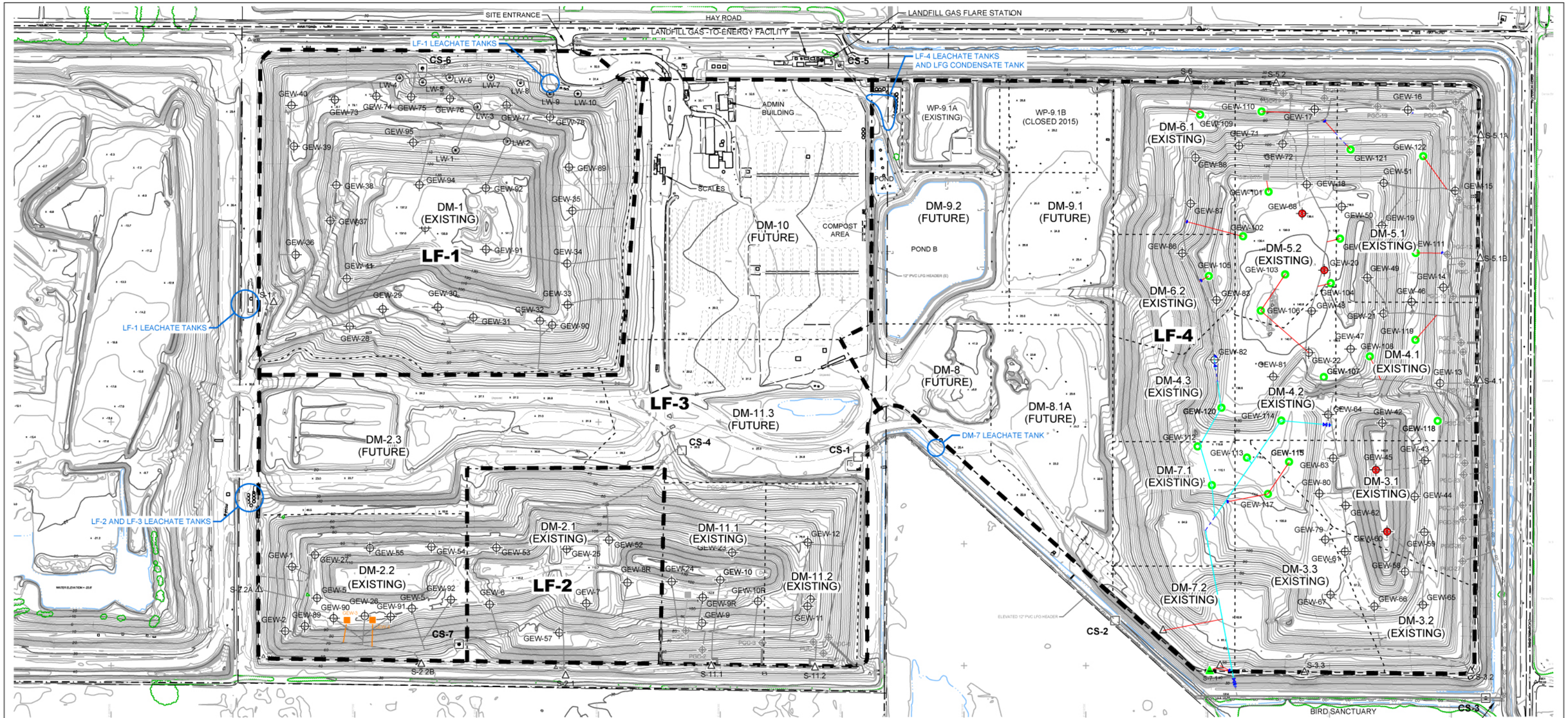
3.4 PROJECT OBJECTIVES

The following project objectives have been identified for the proposed project addressed in this SEIR:

- increase the RHR Landfill's disposal capacity by approximately 8.8 million cubic yards;
- maximize daily tonnage to the RHR Landfill, while providing at least 15 years of estimated disposal capacity at the RHR Landfill;
- extend the estimated RHR Landfill life by at least 5 years compared to future conditions under which the RHR Landfill's disposal capacity is not increased;
- extend the ability of JPO to compost Solano County organics by at least 4 years compared to future conditions under which the RHR Landfill's disposal capacity is not increased;
- correct the permitted RHR Landfill boundary to reflect existing conditions at the site;
- allow the RHR Landfill more flexibility in how it balances high-volume and low-volume days;
- achieve higher solid waste diversion at RHR with better sorting of construction and demolition materials;
- account for changing market conditions for recyclable commodities while avoiding disposal;
- allow for the continued disposal of friable asbestos in Solano County past the filling and closure of the existing permitted monofill (DM-1), projected to be 2021; and
- To provide adequate soil cover for the landfill and avoid the import of soil.

3.5 EXISTING PERMITS

The existing landfill operates as four landfill (LF) units: LF-1, LF-2, LF-3, and LF-4, as shown on Figure 3-3. Each LF unit is built out in subunits, or disposal modules (DMs), which are shown on Figures 3-2, 3-3, and 3-4. LF-3 and LF-4 are operated as Class II landfills and LF-1 and LF-2 are operated as Class III landfills, as defined under CCR Title 27. The landfill also contains a Class II waste pile (WP-9.1). As a Class II and Class III waste management facility, the RHR Landfill currently operates in compliance with both the LUP U-11-09 Amendment No. 1 (October 18, 2012) and Solid Waste Facilities Permit (SWFP) #48-AA-0002 (July 9, 2013). The LUP provides conditional approval of existing land uses and operations within the entire 640-acre project site. The SWFP and LUP are issued by Solano County Department of Resource Management, with the concurrence of CalRecycle for issuance of the SWFP.



LEGEND

- PROPERTY BOUNDARY
- EXISTING PERMITTED LANDFILL FOOTPRINT
- PARCEL BOUNDARY
- EXISTING PERMITTED DISPOSAL MODULE (DM) FOOTPRINT
- WASTE PILE LIMIT
- LANDFILL UNIT FOOTPRINT
- AIR AND CONDENSATE PIPING
- GEW-116 — FUTURE LANDFILL GAS EXTRACTION WELL
- FUTURE LANDFILL GAS EXTRACTION WELL TO BE DECOMMISSIONED
- S-7.1 — FUTURE LEACHATE SUMP RISER CONNECTION
- FUTURE REMOTE WELLHEAD
- FUTURE 8" LFG PIPE (ABOVE GROUND)
- FUTURE 4" LFG PIPE (ABOVE GROUND)
- FUTURE ROAD CROSSING
- FUTURE BUTTERFLY VALVE
- FUTURE REDUCER
- FUTURE FLANGE
- EXISTING 4" LFG COLLECTION PIPE RISER, HDPE
- EXISTING CONDENSATE SUMP
- EXISTING LFG EXTRACTION WELL
- S-11.3 — EXISTING LEACHATE RISER
- GEW-6 — EXISTING GAS PROBE
- CS-2 — EXISTING CONDENSATE SUMP
- EXISTING LFG LATERAL (ABOVE GROUND)
- EXISTING LFG LATERAL (BELOW GROUND)
- EXISTING ISOLATION VALVE
- EXISTING REDUCER
- EXISTING ROAD CROSSING
- EXISTING FLANGE
- PROPERTY LINE
- APPROXIMATE LINER AND MODULE LIMIT (PERIMETER GAS COLLECTORS NOT SHOWN FOR CLARITY)

NOTE: FEATURES IDENTIFIED AS 'FUTURE' ARE ASSOCIATED WITH AN APPROVED ACTION AT THE LANDFILL THAT IS NOT PART OF THE PROJECT BEING ANALYZED IN THIS EIR

NOTES

1. TOPOGRAPHIC CONTOURS PREPARED USING PHOTOGRAMMETRIC METHODS BY TETRA TECH GEOMATIC TECHNOLOGIES. DATE OF PHOTOGRAPHY: MARCH 27, 2018.
2. HORIZONTAL DATUM: CALIFORNIA STATE PLANE, NAD83, ZONE II, FT (CA-II)
   VERTICAL DATUM: NAVD88.

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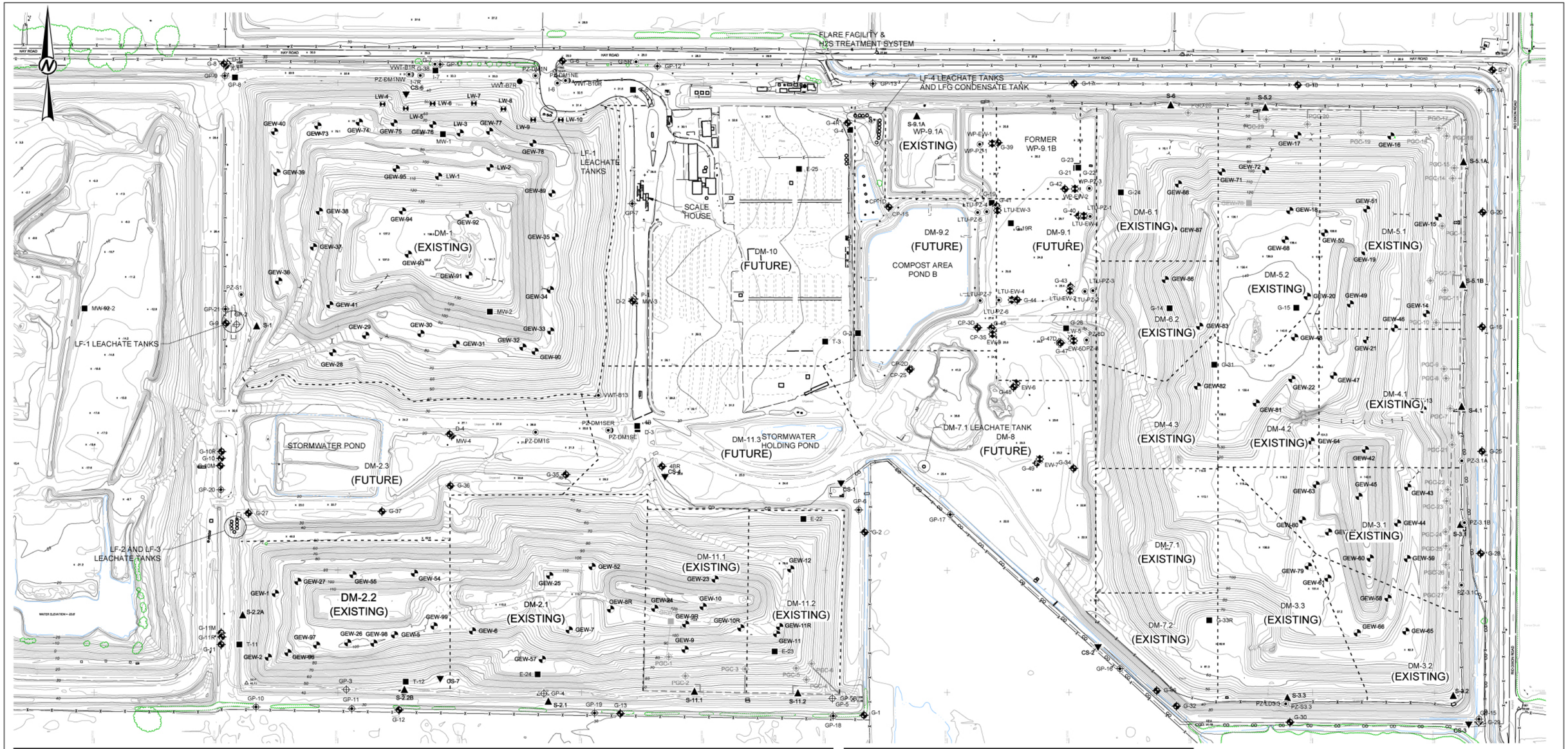
SCALE FEET

Source: Image provided by Golder in 2018

X17010046.01 008

Figure 3-3 Existing Onsite Leachate Collection and Monitoring Facilities



LEGEND

- PROPERTY BOUNDARY
- APPROXIMATE LINER AND MODULE LIMIT (PERIMETER GAS COLLECTORS NOT SHOWN FOR CLARITY)
- DESTROYED WELL
- VWT-B10R VIBRATING WIRE TRANSDUCER
- PZ-DM1NW PIEZOMETER
- MONITORING WELL
- EW-8 EXTRACTION WELL
- LTU-PZ6 LTU WELL
- 4" LFG COLLECTION PIPE RISER, HDPE
- CONDENSATE SUMP
- GEW-88 LFG EXTRACTION WELL
- S-11.3 LEAK DETECTION SUMP / LYSIMETER
- GP-5 GAS PROBE
- GP-19 PERIMETER GAS PROBE
- LFG LATERAL (ABOVE GROUND)
- LFG LATERAL (BELOW GROUND)
- ISOLATION VALVE
- REDUCER
- ROAD CROSSING
- FLANGE

NOTE: FEATURES IDENTIFIED AS 'FUTURE' ARE ASSOCIATED WITH AN APPROVED ACTION AT THE LANDFILL THAT IS NOT PART OF THE PROJECT BEING ANALYZED IN THIS EIR

NOTES

1. BASE TOPOGRAPHY BY TETRA TECH, DATED MARCH 27, 2018.
   HORIZONTAL DATUM: CALIFORNIA STATE PLANE, NAD83, ZONE II, FT (CA-II)
   VERTICAL DATUM: NAVD88

Source: Image provided by Golder in 2018

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Figure 3-4 Existing Leachate Tank and LFG Management System

The JPO composting facility operates under the same LUP but has a Compostable Materials Handling Permit (No. 48-AA-0083) issued by CalRecycle (2018), separate from the RHR Landfill's SWFP.

Operation of facilities on the site are restricted by a number of permits, including WDR Order No. RD-2016-0056 and Dewatering Permit R5-2016-0076 issued by the CVRWQCB and several Yolo Solano Air Quality Management District permits, including Title V Permit #F-01059-15.

3.6 EXISTING RHR LANDFILL OPERATIONS

3.6.1 Permitted Waste Types and Volumes

The landfill currently accepts non-hazardous solid waste, high-liquid-content waste, wastewater treatment plant sludge, designated waste, asbestos-containing waste, and waste requiring special handling, as defined by the State. Disposal of asbestos-containing waste is currently limited to DM-1. In compliance with both the LUP and SWFP, the landfill is currently authorized to accept a maximum of 2,400 tpd of MSW for disposal and 2,500 tons of friable asbestos per month (CalRecycle 2013). The existing design capacity of the landfill is approximately 37 million cubic yards. As of May 2018, 24.9 million cubic yards of disposal capacity was available for solid waste disposal (Golder 2018).

In 2016, the landfill received a total of 603,636 tons of MSW. Within that period, the landfill received a 7-day average peak of 1,682 tpd of MSW and a monthly peak of 1,041 tons of friable asbestos. Under normal permit conditions, when MSW tonnage received by the landfill approaches the 2,400-tpd limit established within the SWFP and LUP, haulers are instructed to proceed to other disposal locations that have daily throughput capacity for that day.

The County complies with legislative mandates from the State of California requiring more diversion from landfills, which results in a higher demand for resource recovery, recycling, and composting. The JPO compost facility is permitted to accept an average of 600 tpd of compostable green material, agricultural material, and food wastes, with a peak daily total tonnage of 750 tpd. In 2016, JPO compost facility received an average of 275 tpd of compost feedstock, and in 2017, average daily tonnage of compost feedstock decreased to 201 tpd.

Under the current SWFP, the total average daily traffic permitted at the RHR Landfill is 620 vehicles per day, averaged over 7 days (CalRecycle 2013). In 2016, during a peak week, RHR Landfill received 483 vehicles per day averaged over 7 days. As noted above, in 2017, catastrophic fires in Sonoma County resulted in the need for the disposal of fire debris at local landfills in response to the emergency condition. As a result, the daily throughput of the RHR Landfill increased to 1,947 tpd (based on a 7-day average) and peak vehicle traffic in a single week was 695 vehicles. However, the fire debris, as it is considered part of the emergency response, was exempt from the conditions of the SWFP and LUP.

A map of designated haul routes for the RHR Landfill is provided in Figure 3-5.

3.6.2 Days and Hours of Operation

The RHR Landfill is currently permitted (through its existing SWFP) to operate seven days per week, 365 days per year, on a 24-hour basis. The landfill is open to commercial and contract haulers 24 hours per day and is open to the public from 8:00 a.m. to 4:00 p.m. The delivery of asbestos-containing waste and all designated wastes is limited to the hours of 7:00 a.m. to 4:00 p.m., Monday through Saturday.

3.6.3 Security

The facility is surrounded by a six-foot chain-link fence for security purposes with a taller litter control fence located along the perimeter of portions of the landfill (e.g., along the northern and eastern boundary of DM's 3, 4, 5, 6, and 7). When the RHR Landfill is closed to the public for the day, buildings onsite are secured.

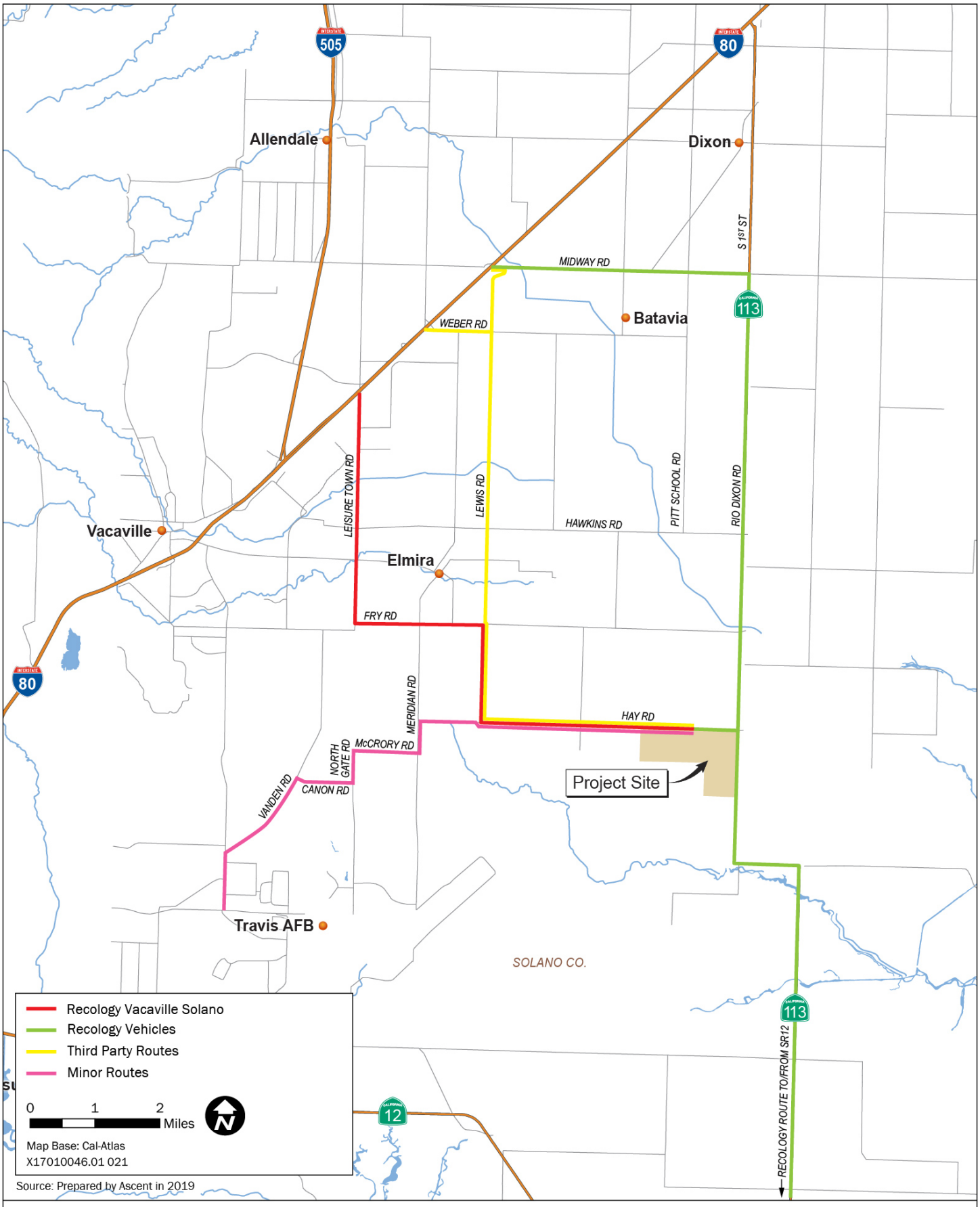


Figure 3-5 Landfill Haul Roads

3.6.4 Personnel

Approximately 35 full-time staff members are currently employed at the RHR Landfill, including management and administrative staff.

3.6.5 Leachate Monitoring, Collection, and Removal System

Leachate is liquid generated from moisture brought in with waste, from rainfall which percolates into the landfill, and from the waste decomposition process (CalRecycle 2003). Because this liquid includes dissolved and insoluble chemicals, leachate is collected and removed to prevent localized degradation of water quality. The existing liner system and leachate collection and removal system (LCRS) were previously approved by the CVRWQCB for DM-1A (unlined), 1B, 2.1A, & B, 2.2, 2.3, 3 through 6, 7.1, 7.2, 8 through 11, and 11.3 (CVRWQCB 2016: 3-4). As required by Title 27 of the CCR, Section 20340(b), the LCRS for the DM's listed above have been designed, constructed, maintained, and operated to handle twice the design flow. In other words, the leachate collection drains and sumps have been sized to collect and remove twice the maximum anticipated daily volume of leachate to prevent hydraulic head buildup on the landfill liner, beyond the sump, from exceeding 30 centimeters (approximately 1 foot) (CVRWQCB 2016: 10, 39). The LCRS is a minimum 6-inch-thick gravel drainage blanket and a system of 6-inch (minimum) perforated and non-perforated collection pipes spaced along the base of the DM's. The base of the DM's has been designed with a minimum cross slope of two percent to provide leachate drainage into the collection pipes. The collection pipes located in the low points of each fill module are designed with a minimum slope of one percent to convey leachate to collection sumps from which leachate can be removed (CVRWQCB 2016: 82).

The LCRS is monitored via the LCRS sump, from which monthly leachate samples are obtained and analyzed, in accordance with WDR requirements. The LCRS is designed to convey leachate to a sump where solar-powered pumps pump leachate to either onsite leachate tanks (as shown in Figure 3-4) or return it the composite-lined landfill unit from which it was generated. Collected landfill leachate may be hauled for use as dust control on lined portions of the landfill from where it originated or hauled offsite for disposal at a Publicly Owned Treatment Works.

3.6.6 Dust Controls

Activities in unpaved areas and earthmoving activities associated with landfill and JPO operations can create fugitive dust. Consistent with YSAQMD Rule 2.3 and the RHR Landfill's current Title V Permit (No. F-01059-15), fugitive dust is controlled through regular maintenance of haul and other onsite roads, timely placement of intermediate and final soil cover over the refuse fill, application of water or dust palliatives to work areas, excavation areas, and stockpile areas, and planting and maintenance of vegetative cover on completed fill slopes.

3.6.7 Odor Controls

Several potential sources of odor are generated from operations at the property, including aerobic decomposition of organic materials, anaerobic bacterial digestion of buried refuse, and composting. Onsite odors from aerobic decomposition of refuse are controlled by covering the refuse daily with a layer of clean soil, tarps, or other approved alternative cover. Anaerobic digestion of the buried waste produces carbon dioxide and methane, which are generally odorless, and trace amounts of volatile organic gases, which are odorous. As these natural gases are produced, internal pressures move the gases along paths of least resistance, including vertically through a soil cover. Soil cover is an effective filter for odor-causing fumes; however, cracks can develop in the fill surfaces that allow the gases to escape into the environment and cause odors. To prevent the release of odor-causing and explosive gases and to control trace hazardous air pollutants, a landfill gas collection and control (enclosed flare) system has been installed at the landfill, as shown in Figure 3-4. In addition to these measures to control odors, the distance of the landfill from residential areas also reduces the potential for odors to affect sensitive receptors, the nearest of which is located approximately 1-mile north of the landfill's property boundary.

Odor complaints are currently handled by either the Solano County Resources Management Department or YSAQMD. The Solano County Resources Management Department maintains a log of all odor complaints received and whether the complaints were verified by County/YSAQMD staff.

3.6.8 Landfill Gas Management System

Decomposing waste within the landfill generates gaseous emissions referred to as landfill gas (LFG), which is primarily made up of methane and carbon dioxide. Because LFG contains pollutants that can affect air and water quality, which could result in hazards to human health and the environment, there are Federal, State, and local regulations in place that require operators of landfills of a certain size, including the RHR Landfill, to control and monitor LFG. To meet these regulatory requirements, RHR collects, controls, and monitors LFG.

The collection system includes extraction wells, collection and transport piping, an enclosed LFG flare, and an onsite LFG-to-energy plant that generates up to 1.6 megawatts of renewable electricity and approximately 12,900 megawatt hours per year. As part of a separately approved action at the landfill, an additional enclosed LFG flare will be installed adjacent to the existing flare in 2020. Both LFG flares are required to manage expected LFG generation rates and to ensure compliance with Recology's existing Waste Discharge Requirements and Title V permit.

Under the existing permitted limit, the landfill is expected to reach peak LFG generation by approximately 2030 at a maximum of 3,574 cubic feet per minute (cfm) of LFG at 50 percent methane. To adequately control LFG, the landfill requires the existing flare to operate with a capacity of 45 MM (million) BTU (British thermal unit)/hour (1500 cfm at 50 percent methane) as well as the installation and operation of a second flare with a capacity of 45 MM BTU/hour flare (another 1500 cfm at 50 percent methane). The LFG management system for the existing landfill footprint was approved under the landfill's 1993 EIR (Brown and Caldwell 1992: 2, 13).

LFG wells are drilled and installed into the waste and are constructed as the landfill builds out. To measure the potential for methane migration onto adjacent properties, monitoring probes have been constructed around the perimeter of the landfill at distances of no more than 1,000 feet apart (per Title 27, section 20919 et seq.), as shown in Figure 3-4. Per RHR's existing Monitoring and Reporting Program related to WDR Order No. R5-2016-0056, LFG probes are tested quarterly. The Yolo Solano Air Quality Management District and the U.S. EPA determine the appropriate monitoring and reporting protocols for LFG through the Title V permitting process for the landfill.

3.6.9 Stormwater Management

Storm water runoff from the landfill units drains by sheet flow or is directed to an unlined ditch along the facility perimeter that discharges via two outfalls to the onsite Bird Sanctuary Pond (BSP) where it is sampled before flowing offsite. Runoff from the JPO facility is captured and contained in two ponds within the composting area and storm water discharges from the BSP to the A-1 Channel are sampled under the Statewide Industrial Storm Water General Permit (CVRWQCB 2016: 19).

3.7 PROPOSED PROJECT

The proposed project consists of the following proposed amendments to the existing RHR Landfill LUP and permits:

1. Lateral Expansion of Landfill Capacity
2. Modification to Boundaries of JPO
3. Correction to Disposal Footprint of Disposal Module-1
4. Temporary Storage of Baled Recyclable Materials
5. Modification to Landfill Peak Tonnage Limit
6. Construction and Demolition (C&D) Sorting Operation

7. Addition of an Enclosed Landfill Gas Flare (LFG)

Each of the proposed amendments are explained in further detail below.

3.7.1 Lateral Expansion of Landfill Capacity

The landfill is built out in phases over its lifetime. As shown on Figure 3-3, much of the existing footprint of the landfill contains DM's that are currently used for waste disposal (marked as existing DM sites) and the central portion of the landfill will be used for waste disposal in the future (areas marked as future DM sites) and currently supports other ancillary uses, including JPO. The future DM's will likely be constructed within the next decade, depending on disposal needs. Each phase of landfill development (ex., laying of liner) occurs at least one year before the preceding area is filled with waste to make sure the landfill has continuous available capacity. Figure 3-6 shows what the currently permitted landfill would look like at final grade.

As part of the project, RHR proposes lateral expansion of the landfill disposal area that would occur within an approximately 24-acre triangular area (Triangle) to the south of the existing JPO compost facility (as shown on Figure 3-2). The Triangle includes an approximately 8-acre existing setback area (located within 7 acres of the permitted landfill boundary and 1 acre of the permitted JPO boundary) and approximately 16 acres of new disposal area, for a total of 24 acres. Currently, the Triangle is largely undeveloped open space with a private gravel road, a manmade drainage channel (drainage ditch), an aboveground stormwater pipeline, and infrastructure for groundwater monitoring and LFG and leachate management. Under the proposed project, this entire area would be included within the permitted landfill boundary for landfill disposal uses. The existing drainage ditch would be filled, and a new ditch would be constructed along the southern boundary of the Triangle, where it would connect to the landfill's existing perimeter ditches to both the east and west. The landfill's existing groundwater and LFG monitoring network, as well as its leachate collection system, would be modified to include the proposed expansion area and would be similar in design to the existing network and system.

The Triangle would result in an increase of approximately 8.8 million cubic yards to the landfill's disposal capacity with the landfill footprint extended to the south and extending the estimated closure date to 2038. The expansion area would be constructed over the summers of 2021 and 2022. Because the expansion area would provide additional disposal capacity, it would delay the construction of the remainder of the landfill, which would extend the landfill's overall life by at least 5 years. Because the JPO compost facility is within the permitted disposal footprint and will, in a later phase of the landfill, be decommissioned to allow for disposal of waste in this area, the proposed capacity increase associated with the lateral expansion of the landfill would also extend the potential life of the compost facility, by at least 4 years. Figure 3-7 shows what the landfill would look like at final grade with implementation of the project.

Of note, the Triangle was originally included as an area to be placed under easement, pursuant to a Nationwide Permit issued in 1993 by the U.S. Army Corps of Engineers (USACE). Working with USACE, RHR negotiated the purchase of mitigation credits (2.04 acres of vernal pool credits from Elsie Gridley Mitigation Bank) to remove the easement requirement from the Triangle. The purchase of the required credits was completed on June 23, 2016, and USACE confirmed on July 8, 2016 that the purchase effectively removed the easement requirement from the Triangle. No change to the existing permitted maximum disposal elevation of 215 feet above msl and maximum depth of 20 feet below msl is proposed as part of the project.

PREPARATION OF LATERAL EXPANSION AREA FOR DISPOSAL PURPOSES

To ensure that landfill refuse does not contaminate groundwater quality, preparations for the lateral expansion area would include installation of a required containment system to separate future refuse from groundwater. The expansion area containment system would integrate with the existing containment system in adjacent DM's and the liner would be consistent with current solid waste permitting requirements and other applicable requirements.

LANDFILL BERM CONSTRUCTION AND SLOPING OF LATERAL EXPANSION AREA

The lateral expansion area would also include a perimeter berm approximately 10 feet high and approximately 50 feet wide just north of the relocated vegetated ditch. An access road would be provided at the top of the perimeter berm. The purpose of the berm is to increase landfill slope stability and prevent inundation of the active disposal area during a 100-year, 24-hour storm.

As discussed above, the landfill's existing groundwater and LFG monitoring network, as well as its leachate collection system, would be modified to include the proposed area of lateral expansion (i.e., Triangle).

The top surface of the landfill would be sloped at a 5 percent minimum to provide drainage following differential settlement of the underlying refuse and would have a maximum height of 215 feet above the natural ground surface. Perimeter slopes would be 4:1 (horizontal: vertical) with benching every 50 vertical feet. The benches provide stability, intercept drainage, minimize erosion, and enable access around the landfill. Steeper slopes are allowed during the construction of the landfill. The final grading plan calls for a rounded, rolling land formation that will enhance the aesthetic appearance of the site.

OPERATIONS WITHIN LATERAL EXPANSION AREA

The proposed expansion area would be integrated into DM-8. Operations at DM-8, including the proposed expansion area, would include stormwater management, gas management, and leachate management systems that would be modeled after the systems in use at active Landfill modules onsite, and in accordance with the Central Valley Regional Water Quality Control Board's Waste Discharge Requirements for the RHR Landfill (WDR Order R5-2016-0056). The systems would manage stormwater, collect and combust (or other treatment of) gas, and contain leachate onsite, with offsite disposal of leachate to a permitted wastewater disposal facility as needed.

The proposed landfill expansion area would be used as a Class II disposal site, and the expansion would use the area fill method. In this method, the waste is spread and compacted on the ground surface, and cover material is spread and compacted over it. All vehicles would travel within the expansion area on proposed all-weather access roads to access the active unloading area.

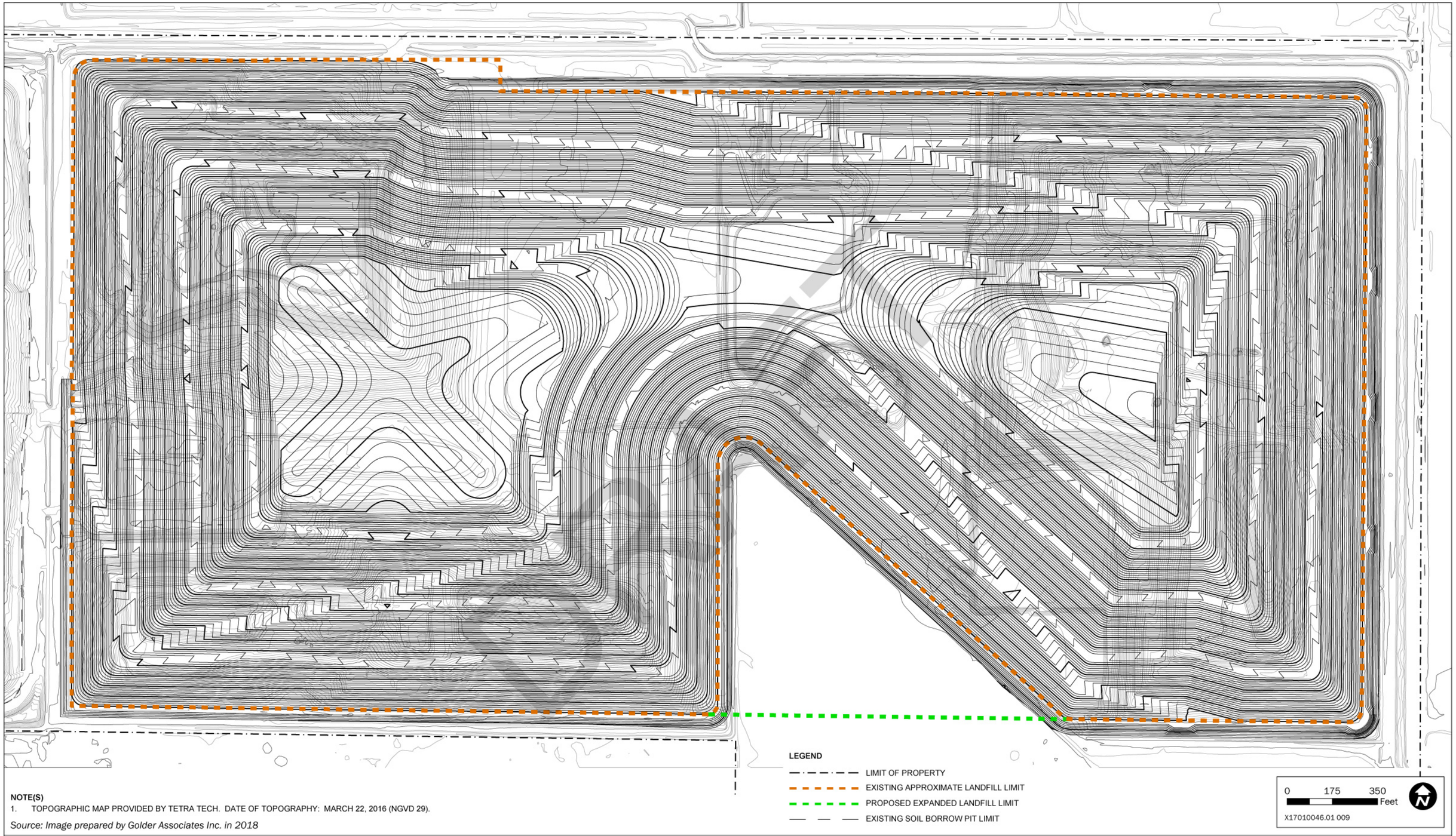
With the additional acreage, the disposal capacity of the landfill would increase from 37 million cubic yards to 45.8 million cubic yards (i.e., an additional 8.8 million cubic yards) and would extend the estimated life of the landfill by at least 5 years. As mentioned above, the proposed capacity increase of the landfill would also extend the potential life of the compost facility by at least 4 years. As described above, no change to the existing permitted maximum disposal elevation of 215 feet above msl and maximum depth of 20 feet below msl is proposed as part of the project.

3.7.2 Modification to Boundaries of JPO Facility

The 39-acre JPO facility boundary would be reduced to approximately 38 acres. The 1-acre area to be removed from the JPO boundary is currently a setback area and would be operated under the RHR Landfill's SWFP instead of the JPO's CMHFP.

3.7.3 Correction to Disposal Footprint of Disposal Module-1

Recent test borings conducted at RHR Landfill show that DM-1, as delineated in Figure 3-3, extends beyond the geographic footprint originally identified for disposal of waste in the LUP and SWFP. Historical disposal of waste within DM-1 occurred in a 0.3-acre area near the northeast corner of DM-1 not captured by the existing disposal footprint (for location, see the red area identified in Figure 3-2). As part of the project, the LUP would be modified to acknowledge that DM-1 extends beyond its originally defined disposal footprint and the permitted disposal footprint would be adjusted to reconcile the newly understood disposal footprint.



NOTE(S)

1. TOPOGRAPHIC MAP PROVIDED BY TETRA TECH. DATE OF TOPOGRAPHY: MARCH 22, 2016 (NGVD 29).

Source: Image prepared by Golder Associates Inc. in 2018

Figure 3-6 Permitted Final Grading Plan

LEGEND

- LIMIT OF PROPERTY
- EXISTING APPROXIMATE LANDFILL LIMIT
- PROPOSED EXPANDED LANDFILL LIMIT
- EXISTING SOIL BORROW PIT LIMIT

0 175 350 Feet

X17010046.01 010

NOTE(S)

1. TOPOGRAPHIC MAP PROVIDED BY TETRA TECH. DATE OF TOPOGRAPHY: MARCH 22, 2016 (NGVD 29).

Source: Image prepared by Golder Associates Inc. in 2018

Figure 3-7 Proposed Final Grade

ASCENT ENVIRONMENTAL

3.7.4 Temporary Storage of Baled Recyclable Materials

Due to recent import restrictions imposed by China on recyclable materials, RHR proposes to temporarily store baled, single-stream recyclables within the landfill footprint until processing capabilities are improved to meet the new requirements and/or new markets are developed to accept the material. Specifically, RHR is proposing four bale stockpiles near the existing administrative office for temporary storage (i.e., maximum of six months) of up to 3,680 bales total. Each bale would be approximately 3 feet wide by 5 feet long by 3 feet high, and bale stockpiles would have a maximum allowable size of 40 feet wide by 105 feet long by 12 feet high. As shown in Figure 3-2, stockpiles are proposed within a paved area near the northern boundary of the JPO facility and one is proposed inside an existing recycling bunker located east of the scale house. Stockpiles would be located a minimum of 180 feet from edge of Hay Road. To minimize ground and storm water contact, bales would be stored on pallets and covered with tarps that would overlap a base tarp. The bales would be stored onsite for up to six months before being transported to offsite processing facilities.

Up to 20 trucks per day of baled recyclables could be delivered to the site for storage and each truck would contain approximately 50 bales. All trucks would enter and exit through the scales at the main entrance and proceed to one of the two bale storage areas for unloading and loading of bales via forklift.

Bales would be shipped on a first in/first out basis to limit the length of time that the bales are stored on site. A log would be maintained to track the dates and tonnage of incoming and outgoing loads and the records would be submitted to the LEA monthly. Requested extension of the storage time limit must be received in writing from the LEA. Proposed temporary storage of recyclable material bales at the RHR facility would be conducted in accordance with provisions in the CalRecycle Guidance Document related to *China's Import Restrictions and Guidance Regarding the Additional Storage of Recycled Material* (CalRecycle 2018).

A RHR Recyclable Material Bale Management Operations Plan was approved by the County in April 2018 and is provided in Appendix B of this Draft SEIR. The plan outlines the required procedures for receiving, storing, and shipping the baled recyclables at RHR, as summarized above. In addition, the plan requires implementation of certain best management practices (BMPs) related to stormwater control, vector prevention, nuisance and odor control, and fire hazard mitigation that must be implemented before and/or during storage of recyclable bales onsite. These BMPs are summarized below and would be implemented as part of the project. Implementation of these measures would be monitored at the site on a regular basis by the County Local Enforcement Agency (LEA).

STORMWATER CONTROL

Before storage of recyclable bales onsite, the Storm Water Pollution Prevention and Control Plan (SWPPP) for the facility would be updated to include the following stormwater control BMPs.

- The stacked bales will be stored on pallets over tarps to limit stormwater contact and control potential liquids from bales;
- Bales will be covered with tarps that overlap the base tarp;
- Regular facility cleaning, housekeeping, and litter control will be maintained;
- First in and first out material handling process will be implemented; and
- Where necessary, berms or other structures will be placed to divert stormwater from the stored bales.

VECTOR PREVENTION

The following vector prevention control methods would be in place at the facility where recyclable bales are stored.

- Bales will be tarped to limit flies and birds from accessing the materials;

- Bales will be stored on pallets and over tarps to limit harboring of rodents and allow for easier cleaning if necessary;
- Regular facility cleaning, housekeeping, and litter control will be maintained;
- First in and first out material handling process will be implemented; and
- When observed, putrescible material will be removed.

NUISANCE AND ODOR CONTROL

In addition to Mitigation Monitoring and Reporting Program and Odor Impact Minimization Plan in place at the facility, the following measures would be implemented when baled recyclables are stored at the site:

- Bales will be tarped to limit moisture in the bales;
- Bales will be stored on pallets and tarps to allow for easier cleaning;
- First in and first out material handling process will be implemented;
- Regular facility cleaning, housekeeping, and litter control will be maintained;
- If offensive odors have the potential to impact offsite areas, odorous material and/or bales shall be removed;
- When observed, putrescible material will be removed.

FIRE HAZARD CONTROLS

When baled recyclables are stored at the site, the following fire hazard controls would be implemented:

- Maximum size of bale stockpiles shall not exceed the following dimensions:
  - Length: 105 feet
  - Width: 40 feet
  - Height: 12 feet;
- Minimum spacing between piles shall be 50 feet;
- Minimum spacing around perimeter of the piles shall be 25 feet;
- Piles shall be visually inspected daily for potential fire hazards;
- Piles temperature of piles will be monitored and logged once a week.

3.7.5 Modification to Landfill Peak Tonnage Limits

The project includes a revision of the existing daily tonnage limit for the RHR Landfill through the establishment of a new peak limit of tpd, as well as a new 7-day-average limit of tpd. The existing LUP allows for 2,400 tpd of landfill disposal. Occasionally, the landfill has received more than 2,400 tons of MSW; on a peak day in 2017, the landfill received 2,460 tons of MSW, requiring RHR to turn away trucks so as not to exceed the existing peak limit of the LUP. As part of the project, the LUP would be amended to allow for a peak day limit of 3,400 tpd with a 7-day-average limit of 3,200 tpd of disposal. The inclusion of a peak tonnage and a 7-day-average limit would allow the facility to accept additional waste on peak days without having to divert haulers to other facilities while en-route.

As with daily tonnage, the LUP and SWFP limit the amount of traffic to and from the landfill each day. The average daily traffic permitted at the RHR Landfill is 620 vehicles per day, averaged over 7 days. With the proposed increase in peak daily tonnage and additional truck trips associated with the temporary storage of recyclable material, peak daily vehicle trips could increase. Therefore, an increase in the facility's permitted average daily traffic volume is not proposed.

3.7.6 Construction and Demolition (C&D) Sorting Operation

The project includes a modification of existing onsite operations to include portable equipment to be used within the permitted landfill boundary for the sorting, separation, and processing of C&D materials. The RHR Landfill is currently permitted to receive C&D waste stream. However, the proposed LUP modification would authorize the sorting of this waste stream, which would allow for greater recovery of recyclable materials and greater diversion of materials from landfill disposal. Incoming C&D waste streams would be processed using portable equipment, primarily screens, sort lines, and a shredder, which could be moved around the site as the disposal area shifts within the landfill. The footprint of the portable C&D sorting operation would be approximately 150 feet wide by 300 feet long and would include all equipment and stockpiled materials.

3.7.7 Modify Disposal Modules Permitted to Receive Friable Asbestos

Currently, the landfill is permitted to receive up to 2,500 tons per month of friable asbestos (i.e. a heat-resistant fibrous silicate mineral that can be easily crushed, common examples are thermal insulation for water heaters and pipes, acoustic ceilings and tiles, and plasters). However, within the landfill property, disposal of this material is currently limited to DM-1, which is anticipated to reach its capacity and close in 2021. As part of permit modifications and except for DM-2.1, friable asbestos disposal is proposed within all existing DM's. No modification of the monthly tonnage limit on friable asbestos disposal would occur; rather, the onsite location would change.

3.7.8 Modifications to the Existing Soil Borrow Pit

As part of the proposed LUP modifications, the limits of the existing soil borrow pit would be deepened and widened to accommodate the increased need for soil associated with proposed landfill construction and operations. The existing borrow pit measures 80 acres with a current maximum excavation depth of 60 feet below ground surface (bgs). In anticipation of the need for approximately 3.6 million cubic yards of additional soil, up to a 6-acre increase in the existing footprint of the borrow pit and deepening of the borrow pit by an additional 68 feet bgs is proposed as part of the project. The proposed expansion of the borrow pit would not extend past an existing topsoil berm located adjacent to the Western Mitigation Area. The proposed increase in the area and depth of the landfill borrow site for excavation would provide the amount of soil necessary to provide cover for the landfill and avoid the need to import soil to the site.

3.7.9 Addition of an Enclosed Landfill Gas Flare (LFG)

As discussed above in Section 3.6.8, Landfill Gas Management System, one existing enclosed landfill gas flare (LFG) and a second LFG to be installed in 2020, one of which is operational and another that would become operational when the other flare reaches capacity. The second flare would be located adjacent to the existing flare at the onsite gas-to-energy plant. Together, the flares provide a total capacity of 4,000 cfm.

With the proposed landfill expansion and higher annual filling rate proposed under the LUP modification, the landfill is anticipated to produce a maximum of 4,651 cfm at 50 percent methane. Therefore, an additional enclosed LFG flare is proposed and would be located adjacent to the other flares. Similar to the other flares, the third flare would be 30 feet tall and would have a capacity of 45 MM BTU/hour (1500 cfm at 50 percent methane) to ensure a total capacity of 6,000 cfm at the landfill for safe and adequate control of LFG. Installation and operation of the proposed flare is anticipated to occur in approximately 2030, when the other flares are expected to reach capacity. Similar to the existing flare at the site, the proposed flare would be 30 feet tall.

3.7.10 Construction Activities and Schedule

The expansion area would be constructed over the summers of 2021 and 2022 and would include the following preliminary phasing plan:

1. A base liner containment system would be constructed in two subphases of approximately 10 acres each. Each base liner phase would be completed within one to two years, as needed to provide capacity for continual waste disposal operations. Each subphase would involve the placement of 230,000 cy of soil (compacted fill, compacted clay barrier, protective soil operations layer), two layers of 60 mil (or 1⁄1000 of an inch) High Density Polyethylene (HDPE) plastic geomembrane liner over a 20-acre area, and 8,000 cy of gravel for a leachate collection layer.
2. After the base liner containment system is installed, excavation for the realigned drainage ditch segment would occur using a long-arm excavator and the soil would be transported in a dump truck to the soil borrow pit to be used in landfill operations.

All components of the project are anticipated to become operational in 2022. Because the expansion area would provide additional disposal capacity, it would delay the construction of the remainder of the landfill, which would extend the landfill's overall life by at least 5 years. Because the JPO compost facility is within the permitted disposal footprint and will, in a later phase of the landfill, be decommissioned to allow for disposal of waste in this area, the proposed capacity increase associated with the lateral expansion of the landfill would also extend the potential life of the compost facility, by at least 4 years.

3.8 OPERATION AND MAINTENANCE

Upon completion of construction, the project site would be incorporated into the current daily operation and maintenance at the landfill. Existing landfill operations includes daily use of heavy equipment, including five bulldozers, two scrapers, two refuse compactors, four loaders, one motor grader, and two water trucks. As currently proposed, the project would maintain existing staffing. Disposal activities would continue within existing active DMs until they reach capacity, depending on spacing needs and operational requirements.