PROPOSED FINAL

SUBSEQUENT ENVIRONMENTAL IMPACT REPORT

TAJIGUAS LANDFILL CAPACITY INCREASE PROJECT

Volume 2 (Appendicies)
Santa Barbara County EIR No. 23EIR-00001
SCH No. 2023030563

LEAD AGENCY:

SANTA BARBARA COUNTY
Resource Recovery & Waste Management Division
Innovative Environmental Solutions

PREPARED BY:

Padre Associates, Inc.

March 2024

PROPOSED FINAL
SUBSEQUENT ENVIRONMENTAL IMPACT REPORT
FOR THE
TAJIGUAS LANDFILL CAPACITY INCREASE PROJECT

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SCH No. 2023030563

Prepared for:

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Resource Recovery & Waste Management Division
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March 2024

APPENDIX A

NOTICE OF PREPARATION

SANTA BARBARA COUNTY
Resource Recovery &
Waste Management Division
Innovative Environmental Solutions

Scott D. McGolpin
Public Works Director

Leslie Wells
Deputy Director

NOTICE OF PREPARATION

PUBLIC NOTICE OF SCOPING MEETING AND REQUEST FOR COMMENTS ON TAJIGUAS LANDFILL CAPACITY INCREASE PROJECT

DATE: March 23, 2023

TO: State Clearinghouse Governor's Office of Planning and Research 1400 Tenth Street Sacramento, CA 95814	**FROM**: County of Santa Barbara Public Works Department Resource Recovery and Waste Management Division 130 East Victoria Street Santa Barbara, CA 93101 Attn: Joddi Leipner, Senior Engineering Environmental Planner

SUBJECT: **Notice of Preparation of a Subsequent Environmental Impact Report**

PROJECT NAME: Tajiguas Landfill Capacity Increase Project

PROJECT LOCATION: 14470 Calle Real, Goleta, California 93117, 3rd Supervisorial District

LEAD AGENCY: The Santa Barbara County Public Works Department, Resource Recovery and Waste Management Division (RRWMD) is the Lead Agency responsible for preparation of a Subsequent Environmental Impact Report (Subsequent EIR) for the proposed Tajiguas Landfill Capacity Increase Project in Santa Barbara County.

In accordance with Section 15082 of the California Code of Regulations (California Environmental Quality Act [CEQA] Guidelines), a Notice of Preparation (NOP) has been prepared for the Tajiguas Landfill Capacity Increase Project. This NOP is a request for comment on the scope of environmental issues that you or your organization believes should be addressed in the Subsequent EIR regarding the proposed project.

<u>Project Description (Summary)</u>:

<u>Location and Access</u>: The Tajiguas Landfill (landfill) is located in the County of Santa Barbara at 14470 Calle Real, Goleta, California 93117. The site's latitude and longitude are 34º28'54"N and 120º07'40"W, respectively. The facility is located in a coastal canyon known as Cañada de la Pila, approximately 26 miles west of the city of Santa Barbara. Immediately south of the landfill site are U.S. Highway 101, the Union Pacific Railroad tracks, and the Pacific Ocean.

Access to the site is via a paved road that intersects U.S. Highway 101 and is gate controlled. The Tajiguas Landfill is located on land owned by the County of Santa Barbara encompassing three Assessor Parcel Numbers (APN) 081-150-042, 081-150-019 and 081-150-026.

Background: The Tajiguas landfill property comprises 497 acres, a permitted operational area of 357 acres, a permitted waste disposal footprint of 118 acres, and a permitted disposal capacity of 23.3 million cubic yards (mcy) (Solid Waste Facility Permit SWFP No. 42-AA-0015). The Tajiguas Landfill began operations in 1967 prior to the adoption of the California Environmental Quality Act (CEQA) (1970) and the California Coastal Act, which designated Coastal Zones in California in 1976. Expansions to the landfill were approved in 1987 and 2002 (permitting completed in 2003), and a reconfiguration of the permitted Tajiguas Landfill waste footprint was approved in 2009. When the expansion of the Tajiguas Landfill was permitted in 2003 for an additional 8.2 mcy (for the currently permitted design capacity of 23.3 mcy), the disposal capacity was expected to serve the community until 2020. In 2017, a modification to Tajiguas Landfill operations was approved to include the construction and operation of a ReSource Center (formerly the Tajiguas Resource Recovery Project). The ReSource Center consists of a Material Recovery Facility (MRF), Anaerobic Digestion Facility (ADF), and Composting Management Unit (CMU) to further recover recyclable material from the waste stream and provide an alternative to burying organic waste as required by State and Federal waste management legislation, reduce greenhouse gas emissions, and generate green energy. When projections of disposal capacity were calculated in 2016 with the operation of the ReSource Center, it was anticipated the site life would be extended to approximately 2036.

As of April 2022, the current remaining design capacity of the Tajiguas Landfill is 1,680,900 cubic yards (cy) (which includes final cover for remaining fill areas). Based on the current rates of disposal including both contractually committed and spot market waste, the Tajiguas Landfill currently has a minimum projected remaining site life of approximately 3.9 years (approximately March 2026).

The Landfill life has been reduced as compared to earlier projections for the following reasons:

- Delays in initiating construction of the ReSource Center associated with a Coastal Zone Boundary discrepancy and litigation of the ReSource Center Subsequent EIR.
- Delays in completing construction of the ReSource Center due to COVID-19 (staffing and supply chain issues).
- The actual amount of solid waste received at the Landfill was about 30,000 tons greater per year than projected from 2016 through 2019.
- The Subsequent EIR prepared for the ReSource Center included an assumption that 60 percent of the MSW delivered to the Landfill would be recovered and not buried. While it is still expected that the ReSource Center will recover 60 percent of the material it processes, more attention has been paid to the different types of solid waste that is delivered to the transfer stations as well as MarBorg's transfer station. This has resulted in an increase in the amount of solid waste that bypasses the ReSource Center because it is not processable. The bypass waste is greater than originally projected and has reduced the life of the landfill.

Proposed Project: RRWMD is proposing to increase its current capacity to reach a projected refuse disposal filling date of approximately December 2038 (concurrent with completion of debt service on the ReSource Center). This date is based on the ReSource Center being fully operational during this time period, assuming a 31.35% diversion rate based on current ReSource Center operational data, and a 1% growth rate applied to the incoming material rate at the facility. An approximate 14.25-acre lined area located in the inland area of the landfill property would be excavated for refuse placement. The approximate 14.25 acre capacity increase would provide approximately 6.1 mcy of additional airspace (which includes a capacity loss factor, potential disaster cleanup, and final cover volumes). The permitted maximum elevation of the landfill would increase from 620 feet above mean sea level (amsl) to 650 feet amsl. As part of the increased capacity, a stability toe berm (toe berm) will be installed along the top of bank of the existing lined and unlined Pila Creek channel west of the existing and proposed landfill.

This capacity increase area encroaches upon the existing north stormwater sedimentation basin, so the north stormwater sedimentation basin will be reconfigured (i.e., second/lower sedimentation basin added) to meet the demand of the existing and proposed increased capacity. The second basin would have a similar design as the existing basin, with an option to be either a concrete lined basin or an earthen basin and would have a manually operated skimmer system. The skimmer system would discharge into Pila Creek after sediment is allowed to settle out of suspension.

The project would also require removal of the landfill maintenance shop, trailers used for labor crews and operators, relocation of storage containers used for landfill supplies, equipment and hazardous materials, relocation of oil storage containers. The removal of these facilities would be required approximately two years before the landfill reaches its revised capacity as part of the final waste filling operations. Most of the displaced facilities would be relocated to the MRF deck or to the MRF building outside of the Coastal Zone. The maintenance shop and trailers would be removed and would not be replaced. Relocation of ReSource Center utilities, stormwater features, accessory features (e.g., electrical line between MRF and ADF, pipeline connection between the CMU stormwater overflow system and the north sedimentation basin, and access road to the ADF and CMU) will need to occur.

The landfill is currently permitted to receive waste Monday – Tuesday 7:00 am to 5:00 pm and Wednesday – Saturday 7:00 am – 4:00 pm. An additional project element being considered is modifying waste receipt hours at the landfill scale house from the current hours, to 6:00 am to 4:00 pm Monday – Saturday to improve operational efficiency at the MRF, and between the MRF and the landfill disposal area. In addition, a proposed change from a maximum daily tonnage limit of 1,500 tons/day to a work week maximum of 9,000 tons/week is proposed (1500 tons x 6 days/work week). This change will allow RRWMD to address occasional exceedances that have occurred due to landfill closures as a result of weather or natural disasters where waste may be held at the transfer stations until the landfill reopens and is delivered concurrent with daily franchise waste and/or exceedances due to receipt of debris from natural disasters concurrent with franchise waste. On these days, the total volume of materials may exceed 1,500 tons, but for purposes of permitting compliance limits would not exceed 9,000 tons over the six-day working week. There would be no proposed increase in permitted vehicles/day and no other operational changes to the landfill or green waste operations.

The Tajiguas Landfill would continue to receive non-recyclable residue from operation of the ReSource Center and bypass waste not suitable for processing in the MRF. The landfill capacity increase would include extension of new environmental control systems and would also continue to rely upon infrastructure and environmental control systems in place in association with existing landfill operations and operation of the ReSource Center.

Permitting: It is expected that the Subsequent EIR for the capacity increase would tier, as appropriate, off of the prior environmental documents. The Ssubsequent EIR will be used to support the acquisition of revised permits from Responsible Agencies such as Environmental Health as the Local Enforcement Agency and CalRecycle (Solid Waste Facility Permit), Regional Water Quality Control Board (Waste Discharge Requirements and 401 Water Quality Certification), Air Pollution Control District (Authority to Construct and Permit to Operate) and resource agency permits (from California Department of Fish and Wildlife and Army Corps of Engineers) for work in the concrete channel of Pila Creek.

Potential Environmental Effects: A Subsequent EIR will be prepared to evaluate the changes in environmental impacts that might result from the proposed project. As described in Attachment A, issue areas expected to be analyzed in the Subsequent EIR include: Aesthetics/Visual Resources, Air Quality, Biological Resources, Cultural/Tribal Resources, Geologic Processes, Hazards/Hazardous materials, Land Use, Nuisance, Noise, Transportation/Traffic Safety and Water Resources. A reasonable range of alternatives will also be analyzed including the no project alternative and both on-site design alternatives and off-site disposal alternatives.

Written Comments: In accordance with the time limits established by CEQA, **your response to this NOP must be received at the address underlined below at the earliest possible date, but not later than 5:00 p.m. on Friday, April 21, 2023** (30 days after the issuance of this notice). Your response should include your name, your agency's or organization's name, your address, and if applicable, the name of the specific contact person in your agency or organization. Comments should be mailed, e-mailed or hand delivered to: County of Santa Barbara, Public Works Department, Resource Recovery and Waste Management Division, 130 E. Victoria Street, Santa Barbara, California 93101. Attention: Ms. Joddi Leipner. E-mail Address JLeipner@countyofsb.org.

Virtual Public Scoping Meeting: A virtual public Scoping Meeting will also be held to accept comments regarding the Subsequent EIR. The purpose of the Scoping Meeting is to provide the public and other affected government agencies with a formal opportunity to comment on the environmental issues that should be analyzed in the Subsequent EIR, feasible ways in which project impacts may be mitigated to reduce or eliminate the significance of the impact, and alternatives.

Date: **Monday, April 10, 2023**
Time: **6:00-8:00 pm**

Please register in advance for this Zoom webinar at:
https://countyofsb.zoom.us/meeting/register/tZwkfuCtqjIvGd2j_u2z7ABo6lkBNzNWu3Df

After registering, you will receive a confirmation email containing information about joining, including a Zoom link and a call-in number.

Please contact Ms. Joddi Leipner at (805) 882-3614 or (805) 364-1056 (Mobile), if you have any comments or questions regarding the Tajiguas Landfill Capacity Increase Project. A copy of this NOP is also available at https://www.countyofsb.org/1165/Environmental-Documents.

Attachment A: Subsequent EIR Scope of Analysis

Attachment B: Project Exhibits
Figure 1 – Vicinity and Site Location Maps
Figure 2 - Site Feature Map
Figure 3 - Permitted Master Fill Plan
Figure 4 – Remaining Permitted Capacity
Figure 5 – Proposed Increased Capacity Excavation Plan
Figure 6 – Proposed Capacity Increase Final Grading Plan

c: Clerk of the Board (please post for 30 days)

ATTACHMENT A
SUBSEQUENT EIR SCOPE OF ANALYSIS

Aesthetics/Visual Resources – The landfill is located along the Gaviota Coast area of southern Santa Barbara County, an area with high visual qualities, and north of the U.S. Highway 101, a state designated scenic highway. Portions of the southern area of the landfill property are within the critical viewshed corridor. The proposed capacity increase would be in the northern area of the landfill property outside of the overlay area and behind an existing closed waste disposal slope and the ReSource Center CMU. The proposed project would increase the maximum height of the existing permitted landfill from 620 feet above mean sea level (amsl) to 650 feet amsl, matching the closed portion of the landfill immediately south of it. Public trails are located to the west and east of the landfill on the Arroyo Hondo Preserve and Baron Ranch. During initial construction and active filling, vegetation in the project area would be removed/disturbed, however the slopes would be revegetated with native coastal sage scrub and where possible chaparral species at closure. Using visual modeling the Subsequent EIR will evaluate the visibility of the capacity increase from public viewing locations and assess the significance of the change in the visual quality as compared to existing and permitted landfill conditions.

Air Quality/GHG – The project would involve construction emissions associated with initial excavation of the new horizontal waste disposal area and installation of the groundwater protection system (liners). Similar to existing operations, the proposed project would generate ongoing emissions associated with daily operations (mobile equipment emissions, emissions from delivery vehicles, fugitive dust, etc.). Overall, the ReSource Center project in concert with operation of the landfill was developed to meet state and federal greenhouse gas (GHG) reduction legislation. Continued diversion of organics through operation of the MRF and ADF will reduce landfill gas (LFG) emissions from the waste disposal activities. However, additional emissions will occur from construction and operation of the capacity increase project. The existing LFG collection system will be extended into the waste disposal area and the collected LFG will either be combusted in the existing engines to produce green energy or flared. The Subsequent EIR will include an analysis of pollutant emissions from the project, compare GHG emissions to baseline conditions based on County and APCD thresholds/guidelines, and will assess the project's consistency with state and local plans pertaining to climate action, GHG and climate change.

Biological Resources – Much of the project area is disturbed by existing permitted landfill operations, and was impacted by the Alisal fire. However, areas of existing native vegetation (approximately 1.5 acres) and restored/hydroseeded native vegetation (approximately 9.3 acres) would be impacted by construction of the increased capacity area. Within these vegetated areas sensitive plant and/or native trees may be present. Although, habitat conditions are poor due to the disturbed nature of the landfill and ongoing operations, sensitive animals including the federally listed California red-legged frog and the southwestern pond turtle (also known as the Pacific pond turtle) have been documented in the water features (north sedimentation basin and Pila Creek) in, and adjacent to the project area and in other areas of the landfill property, and may continue to disperse across the project area during wet weather. RRWMD has prepared a Habitat Conservation Plan (HCP) and has obtained an Incidental Take Permit (ITP) under the Federal Endangered Species Act to address potential take of listed species associated with ongoing operation of the landfill and the ReSource Center, and the landfill capacity increase. The compensatory mitigation for the ITP includes permanent protection of approximately 110 acres of aquatic and upland dispersal habitat covering undeveloped portions of the Tajiguas Landfill property and the Baron Ranch. Due to existing landfill and ReSource Center operations, wildlife is already subjected to noise and vibrations associated with construction projects and daily operations. Because the project would extend the life of landfill operations and expand the waste footprint further towards undeveloped areas of the landfill property, noise and vibrations from construction equipment could continue to temporarily disturb/displace wildlife and impact nesting migratory birds in adjacent, undisturbed habitat areas. Therefore, the Subsequent EIR will examine the potential for direct and indirect adverse effects on biological resources.

<u>Cultural/Tribal Resources</u> – The majority of the vertical and horizontal capacity increase would occur in previously disturbed areas where there is a low likelihood of cultural resources. However, some limited areas of new disturbance could occur. Given the cultural resource sensitivity of the Gaviota Coast and the presence of recorded sites near the landfill property entrance, the Subsequent EIR will review the potential effects of the project on any historic resources and/or archaeological sites, and will include a consultation with Native American representatives.

<u>Geologic Processes</u> – The proposed project would involve excavation to create the new disposal area, increase the height of the existing permitted waste disposal area from 620 feet amsl to a maximum of 650 feet amsl, and include the construction of 2:1 waste fill slopes and 1:1 excavated slopes. A stability toe berm is also proposed to ensure the landfill meets slope stability safety factors. The Subsequent EIR will examine the potential for geohazards (e.g., ground shaking due to earthquakes, subsidence, etc.) to impact the project, landfill slope stability, and the potential for increased erosion and sedimentation from construction and operation.

<u>Hazards and Hazardous Materials</u> – The entire Gaviota Coast, including the Tajiguas Landfill, is within the County's designated high fire hazard area. The Santa Barbara County Fire Department provides fire protection services to the existing landfill site. The landfill was impacted by the 2021 Alisal Fire and subsequent debris flows and may be impacted by future wildfires. The landfill is also a source of methane (an explosive gas) from the decomposition of organic waste; however, due to the implementation of the ReSource Center, and as required by state law, the organics are now being recovered from the waste stream and processed in the ADF and CMU, reducing the potential volume of future methane production. Because the majority of the waste is processed through the MRF, the potential for "hot loads" to be disposed of in the landfill is also decreased as is the potential for hazardous waste to be within the residual waste. Small quantities of hazardous materials and fuels would continue to be used as a part of landfill operations. As the landfill capacity increase area nears closure, relocation of the fueling facilities, and oil storage tanks, and shipping containers containing hazardous materials would be required. The potential for the capacity increase to be impacted by hazardous conditions such as wildfires or result in exposure to, or release of hazardous materials, will be assessed in the Subsequent EIR.

Land Use – The Tajiguas Landfill has been used as a County municipal solid waste disposal facility since 1967 and has a Waste Disposal Overlay in the Land Use Element recognizing its use as a landfill. The inland areas of the Tajiguas Landfill are located within areas zoned for agriculture under Santa Barbara County Land Use and Development Code. The southern portion of the landfill is located within the coastal zone within areas zoned AG-II-320, which permits agricultural uses within a 320-acre minimum lot size. The portion of the landfill within the Coastal Zone pre-dates the Coastal Zone Management Act of 1972, the Coastal Act of 1976, and the Coastal Zoning Ordinance and is considered a legal, non-conforming use. Pursuant to the Santa Barbara County Land Use and Development Code within the unincorporated inland areas of the County, the provisions of the Development Code do not apply to "development by the County or any district of which the Board is the governing body" (Section 35.10.040.G.1.b.). The capacity increase project area is located within the inland area north of the coastal zone boundary, but would be supported by existing infrastructure (e.g., scale house, access road, environmental control systems) located within the coastal zone. No expansion of existing facilities in the coastal zone are proposed and ongoing repair and maintenance of these facilities is exempt pursuant to the Coastal Zoning Ordinance Article II Section 35-51.4. The project area is within the designated Waste Disposal Overlay Area. The Subsequent EIR will analyze the compatibility/consistency with surrounding land uses and include a policy consistency analysis to address the proposed project and ongoing operations. The Subsequent EIR will assess whether the proposed project is consistent with applicable state waste management legislation/plans, local and regional community plans, zoning, land use policies, and regulations. Plans to be considered include the Santa Barbara County Coastal Land Use Plan, Santa Barbara County Comprehensive Plan, Energy and Climate Action Plan, and the Gaviota Coast Plan.

Nuisances – The increase in the vertical height of the landfill may increase the potential for nuisance impacts such as litter and dust particularly during high wind events. The landfill waste disposal and green waste processing have not been a source of odor complaints off-site. The management of organics at the ReSource Center ADF and CMU has resulted in off-site odor complaints and has generated on-site litter issues during start-up of these facilities. Measures are in the process of being implemented to address these litter and odor issues. Nuisance controls currently implemented at the landfill including litter crews, use of falcons, and use of water trucks for dust control, would continue to be implemented for landfilling operations. The Subsequent EIR will evaluate the potential that continued waste disposal operations at the Tajiguas Landfill could result in onsite and offsite nuisance issues such as odor, dust, litter, and vectors.

Noise – The continued use of heavy equipment for construction of the increased capacity and use of equipment for daily operations combined with operation of the ReSource Center has the potential to result in increased construction noise levels and extension of the duration of operational noise impacts. Potential noise impacts of the proposed capacity increase will be evaluated in the EIR.

Transportation/Traffic – No change is proposed in the number of vehicles per day permitted to access the landfill property. Whether the landfill capacity increase is approved or not, waste (except bypass waste) would continue to be accepted at the landfill property for processing in the MRF. Traffic impacts (intersection and roadway levels of service) were assessed as a part of the

ReSource Center environmental review and were determined to be less than significant. CEQA currently requires an assessment of vehicle miles travelled rather than levels of service. The capacity increase would retain the currently permitted number of vehicles; however, traffic volumes recorded at the landfill have historically been less than permitted. The project includes a limited change to the landfill scale house operating hours (waste acceptance beginning at 6:00 am and ending at 4:00 pm) and moving from a maximum permitted volume of 1,500 tons/day to maximum 9,000 tons/working week. Because of the presence of biological and cultural resource impacts, previously proposed modifications to the U.S. Highway 101 deceleration lane have not been completed and are no longer proposed. Therefore, the Subsequent EIR transportation analysis will focus on the change in trips from recorded levels (baseline) to permitted levels and traffic safety impacts associated with the change in the hours of operation of the scale house and associated with the continued use of the existing intersection configuration and acceleration and deceleration lanes.

Water Resources/Drainage – Pila Creek is an ephemeral drainage running through the landfill property. In the northern and southern portions of the landfill property the creek consists of a natural vegetated channel, in the vicinity of the proposed capacity increase the creek is a concrete lined channel and through the middle of the property Pila Creek is diverted around the waste footprint in a 48-inch storm drain (including a second redundant storm drain). Groundwater used for landfill and ReSource Center operations is obtained from underlying consolidated rock aquifers including the Vaqueros formation and the Sespe Alegria formation. Water is also present in the Monterey formation, but is of significantly poorer quality. Currently the landfill property is developed with four wells (well 3, well 5, well 6, and well 7) and a fifth well (well 8) located near the north end of the proposed lateral landfill footprint increase has also be identified and previously analyzed and approved for possible development in the future. The Subsequent EIR will analyze the available water supplies and demands to identify if there is sufficient supply to meet construction and operational demands without exceeding safe yields/creating overdraft. The Subsequent EIR will also analyze changes in potential ground water yields due to potential loss of recharge associated with installation of the new liners and waste cells.

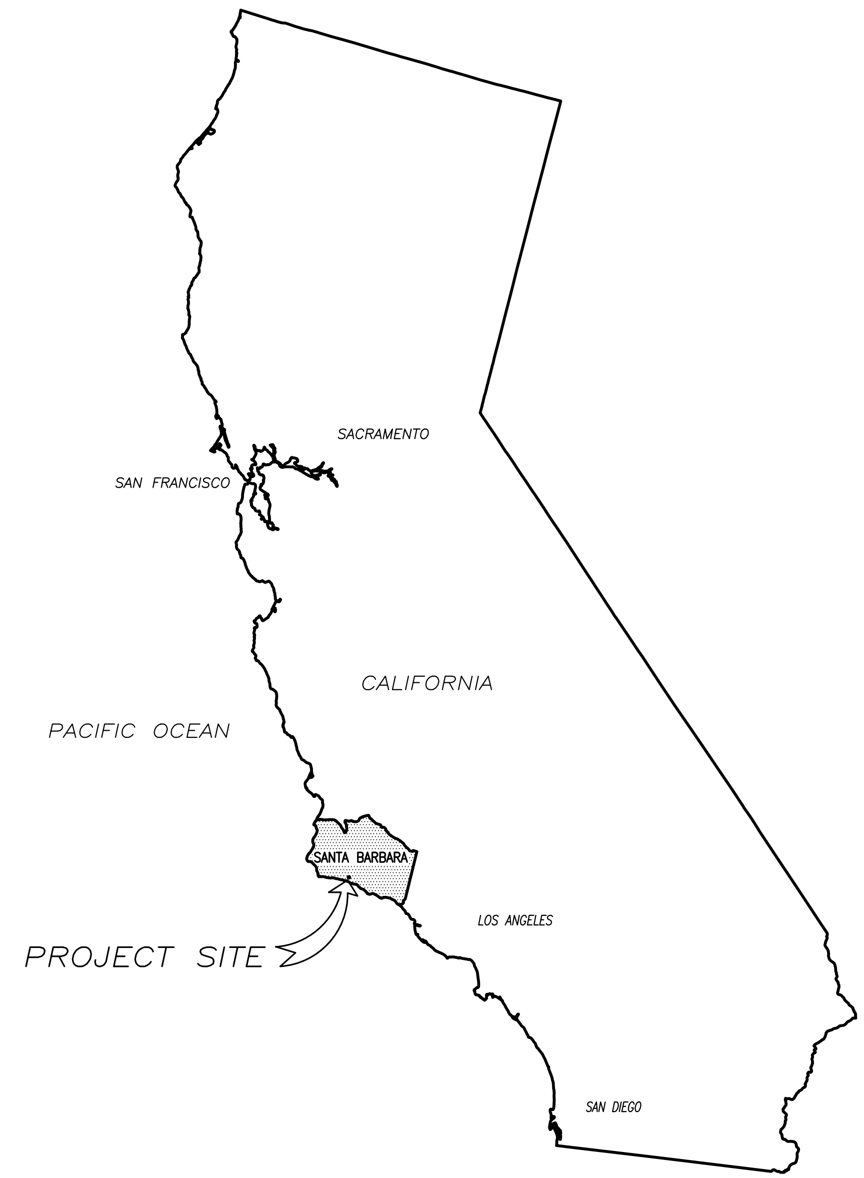
The project will require the partial removal of the north sedimentation basin, an important storm water sediment control best management practice (BMP) and possible replacement of the basin in the flood overflow area of Pila Creek. Changes to the topography of the site, the removal of existing vegetation and alteration to the existing drainage features have the potential to result in erosion and sedimentation and may affect drainage and flooding on site, and downstream of the landfill property. These potential impacts will be analyzed in the Subsequent EIR.

Ground and surface water quality could be impacted by construction and waste disposal activities and would be analyzed in the Subsequent EIR. The project would be required to comply with State and Federal waste discharge requirements and construction and industrial storm water regulations. Those regulations and their requirements with respect to the protection of water of water quality will be discussed in the Subsequent EIR.

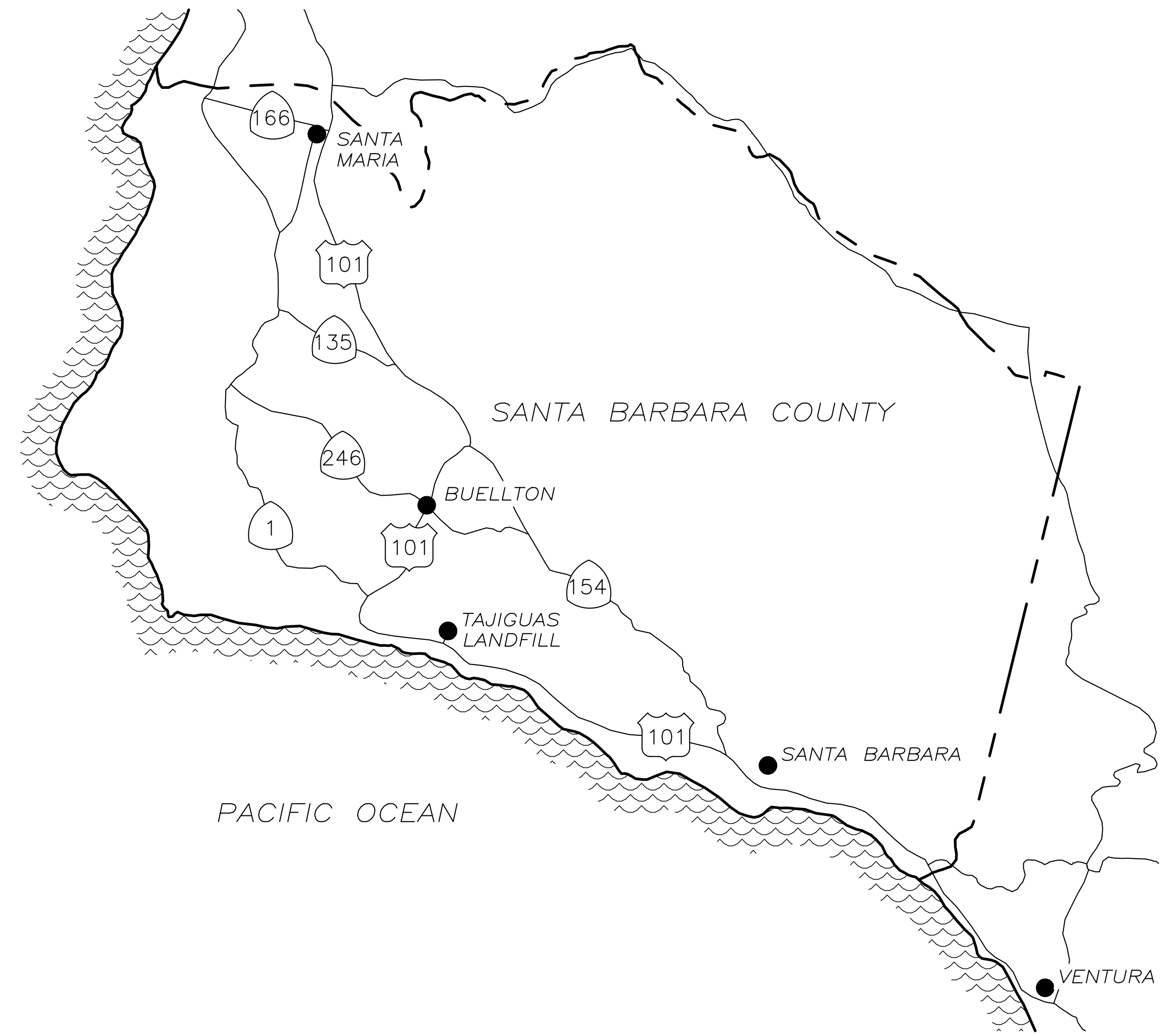
Other Issue Areas: No impacts are expected with regards to Agricultural Resources, Energy, Public Facilities, and Recreation and no further analysis of these issues areas is proposed in the Subsequent EIR.

ATTACHMENT B

EXHIBITS



VICINITY MAP
NTS



LOCATION MAP
NTS

PREPARED BY:
SWT Civil & Environmental Engineering
800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

FIGURE 1

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

VICINITY AND SITE LOCATION MAPS

JANUARY 2023

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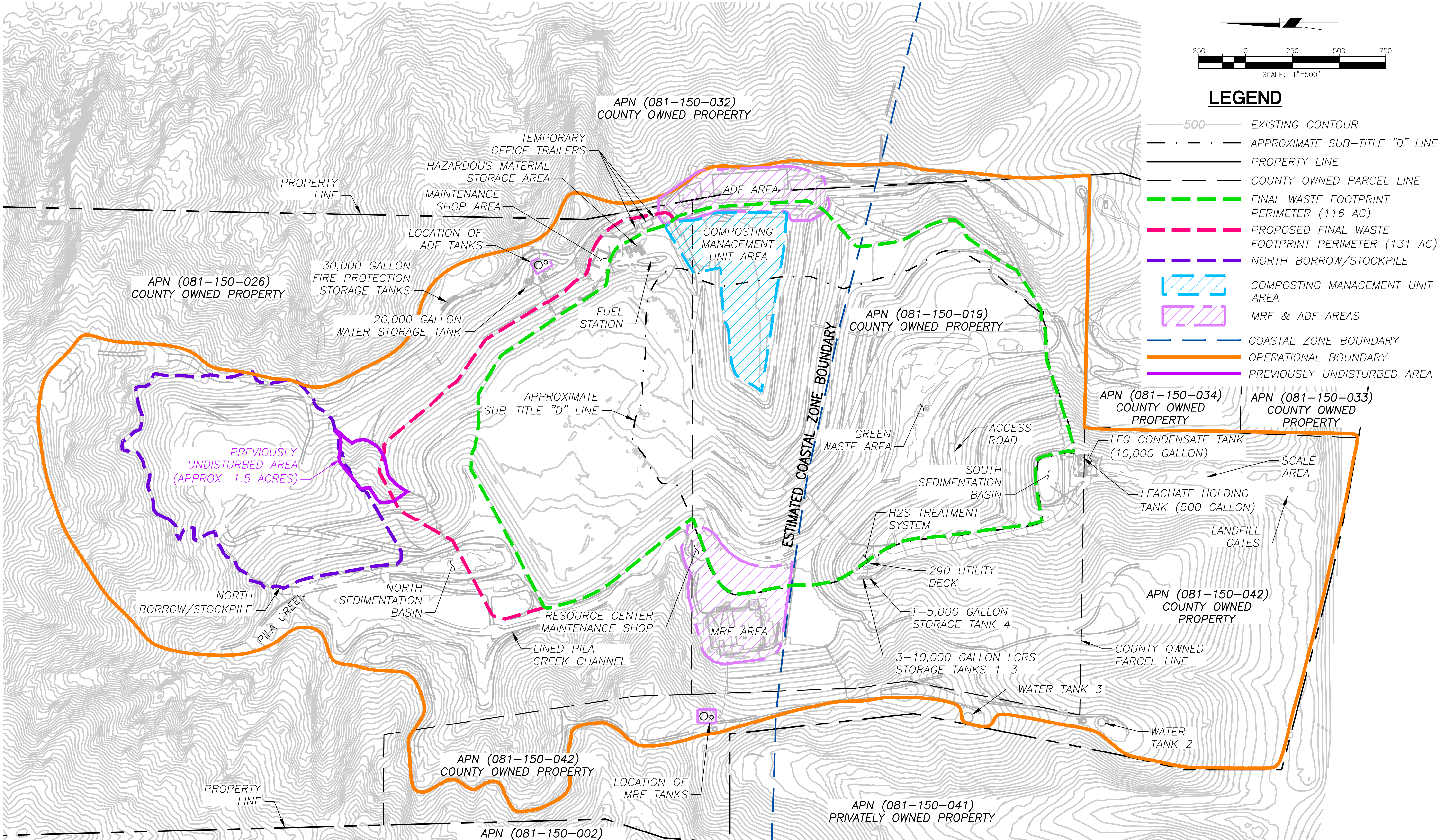

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DATE OF TOPOGRAPHY: NOVEMBER 2, 2020 WITH APRIL 26, 2022

FIGURE 2

TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY PROJECT 2022
SITE MAP
JANUARY 2023

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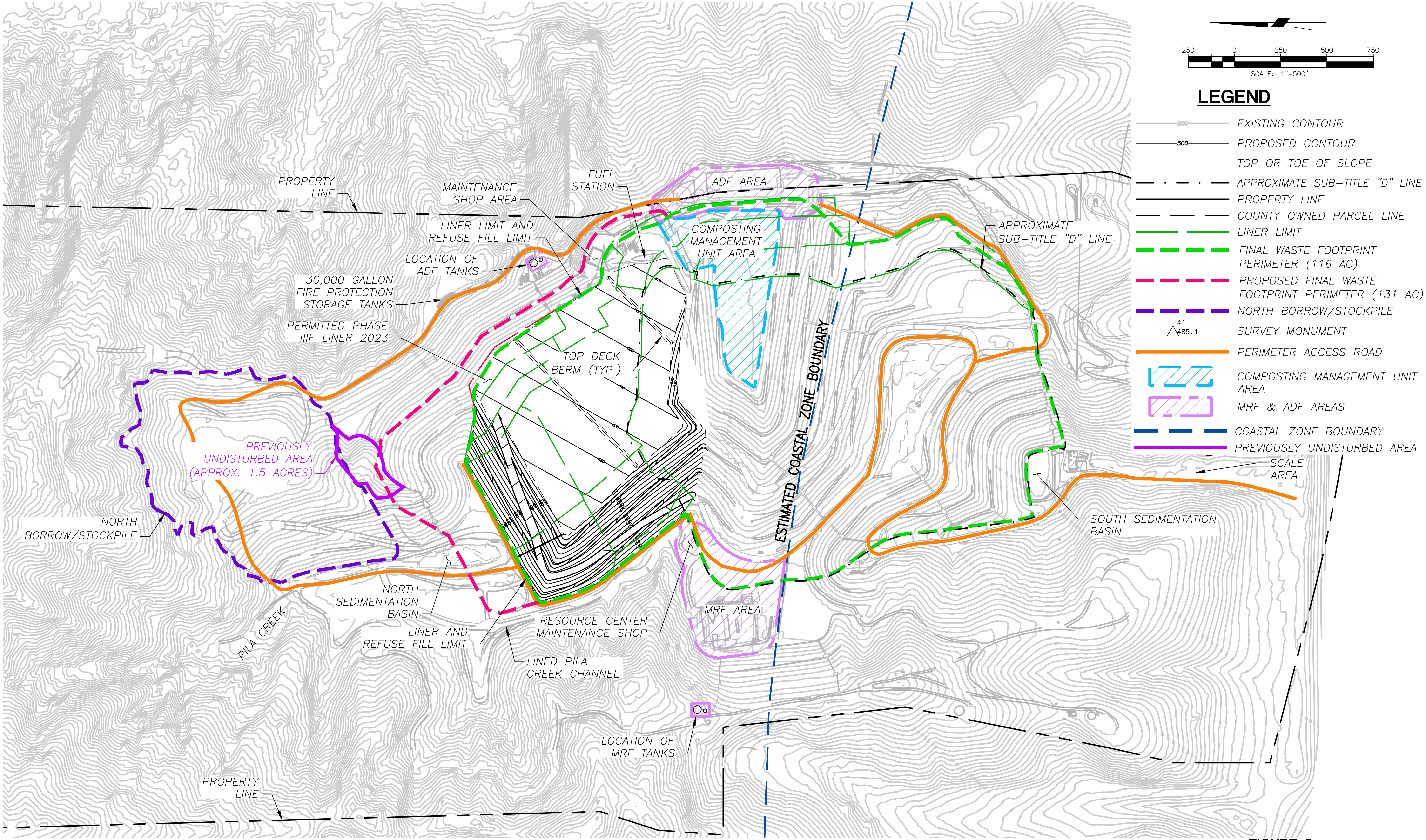

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DATE OF TOPOGRAPHY: NOVEMBER 2, 2020 WITH APRIL 26, 2022

FIGURE 3

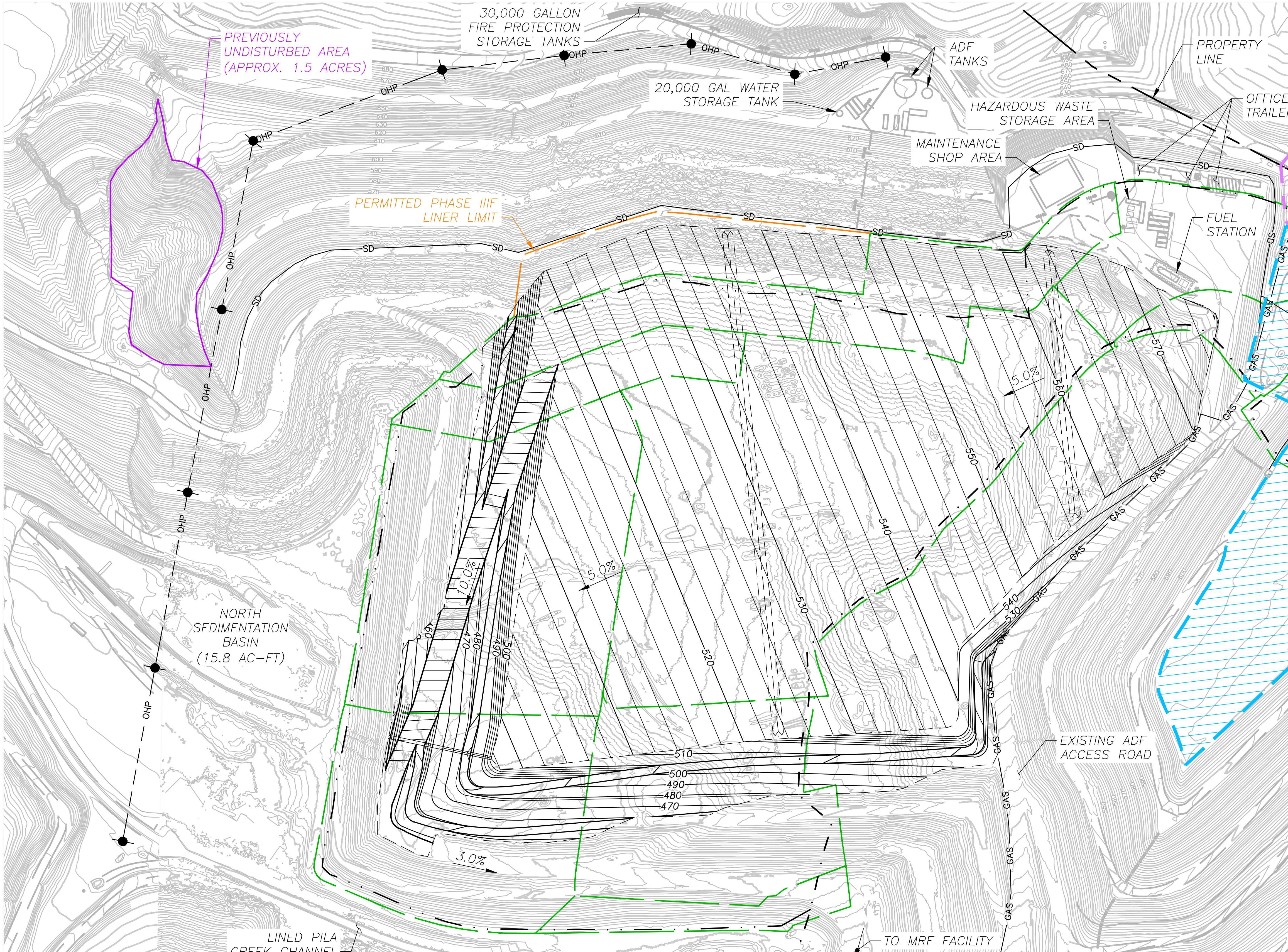
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PERMITTED MASTER FILL PLAN

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\03-PERMITTED MASTER FILL PLAN



100 0 100 200 300
SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- PREVIOUSLY UNDISTURBED AREA
- OHP OVERHEAD POWER LINE/POLE
- SD EXISTING CMU DECK DRAIN
- GAS EXISTING ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 1 INCREASED CAPACITY*	0 CY
TOTAL AIRSPACE CAPACITY*	1,680,900 CY
MAXIMUM REFUSE HEIGHT	ELEV 576
PROJECTED SITE LIFE (AS APRIL 2022)	3.9 YEARS
ADDITIONAL SLOPE LINER AREA	0.0 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

FIGURE 4

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

REMAINING PERMITTED CAPACITY

JANUARY 2023

PREPARED BY:

SWT Civil & Environmental **Engineering**

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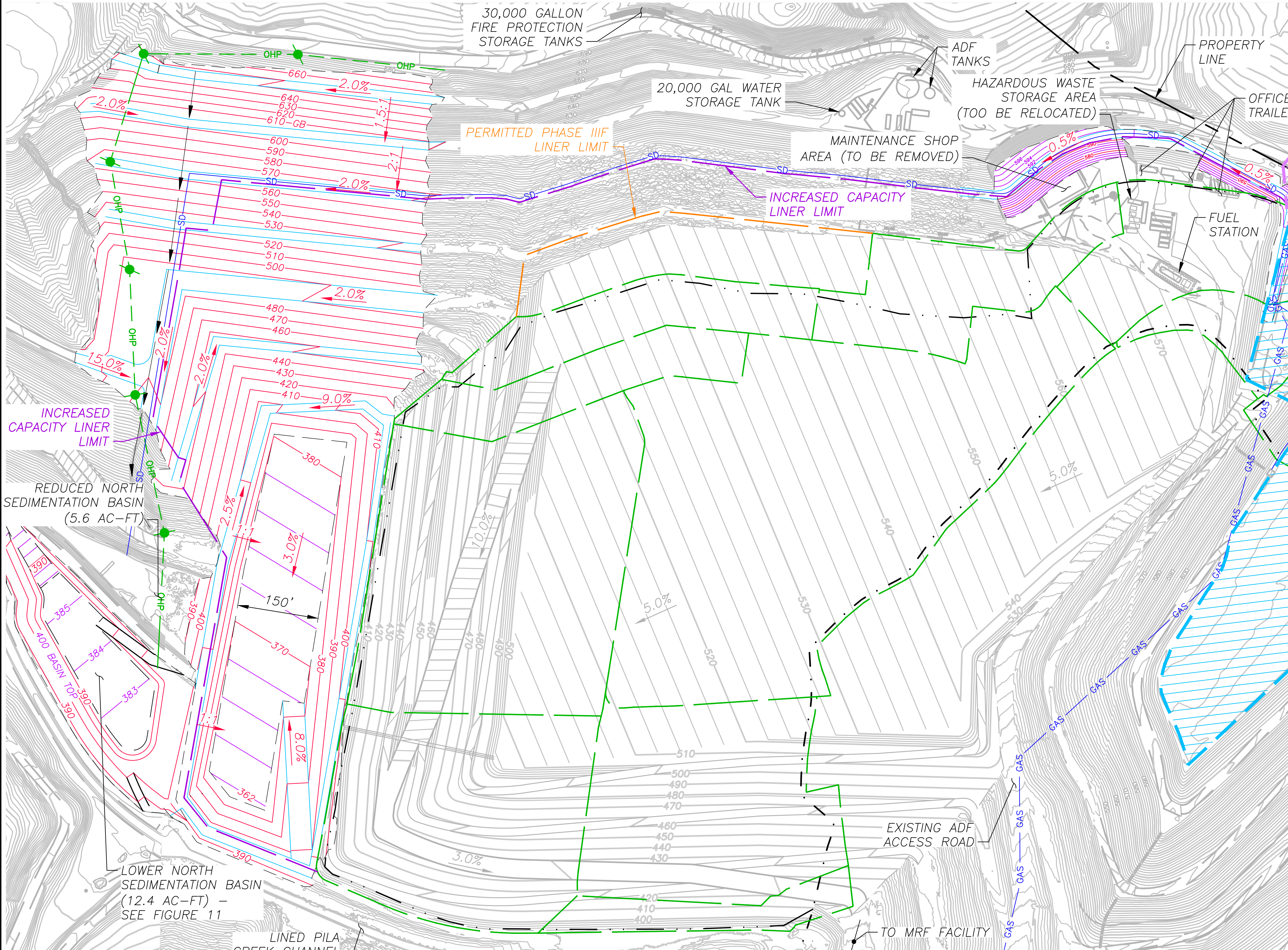
ONTARIO, CALIFORNIA 91761

DATE OF TOPOGRAPHY: SEPTEMBER 18, 2019 WITH APRIL 26, 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\03-PERMITTED MASTER FILL PLAN



LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 — EXISTING MAJOR CONTOUR
- 500 — MASTER FILL PLAN MAJOR CONTOUR
- 500 — PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 — PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% — FLOW GRADE AND DIRECTION
- OHP — OVERHEAD POWER LINE/POLE
- OHP — OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD — ADJUSTED CMU DECK DRAIN
- GAS — ADJUSTED ADF TO MRF LANDFILL GAS LINE

SCALE: 1"=200'

VOLUMETRIC ANALYSIS	
INCREASED CAPACITY EXCAVATION	586,400 CY
ADDITIONAL SLOPE LINER AREA	12.50 ACRES
ADDITIONAL BASE LINER AREA	1.75 ACRES
ADDITIONAL TOTAL LINER AREA	14.25 ACRES

PREPARED BY:

SWT Civil & Environmental Engineering
800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

DATE OF TOPOGRAPHY: SEPTEMBER 18, 2019 WITH APRIL 26, 2022

FIGURE 5

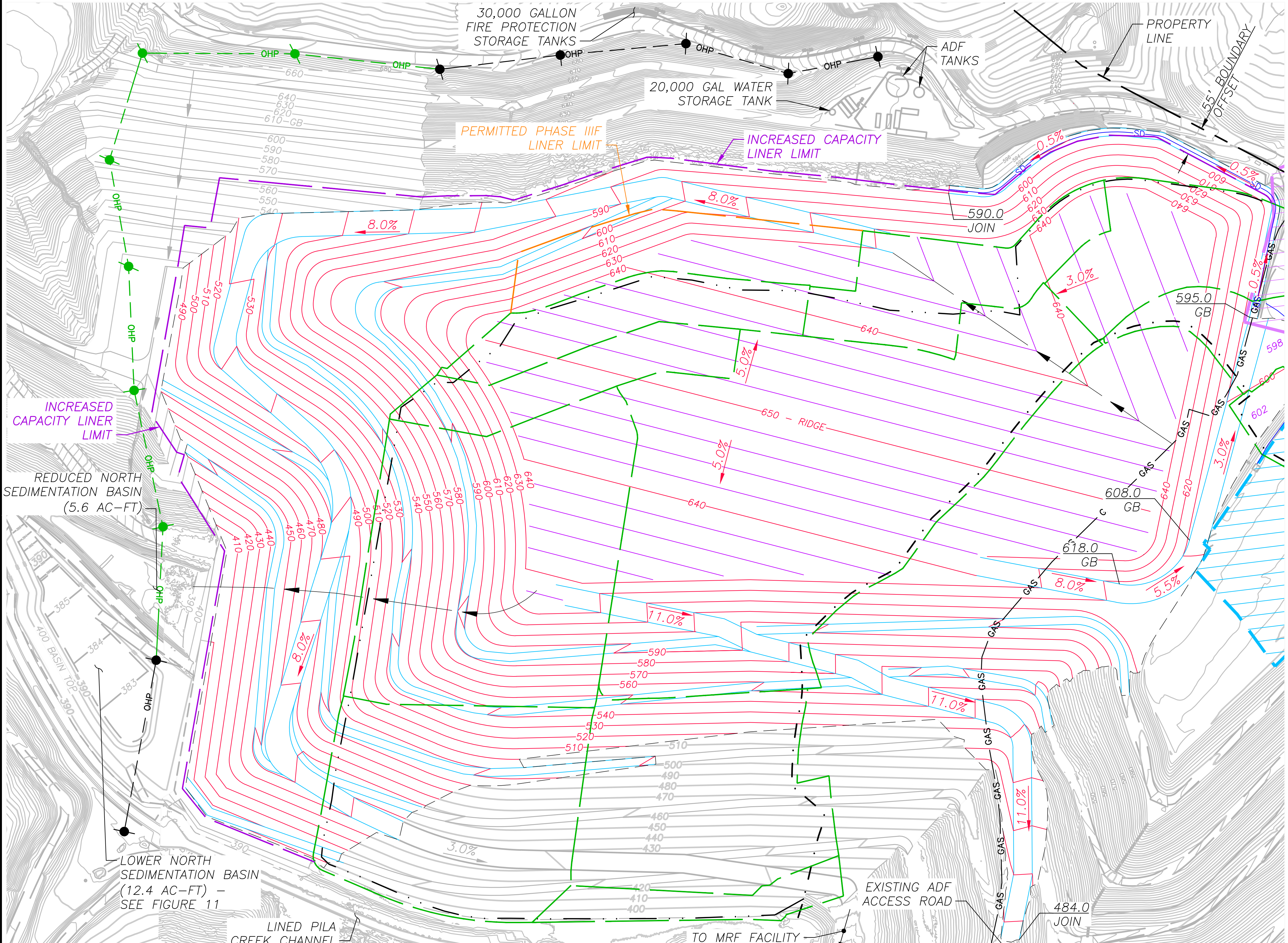
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PROPOSED INCREASED CAPACITY EXCAVATION PLAN WITH ADD'TL LINER

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\05-PROPOSED CAPACITY INCREASE EXCAVATION AND LINER PLAN



SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB–TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 — EXISTING MAJOR CONTOUR
- 500 — MASTER FILL PLAN MAJOR CONTOUR
- 500 — PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 — PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP — OVERHEAD POWER LINE/POLE
- OHP — OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD — CMU DECK DRAIN ADJUSTMENT

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 5 HORIZ./VERT. INCREASED CAPACITY*	6,100,000 CY
TOTAL AIRSPACE CAPACITY*	7,780,900 CY
MAXIMUM REFUSE INCREASED HEIGHT	ELEV 650
PROJECTED SITE LIFE (AS APRIL 2022)	16.66 YEARS
ADDITIONAL LINER AREA	14.25 ACRES + POTENTIAL OVERLINER

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

PREPARED BY:

SWT Civil & Environmental Engineering
800–C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

DATE OF TOPOGRAPHY: SEPTEMBER 18, 2019 WITH APRIL 26, 2022

FIGURE 6

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PROPOSED CAPACITY INCREASE FINAL GRADING PLAN

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\06–PROPOSED CAPACITY INCREASE FINAL GRADING PLAN

APPENDIX B

RESPONSES TO THE NOTICE OF PREPARATION

From: Leipner, Joddi
To: Johnston, Carlyle; Gonzales-Knight, Jeanette; Spier, Travis; Matt Ingamells; Wilder, Marty
Subject: Fwd: Joddi: Compost Odor in Gaviota.
Date: Wednesday, April 12, 2023 8:41:50 PM

FYI

Get Outlook for iOS

From: Mariah S <mariahgaviota@gmail.com>
Sent: Wednesday, April 12, 2023 8:11:04 PM
To: Leipner, Joddi <jleipner@countyofsb.org>
Subject: Joddi: Compost Odor in Gaviota.

Hi Joddi,

This is Mariah from Arroyo Quemada Lane in Gaviota. My last email only half-sent.

I'm 5 months pregnant and can't eat dinner right now because my entire house smells like compost: it's making us all nauseous.

My nine-year-old is now completely calorie-dependent on prescription nutritional shakes because this compost stench fills our house almost every breakfast and dinnertime, making it impossible for her to eat. She is getting teased at school for smelling like compost— if you have ever been bullied, you know how badly that affects a child.

My four-year-old wakes up retching in the morning from the compost odor and can't play outside on her trampoline.

My elderly mother-in-law's entire house reeks of compost right now and the foul odor often wakes her up when she's sleeping. This has personally cost us tens of thousands of dollars in carpet cleaning, air filters, accommodations when it gets unbearable, and dozens of other evacuations for the children in the past year. I have reported this odor consistently for over a year, taking a ridiculous amount of time and effort, but we are still suffering with no change.

We spend our days picking up plastic bags and half-composted bag bits off the beach, out of our trees, and along our road. On windy days, we can see the plastic scraps flying across the freeway from the landfill. It is ridiculous to increase the height of the landfill on one of the windiest ridges in Gaviota, right across from the ocean, in the last undeveloped stretch of coastline in Southern California.

It is absolutely inhumane to propose expanding the landfill right now. I am five months pregnant and my entire house is filled with compost odor right now. I will have a newborn here in early September.

You shared how challenging it was when Cottage Hospital installed a helicopter landing pad near your house when your child was a newborn. I hope you can empathize, one mom to another, that the Tajiguas landfill expansion proposal is a slap in the face to all of the Gaviota families that are suffering every day from the unresolved failures of the existing landfill, especially after we were promised last time that it was the last expansion.

Please help us. We are suffering.
Mariah

From:	Leipner, Joddi
To:	Matt Ingamells
Subject:	FW: Tajiguas Landfill - Letter Opposing Expansion
Date:	Tuesday, April 25, 2023 8:35:29 AM
Attachments:	Letter Opposing Tajiguas Expansion 11 Arroyo Quemada Lane 4.21.23.pdf Letter ReSource Recovery Center 10.1.22.pdf

Late NOP letter.

Joddi Leipner
Senior Engineering Environmental Planner
Resource Recovery and Waste Management
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
(805) 882-3614 (Work)
(805) 364-1056 (Mobile)

From: Pion, Jeff @ West LA <Jeff.Pion@cbre.com>
Sent: Saturday, April 22, 2023 1:12 PM
To: Leipner, Joddi <jleipner@countyofsb.org>; Leipner, Joddi <jleipner@countyofsb.org>
Subject: Tajiguas Landfill - Letter Opposing Expansion

Please see the attached.

Jeff Pion, LEED® AP
Vice Chairman | License #00840278
CBRE | Advisory & Transaction Services.
2121 Avenue of the Stars, Suite 1630 | Los Angeles, CA, 90067-2108
T +1 310 550 2537 | F +1 310 203 9624 | C +1 310 383 5181
jeff.pion@cbre.com
Twitter LinkedIn

Jeffrey S. Pion

October 1, 2022

Re: ReSource Recovery Center | Tajiguas Landfill
Gaviota Coast, CA

To Whom It May Concern:

I am writing you about the ReSource Recovery Center at the Tajiguas landfill along the Gaviota Coast. I am a homeowner at 11 Arroyo Quemada Lane, Goleta, CA 93117 (the Arroyo Quemado development, southeast of the Tajiguas Landfill) and am concerned that the ReSource Center is emitting noxious fumes that are contaminating and polluting the air and causing harmful side effects to those of us who live along the Gaviota Coast as well as to the plants and animals of this sensitive ecosystem.

We have been complaining about the toxic smells and dust coming from the anaerobic digestor and associated compost yard associated with the ReSource Center when the offshore winds blow since the fourth quarter of last year. Every single time the wind blows offshore, the smell permeates all of Arroyo Quemada Lane and the situation has become unacceptable. And it isn't just the smell that is bad – it creates nausea and people feel sick.

There were a number of press releases and articles written upon the opening of the ReSource Center to much fanfare and positive commentary from Santa Barbara's politicians and people that supported the bond measure to pay for the ReSource Center. There has been absolutely zero follow up regarding the impact of the ReSource Center and the anaerobic digestor on the surrounding community since its opening. I am writing you on behalf of our family and our neighbors along the Lane asking you to pay attention, examine what is happening at the landfill, and resolve this issue.

Every time the wind blows offshore, there is a smell that comes from the landfill. We also have this very fine black dust that is now present on the Lane constantly. Prior to the construction of the ReSource Recovery Center, this never happened. Each time we encounter the smells we send a text message to John Dewey, the person who we have been in told is in charge of the anaerobic digestor at the ReSource Center and he always has a response. But it is one excuse after another. The composting rows didn't get turned. There was a power outage and the back-up generator did not kick on. A compressor failed and it will be fixed. Either redundancies need to be created or the anaerobic digestor at the ReSource Recovery Center needs to be shut down. He is a very nice man and I am sure that he is trying his best to be responsive but we cannot wait any longer for this situation to be resolved.

11 Arroyo Quemada Lane, Goleta, CA 93117
310-383-5181

I hope that you will look into this matter and provide some governance and oversight to an issue that is no longer acceptable to the residents of Santa Barbara County and more specifically, those that live along the Gaviota Coast. I am all for sustainability and doing the right thing to preserve our environment. I think that the ReSource Recovery Center, in concept, is a great idea. In practice it has become a nightmare for those of us negatively impacted by it.

Thank you in advance for your assistance.

Very truly yours,

Jeffrey S. Pion

cc: John Dewey, AQ Lane Residents

AQ LLC

April 21, 2023

County of Santa Barbara
Public Works Department
Resource Recover and Waste Management Division
130 East Victoria Street
Santa Barbara, CA 93101
Attention: Ms. Joddi Leipner
Email: jleipmer@countyofsb.org

Re: Notice of Preparation of A Subsequent EIR
Tajiguas Landfill Capacity Increase Project

Dear Ms. Leipner,

I am writing you as a property owner at 11 Arroyo Quemada Lane in Goleta, California. The purpose of this letter is to oppose an increase of any kind at the Tajiguas landfill.

You should be aware that our community has been absolutely devastated by the noxious odors that currently come from the landfill. Those odors emanate from the ReSource Center and we are also experiencing green waste odors that are a direct result of the landfill. This has been going on now for over sixteen months and is unacceptable. We have children living in our community that are losing weight because they are too nauseous to eat and are teased when they go to school because they smell bad. While our community may be small compared to the larger communities of Goleta, Santa Barbara and Montecito, it is no less important and we feel that the County has a responsibility to make sure that the landfill and the ReSource Center do not ruin our lives, negatively impact our health and decrease our property values.

Our properties were here on the Lane long before the landfill was constructed and we fought the landfill then (unfortunately unsuccessfully) and we will continue to oppose any expansion or change until the current conditions that we are experiencing are remedied.

Attached is a letter which I wrote on October 1, 2022. The conditions that we are experiencing have not abated, subsided or decreased. They are worse than ever. People at the landfill and the ReSource Center are trying but nothing happens and there are too many excuses for us to tolerate. There was the Alisal fire. Then the rains. Then the back up generators didn't work. We are tired of the "dog ate my homework" excuses. I get it – everyone wants the ReSource Center to work, so do I – but it doesn't. The operators of the ReSource Center tell us that these facilities exist all over the world; that the technology comes from Germany, where they have no issues and no smells that impact the neighboring communities. That is great but that isn't happening where we live . . .

and it should! If this were occurring in Montecito, it would be on 60 Minutes and on the front page of the biggest newspapers in the Country.

The Notice specifically addresses Nuisances. We experience litter and dust currently from the landfill during high wind events, which are constant. Increasing the vertical height of the landfill (verbiage taken directly from the NOP) would create additional negative environmental impacts. And I am not a scientist. This is just common sense.

According to the NOP, "measures are in the process of being implemented to address these litter and odor issues" BUT THEY HAVE NOT BEEN SUCCESSFUL AND THE PROBLEM IS WORSE THAN EVER! This is unacceptable. There is no way that the landfill can make a request to expand when it cannot effectively operate what exists now.

If you have any questions, please do not hesitate to call me.

Very truly yours,

Jeffrey S. Pion

Mail: 14700 Oracle Place, Pacific Palisades, California 90272
Email: jeff.pion@cbre.com Phone 310.383.5181

Matt Ingamells

From: Leipner, Joddi <jleipner@countyofsb.org>
Sent: Friday, March 24, 2023 3:12 PM
To: Bruce Hendricks
Subject: RE: Request for Comments Tajiguas Landfill Capacity Increase project

Thank you Bruce, I am confirming your comments were received. The NOP and NOP comments will be included in an appendix in the EIR.

Joddi

Joddi Leipner
Senior Engineering Environmental Planner
Resource Recovery and Waste Management
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
(805) 882-3614 (Work)
(805) 364-1056 (Mobile)

From: Bruce Hendricks <bruce.a.hendricks@me.com>
Sent: Friday, March 24, 2023 1:09 PM
To: Leipner, Joddi <jleipner@countyofsb.org>
Cc: Doug Kern <doug.kern@gaviotacoastconservancy.org>; Haserot, Jordan@Waterboards <jordan.haserot@waterboards.ca.gov>; Campos Bernal, Norma <NCamposBernal@sbcphd.org>; Wells, Leslie <lwells@countyofsb.org>; Johnston, Jason <JJohnston@sbcphd.org>; Hartmann, Joan <jHartmann@countyofsb.org>; Betsy Weber <bweber@environmentaldefensecenter.org>; Brian Trautwein <btrautwein@environmentaldefensecenter.org>; Mariah S <mariahgaviota@gmail.com>; jeff pion <jeff.pion@cbre.com>; Alex Geremia (zebradaisy@aol.com) <zebradaisy@aol.com>; Brad Jones (bjones@redpoint.com) <bjones@redpoint.com>; Kelly Griffith <k3llygriffith@gmail.com>; Elena Jensen <elenkj9@aol.com>; Julie Black <juliebunny1@gmail.com>; Fischer, Gina <gFischer@countyofsb.org>
Subject: Request for Comments Tajiguas Landfill Capacity Increase project

To Santa Barbara County Public Works Department,

I am writing per the NOP you recently sent regarding the request to increase the capacity at the Tajiguas landfill. As a nearby homeowner I wish to inform all agencies reviewing the EIR that there are significant issues resulting from the landfills operations primarily as a result of the recent implementation of the TRRP project that have failed to be addressed.

Since the project began in late 2021 residents along our lane have endured a toxic and noxious odor that permeates our community both outside and inside our homes due to exposed compost. This odor is having a severe health impact on all residents especially young children and elderly homeowners. Additionally we have observed a significant increase in plastic emanating from the landfill along with a black soot of unknown origin. The plastic is finding its way into the ocean affecting wildlife. There has been a significant increase in dead pelicans along the Arroyo Quemada beach which needs to be examined as to whether or not it is a result of the landfills TRRP operations.

Matt Ingamells

From: Leipner, Joddi <jleipner@countyofsb.org>
Sent: Monday, March 27, 2023 10:56 AM
To: Matt Ingamells
Subject: FW: Request for Comments Tajiguas Landfill Capacity Increase project

FYI

Joddi Leipner
Senior Engineering Environmental Planner
Resource Recovery and Waste Management
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
(805) 882-3614 (Work)
(805) 364-1056 (Mobile)

From: Brad Jones <BJones@redpoint.com>
Sent: Monday, March 27, 2023 10:31 AM
To: Leipner, Joddi <jleipner@countyofsb.org>
Cc: Doug Kern <doug.kern@gaviotacoastconservancy.org>; Haserot, Jordan@Waterboards <jordan.haserot@waterboards.ca.gov>; Campos Bernal, Norma <NCamposBernal@sbcphd.org>; Wells, Leslie <lwells@countyofsb.org>; Johnston, Jason <JJohnston@sbcphd.org>; Hartmann, Joan <jHartmann@countyofsb.org>; Betsy Weber <bweber@environmentaldefensecenter.org>; Brian Trautwein <btrautwein@environmentaldefensecenter.org>; Mariah S <mariahgaviota@gmail.com>; jeff pion <jeff.pion@cbre.com>; Alex Geremia (zebradaisy@aol.com) <zebradaisy@aol.com>; Kelly Griffith <k3llygriffith@gmail.com>; Elena Jensen <elenkj9@aol.com>; Julie Black <juliebunny1@gmail.com>; Fischer, Gina <gFischer@countyofsb.org>; Bruce.a.hendricks@me.com; klauskochlv@yahoo.com
Subject: RE: Request for Comments Tajiguas Landfill Capacity Increase project

To: Santa Barbara County Public Works Department,

We also have a home at 7 Arroyo Quemada Lane, and we are writing to agree with Mr. Hendricks' and Mr. Pion's comments. The smell from the landfill and the TRRP is foul and permeates the air here. Despite promises that things would get better, the smell has gotten worse. How can you consider expanding the landfill when the existing operation produces such terrible odor and dust?

We are against any expansion of the landfill, and request that you deal with the existing odors.

Brad Jones
Julie Black

From: Bruce Hendricks <bruce.a.hendricks@me.com>
Sent: Friday, March 24, 2023 1:09 PM
To: JLeipner@countyofsb.org
Cc: Doug Kern <doug.kern@gaviotacoastconservancy.org>; Haserot, Jordan@Waterboards <jordan.haserot@waterboards.ca.gov>; Campos Norma <ncamposbernal@sbcphd.org>; Wells, Leslie

<lwells@countyofsb.org>; Jason Johnston <JJohnston@sbcphd.org>; Hartmann, Joan <jhartmann@countyofsb.org>; Betsy Weber <bweber@environmentaldefensecenter.org>; Brian Trautwein <btrautwein@environmentaldefensecenter.org>; Mariah S <mariahgaviota@gmail.com>; jeff pion <jeff.pion@cbre.com>; Alex Geremia (zebradaisy@aol.com) <zebradaisy@aol.com>; Brad Jones <BJones@redpoint.com>; Kelly Griffith <k3llygriffith@gmail.com>; Elena Jensen <elenkj9@aol.com>; Julie Black <juliebunny1@gmail.com>; Fischer, Gina <gfischer@countyofsb.org>
Subject: Request for Comments Tajiguas Landfill Capacity Increase project

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Along with the odor and plastic, stormwater from the landfill is creating an unusual foam on the Arroyo Quemada beach (see attached video) which needs to be analyzed for pollutants. If this foam proves to have pollutants then the proposed second basin associated with the capacity increase will only further pollute the beach and ocean.

The proposed increase will, per the NOP, increase gas emissions, disturb native vegetation, result in a loss of sensitive animal habitat and disrupt and displace migratory birds. As the NOP further notes, this area is in a high fire zone as well as an area of high winds. Any increase in capacity will also undoubtably result in an increase in the use of hazardous materials and fuels that the landfill currently uses increasing the risk of an environmental disaster in the event of a fire or severe winds. It should be noted that the landfill may currently already be in violation of several State and Federal laws, specifically APCD Nuisance Rule 303, SCAQMD Rule 1150-1b(3), California Health and Safety Code 41700 Rule 402, California Environmental Quality Act and the California Coastal Act.

Lastly, I wish to point out that the NOP fails to note that the ReSource Center ADF and CMU is generating litter *off-site.* It only mentions on site litter. Furthermore while the NOP notes that *'measures are in the process of being implemented to address these litter and odor issues'* to date **no measures** have diminished the problem. In fact the odor issue has, if anything, increased. There is concern among nearby residents that after more than a year of complaints the landfill is unable to determine what if any measures will diminish the odor.

I wish to respectfully request that these comments be part of the EIR and made available to all agencies reviewing the EIR.

Thank You,
Bruce Hendricks
Homeowner
14515 Arroyo Quemada Ln. Unit #13
Goleta, Ca. 93117

Along with the odor and plastic, stormwater from the landfill is creating an unusual foam on the Arroyo Quemada beach (see attached video) which needs to be analyzed for pollutants. If this foam proves to have pollutants then the proposed second basin associated with the capacity increase will only further pollute the beach and ocean.

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I wish to respectfully request that these comments be part of the EIR and made available to all agencies reviewing the EIR.

Thank You,
Bruce Hendricks
Homeowner
14515 Arroyo Quemada Ln. Unit #13
Goleta, Ca. 93117

From:	Leipner, Joddi
To:	Matt Ingamells
Subject:	FW: NOP comments
Date:	Thursday, April 20, 2023 8:17:25 AM

FYI

Joddi Leipner
Senior Engineering Environmental Planner
Resource Recovery and Waste Management
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101
(805) 882-3614 (Work)
(805) 364-1056 (Mobile)

From: Campos Bernal, Norma <NCamposBernal@sbcphd.org>
Sent: Thursday, April 20, 2023 8:10 AM
To: Leipner, Joddi <jleipner@countyofsb.org>
Subject: NOP comments

Hello Joddi,

I have reviewed the subject document and found a couple items I would like to bring to your attention.

The first one is a misspelling of a word on p. 4 in the Permitting section. It is spelled as "ssubsequent".

The second item I noted is on p. 8 in the Nuisances section which indicates "the landfill waste disposal and green waste processing have not been a source of odor complaints off site." According to EHS records, there have been 16 complaints between 1996 and 2022 related to the landfill for litter and dust migrating off-site.

Furthermore, during a focused inspection on April 7, 2023 of the ADF/CMU, the LEA noticed a strong musty odor coming from a large pile of green waste that was exposed to rainstorms the previous week. This is an indication that the material had been on site for greater than 7 days which is a violation of standards in CCR-14-17410.1. It is highly possible that this odor may have contributed to the odor complaints from Arroyo Quemada residents.

Thank you,

Norma Campos Bernal, REHS
Senior Environmental Health Specialist
Environmental Health Servces Division
Public Health Department
County of Santa Barbara
225 Camino del Remedio
Santa Barbara, CA 93110
T 805-681-4942| **F** 805-681-4901 | **M** 805-896-4281
W http://www.sbcphd.org/ehs

E ncamposbernal@sbcphd.org

California Environmental Protection Agency

Gavin Newsom
California Governor

Department of
Resources Recycling and Recovery

Yana Garcia
Secretary for Environmental Protection
Rachel Machi Wagoner
CalRecycle Director

April 18, 2023

Joddi Leipner, Senior Environmental Planner
Santa Barbara County Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street #100
Santa Barbara, California 93101

Subject: SCH No. 2023030563 – Notice of Preparation (NOP) for the Tajiguas Landfill Capacity Increase Project, Facility No. 42-AA-0015 – Santa Barbara County

Dear Ms. Leipner:

Thank you for allowing the Department of Resources Recycling and Recovery (CalRecycle) staff to provide comments on the proposed project and for your agency's consideration of these comments as part of the California Environmental Quality Act (CEQA) process.

PROJECT DESCRIPTION

The Santa Barbara County Public Works Department, Resource Recovery and Waste Management Division, acting as Lead Agency, has prepared and circulated a Notice of Preparation (NOP) for a Subsequent Environmental Impact Report (EIR) in order to comply with CEQA and to provide information to, and solicit consultation with, Responsible Agencies in the approval of the proposed project.

The proposed Tajiguas Landfill Capacity Increase Project (proposed project) is located at 14470 Calle Real, Goleta, California 93117, within the existing waste disposal area. Tajiguas Landfill is located approximately 26 miles west of the city of Santa Barbara. Immediately south of the landfill are U.S. Highway 101, the Union Pacific Railroad tracks, and the Pacific Ocean. The inland areas of the landfill are zoned for agriculture under Santa Barbara County Land Use and Development Code. The southern portion of the landfill is located within the coastal zone and areas zoned AG-II-320, which permits agricultural uses within a 320-acre minimum lot size.

The proposed project area is located within the inland area north of the coastal zone boundary. It includes an approximate 14.25-acre capacity increase, which would provide around 6.1 million cubic yards (mcy) of additional airspace. The project also proposes to increase the permitted maximum elevation of the landfill from 620 feet above mean sea level (amsl) to 650 feet amsl, change the maximum permitted tonnage from 1,500 tons per day (tpd) to a weekly limit of 9,000 tons per week (1,500 tpd x 6 days per week), modify the receiving hours from Monday and Tuesday 7:00 am - 5:00 pm and Wednesday through Saturday 7:00 am - 4:00 pm, to Monday through Saturday 6:00 am - 4:00 pm, and extend the estimated closure date from 2036 to December 2038. Additionally, the project would require removal, displacement and relocation of several physical structures and containers, stormwater features, and utilities.

COMMENTS

CalRecycle staff's comments on the proposed project are listed below. Where a specific location in the document is noted for the comment, please ensure the comment is addressed throughout all sections of the Draft EIR, in addition to the specific location noted. Comments on the NOP are summarized below:

- Page 2, Project Description (Summary), *Background* – The description states, "formerly the Tajiguas Resource Recovery Project", but the name of the site has not been officially changed to ReSource Center on the current Solid Waste Facility Permit (SWFP).

- Page 3, Project Description (Summary), *Proposed Project* – States that there will be a 14.25-acre capacity increase. The landfill is currently permitted for 118 acres of disposal and 357 total acres. Will there be any changes to the currently permitted acreage?

- Page 3, Project Description (Summary), *Proposed Project* – States that the capacity increase would provide approximately 6.1 mcy of additional air space. The landfill is currently permitted with a 23,300,000 mcy design capacity. What would the new total design capacity be for the landfill? Will it be 29,400,000 mcy (23.3 mcy plus 6.1 mcy)?

- Page 3, Project Description (Summary), *Proposed Project* – If the start time for Waste Receipt, Disposal and Composting Operations changes from 7:00 am to 6:00 am and the Cover, Compaction and Maintenance hours currently start at 6:00 am (as stated on current SWFP), do you anticipate needing to change the Cover, Compaction and Maintenance hours to accommodate any necessary preparation of the site for the operating day before receiving waste?

<u>Solid Waste Regulatory Oversight</u>

The Santa Barbara County Public Health Department, Environmental Health Services is the Local Enforcement Agency (LEA) for Santa Barbara County and responsible for providing regulatory oversight of solid waste handling activities, including permitting and inspections. Please contact the LEA, Norma Campos-Bernal at 805-681-4942 or Norma.CamposBernal@sbcphd.org to discuss the regulatory requirements for the proposed project.

CONCLUSION

CalRecycle staff thanks the Lead Agency for the opportunity to review and comment on the environmental document and hopes that this comment letter will be useful to the Lead Agency preparing the subsequent Draft EIR and in carrying out their responsibilities in the CEQA process.

CalRecycle staff requests copies of any subsequent environmental documents, copies of public notices and any Notices of Determination for this proposed project.

If the environmental document is adopted during a public hearing, CalRecycle staff requests 10 days advance notice of this hearing. If the document is adopted without a public hearing, CalRecycle staff requests 10 days advance notification of the date of the adoption and proposed project approval by the decision-making body.

If you have any questions regarding these comments, please contact me at 916.324.0393 or by e-mail at Gina.Weber@calrecycle.ca.gov.

Sincerely,

Gina Weber

Gina Weber, Environmental Scientist
Permitting & Assistance Branch – South Unit
Waste Permitting, Compliance & Mitigation Division
CalRecycle

cc: Benjamin Escotto, CalRecycle
Norma Campos-Bernal, LEA
Jason Johnston, LEA

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
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Subject: Tajiguas Landfill Capacity Increase Project, Notice of Preparation, SCH No. 2023030563; Santa Barbara County

Dear Joddi Leipner:

The California Department of Fish and Wildlife (CDFW) has reviewed the County of Santa Barbara Public Works Department (County; Lead Agency) Notice of Preparation (NOP) for a Draft Environmental Impact Report (DEIR) for the Tajiguas Landfill Capacity Increase Project (Project). Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW's Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & Game Code, §§ 711.7, subdivision (a) & 1802; Public Resources Code, § 21070; California Environmental Quality Act (CEQA) Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Public Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & Game Code, § 1600 *et seq.*). Likewise, to the extent implementation of the Project as proposed may result in "take", as defined by State law, of any species protected under the California Endangered Species Act (CESA) (Fish & Game Code, § 2050 *et seq.*), or CESA-listed rare plant pursuant to the Native Plant Protection Act (NPPA; Fish & Game Code, §1900 *et seq.*), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

Project Description and Summary

Objective: The Project proposes to increase capacity of the Tajiguas Landfill to allow waste disposal to continue through December 2038, assuming a 1 percent annual growth rate of incoming material. An approximately 14.25-acre lined area located in the inland area of the landfill property would be excavated for trash placement, allowing for the disposal of an additional 6.1 million cubic yards of trash. As part of the increased capacity, a stability toe berm (toe berm) will be installed along the top of bank of the existing lined and unlined Pila Creek channel west of the existing and proposed landfill.

This capacity increase would impact the existing north stormwater sedimentation basin, so the north stormwater sedimentation basin will be reconfigured, and a second basin may potentially be added to meet the demand of the existing and proposed increased capacity. The second basin would have a similar design to the existing basin, with an option to be either a concrete lined basin or an earthen basin and would have a manually operated skimmer system. The skimmer system would discharge into Pila Creek after sediment is allowed to settle out of suspension.

The landfill is currently permitted to receive waste Monday through Tuesday 7:00 am to 5:00 pm and Wednesday through Saturday 7:00 am to 4:00 pm. An additional project element being considered is modifying waste receipt hours at the landfill scale house from the current hours, to 6:00 am to 4:00 pm Monday through Saturday to improve operational efficiency. In addition, a proposed change from a maximum daily tonnage limit of 1,500 tons/day to a work week maximum of 9,000 tons/week is proposed.

The NOP states the DEIR for the capacity increase would tier, as appropriate, off of the prior environmental documents. A subsequent EIR will be used to support the acquisition of revised permits from Responsible Agencies such as Environmental Health as the Local Enforcement Agency and CalRecycle (Solid Waste Facility Permit), Regional Water Quality Control Board (Waste Discharge Requirements and 401 Water Quality Certification), Air Pollution Control District (Authority to Construct and Permit to Operate) and resource agency permits (from California Department of Fish and Wildlife and Army Corps of Engineers) for work in the concrete channel of Pila Creek. A Subsequent EIR will be prepared to evaluate the changes in environmental impacts that might result from the proposed project.

Location: The proposed Project is located at 14470 Calle Real, Goleta, approximately 26 miles west of the city of Santa Barbara. The Landfill is located in a canyon called Canada de la Pila Immediately south of the landfill site are U.S. Highway 101, the Union Pacific Railroad tracks, and the Pacific Ocean. Access to the site is via a paved road that intersects U.S. Highway 101 and is gate controlled. The Tajiguas Landfill is located on land owned by the County of Santa Barbara encompassing three Assessor Parcel Numbers (APN) 081-150-042, 081-150-019 and 081-150-026.

Comments and Recommendations

CDFW offers the comments and recommendations below to assist the County in adequately identifying, avoiding, and/or mitigating the Project’s significant, or potentially significant, direct, and indirect impacts on fish and wildlife (biological) resources.

COMMENTS AND RECOMMENDATIONS

Specific Comments

1) Fire and Burned Vegetation. The NOP distinguishes between vegetation that has previously been burned by the Alisal fire and unburned vegetation. The value of a vegetation community does not change after it has burned in a wildfire. Fire cycles and recovery are a natural part of all Coastal California plant communities. The seeds on many native plant species only germinate after being exposed to fire/smoke, and many native plant species have adaptations to allow resprouting post fire. The DEIR should classify all open space areas using the Manual of California Vegetation alliance/association classifications present even if vegetation is still in the early seral stages of post-fire recovery. Botanists can use aerial photos and surveys of the adjacent areas to determine the correct alliance even if vegetation has been recently burned and vegetation has not had time to recover. CDFW does not generally support hydroseeding natural areas post fire, as the literature largely suggests that this suppresses the recovery of the native seed bank. Discounting the value of areas the Landfill hydroseeded post-fire is not warranted since the native seed bank would still be in the soil, and can lie dormant for many years to allow for eventual recovery.

2) Sensitive Habitats and Open Space. The Project directly abuts open space. Sensitive-vegetation/plant communities and habitats may be present within the Project and offer nesting, breeding, and foraging habitat for species. Development abutting the Open Space could impact natural communities and habitats by exacerbating edge effects.

a. Analysis and Disclosure. CDFW recommends the DEIR disclose and discuss the Project's direct and indirect impacts on sensitive habitats/open space within and adjacent to the Project area. Disclosure should include but not be limited to:

   1. Direct impacts that could result in loss of sensitive habitats/open space due to development, grading, and fuel modifications.
   2. Indirect impacts that could result in habitat loss due to edge effects and introduction of non-native/invasive plants.
   3. The DEIR should disclose the acreage of sensitive habitats and open space that would be impacted/lost as a result of both direct and indirect impacts from the proposed Project.

b. Avoidance. CDFW recommends the Project avoid developing and encroaching onto sensitive habitats/open space. Encroachment onto sensitive habitats/open space creates an abrupt transition between two different land uses. Encroachment onto sensitive habitats/open space could affect environmental and biological conditions and increase the magnitude of edge effects on biological resources. CDFW recommends the DEIR provide alternatives to the Project that would not result in the development of areas within close proximity of sensitive habitat or open space. CDFW also recommends the DEIR provide alternatives that would not encroach onto sensitive habitats/open space. Pursuant to CEQA Guidelines section 15126.6, a DEIR "shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, even if these alternatives would impede to some degree the attainment of the project objectives."

c. Mitigation. If avoidance is not feasible, CDFW recommends the DEIR provide measures to mitigate impacts to sensitive habitats/open space. There should be no net loss of sensitive habitats/open space. CDFW recommends the DEIR provide a measure where any future development facilitated by the Project establishes unobstructed vegetated buffers and setbacks. The DEIR should provide standards for an effective buffer and setback; however, the buffer and setback distance should be increased at a project-level as needed. The DEIR should provide justifications for the effectiveness of all proposed mitigation measures. The DEIR should provide sufficient information and disclosure to facilitate meaningful public review, analysis, and comment on the adequacy of proposed mitigation measures to offset Project-related impacts on sensitive habitats/open space. CDFW recommends the DEIR provide measures where any future development facilitated by the Project mitigates (avoids first if feasible) for project-level impacts on sensitive habitats/open space not previously identified in the DEIR.

3) California Red-Legged frog and Southwestern Pond Turtle. Project activities and development will occur within and next to habitat utilized by Endangered Species Act (ESA-) listed and Species of Special Concern (SSC) California red-legged frog *(Rana draytoni*) and the southwestern pond turtle (*Actinemys pallida*) (CDFW 2023a). Project activities occurring during the breeding season could result in the incidental loss of eggs/juveniles and Project activities during the winter could result in mortality of animals in upland refugia such as burrows or under leaf litter. Development surrounding occupied habitat may result in permanent impacts through alteration, fragmentation, and/or loss of suitable breeding, overwintering, and foraging habitat. The preservation of sensitive natural communities which they have been documented to utilize is of conservational importance.

a. Protection Status. Take under the ESA is more broadly defined than CESA. Take under ESA also includes significant habitat modification or degradation that could result in death or injury to a listed species by interfering with essential behavioral patterns such as breeding, foraging, or nesting. CEQA provides protection not only for State and federally listed species, but for any species including, but not limited to SSC, which can be shown to meet the criteria for State listing. SSC's meet the CEQA definition of rare, threatened, or endangered species (CEQA Guidelines, § 15065). Take of SSC's s could require a mandatory finding of significance (CEQA Guidelines, § 15065).

b. Survey and Analysis. CDFW recommends the DEIR disclose and discuss the Project's potential impacts on California red-legged frog and southwestern pond turtle and their habitat. The DEIR should have a discussion regarding how the project avoids and mitigates impacts to these animals and associated habitat.

c. Avoidance. CDFW recommends the DEIR provide measures where Project activities and development avoid encroachment or fragmentation of California red-legged frog and southwestern pond turtle habitat and critical habitat. Ground disturbance and vegetation clearing should avoid the species inactive season to ensure buried, overwintering animals area not killed unknowingly.

d. Mitigation. If avoidance is not feasible the Applicant should protect or create habitat suitable for California red-legged frog and southwestern pond turtle. Replacement habitat should be protected in perpetuity. CDFW recommends the DEIR be conditioned to provide replacement habitat to ensure no net loss of all occupied habitat both aquatic and upland. The DEIR should discuss why mitigation measures proposed would be adequate to avoid or offset impacts to California red-legged frog and southwestern pond turtle and associated habitat. If presence is confirmed the Applicant should consult with the U.S. Forest Service (USFWS) and CDFW before ground disturbing activities.

4) Crotch's Bumblebee (*Bombus crotchii*). Project implementation may cause direct mortality to Crotch's bumblebee or injury of adults, eggs, and larva, burrow collapse, nest abandonment, and reduced nest success. Suitable Crotch's bumblebee habitat is far ranging as they are generalist foragers and can utilize many different plant and vegetation communities and forage up to 10 kilometers daily. Suitable habitat includes areas of grasslands, coastal sage scrub, and arid desertscape that contain requisite habitat elements, such as small mammal burrows.

a. Protection Status. A petition to list the Crotch's bumble bee as an endangered species under CESA is currently pending before the California Fish and Game Commission (Commission) (Cal. Reg. Notice Register 2018, No. 45-Z, pp. 1986–1987 [November 9, 2018]). The Commission designated the Crotch's bumble bee as a candidate species under CESA in June 2019 (Cal. Reg. Notice Register 2019, No. 26-Z, pp. 954–955 [June 28, 2019]). The Commission's decision to designate the Crotch's bumble bee as a candidate species is the subject of a pending legal challenge (Almond Alliance of California v. Fish and Game Commission [2022] 79 Cal. App. 5th 337, pet. for review pending, S275412). On September 30th, 2022, candidacy was reinstated for the four bumble bee species petitioned for listing—franklin's, Crotch's, western, and suckle cuckoo.

b. Survey and Analysis. The DEIR should analyze and discuss potential impact to Crotch's bumble bee and their habitat. The Applicant should condition the DEIR to perform project-level surveys in areas of impact with suitable habitat for Crotch's bumblebee. Surveys should be performed by a qualified entomologist familiar with the species behavior and life history to determine the presence/absence of Crotch's bumble bee. Surveys should be conducted during flying season when the species is most likely to be detected above ground, between late April through mid-October, and should include a minimum of 4 survey days with a 3-week space between surveys. CDFW can provide specific bumble bee survey recommendations for maximum detection.

   Lack of CNDDB sightings for Crotch's bumble bee near the Project site should not be taken as a lack of Crotch's bumble bee in the area as CNDDB is a positive-sighting database and Crotch's bumble bee has not been actively searched for in many areas.

c. Avoidance. If Crotch's bumblebee is present CDFW recommends the Project include measures to fully avoid impacts to Crotch's bumblebee and habitat. The Project should avoid areas of grasslands, coastal sage scrub, and desert communities where features such as abandoned mammal burrows are present.

d. Mitigation. If avoidance is not feasible and Crotch's bumblebee is present, the DEIR should be conditioned to mitigate for impacts to Crotch's bumblebee. If impacts are unavoidable the Applicant should consult CDFW to see if a CESA Incidental Take Permit (ITP) is required. Compensatory mitigation should also be provided to offset loss of habitat and vegetation communities associated with Crotch's bumblebee.

5) Rare Plants. The Project contains Open Space where rare and endangered plants may be present, including areas recently burned.

a. Protection Status. Take of any endangered, threatened, candidate species that results from the Project is prohibited, except as authorized by State law (Fish & G. Code, §§ 86, 2062, 2067, 2068, 2080, 2085; Cal. Code Regs., tit. 14, § 786.9) under CESA. As to CEQA, potential impacts on rare plants should be analyzed, disclosed, and mitigated in the Project's DEIR. CDFW considers adverse impacts to a species protected by CESA and ESA to be significant without mitigation under CEQA.

b. Survey and Analysis. CDFW recommends the Applicant retain a qualified botanist to perform focused botanical surveys for rare plants. Surveys should identify all individual rare and protected plants and populations, as well as the plant communities supporting those rare plants which may be impacted. Surveys should be conducted within the Project site and in all areas subject to ground-disturbing activities (e.g., staging, mobilization, vegetation clearing). Surveys should be performed at the times of the year when plants will be both evident and identifiable. Botanical surveys should be spaced out throughout the growing season (CDFW 2018b).

c. Disclosure. The DEIR should fully disclose any impacts related to rare plants. At minimum the Applicant should disclose where impacts would occur; number of individual plants impacted, population size and density, and acres of habitat/plant communities impacted.

d. Avoidance. If rare plants are present and anticipated to be impacted, CDFW recommends the DEIR provide measures to fully avoid impacts on rare plants and their habitat.

e. Mitigation. If take or adverse impacts to rare plants cannot be avoided, the DEIR should provide measures to mitigate for those impacts. Appropriate mitigation may include obtaining appropriate take authorization under CESA prior to implementing the Project (pursuant to Fish & Game Code, § 2080 et seq.). Appropriate authorization may include an ITP or Consistency Determination, among other options [Fish & G. Code, §§ 2080.1, 2081, subds. (b) and (c)]. Additionally, CDFW recommends the Applicant provide compensatory mitigation for loss of rare plants and habitat.

6) Reptiles of SSC. Project activities related to ground disturbance such as grading, staging, and grubbing, may result in reptile habitat destruction, and death or injury of adults, juveniles, eggs, or hatchlings. Moreover, the Project may remove essential foraging and breeding habitat for the species.

a. Surveys. CDFW recommends qualified biologists familiar with the reptile species behavior and life history conduct focused surveys to determine the presence/absence of SSC prior to vegetation removal and/or grading. Surveys should be conducted during active season when the reptile species is most likely to be detected.

b. Mitigation. To further avoid direct mortality, CDFW recommends that a qualified biological monitor be on site during ground and habitat disturbing activities to move out of harm's way special status species that would be injured or killed by grubbing or Project-related grading activities. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting Project impacts associated with habitat loss (see General Comment #7).

c. Scientific Collections Permit. CDFW has the authority to issue permits for the take or possession of wildlife, including mammals; birds, nests, and eggs; reptiles, amphibians, fish, plants; and invertebrates (Fish & Game Code, §§ 1002, 1002.5, 1003). Effective October 1, 2018, a Scientific Collecting Permit is required to monitor project impacts on wildlife resources, as required by environmental documents, permits, or other legal authorizations; and, to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with otherwise lawful activities (Cal. Code Regs., tit. 14, § 650). Please visit CDFW's Scientific Collection Permits webpage for information (CDFW 2022c). Pursuant to the California Code of Regulations, title 14, section 650, the qualified biologist must obtain appropriate handling permits to capture, temporarily possess, and relocate wildlife to avoid harm or mortality in connection with Project construction and activities.

7) Special Status Bird Species. Project activities that occur during the breeding season may result in incidental loss of fertile eggs, or nestlings, or nest abandonment in trees and shrubs directly adjacent to the Project. The Project could also lead to the loss of foraging habitat for sensitive bird species.

a. Protection Status. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Code of Federal Regulations, Title 50, § 10.13). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the MBTA).

b. Avoidance. CDFW recommends that measures be taken, primarily, to avoid Project impacts to nesting birds. The DEIR should be conditioned with measures to avoid impacts on special status birds. Proposed Project activities including (but not limited to) staging and disturbances to native and nonnative vegetation, structures, and substrates should occur outside of the avian breeding season which generally runs from February 15 through August 31 (as early as January 1 for some raptors) to avoid take of birds or their eggs.

c. Mitigation. If avoidance of the avian breeding season is not feasible, CDFW recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). Project personnel, including all contractors working on-site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

8) Lake and Streambed Alteration (LSA) Agreement. The Project area appears to span several drainages including Canada de la Pila which discharge directly into the Pacific Ocean. The Project could impact streams throughout the construction of the Project.

a. Stream Delineation and Assessment. A preliminary delineation of the streams and their associated riparian habitats should be included in the environmental document. Be advised that some wetland and riparian habitats subject to CDFW's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers' Section 404 permit and Regional Water Quality Control Board Section 401 Certification.

b. Avoidance and Setbacks. In Project areas which may support ephemeral or episodic streams, herbaceous vegetation, woody vegetation, and woodlands also serve to protect the integrity of these resources and help maintain natural sedimentation processes. Therefore, CDFW recommends effective setbacks be established to maintain appropriately sized vegetated buffer areas adjoining ephemeral drainages. The environmental document should provide a justification for the effectiveness of the chosen distance for the setback.

c. Lake and Streambed Alteration Program. As a Responsible Agency under CEQA, CDFW has authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream or use material from a streambed. For any such activities, the Project applicant (or "entity") must provide written notification to CDFW pursuant to Fish and Game Code Section 1600 *et seq.* CDFW's issuance of a LSA Agreement for a Project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. As a Responsible Agency, CDFW may consider the environmental document of the local jurisdiction (Lead Agency) for the Project. To minimize additional requirements by CDFW pursuant to section 1600 *et seq.* and/or under CEQA, the environmental document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSA Agreement. Please visit CDFW's Lake and Streambed Alteration Program webpage for information about LSA Notification (CDFW 2022d).

d. Hydrologic Evaluation. Project-related changes in upstream and downstream drainage patterns, runoff, and sedimentation should be included and evaluated in the environmental document.

9) Weeds and Landscaping. Habitat loss and invasive plants are a leading cause of native biodiversity loss. CDFW is concerned that the clearing of habitat around open space will result in impacts to adjacent open space by allowing non-native weed plants to become established during the active soil grading and movement processes. Weeds can become established in a matter of days. CDFW requests weekly monitoring during the period of time from the point the land is cleared of any vegetation to the point in time at which the post-Project revegetation plan commences. This weekly inspection should include all roads, stockpiles, parking areas, and any other area that is used/part of the Project activities.

CDFW recommends a long-term weed management plan be developed for the entire Project Area to ensure weeds don't become established in the Project area and become a problem in the future. The long-term plan would start immediately during construction and continue until after the landfill closure and any revegetation effort has been completed. This plan would be implemented until the revegetation effort has met all its success criteria and has been deemed successful. The long-term comprehensive weed management plan should be cooperatively implemented by all responsible parties to keep weeds from reestablishing in the Project area in perpetuity. The long-term comprehensive weed management plan should be funded and implemented by the County. The Project Area should be periodically monitored via mapping for new introductions and expansions of targeted non-native weeds to reduce the potential for long-term impacts to adjacent open space.

CDFW recommends that the DEIR stipulate that no invasive plant material be used. Furthermore, we recommend using native, locally appropriate plant species for landscaping on the Project site. A list of invasive/exotic plants that should be avoided as well as suggestions for suitable landscape plants can be found at https://www.cal-ipc.org/solutions/prevention/landscaping/.

General Comments

1) Disclosure. The DEIR should provide an adequate, complete, and detailed disclosure about the effect which a proposed Project is likely to have on the environment (Pub. Resources Code, § 20161; CEQA Guidelines, §15151). Adequate disclosure is necessary so CDFW may provide comments on the appropriateness of proposed avoidance, minimization, or mitigation measures, as well as to assess the significance of the specific impact relative to the species (e.g., current range, distribution, population trends, and connectivity).

2) Biological Baseline Assessment. CDFW recommends providing a complete assessment and impact analysis of the flora and fauna within and adjacent to the Project area, with emphasis upon identifying endangered, threatened, sensitive, regionally, and locally unique species and sensitive habitats. Impact analysis will aid in determining any direct, indirect, and cumulative biological impacts, as well as specific mitigation or avoidance measures necessary to offset those impacts. CDFW recommends avoiding any sensitive natural communities found on or adjacent to the Project. The PEIR should include the following information:

a. Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region [CEQA Guidelines, § 15125(c)]. The PEIR should include measures to fully avoid and otherwise protect Sensitive Natural Communities (CDFW 2022b) from Project-related impacts. Project implementation may result in impacts to rare or endangered plants or plant communities that have been recorded adjacent to the Project vicinity;

b. A complete floristic assessment within and adjacent to the Project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats. This should include a thorough, recent, floristic-based assessment of special status plants and natural communities;

c. Floristic, alliance- and/or association-based mapping and vegetation impact assessments conducted at the Project site and within the neighboring vicinity. The Manual of California Vegetation (MCV), second edition, should also be used to inform this mapping and assessment (CNPS 2023). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts off-site. Habitat mapping at the alliance level will help establish baseline vegetation conditions;

d. A complete, recent, assessment of the biological resources associated with each habitat type on-site and within adjacent areas that could also be affected by the Project. CDFW's CNDDB in Sacramento should be contacted to obtain current information on any previously reported sensitive species and habitat. CDFW recommends that CNDDB Field Survey Forms (CDFW 2022e) be completed and submitted to CNDDB to document survey results;

e. A complete, recent, assessment of rare, threatened, and endangered, and other sensitive species on-site and within the area of potential effect, including California SSC and California Fully Protected Species (Fish & G. Code, §§ 3511, 4700, 5050 and 5515). Species to be addressed should include all those which meet the CEQA definition of endangered, rare, or threatened species (CEQA Guidelines, § 15380). Seasonal variations in use of the Project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with CDFW and the USFWS; and,

f. A recent, wildlife and rare plant survey. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to two years as long as there was not a prevailing drought during the time of the botanical survey. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame, or in phases.

3) Data. CEQA requires that information developed in environmental impact reports be incorporated into a database which may be used to make subsequent or supplemental environmental determinations [Pub. Resources Code, § 21003, subd. (e)]. Accordingly, please report any special status species and natural communities detected by completing and submitting CNDDB Field Survey Forms (CDFW 2021). The applicant should ensure data collected for the preparation of the DEIR be properly submitted, with all data fields applicable filled out. The data entry should also list pending development as a threat and then update this occurrence after impacts have occurred.

4) Biological Direct, Indirect, and Cumulative Impacts. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR:

a. A discussion regarding indirect Project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a Natural Community Conservation Plan (NCCP, Fish & Game Code, § 2800 et. seq.). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR;

b. A discussion of both short-term and long-term effects to species population distribution and concentration and alterations of the ecosystem supporting the species impacted [CEQA Guidelines, § 15126.2(a)];

c. A discussion of adverse impacts due to increased noise, sound, vibrations, and human activity during Project activities and daily operations;

d. An analysis of impacts from land use designations and zoning located nearby or adjacent to natural areas that may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the DEIR; and,

e. A discussion of Project-related changes on drainage patterns and downstream of the Project site; the volume, velocity, and frequency of existing and post-Project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and, post-Project fate of runoff from the Project site. The discussion should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary and the potential resulting impacts on the habitat (if any) supported by the groundwater. Mitigation measures proposed to alleviate such Project impacts should be included; and,

f. A cumulative effects analysis, as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats. If the applicant determines that the Project would not have a cumulative impact, the DEIR should indicate why the cumulative impact is not significant. The Applicant's conclusion should be supported by facts and analyses [CEQA Guidelines, § 15130(a)(2)].

5) Mitigation Measures. Public agencies have a duty under CEQA to prevent significant, avoidable damage to the environment by requiring changes in projects through the use of feasible alternatives or mitigation measures [CEQA Guidelines, §§ 15002(a)(3), 15021]. Pursuant to CEQA Guidelines section 15126.4, an environmental impact report shall describe feasible measures which could mitigate for impacts below a significant level under CEQA.

a. Level of Detail. Mitigation measures must be feasible, effective, implemented, and fully enforceable/imposed by the lead agency through permit conditions, agreements, or other legally binding instruments (Pub. Resources Code, § 21081.6(b); CEQA Guidelines, §§ 15126.4, 15041). A public agency shall provide the measures that are fully enforceable through permit conditions, agreements, or other measures (Pub. Resources Code, § 21081.6). CDFW recommends that the City prepare mitigation measures that are specific, detailed (i.e., responsible party, timing, specific actions, location), and clear in order for a measure to be fully enforceable and implemented successfully via a mitigation monitoring and/or reporting program (CEQA Guidelines, § 15097; Pub. Resources Code, § 21081.6). Adequate disclosure is necessary so CDFW may provide comments on the adequacy and feasibility of proposed mitigation measures.

b. Disclosure of Impacts. If a proposed mitigation measure would cause one or more significant effects, in addition to impacts caused by the Project as proposed, the environmental document should include a discussion of the effects of proposed mitigation measures [CEQA Guidelines, § 15126.4(a)(1)]. In that regard, the environmental document should provide an adequate, complete, and detailed disclosure about a project's proposed mitigation measure(s). Adequate disclosure is necessary so CDFW may assess the potential impacts of proposed mitigation measures.

6) CESA. CDFW considers adverse impacts to a species protected by CESA to be significant without mitigation under CEQA. As to CESA, take of any endangered, threatened, candidate species, or CESA-listed plant species that results from the Project is prohibited, except as authorized by state law (Fish & Game Code §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). Consequently, if the Project or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, CDFW recommends that the Project proponent seek appropriate take authorization under CESA prior to implementing the Project. Appropriate authorization from CDFW may include an ITP or a consistency determination in certain circumstances, among other options [Fish & Game Code, §§ 2080.1, 2081, subds. (b) and (c)]. Early consultation is encouraged, as significant modification to a Project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that CDFW issue a separate CEQA document for the issuance of an ITP unless the Project CEQA document addresses all Project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

7) Translocation/Salvage of Plants and Animal Species. Translocation and transplantation is the process of moving an individual from a project site and permanently moving it to a new location. CDFW generally does not support the use of translocation or transplantation as the primary mitigation strategy for unavoidable impacts to rare, threatened, or endangered plant or animal species. Studies have shown that these efforts are experimental and the outcome unreliable. CDFW has found that permanent preservation and management of habitat capable of supporting these species is often a more effective long-term strategy for conserving sensitive plants and animals and their habitats.

8) Compensatory Mitigation. An environmental document should include mitigation measures for adverse Project related direct or indirect impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project-related impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed. Areas proposed as mitigation lands should be protected in perpetuity with a conservation easement, financial assurance and dedicated to a qualified entity for long-term management and monitoring. Under Government Code, section 65967, the Lead Agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or nonprofit organization to effectively manage and steward land, water, or natural resources on mitigation lands it approves.

9) Long-term Management of Mitigation Lands. For proposed preservation and/or restoration, an environmental document should include measures to protect the targeted habitat values from direct and indirect negative impacts in perpetuity. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include (but are not limited to) restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion. An appropriate non-wasting endowment should be set aside to provide for long-term management of mitigation lands.

10) Project Description and Alternatives. To enable CDFW to adequately review and comment on the proposed Project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:

a. A complete discussion of the purpose and need for, and description of, the proposed Project, including all staging areas and access routes to the construction and staging areas; and,

b. A range of feasible alternatives to Project component location and design features to ensure that alternatives to the proposed Project are fully considered and evaluated. Potential impacts to wildlife movement areas should also be evaluated, avoided, or mitigated consistent with applicable requirements of the City's General Plan.

Conclusion

We appreciate the opportunity to comment on the Project to assist the County in adequately analyzing and minimizing/mitigating impacts to biological resources. CDFW requests an opportunity to review and comment on any response that the County has to our comments and to receive notification of any forthcoming hearing date(s) for the Project [CEQA Guidelines, § 15073(e)]. If you have any questions or comments regarding this letter, please contact Kelly Schmoker, Senior Environmental Scientist, at Kelly.Schmoker@wildlife.ca.gov or (626) 848-8382.

Sincerely,

DocuSigned by:

B6E58CFE24724F5...

Erinn Wilson-Olgin
Environmental Program Manager I
South Coast Region

ec: CDFW

Steve Gibson – Los Alamitos
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OPR
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References:

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April 21, 2023

Joddi Leipner
County of Santa Barbara
Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street
Santa Barbara, CA 93101

Sent Via Email: JLeipner@countyofsb.org

Re: Santa Barbara County Air Pollution Control District Response to Notice of Preparation of an Environmental Impact Report for the Tajiguas Landfill Capacity Increase Project

Dear Joddi Leipner:

The Santa Barbara County Air Pollution Control District (District) appreciates the opportunity to provide comments on the Notice of Preparation (NOP) of a Draft Subsequent Environmental Impact Report (EIR) for the Tajiguas Landfill Capacity Increase project. The Santa Barbara County Public Work Department, Resource Recovery and Waste Management Division (RRWMD) proposes to increase the capacity of the Tajiguas Landfill to reach a projected refuse disposal filling date of approximately December 2038. An approximately 14.25-acre lined area located in the inland area of the landfill property will be excavated for refuse placement. The approximate 14.25-acre capacity increase would provide approximately 6.1 million cubic yards (mcy) of additional airspace. The land fill has a currently permitted waste disposal footprint of 118 acres and a permitted disposal capacity of 23.3 mcy. The permitted maximum elevation of the landfill will increase from 620 feet to 650 feet above mean sea level. A stability toe berm will be installed along the top of the bank of the Pila Creek channel. The north stormwater sedimentation basin will be reconfigured and a second sedimentation basin added with a skimmer system. Several facilities will be removed or relocated including the fueling facilities, oil storage tanks, landfill maintenance shop, worker trailers, storage containers, utilities, stormwater features, electricity lines, stormwater pipelines, and access road. The existing landfill gas (LFG) collection system will be extended into the waste disposal area and the collected LFG will either be combusted in existing engines or flared. Additionally, the project includes a proposed change from a maximum daily tonnage limit of 1,500 tons/day to a work week maximum of 9,000 tons/week to account for exceedances resulting from landfill closures.

District staff reviewed the Initial Study and NOP of a Draft EIR and concurs that air quality will be potentially impacted by proposed project activities. As you are aware, the Tajiguas Landfill stationary source currently maintains a Title V Operating Permit (also known as a Part 70 Federal Operating Permit) with the District (Permit to Operate 9788-R4 and Part 70 Operating Permit 9788). As part of the District Authority to Construct (ATC) application review, the District will evaluate the emissions from the project to determine which federally-enforceable, state, and local requirements will apply to the proposed operations. The District will act as a responsible agency under the California Environmental Quality Act (CEQA) and rely on the EIR when issuing District permits. In order to avoid additional CEQA documentation related to District permit issuance, the EIR should fully evaluate and disclose potential impacts, include the air pollutant emissions for all proposed operations and equipment in the project's air quality impact analysis, and include mitigation as appropriate to reduce impacts. The District's guidance document, entitled *Scope and Content of Air Quality Sections in Environmental Documents* (updated January, 2022), is available online at www.ourair.org/land-use/. This document should be referenced for general guidance in assessing air quality impacts in the Draft EIR. The County should contact the District directly for technical guidance, particularly with respect to executing the required air modeling, and is advised to contact David Harris, the Manager of the District's Engineering Division at HarrisD@sbcapcd.org or (805) 979-8311, to schedule a teleconference meeting to discuss the District permitting requirements for the proposed project.

The EIR should evaluate the following potential impacts related to the Tajiguas Landfill Capacity Increase project.

1. Attainment Status and Consistency with the District's Ozone Plan. Attainment status for the County is posted on the District website at www.ourair.org/air-quality-standards. The most recent Ozone Plan (previously known as the Clean Air Plan) was adopted in December 2022 and is available at www.ourair.org/clean-air-plans. The District website should be consulted for the most up-to-date air quality information prior to the release of the Public Draft EIR.

Consistency with local and regional plans, including the District's 2022 Ozone Plan, is required under CEQA for all projects. Consistency with the Ozone Plan should be evaluated on a case-by-case basis, and the EIR should include an assessment of whether the proposed project will be consistent with the Ozone Plan. Industrial stationary source projects will generally be considered consistent with the Ozone Plan if they are consistent with District rules and regulations. Large industrial stationary sources may be found inconsistent if their emissions are not considered in the Plan's stationary source emission inventory.

2. Health Risk Related to Air Pollutant Emissions. As part of District permit issuance, the proposed project will require that a refined Health Risk Assessment (HRA) be performed for the entire stationary source including existing and new equipment/operations. Therefore, an HRA should be performed as part of the CEQA review for the land use permit to ensure that project-related equipment (stationary and mobile) will not result in a significant impact under the County's health risk threshold. The District will not issue a permit if an HRA shows that a significant impact will occur. The results of the refined HRA should be incorporated into the EIR for the project. The applicant should conduct an HRA in accordance with the latest District's *Modeling Guidelines for Health Risk Assessments*, Form-15i, available at www.ourair.org/wp-content/uploads/apcd-15i.pdf. Please contact Charlotte Mountain of the District's Engineering Division, at MountainC@sbcapcd.org or (805) 979-8314 for additional modeling guidance.

3. Impacts to Air Quality Standard Attainment: The EIR should evaluate whether the emissions from the project would have a significant air quality effect by causing or contributing to a violation of a California or National Ambient Air Quality Standard. In order to conduct this evaluation, an Air Quality Impact Assessment (AQIA) should be performed pursuant to District Rule 805 and the District's *Modeling Guidelines for Air Quality Impact Assessments*, available at www.ourair.org/wp-content/uploads/aqia.pdf. More information on AQIAs can be found at www.ourair.org/air-quality-impact-assessment.

4. Increase in Criteria Pollutant Emissions from Proposed Project. The EIR should present significance thresholds for ozone precursor emissions (reactive organic compounds [ROC], and oxides of nitrogen [NO_X]) and particulate matter and determine whether the proposed project will produce emissions in excess of the County's thresholds. The proposed project will involve construction-phase air quality impacts associated with excavation of the new horizontal waste disposal area and installation of the groundwater protection system (liners). Operational-phase impacts will occur due to ongoing landfill operations. Activities may generate: fugitive dust emissions from construction activities and ongoing landfill management and operations; fugitive methane and non-methane emissions from the surface of the covered waste; LFG combustion and flaring emissions; motor vehicle engine exhaust emissions from material hauling, deliveries and employee trips; and engine exhaust emissions from construction and operational phase onsite on-road and off-road mobile equipment use. Air quality impacts should be based on project-specific information and should be supported by technical studies, such as an air quality technical report and/or traffic study whenever possible.

Stationary and area source emissions should be added to transportation source emissions prior to applying the thresholds of significance. If the proposed project exceeds the significance thresholds for air quality, mitigation should be applied to reduce those emissions as appropriate under CEQA. Section 6 of the District's *Scope and Content* document offers ideas for air quality mitigation. However, project-specific measures should be developed that are pertinent to the specific project. Mitigation measures should be enforceable through permit conditions, agreements, or other legally binding instruments. The EIR should include a Mitigation Monitoring and Reporting Plan that explicitly states the required mitigations and establishes a mechanism for enforcement.

5. Odor Impacts. The potential for odor impacts from the expansion project should be analyzed and discussed in detail in the EIR. The analysis should address all potential odor sources. Mitigation options (including design changes) for potential odor impacts should be reviewed and presented.

6. Asbestos Reporting Requirements. Since the project involves the demolition or renovation of existing structures, the EIR should include a discussion of how materials will be removed in compliance with District Rule 1001 – National Emission Standards for Hazardous Air Pollutants (NESHAP) – Asbestos. Advance notification to the District may be required before asbestos is disturbed and/or removed. For additional information regarding asbestos notification requirements, please visit our website at www.ourair.org/asbestos.

7. Global Climate Change/Greenhouse Gas Impacts. Greenhouse gas (GHG) emissions and global climate change impacts should be addressed in the CEQA document. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases. The EIR should include a quantification of GHG emissions from all project sources, direct and indirect, as applicable. The EIR should include a discussion of how the project is consistent with, and complies with, California's Assembly Bill (AB) 32 and Senate Bill (SB) 32 Climate Change Scoping Plans and any other follow-up legislation or plans to reduce overall greenhouse gas emissions in California. If climate change impacts are found to be significant and mitigation measures are applied, those measures should be enforceable through permit conditions, agreements, or other legally binding instruments. The EIR should include a Mitigation Monitoring and Reporting Plan that explicitly states the required mitigations and establishes a mechanism for enforcement.

CAPCOA has published *Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*, an extensive sector-by-sector compendium of project-specific mitigation measures, including quantification methods to calculate GHG reductions. The

Handbook is available at www.caleemod.com/handbook/index.html. In addition, the District has identified some potential strategies for local GHG mitigation that could be implemented in Santa Barbara County; these strategies are summarized and posted on the District's website at www.ourair.org/ghgmitigation-sbc.

We hope you find our comments useful. We look forward to reviewing the Draft EIR. Please contact me at (805) 979-8334 or via email at WaddingtonE@sbcapcd.org if you have questions.

Sincerely,

Emily Waddington,
Air Quality Specialist
Planning Division

cc: Planning Chron File
David Harris, Manager, District Engineering Division [email only]
William Sarraf, Supervisor, District Engineering Division [email only]

LAW OFFICE OF MARC CHYTILO, APC

ENVIRONMENTAL LAW

April 21, 2023

County of Santa Barbara Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street
Santa Barbara, CA 93101
Attention: Ms. Joddi Leipner

By email to JLeipner@countyofsb.org

RE: Tajiguas Landfill Capacity Increase Project Scoping Comments

Dear Ms. Leipner:

This office represents the Gaviota Coast Conservancy (GCC), a California public benefit organization dedicated to protecting the rural character and environmental integrity of the Gaviota Coast for present and future generations. Along with rural character and environmental integrity, public access and recreational opportunities is the "third pillar" that together fulfills GCC's mission. We appreciate the opportunity to comment on the scope of the Draft Subsequent Environmental Impact Report (DSEIR) for the Tajiguas Landfill Capacity Increase Project (Project).

A sensitive coastal canyon on the Gaviota Coast is a problematic location for a landfill, and the Board of Supervisors has resolved not to expand the Tajiguas Landfill further (see attached). The Board approved the Tajiguas Resource Recovery Project (TRRP, now called the ReSource Center) to reduce landfilling and extend the life of Tajiguas Landfill until approximately 2036. Unfortunately, as the NOP makes clear, the ReSource Center has not delivered on its promise.

Not only has the ReSource Center failed to meet its diversion objectives, operational problems have also resulted in more severe impacts than anticipated. Notably, nuisance odors from the Anaerobic Digestion Facility (ADF) and Composting Management Unit (CMU) have become a significant problem that is impacting the Arroyo Quemada community and members of the public recreating near the Tajiguas Landfill.

As a preliminary matter, Public Works should correct the operational problems at the ReSource Center *before* commencing a physical expansion of the landfill. The DSEIR should detail measures that would improve diversion rates and prevent the off-site migration of odors and litter, and require implementation of those measures as a condition precedent to commencing the physical expansion.

Additionally, the DSEIR must include both robust mitigation measures to offset the anticipated significant adverse impacts of the proposed landfill expansion, as well as alternatives to the physical expansion of the landfill. Our specific recommendations are described below.

LAW OFFICE OF MARC CHYTILO, APC
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1. The DEIR Must Include Detailed Information about Diversion Rates

For the impact analysis to be accurate, the DSEIR must assure that the baseline diversion rate and the projected diversion rate for the life of the Project are supported by substantial evidence and capture the range of reasonably foreseeable scenarios. The NOP assumes a 31.35% diversion rate, based on current ReSource Center operational data. (NOP p. 3) This diversion rate, and a 1% growth rate applied to the incoming material rate at the facility, is used to calculate the anticipated disposal filling date of approximately December 2038. (Id.)

When the Board approved the TRRP a key justification (and basis for overriding the TRRP's significant impacts) was increasing diversion rates to 60 percent or more, which would extend the life of the Tajiguas landfill (based on permitted capacity) by ~10 years (to ~2036). (TRRP CEQA Findings, p. 29.) Of the reasons provided in the NOP for why the landfill life has been reduced compared to earlier projections, only the greater amount of "bypass waste" would directly reduce the current diversion rate.

The DEIR requires meaningful detail describing this bypass waste as well as any additional factors that have contributed to the lower than anticipated diversion rates (including landfilling organic waste from the ADU or use as daily cover). The DEIR should further discuss whether these factors can be addressed with operational changes at the collection and/or processing stage. Implementing these operational changes should then be required as a condition precedent to physically expanding the landfill.

The DEIR must also must discuss whether the 31.35% diversion rate complies with State law, and if not, whether it is reasonable to assume this diversion rate for the life of the Project. With implementation of operational changes to bring the diversion rate up, it is reasonably foreseeable that the Project will prolong landfilling at Tajiguas Landfill well beyond 2038, which must then figure into the impact analysis.

2. Project Objectives

CEQA requires that the EIR contain a clearly written statement of objectives to guide the development of a reasonable range of alternatives. (*See* CEQA Guidelines § 15124 (b)). Defining the objectives of the project too narrowly has the potential to result in the EIR evaluating an inadequate range of alternatives. (*See e.g. City of Santee v. County of San Diego* (1989) 214 Cal. App. 3d 1438).

The NOP does not specifically identify the Project's objective or objectives, but the DSEIR must do so. The DSEIR's statement of project objectives should reflect the fundamental purpose of the Project, which we understand to be "to reach a projected refuse disposal filling date of approximately December 2038 (concurrent with completion of debt service on the ReSource Center)." (*see* NOP p. 3.) The DSEIR should avoid characterizing the Project's objectives as physically expanding the landfill, which could lead to the DSEIR evaluating an inadequate range of alternatives.

3. Environmental Setting

To enable an assessment of whether a project's environmental effects are likely to be significant, the environmental document must include an accurate description of the environmental setting. (*Communities for a Better Environment v. South Coast Air Quality Management Dist*. (2010) 48 Cal.4th 310, 315; CEQA Guidelines § 15125 (a).) "Knowledge of the regional setting is critical to the assessment of environmental impacts. Special emphasis should be placed on environmental resources that are rare or unique to that region and would be affected by the project." (CEQA Guidelines § 15125 (c).)

The DSEIR must fully describe the Gaviota Coast, an area with rare and unique resources including cultural, biological, visual, and recreational. Important information that should be referenced in the environmental setting includes (but is not limited to):

- The 21.4 mile stretch of Highway 101 from near the City of Goleta's western boundary to Route 1 at Las Cruces is designated as the Gaviota Coast State Scenic Highway. "This stretch of highway through the Gaviota Coast is the last best example of rural, coastal, Southern California, and is the largest remaining rural coastline within the southern region."[1] As recognized in the County's application for State Scenic Highway Designation, "the County of Santa Barbara has valued the outstanding and unique scenic qualities of the Gaviota coast for decades, and has the intent to protect and promote this special resource for future generations."
- "The Gaviota Coast is well known as a coastal recreation destination of local and statewide importance due in part to the unspoiled beauty of the Gaviota coast and miles of relatively undeveloped coastline." (Gaviota Coast Plan, p. 4-1.) Recreational areas and trails near the Landfill including on Baron Ranch, Arroyo Hondo, and Refugio State Beach must be fully described.
- California red-legged frogs (CRLF) have been observed at Tajiguas Landfill for decades. CRLF was listed federally as Threatened under the Endangered Species Act in 1996 (61 Federal Register 25813) and is a California species of special concern. CRLF are present in Arroyo Quemado and Arroyo Hondo, and the Landfill is within a dispersal corridor between these two known locations. (TRRP Addendum, p. 68.) The adjacent Arroyo Quemado watershed is federally designated Critical Habitat for CRLF (designated in 2010). The DSEIR must document the current extent of the CRLF population including individuals and/or populations observed at the landfill itself, known dispersal routes, and information on the efficacy of CRLF relocation efforts (originally approved with the Baron Ranch Reconfiguration Project).

[1] Gaviota Coast Scenic Highway Proposal, available at: https://dot.ca.gov/-/media/dot-media/programs/design/documents/f0002772-2016-12-gaviota-state-scenic-hwy-va-and-cpp-a11y.pdf

4. The DEIR Must Analyze Impacts to Recreation

The NOP indicates that no impacts are expected with regards to Recreation so no further analysis is proposed in the Subsequent EIR (NOP p. 9). The County's applies the following thresholds to determine whether a project may result in significant impacts to recreation: will the proposal a) Conflict with established recreational uses of the area? b. Conflict with biking, equestrian and hiking trails? c. Result in a substantial impact on the quality or quantity of existing recreational opportunities (e.g., overuse of an area with constraints on numbers of people, vehicles, animals, etc. which might safely use the area)? (See e.g. Jalama County Beach Park Improvements Mitigated Negative Declaration, p. 59[2]). The Project could result in impacts in the third category, in particular from impacting the quality of existing recreational opportunities at nearby trails and recreational areas including Baron Ranch and Arroyo Hondo. In particular the DSEIR should analyze how visual intrusion, odors, litter, and noise associated with activities in the proposed expansion area and from extending landfill operations will impact recreational quality.

5. The DEIR Must Include Robust Mitigation to Offset Project Impacts and Prevent Future Expansions

"A lead agency for a project has authority to require feasible changes in any or all activities involved in the project in order to substantially lessen or avoid significant effects on the environment". (CEQA Guidelines § 15041 (a)). "Mitigation measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments." (CEQA Guidelines § 15126.4 (2)).

As described in the NOP, the Project is anticipated to cause impacts to the viewshed, and to biological resources including removal of native vegetation, and impacts to the dispersal patterns of the federally listed California red-legged frog and the southwestern pond turtle (*see* NOP p. 6). Not described in the NOP, we anticipate that the Project will also impact the quality of existing recreational opportunities including at Baron Ranch. Further, proceeding with another expansion prolongs impacts from Landfill operations in these and other areas.

To effectively mitigate Project-specific, as well as cumulative impacts, the DSEIR should include conservation easements to protect undeveloped areas of the landfill and adjacent Baron Ranch. Specifically, one conservation easement should cover undeveloped portions of the landfill property, to prevent future landfill expansions, protect the viewshed, and ensure remaining habitat for CRLF and other sensitive species is preserved in perpetuity. A second conservation easement should cover any unprotected areas of Baron Ranch, to ensure Baron Ranch can continue to function as a landfill buffer as originally intended, and to protect existing recreational uses, the viewshed, cultural resources, native vegetation and wildlife corridors and other habitats.

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[2] Available at https://cosantabarbara.app.box.com/s/zo3nxfc4e2d27mfhygveni1yf1ckegdm/file/518621087068

6. Project Alternatives

"A major function of an EIR 'is to ensure that all reasonable alternatives to proposed projects are thoroughly assessed by the responsible official.' (*Save Round Valley Alliance v. County of Inyo* (2007) 157 Cal. App. 4th 1437, 1456). The alternatives analysis is the core of CEQA, and forms the foundation for CEQA's "substantive mandate" which prohibits approval of projects "if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (*Citizens for Goleta Valley*, 52 Cal. 3d at 564-565; Pub. Res. Code § 21002).

In addition to alternative locations for residual disposal (i.e. the approved Santa Maria Integrated Waste Management Facility at Los Flores Canyon), we request that the following alternatives be studied in detail in the DSEIR.

a. Enhanced Source Separation

Enhanced source separation, which yields cleaner and easier to market recyclables and compost, must be fully evaluated as an alternative to the proposed expansion. Public Works has previously disputed that additional source separation is feasible in the Tajiguas wasteshed (*see e.g.* Responses to Comment, TRRP EIR, p. 9-309). However, our existing programs are rather limited and demonstrate substantial capacity for expansion. Other jurisdictions have successfully expanded source separation to include residential food waste collection, not only elsewhere in California[3] but here Santa Barbara County where now all residents and businesses of the unincorporated Santa Maria and Lompoc Valleys are required to place ALL of their food scraps and food soiled paper, along with yard waste, in their green container.[4]

The following chart identifies generally the measures already implemented (as described in the TRRP final EIR), and where there appears to be significant room for additional improvement. While not every action is within the County's control, the County can and should encourage Cities to implement these additional measures.

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[3] See e.g.: Orange County (*see https://oclandfills.com/residential-organics-recycling); City of Santa Cruz (see https://www.cityofsantacruz.com/government/city-departments/public-works/resource-recovery-garbage-recycling-sweeping/recycling-and-waste-reduction/food-waste);* City of Watsonville *(*see *https://oclandfills.com/residential-organics-recycling);* City of San Francisco *(see https://sfenvironment.org/recycling-composting-faqs);* San Diego County is adding organic waste collection services for households this year (*see https://www.sandiego.gov/environmental-services/recycling/sb1383)*

[4] https://www.independent.com/2022/07/01/new-organics-recycling-program/

	PROGRAMS CURRENTLY IMPLEMENTED OR BEING IMPLEMENTED	OPPORTUNITY FOR EXPANSION AND/OR NEW PROGRAMS
FOOD WASTE COLLECTION	• Commercial food waste collection in the City of SB • UCSB comprehensive food waste collection program • County/Goleta food waste collection targeting certain commercial generators	• Food waste collection for all businesses in the unincorporated County and other participating Cities • Food waste collection for all residences • Increased commercial food donation programs, and increased use of residential backyard “gleaning” programs, to divert unused produce to food banks and shelters.
RECYCLING MANDATES	• Mandatory commercial recycling in the unincorporated area	• Mandatory commercial recycling in the participating Cities (note, most businesses and multifamily residential dwellings with 5 or more units are mandated by state law to have commercial recyclables collection) • Mandatory residential recycling in the unincorporated area, and participating Cities
BULKY ITEMS – FURNITURE, BUILDING MATERIALS		• Partner with ReStore to reestablish a donation/resale location in the South County
PRICE INCENTIVES	• 50% discount for collecting recyclables from businesses (as opposed to the same amount of trash) • Variable can pricing on south coast where customer pays more to have more trash cans • Green waste can offered to residents free of charge	• Provide blue and food waste (yellow?) cans free of charge • Increase charge for brown can • Limit the size and number of brown cans per household/customer • Charge steep overage charges for additional trash disposal
COLLECTION FREQUENCY	• Weekly for trash and green, bi-weekly for recyclables	• Increase frequency of recyclables collection to

		weekly as opposed to bi-weekly
PUBLIC EDUCATION CAMPAIGN	• Various public educational campaigns promoting green waste collection, recycling	• Public educational campaign leading up to roll-out of residential/enhanced food waste collection • Public educational campaign focused on what individuals and businesses can and must do to help meet our state mandates • Public education to inform large commercial generators about source reducing food waste (e.g. through more closely monitored ordering, use of excess produce in products produced onsite, participation in the campaign to sell "ugly produce")

b. Waste Reduction/Prevention

The United States is world renowned for being a "throw-away" society, with the EPA reporting in 2006 that each American generates 4.6 lbs. of garbage every day. (*see* Zimmerman, How we became a throw-away society)[5]. Planned obsolescence (intentionally making a product or part that will fail, or become less desirable over time or after a certain amount of use), overuse of packaging, use of non-recyclable materials when recyclable alternatives exist, and general overconsumption, among other things, contribute to the extraordinary quantity of garbage we generate. (*See Id.*). The DSEIR should identify strategies by which the County can incentivize waste prevention, including pursuing legislation to ban items such as single use bags, Styrofoam, and other non-recyclable packaging materials, and incentivizing local businesses to engage in Product Lifecycle Management (taking into account the entire life cycle of their products). CalRecycle has identified producer responsibility for end-of-life targets, and packaging reduction as strategies for achieving its waste diversion goals.

The DSEIR should recognize that a combination of waste reduction and prevention, and enhanced curbside collection programs, could meet the Project's core objective of extending the life of Tajiguas Landfill.

[5] http://www.ourbetternature.org/throwaway.htm

7. Conclusion

We respectfully request that the issues and recommendations raised in these comments be meaningfully addressed in the DSEIR. Addressing these issues and recommendations as fully as possible in the draft document helps avoid multiple rounds of environmental review, and simplifies the response to comment process. With respect to issues like source separation that have arisen before, we understand past justifications proffered by Public Works and find them to be inadequate. What we are requesting is a new, open minded, and fact-based analysis of how the County can improve its solid waste handling to maximize diversion, minimize nuisance impacts, and avoid costly and impactful landfill expansions.

Respectfully Submitted,

LAW OFFICE OF MARC CHYTILO, APC

Ana Citrin
For Gaviota Coast Conservancy

Attachment: Board Resolution No. 18-150

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF SANTA BARBARA, STATE OF CALIFORNIA

A RESOLUTION TO CEASE BURIAL OF RESIDUALS AND SOLID WASTE AT TAJIGUAS LANDFILL WHEN THE LANDFILL REACHES PERMITTED CAPACITY AND TO SEEK OTHER RESIDUAL DISPOSAL OPTIONS	**Resolution No.** 18-150

WHEREAS, Article XI, section 7 of the California Constitution authorizes cities and counties to protect public health and safety by taking measures in furtherance of their authority over police and sanitary matters; and,

WHEREAS, the Legislation of the State of California, by enactment of the California Integrated Waste Management Act (AB 939), Global Warming Solutions Act (AB 32), Mandatory Commercial Recycling and 75% Diversion Goal (AB 341), Mandatory Commercial Organics Recycling (AB 1826), 15 Year Disposal Capacity policy (PRC Division 30, Part 2, Chapter 4, Section 1701), Compostable Organics Infrastructure (AB 876), and Short Lived Climate Pollutants (SB 1383) established a solid waste management program which requires cities and counties to implement solid waste management plans and develop programs to be in compliance with these provisions; and,

WHEREAS, the County currently manages many solid waste resources to provide an integrated waste management system for the communities of Buellton, Goleta, Santa Barbara, and Solvang as well as the unincorporated South Coast and Santa Ynez Valley areas; and,

WHEREAS, solid waste resources managed by the County include collection and processing of commingled recyclables, green waste, and food waste; hazardous and universal waste programs for residents and businesses; education; operation of four recycling and transfer stations, one hazardous waste collection center, and one Class III landfill; and,

WHEREAS, the Tajiguas Landfill is owned and operated by the County and has been in operation for more than half of a century since 1967 for disposal of municipal solid waste such as residential and commercial waste collected by contracted and franchised haulers, waste from four area transfer stations, residuals from commingled recyclables processed off-site, self-hauled waste, and other hard to handle materials; and,

WHEREAS, the Tajiguas Landfill currently operates under a variety of permits issued by CalRecycle, Regional Water Quality Control Board, the County and the Air Pollution Control District, and has a permitted maximum capacity of 23.3 million cubic yards of waste; and,

WHEREAS, on July 12, 2016, the County approved the contract and certified the Subsequent Environmental Impact Report ("Subsequent EIR") No. 12EIR-00000-00002 for the Tajiguas Resource Recovery Project ("Project"); and,

WHEREAS, the Project is composed of a material recovery facility and anaerobic digester that will be capable of recovering up to 60% of waste currently being disposed as well as process both source separated recyclables as well as organics generated by the community in addition to being largely energy self-sufficient; and, WHEREAS, the Project will provide a long-term solution to the region's solid waste management needs including enabling all participating jurisdictions to be in compliance with the growing number of stringent waste management regulations and greenhouse gas reduction requirements; and,

WHEREAS, the development of the Project has been a collaborative effort involving staff from the cities of Buellton, Goleta, Santa Barbara, Solvang, and the County as well as involving public outreach including over 140 presentations to interested parties; and,

WHEREAS, on November 14, 2017, the County considered the Revised Tajiguas Resource Recovery Project ("Revised Project") and adopted findings, including California Environmental Quality Act findings; approved the Comprehensive Plan Amendment amending the Tajiguas Landfill "Waste Disposal Facility Overlay;" received the Planning Commission's Government Code section 65402 conformity report; approved the Second Amendment to the Amended Contract Between the County and Respondent MSB Investors, LLC; and, considered a Revised Addendum to the Subsequent EIR together with the Subsequent EIR No. 12EIR-00000-00002, State Clearing House No. 201204 certified by the Board on July 12, 2016 and Subsequent EIR Revision Letter and Errata dated May 27, 2016; and,

WHEREAS, in 2004, the US Department of Interior evaluated a 76 miles segment of the Gaviota Coast for its significance, suitability and feasibility for inclusion in the National Park System and concluded that the Gaviota Coast contains nationally significant natural and cultural resources and was suitable but not feasible for inclusion in the National Park System;

WHEREAS, the U.S. Department of Interior study found that the Gaviota Coast includes one the rarest global biomes unique to the United States with 1400 species that occupy the healthiest remaining coastal ecosystem in southern California that serves as an ecological transition zone between northern and southern California ecological provinces for both terrestrial and marine species which contributes to the area's extraordinary biotic diversity; and,

WHEREAS, the scenic, biological, cultural, agricultural and recreational resources of the Gaviota Coast are of exceptional value and importance to the community; and,

WHEREAS, the Board recognizes that the Community Vision articulated in the Gaviota Coast Plan of preserving the rural character of Gaviota by protecting and enhancing its varied and unique natural and cultural resources, agricultural productivity, and by enhancing and expanding public recreation and access opportunities consistent with the capacity of its resources; and,

NOW, THEREFORE, BE IT RESOLVED that the Board of Supervisors of Santa Barbara County hereby establishes a policy:

i. To cease burial of residuals and solid waste at the Tajiguas landfill when it reaches the existing permitted capacity of 23,300,000 cubic yards except for emergency debris;

ii. To not seek an expansion of the Tajiguas landfill capacity other than for emergency debris;

iii. When seven years of remaining disposal capacity is reached based on the County's annual report to CalRecycle, to begin to seek locations other than the Gaviota Coast for solid waste residual disposal (a new landfill and/or contracting with other existing landfills); and,

iv. To limit use of Baron Ranch primarily to open space, recreation and agricultural uses.

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Barbara, State of California this 19th day of June, 2018 by the following vote:

AYES: Supervisors Williams, Wolf, Hartmann, Adam, and Lavagnino

NOES: None

ABSTAIN: None

ABSENT: None

DAS WILLIAMS, CHAIR
BOARD OF SUPERVISORS

ATTEST:

MONA MIYASATO
CLERK OF THE BOARD

By ______________________
Deputy

APPROVED AS TO FORM:

MICHAEL C. GHIZZONI
COUNTY COUNSEL

By ______________________
Deputy

APPENDIX C

TAJIGUAS LANDFILL SOLID WASTE FACILITY PERMIT

SOLID WASTE FACILITY PERMIT

Facility Number:

42-AA-0015

1. Name and Street Address of Facility:

Tajiguas Resource Recovery Project and Sanitary Landfill

14470 Calle Real, Goleta, CA 93117

2. Name and Mailing Address of Operator:

County of Santa Barbara Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101

3. Name and Mailing Address of Owner:

County of Santa Barbara Public Works Department,
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101

4. Specifications:

a. Permitted Operations:

☒ Solid Waste Disposal Site
☒ Transfer/Processing
[Material Recovery Facility (MRF)]
☒ Green Waste Processing
☒ In-Vessel Digestion (MSW/GW)
☒ Composting Facility (MSW/GW)

b. Permitted Hours of Operation[1]:

DAYS OF WEEK	ACTIVITY: Waste Receipt[3], Disposal[3] and Composting Operations	Cover, compaction, and maintenance[3]	Construction Only	Waste Processing & Special occurrences
Monday - Tuesday	7:00 A.M. – 5:00 P.M.	6:00 A.M. – 6:00 P.M.	6:00 A.M. – 8:00 P.M.	24 Hours
Wednesday - Saturday	7:00 A.M. – 4:00 P.M.	6:00 A.M. – 6:00 P.M.	6:00 A.M. – 8:00 P.M.	24 Hours
Sunday[2]	—	—	7:00 A.M. – 6:00 P.M.	24 Hours

(1) These maximum facility hours may be further restricted by the hours specified in the LEA-approved JTD.
(2) Maximum of 20 Sundays per year will be permitted. The MRF will not process waste on Sundays.
(3) Closed for waste receipt on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. When a holiday occurs on a Sunday, the landfill only is closed the following Monday. Compost product transportation off site may occur from Monday to Saturday 7:00 A.M. to 5:00 P.M. Transport of recyclables may occur up to 24 hours per day Monday to Saturday.

c. Permitted Maximum Tonnage: 1500 Tons per Day

d. Permitted Traffic Volume: 184 Vehicles per Day

Note: This maximum limit pertains to waste disposed and materials processed on site. It does not apply to materials received ready for use as earthen or alternative daily cover.
Note: Vehicle figure does not include an additional 50 VPD miscellaneous traffic such as employees, contractors, deliveries, regulatory agencies and other visitors.

e. Key Design Parameters (Detailed parameters are shown on site plans bearing EA and CalRecycle validations):

	Total	Disposal	GW Processing	Transfer/Processing	In-Vessel Digestion	Composting
Permitted Area (in acres)	357	118	See Figure 2 in JTD	See JTD Appendix M	See JTD Appendix N	See JTD Appendix N
Design Capacity (cu yds)		23,300,000	Refer to JTD Section 2	See JTD Appendix M	See JTD Appendix N	See JTD Appendix N
Max. Elevation (Ft. MSL)		620				
Estimated Closure Year		2036				

The attached permit findings and conditions are integral parts of this permit and supercede the conditions of any previously issued solid waste facility permits. This permit shall not be construed as authorizing the violation of or preventing the operator from complying with other applicable federal, state and/or local requirements including all mitigation and monitoring measures developed in accordance with certified environmental documents filed pursuant to Public Resources Code 21081.6. Nothing in this permit shall relieve the operator, owner and/or designee from the obligation of obtaining or complying with other permits, licenses, clearances and/or entitlements required by other regulatory agencies.

5. Approval:

Lawrence Fay, Environmental Health Services Director

6. Local Enforcement Agency (LEA) Name and Address:

Santa Barbara County Environmental Health Services
225 Camino Del Remedio, Santa Barbara, CA 93110

7. Date Received by CalRecycle:
January 24, 2017

8. CalRecycle Concurrence Date:
January 30, 2017

9. Permit Issued Date:
February 2, 2017

10. Permit Review Due Date:
February 2, 2022

11. Owner/Operator Transfer Date (If applicable):

SOLID WASTE FACILITY PERMIT

Facility Number:

42-AA-0015

12. Legal Description of Facility:
The facility is contained in APN's 081-150-019, 081-150-026, 081-150-032, 081-150-042 as illustrated in Figure 2 of the JTD. The facility is located at 14470 Calle Real, Goleta, CA 93117, on unsectionalized land that is a portion of Nuestra Senora Del Refugio; Latitude 34 degrees, 28 minutes, 54 seconds N (North), Longitude 120 degrees, 07 minutes, 40 seconds W (West).

13. Findings:

a. This permit is consistent with the Santa Barbara County Integrated Waste Management Plan, which was approved by the California Department of Resources Recycling and Recovery (CalRecycle) on May 19, 1998. The location of the facility is identified in the Countywide Siting Element, and Non-Disposal Facility Element was updated by CalRecycle on May 27, 2016 to add the Tajiguas Resource Recovery Project (TRRP) pursuant to Public Resources Code (PRC), Section 50001(a).

b. This permit is consistent with the standards adopted by CalRecycle, pursuant to PRC 44010.

c. The design and operation of the facility is consistent with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the enforcement agency on September 8, 2016, pursuant to PRC 44009.

d. The Santa Barbara County Fire Department during a November 10, 2016 inspection determined that the facility was in conformance with applicable fire standards, pursuant to PRC 44151.

e. An Environmental Impact Report (SCH #98041003) was certified by the Santa Barbara County Board of Supervisors (BOS) on August 13, 2002. A Subsequent EIR (SEIR) (SCH #2008021052) was certified by the BOS on May 5, 2009. A second SEIR (SCH#2012041068) that analyzed impacts related to the TRRP was certified by the BOS on July 12, 2016. The EIR, and the two SEIR's describe and support the design and operation authorized by the issuance of this permit.

f. The Santa Barbara County Planning and Development Department (P&D) provided a letter dated October 24, 2013 stating that landfill projects within the inland area of the landfill property are not subject to local land use permit requirements. Within the Coastal Zone, permits are not required for activities and projects supporting the existing legal non-conforming landfill use. Also, in a public hearing on January 6, 2016, the Santa Barbara County Planning Commission found that the TRRP is in conformance with the Comprehensive Plan in compliance with Government Code Section 65402(a).

14. Prohibitions
The permittee is **prohibited from accepting any hazardous waste, designated waste, liquid waste or grease, liquid sludge or septic tank pumping, burning waste or hot ash, non-hazardous waste requiring special handling, radioactive waste or medical waste** (as defined in Health and Safety Code Sections 117600-118360), except as identified in the Joint Technical Document and LEA-approved amendments thereto and as approved by other federal, state, and local agencies.

15. The following documents also describe and/or restrict the operation of this facility:

	Date		Date
Joint Technical Document, Transfer Processing Report, In-Vessel Digestion Report and Report of Composting Site Information	October 2016	Letter from Planning & Development	October 24, 2013
Waste Discharge Requirements Order No. R3-2010-0006 (WDR's)	February 4, 2010	Closure Financial Assurance Documentation, Letter from CalRecycle Financial Assurances Section	October 12, 2016
APCD Permit to Operate #9788; and Part 70 Operating Permit #9788	November 27, 2002	Operating Liability Certification	October 3, 2016
Final Environmental Impact Report, SCH #98041003 Final Subsequent EIR, SCH #2008021052 Final Subsequent EIR, SCH #2012041068	July 2002 May 2009 July 2016	Phases 2 and 3 Partial Final Closure and Post-Closure Maintenance Plan and Phase 4 Preliminary Closure and Post-Closure Maintenance Plan	November 2015
County Integrated Waste Management Plan for the County of Santa Barbara as approved by CalRecycle	October 21, 1998	Non-Disposal Facility Element	May 27, 2016

SOLID WASTE FACILITY PERMIT	Facility Number: 42-AA-0015

16. Self Monitoring:

The Public Works Department shall submit the results of all self monitoring programs to Environmental Health Services within 30 days of the end of the reporting period *(for example, 1st quarter = January – March, the report is due by April 30, etc.. Information required on an annual basis shall be submitted with the 4th quarter monitoring report, unless otherwise stated.)*

Program	Reporting Frequency
a. Log of Special Occurrences, which includes records of fires, explosions, injury and property damage accidents, earth slides, sudden settlement, flooding, and other unusual events, such as landfill closure, with a brief description of the response to and resolution of each incident. Include visits by regulatory agencies.	Daily log maintained on site at each facility; summary provided in quarterly tonnage report
b. Results of the hazardous waste load checking program, including the quantities and types of hazardous wastes, medical wastes or otherwise prohibited wastes found in the waste stream, reporting agencies contacted, and the disposition of these materials. Include record of waste loads rejected.	Quarterly
c. Solid waste tonnage, including green waste and source-separated organic waste, and hauling vehicles entering the facility per day. Include daily averages and daily peaks for each calendar month. Provide incoming tonnage information for each facility, and compost product tonnage leaving the facility. Amount of materials used as ADC on site must also be reported.	Quarterly
d. Results of the perimeter subsurface and on-site structure landfill gas monitoring program.	Quarterly
e. Results of pathogen and metals testing of compost product as required in Title 14 of the California Code of Regulations, Division 7, Chapter 3.1, with a sampling frequency of no less than once every 12 months unless otherwise approved by the LEA through the JTD amendment process.	Quarterly
f. Copies of all written complaints regarding this facility and the operator's actions taken to resolve these complaints.	Annually
g. Wet weather preparedness report/winter operations plan.	Annual – due by October 1
h. Fill sequencing plan for the forthcoming year.	Annually
i. Current disposal area topography map with updated calculation of remaining site capacity.	Annual – due by June 30

17. Enforcement Agency (EA) Conditions:

a. This facility shall comply with state minimum standards for solid waste handling and disposal pursuant to applicable sections of Titles 14 and 27 of the California Code of Regulations.

b. This facility shall comply with all mitigation measures given in any certified or adopted environmental document that are within the authority of the LEA pursuant to the Public Resources Code Section 21081.6.

c. This permit supercedes the previous permit #42-AA-0015 issued February 10, 2014.

d. The following activities are prohibited:

1) Scavenging.
2) Standing water on fill areas.
3) Eating/Smoking near waste processing.
4) Vector propagation and harborage.
5) Off-site migration of waste, litter or leachate.
6) Off-site subsurface migration or on-site structure accumulation of explosive gas sufficient to create a safety hazard.

e. A daily special occurrences log as specified in section 16a on page 3 shall be maintained on site at each facility at all times and available for LEA inspection.

f. All reports specified in section 16 on page 3 shall be submitted to the LEA in a timely manner, and within 30 days of the reporting period.

g. The operator shall comply with the Waste Tire Storage and Disposal Standards in Title 14, Chapter 3, Article 5.5, Section 17350-17359.

h. This landfill is approved to use foam, geosynthetic tarps, processed green waste, and C&D tailings as alternative daily cover. Any other proposed alternative daily cover shall require approval from the LEA.

i. Site access shall be granted to the LEA for the purpose of inspection without prior notice from the LEA.

j. Adequate lighting shall be provided for all operations conducted before sunrise or after sunset as described in the JTD.

k. The operator, within the time frame specified by the LEA's request, shall furnish any additional information concerning the design and operation of this facility.

l. Any change that would cause the design or operation of this facility not to conform to the terms and conditions of the permit is prohibited. Any significant change that may be proposed for this facility shall require submission of an amended Joint Technical Document and application for a revised solid waste facility permit to the LEA at least 180 days prior to the anticipated date for implementation of the change.

m. This permit is subject to review by the EA and may be suspended or revoked at any time for sufficient cause, in accordance with Division 30 of the California Public Resources Code, Part 4, Chapter 4 Article 2, Sections 44305, et. seq.

n. The EA reserves the right to suspend or modify waste receiving and handling operations when deemed necessary due to an emergency, a potential health hazard, or the creation of a public nuisance.

o. The operator shall maintain a copy of this permit and the Joint Technical Document, including any future updates, at the facility to be available at all times to facility personnel and enforcement agency representatives.

* * * * * * *

2017

APPENDIX D

TECHNICAL PROJECT DESCRIPTION

1.0 Introduction

1.1 Project Title

Tajiguas Sanitary Landfill (TSL) Capacity Increase Project

1.2 Lead Agency and Project Proponent

County of Santa Barbara (COSB) Public Works Department
Resource Recovery & Waste Management Division (RRWMD)
130 East Victoria Street, Suite 100
Santa Barbara, CA 93101
Contact: Leslie Wells, Deputy Director of Public Works, lwells@countyofsb.org

1.3 Project Location

The TSL is located in the County of Santa Barbara at 14470 Calle Real, Goleta, California 93117. This address is located on land which is a portion of Rancho Nuestra Senora Del Refugio. The site's latitude and longitude are 34°28'54"N and 120°07'40"W, respectively. The facility is located in a coastal canyon known as Cañada de la Pila, approximately 26 miles west of the City of Santa Barbara. Immediately south of the landfill site are U.S. Highway 101, the Union Pacific Railroad tracks, and the Pacific Ocean. The TSL property also houses the County's ReSource Center (RC) (formerly the Tajiguas Resource Recovery Project or TRRP). The TSL and RC are companion facilities designed to manage waste and recyclables from the communities served by TSL.

Access to the site is via a paved road that intersects U.S. Highway 101 and is gate controlled. The TSL is located on land owned by the COSB encompassing three Assessor Parcel Numbers (APN) 081-150-042, 081-150-019, and 081-150-026. The landfill property is comprised of a permitted operational area of 357 acres, of which 118 acres is permitted for landfill disposal. Figure 1 shows the regional location of the landfill.

1.4 Zoning and General Plan Designation

The state Coastal Zone Boundary passes through the southern portion of the property. The portion of the TSL property located in the inland area is exempt from the Santa Barbara County Land Use and Development Code (Chapter 35 of the Santa Barbara County Code). The inland area of the TSL is designated with a "waste disposal facility" overlay in the County's General Plan. The remaining portions are located within the Coastal Zone and are subject to Santa Barbara County Coastal Zoning Ordinance (Article II). The TSL property has an agricultural zoning (AG-II-320 in the Coastal Zone and AG-II-100 inland) and land use designation (A-II-320 in the Coastal Zone and A-II-100 inland). A small area of APN 081-150-026, in the northeastern corner of the parcel, outside of the operational area, has an Environmentally Sensitive Habitat zoning overlay and a portion of APN 081-150-019 has a critical viewshed corridor zoning overlay. A 110-acre conservation easement is proposed to encompass the northeastern corner of APN 081-150-019 (outside of the operational boundary) and portions of APN 081-150-032 and 081-100-005 on the Baron Ranch in association with a Habitat Conservation Plan (HCP) and Incidental Take Permit (ITP) from the U.S. Fish & Wildlife Service (USFWS) for operation of the TSL and RC.

Operation of the TSL, predates both the Coastal Act of 1972 and the Santa Barbara County Coastal Zoning Ordinance (Article II). For County permitting purposes, the TSL has been "grandfathered" under the current zoning and is considered a legal, nonconforming use within the Coastal Zone. The Coastal Commission determined that a formal vested right determination was not required for continuation of the historic operation of the TSL within the Coastal Zone (California Coastal Commission, September 13, 2018). A Coastal Zone Boundary Determination was also prepared for the RC Materials Recovery Facility (MRF) and the Coastal Commission made a formal boundary determination that the MRF was outside of the Coastal Zone and not subject to the permit requirements of the Coastal Act of 1976 (California Coastal Commission, September 21, 2018).

The 1,083-acre RRWMD-owned Baron Ranch is located to the east of TSL property and includes APN 081-150-032, APN 081-100-005, and APN 081-090-009. The Baron Ranch was historically used for agriculture (avocado, cherimoya orchards, and grazing), a quarry, and was developed with a single-family dwelling which was destroyed in the Alisal Fire. Baron Ranch is currently used for TSL mitigation (native habitat restoration, habitat conservation associated with resource agency permits, as a receiver site for sensitive species translocated from the operational areas of the TSL) and public recreation (multi-use trail). In 2016, RRWMD purchased two parcels south of APN 081-150-019. The two parcels are a 24.24-acre parcel (APN 81-150-034) and a 20.00-acre parcel (APN 81-150-033).

The TSL permitted operational area covers 357 acres (Figure 2). The majority of the operational area is located within the TSL properties (APN 081-150-019, APN 081-150-026, and APN 081-150-042); however, approximately 5 acres of graded area which was required for the installation of the landfill perimeter access road, drainage system, and also includes a portion of the RC Anaerobic Digestion Facility (ADF), extends onto the Baron Ranch (APN 081-150-032). The property boundaries, operational area boundary, and the Coastal Zone Boundary are presented on Figure 2.

1.5 Prior CEQA Review

The TSL began operations in 1967 prior to the adoption of the California Environmental Quality Act (CEQA) (1970) and the California Coastal Act, which designated Coastal Zones in California in 1976. Expansions to the TSL were approved in 1987 and 2002, and a reconfiguration of the permitted TSL waste footprint was approved in 2009. In 2017, a modification to TSL operations was approved to include the construction and operation of the RC at the TSL to further recover recyclable material from the waste stream and provide an alternative to burying organic waste as required by State and Federal waste management legislation, reduce greenhouse gas emissions, and generate green energy. The following environmental documents include the analysis of the impacts of constructing and operating the TSL and associated projects as required by CEQA:

- In 1987, an Environmental Impact Report (EIR) was certified for a proposed lateral expansion of the TSL into the northern portions of Cañada de la Pila (87-EIR-08). An addendum to 87-EIR-08 was adopted on July 21, 1988 for a vertical expansion of the existing waste footprint to an elevation of 500 feet above msl. The lateral expansion reviewed under the 1987 EIR was never implemented.

- On August 3, 1999, the COSB Board of Supervisors directed the RRWMD to proceed with the Bench Plan for the landfill. The Bench Plan increased the permitted disposal design capacity of the TSL from 12.0 million cubic yards (mcy) to 15.1 mcy by re-grading and filling the outside faces of the TSL. The Bench Plan project was determined to be within the scope of the analysis of 87-EIR-08 and the July 21, 1988 addendum.
- On August 13, 2002, the COSB Board of Supervisors certified an EIR (01-EIR-05) for and approved the landfill Expansion Project (Front Canyon Expansion). This project consists of the horizontal and vertical expansion of the TSL outside of the Coastal Zone, providing 8.2 mcy of additional waste disposal capacity for a total capacity of 23.3 mcy.
- On December 5, 2006, the COSB Board of Supervisors approved minor changes to the approved landfill Expansion Project. These changes included elimination of the Coastal Zone Southeast Corner Modification and reconfiguration of the North Slope borrow/stockpile area. These project changes were analyzed in a November 8, 2006 Addendum to 01-EIR-05.
- On April 18, 2007, pursuant to State CEQA Guidelines Section 15162, the County Environmental Review Officer determined that 01-EIR-05 adequately addressed a proposed change in the location of the Green Waste Processing Area.
- On May 5, 2009, a Subsequent EIR (08EIR-00000-00007) was certified for a reconfiguration of the TSL footprint extending the waste footprint across Pila Creek, while maintaining the permitted TSL footprint at 118 acres and the permitted disposal capacity of 23.3 mcy.
- On March 18, 2014, pursuant to State CEQA Guidelines Section 15162 (Planning and Development 15162 determination letter dated December 19, 2013), the COSB Board of Supervisors found that no substantial changes were proposed in the project, no substantial changes occurred with respect to the circumstances under which the project was undertaken, and no new information of substantial importance was received with respect to the project or the mitigation measures. Therefore, no new EIR was required for the approval of the Phase IIIB Groundwater Protection System including a proposed change in the location of temporary soil stockpiles for the project.
- Subsequent EIR 08EIR-00000-00007 and 15162/15164 determination letter dated September 25, 2014, was accepted by the COSB Board of Supervisors on June 23, 2015 for modification to the Baron Ranch Restoration Plan associated with the Reconfiguration Project.
- On July 12, 2016, a Subsequent EIR (12EIR-00000-00002), EIR Revision Letter and Errata dated May 27, 2016 was certified by the COSB Board of Supervisors for the operation of the formerly TRRP (now the RC). An addendum to 12EIR-00000-00002 (dated August 11, 2017, revised October 26, 2017) was prepared for the Revised Tajiguas Resource Recovery Project and considered by the COSB Board of Supervisors on November 14, 2017.

- Since approval of 12EIR-00000-00002 and the addendum by the COSB, several CEQA 15162 determinations have also been prepared to address minor changes in the RC project description as the final engineering design was completed and start-up operations have begun.

1.6 Permits

CalRecycle/Local Enforcement Agency

Pursuant to the California Code of Regulations, Title 27 (27 CCR), all proposed or active solid waste disposal facilities (landfills) are required to obtain a full Solid Waste Facility Permit (SWFP) to operate, unless an exemption is granted by the Local Enforcement Agency (LEA). The SWFP No. 42-AA-0015 for the TSL was last issued on February 2, 2017 and the most recent 5-Year Permit Review was conducted by the Santa Barbara County Environmental Health Services (acting as the LEA) in February 2022. The current SWFP establishes operating parameters for the TSL.

California Regional Water Quality Control Board

Pursuant to 27 CCR, all proposed or active solid waste disposal facilities (landfills) are required to obtain Waste Discharge Requirements (WDR) to operate. WDR Order and associated Monitoring and Reporting Program (MRP) No. R3-2010-0006 for the TSL was last issued by the Central Coast Regional Water Quality Control Board (CCRWQCB) in 2010. The TSL's enrollment in the 2020 General WDR Order No. R3-2020-0001 for active Class III landfills in the CCRWQCB was scheduled for March 1, 2022 and enrollment is currently pending.

In addition to the WDR and MRP for the disposal of waste at the TSL, the following permits were issued to the TSL, MRF, and Compost Management Unit (CMU):

- State Water Resources Control Board (SWRCB) Water Quality Order No. 2014-0057-DWQ National Pollutant Discharge Elimination System (NPDES) Industrial General Permit No. CAS000001; Notice of Intent for enrollment on May 21, 2015.
- CCRWQCB Order No. WQ 2014-0153-DWQ General WDRs for small domestic wastewater treatment, and MRP Order No. R3-2020-0102 issued January 29, 2021 (for the RC MRF).
- CCRWQCB Order No. WQ 2016-0068-DDW General WDRs for water reclamation and recycled water use, and MRP Order No. R3-2020-0104 issued January 29, 2021 (for the RC MRF).
- SWRCB Order No. WQ 2020-012-DWQ General WDRs for commercial composting operations enrollment as a Tier II composting operation issued on June 11, 2021 (for the RC CMU).

Santa Barbara County Air Pollution Control District

The operation of the TSL falls under the jurisdiction of the Santa Barbara County Air Pollution Control District (SBCAPCD) for the monitoring and control of landfill (LFG) emissions and migration, and dust. The landfill gas collection and control systems (GCCS) consists of the landfill gas collection system (LFGCS), treatment, and control systems used to collect and destroy LFG emitted from the TSL, and are permitted under Permit to Operate (PTO) No. 9788-R4 and Part 70 Operating Permit No. 9788, PTO 15136, and Authority to Construct (ATC) 14500 (which is not finalized and under multiple revisions).

Operation of the RC MRF and ADF are permitted by the SBCAPCD ATC 14500 Modification No. 2, issued October 2018. At the request of Mustang Renewable Power Ventures, LLC (RRWMD's operator of the ADF and LFG control equipment), the SBCAPCD issued ATC 14500 Modification No. 7 on February 3, 2021 and revised the Source Compliance Demonstration Period (SCDP) condition, enabling a phased startup of the permitted equipment and operations. ATC 14500 Modification No. 5 is pending SBCAPCD review. A PTO application will be submitted by Mustang Renewable Power Ventures, LLC to the SBCAPCD after the last phase of the SCDP has been completed under the ATC.

Other Permits

Restroom facilities located at the MRF are supplied by a water well that is permitted as a Non-transient, Non-community Water System. The Santa Barbara County, Public Health Department, Environmental Health Services issued a Domestic Water Supply Permit on December 2, 2020 for the RC to operate a public water system in accordance with the California Health and Safety Code, Section 116525.

The TSL and RC are also regulated by the Santa Barbara County Certified Unified Program Agency (CUPA) for operating aboveground storage tanks (ASTs) and handling hazardous materials.

Resource Agency Permits In addition to the permits listed above, the TSL operates under resource agency permits for maintenance activities conducted in jurisdictional area (Pila Creek) and for management of endangered species including:

- United States Fish and Wildlife Service - Incidental Take Permit and Habitat Conservation Plan under Section 10 of the Federal Endangered Species Act (in progress) for the California red-legged frog and the southwestern pond turtle.
- United States Army Corps of Engineer (ACOE) - Nationwide Permit 31, File No. SPL-2019-00373-AJS.
- California Department of Fish and Wildlife - Lake and Streambed Alteration Agreement No. SAA 1600-2018-0337.
- RWQCB - 401 Water Quality Certification WDID No. 34219WQ14.

2.0 Project Description

2.1 Facility Background

As discussed in Section 1.3, the TSL is located approximately 26 miles west of the City of Santa Barbara in the southern coastal portion of the COSB (Figure 1).

The TSL opened in 1967 and is owned and operated by the COSB RRWMD. The TSL is a Class III landfill as defined by 27 CCR, Section 20260. The landfill property comprises 497 acres, a permitted operational area of 357 acres, a permitted waste disposal footprint of 118 acres, a permitted disposal capacity of 23.3 mcy, permitted maximum elevation of 620 feet above mean sea level (amsl), permitted maximum tonnage of 1,500 tons per day (tpd) and a permitted traffic volume of 184 vehicles per day (vpd) (not including an additional 50 vpd for miscellaneous traffic) (SWFP No. 42-AA-0015). The permitted waste disposal footprint is comprised of both lined and unlined areas. The current Permitted Master Fill Plan is shown on Figure 3.

The TSL serves 55% of the County population including the cities of Buellton, Goleta, Santa Barbara, Solvang and the unincorporated areas of Montecito/Summerland, Mission Canyon, Eastern Goleta Valley, Isla Vista and the Santa Ynez and Cuyama Valleys. Municipal solid waste (MSW) is transported to the landfill from the South Coast Recycling and Transfer Station, the Santa Ynez Valley Recycling and Transfer Station, the New Cuyama Transfer Station, and the Ventucopa Transfer Station.

Except for guided educational programs, there is no public access to the TSL and RC for waste disposal. The TSL accepts waste primarily from franchise haulers, private haulers, and the County-operated transfer stations. Some spot market waste generated within Santa Barbara County is also accepted.

As discussed in Section 1.5, expansions at the TSL were approved in 1987 and 2002, and reconfiguration of the landfill waste footprint was approved in 2009. In 2017, a modification to TSL operations was approved to include the construction and operation of the RC to further recover recyclable material from the waste stream and provide an alternative to burying organic waste. Past CEQA documentation supporting these changes at the TSL is discussed further in Section 1.5.

The proposed capacity increase area is located outside of the Coastal Zone, however existing access roads, ancillary facilities, and environmental control systems/facilities located in the Coastal Zone would continue to be used to support the ongoing landfilling activities in the inland area.

2.2 Relationship to the ReSource Center

The RC, consisting of a MRF, an ADF, and a CMU, operates on the landfill property owned by the COSB. The MRF is operated under contract to the COSB by MarBorg Industries as a subcontractor to MSB Investors. The ADF and CMU are operated under contract to the COSB by MSB Investors. The RC is publicly financed and the debt service on the financing ends in December 2038.

All waste entering the site passes through the landfill scale house. Bypass waste, such as special waste loads, etc., (~161 tpd) goes straight to the working face for disposal, green waste (~129 tpd) is brought to the green waste processing deck, and all other waste (~500 tpd) goes to the MRF for sorting and processing. The MRF also receives comingled source-separated recyclables (CSSR) (~109 tpd) for processing. Non-recyclable or compostable residue from the MRF is transported to the landfill working face for disposal (~216 tpd or 40% of waste received at the MRF). The TSL also receives residue from the ADF/CMU (~60 tpd) for landfilling (projected contracted volumes converted to tpd based on 311 operating days/year and Table 2-1 Projected Resource Recovery Project Tonnage of the Development and Operating Agreement Between the County of Santa Barbara and MSB Investors, LLC, 2016 ["Waste Service Agreement"]).

No changes to the RC facilities or operations are proposed. The permitted operational parameters for the RC are also included in SWFP No. 42-AA-0015. Relocation of some RC utilities/infrastructure facilities (such as the access road to the ADF and CMU, the electrical distribution line between the MRF and ADF and the stormwater pipeline connecting the CMU runoff collection tank to the north sedimentation basin) would be required, as described in Section 2.5.

2.3 Need for the Increased Capacity Project

The total permitted airspace for the TSL is 23.3 mcy. The current remaining capacity of the TSL is 1,680,900 cubic yards (cy) (includes final cover for remaining fill areas), as of April 2022 (date of recent aerial topographic map, see Figure 4). In order to calculate the site life for TSL based on the April 2022 remaining capacity, the following criteria was utilized:

- Airspace Utilization Factor (AUF) 0.49 tons/cy
- Annual Growth Rate 1.0%

Based on the above criteria, the TSL currently has a projected remaining landfill site life of approximately 3.9 years, as of April, 2022, through approximately February 2026 (see Table 1), assuming continued acceptance of non-contractually committed waste. However, as discussed below, while capacity is a fixed volume site life is variable and can be affected by several factors.

Factors Affecting Landfill Capacity/Landfill Life

A landfill is typically designed and permitted based on cubic yards of disposal capacity. The difficulty is translating this cubic yard amount into years of service (landfill life). There are many factors that can affect the space used each year to dispose of a community's waste. These include:

- Variations in Annual Tonnage Buried
    - The quantity of waste buried correlates with the quantity of waste generated. Generation rates are typically affected by the state of the economy and this correlation has tracked very closely at the TSL with growth occurring year over year from 2012 through 2019 followed by a two-year reduction due to COVID-19. As the local economy is improving, the waste generation is now rebounding post-pandemic.

- Quantity of waste buried can also be impacted by the type of waste generated and if it is suitable for processing to recover recyclables or organics. If it is not processable, then it is directly landfilled.
- The condition of global recycling markets affects the quantity of materials that can be recovered for sale and diverted from landfilling. When markets are low, then more material will be buried.

➢ Compaction Rates

- Waste is compacted after being deposited at a landfill. Compaction rates can be impacted by the type of material being buried with some material being denser than other material. Lighter materials, such as paper and plastic, are recovered when waste is processed, and the residual material left to be buried may be denser.

➢ Use of Alternative Daily Covers (ADCs)

- Buried waste is covered at the end of each operating day. Typical cover material is soil, which will consume valuable landfilling space. A variety of approved ADC materials may be used in accordance with 27 CCR, Section 20690, with use approved by the LEA. Tarps are currently used at TSL as a space saving measure but are difficult to use during wet or windy weather. The TSL is also permitted to use other approved ADC materials, as discussed in the February 2022 Joint Technical Document (JTD).

➢ Decomposition and Settlement of Buried Waste

- Some types of waste consume less space in a landfill over time as its components decompose. The total effects of settlement will depend on various factors or processes, such as the types of refuse placed and their corresponding moisture content, the refuse placement density, consolidation of the refuse under loads imposed by overlying fill, and biological and chemical decomposition.

Landfill Capacity Projections

RRWMD is proposing to increase its current capacity to reach a projected refuse disposal filling date of December 2038 based on the RC being fully operational during this time period assuming a 31.35% diversion rate based on current RC operational data and a 1% growth rate. As shown on Figure 5 (Figure 9 from SWT January 27, 2023 memorandum), an approximate 14.25-acre lined area (for the proposed Phase IV membrane lined cell) would be excavated for refuse placement, while impacting approximately 1.5 acres of previously undisturbed area. The proposed final grades are shown on Figure 6. This area encroaches upon the existing north sedimentation basin, so the north sedimentation basin will have to be reconfigured (i.e., second/lower sedimentation basin added) will be required to meet the demand of the existing and proposed increased capacity (see Figure 7) (Figure 11 from SWT January 27, 2023 memorandum). The SWT memorandum, dated January 27, 2023, is included as Attachment 1.

The approximate 14.25-acre capacity increase would provide approximately 6.1 mcy of additional airspace as shown on Figure 6 (Figure 10 from SWT January 27, 2023 memorandum) (which includes a Capacity Loss Factor (CLF), potential Disaster Cleanup Capacity Impacts (DCCI), and liner/final cover soil volumes) to reach a December 2038 estimated closure date (Tables 2 and 3) (Tables 5 and 6 from SWT January 27, 2023 memorandum). The permitted maximum elevation of the landfill would increase from 620 feet amsl (per the current SWFP) to 650 feet amsl. An overview of the proposed project elements for the capacity increase is discussed in Section 2.5.

The proposed capacity increase has applied a CLF and a DCCI as follows:

- The CLF is the estimated capacity that is unattainable from the theoretical maximum capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved, however due to constructability with trash and refuse settlement of the slopes (from year-to-year or year-over-year), the facility will not obtain the total capacity represented by the final grading plan (i.e., the higher the fill, the greater the settlement of outside slopes, therefore reducing the top deck outside hinge more and more, every year). Therefore, approximately 10% of the combined remaining airspace is deducted from the potential increase capacity airspace.
- The DCCI for potential wild fires, floods, or earthquakes can cause large disposal events at unknown times, therefore, a projected capacity of approximately 200,000 cy (4 events at 50,000 cy/event) over the extended life of the landfill is also deducted from the potential increase capacity airspace design and only used on an as needed basis.

SWT has also calculated that there is appropriate soil for the increased airspace including liner operations soil, daily cover, and final cover for the entire site with the increased capacity, as shown on Table 4 (see Table 8 from SWT January 27, 2023 memorandum).

When the expansion of the TSL was approved in 2003 for an additional 8.2 mcy (for the currently permitted design capacity of 23.3 mcy), the disposal capacity was expected to serve the community until 2020. When projections of disposal capacity were calculated in 2016 as part of the effort to permit and seek approval of the TRRP (now referred to as the "ReSource Center"), the disposal capacity was projected to last until 2026. With the expected development and operation of the RC, which was designed to recover 60% of material that it processed, it was anticipated the site life would be extended to 2036, as reflected on the current SWFP (No. 42-AA-0015, February 2, 2017).

Based on the most recent disposal capacity evaluation (as of April 2022), the remaining capacity is estimated to be reached by approximately February 2026 based on continuing to dispose of non-contractually committed waste. This anticipated timeline/landfill life has been affected for several reasons listed below:

- Delays in project construction (Coastal Zone Boundary discrepancy – 9 months and CEQA litigation – 9 months) totaling 1.5 year delay. Assuming 50% diversion of material delivered to the landfill after operation of the RC, therefore, the disposal capacity is shortened by approximately 3 years.

- Delays in construction due to COVID-19 (staffing and supply chain issues), which delayed RRWMD's ability to divert 60% by approximately one year, therefore, the disposal capacity is shortened by approximately one year.
- The actual amount of tonnage received at the landfill was 15%+ (or 30,000 tons) greater per year than the amount included in the 2016 and 2018 landfill capacity projection reports. Consuming approximately one year of airspace over the last three years, therefore, the disposal capacity is shortened by approximately 0.5 year (2019-2022 without diversion).
- An assumption was made that 60% of what was delivered to the landfill would be recovered at the RC. While it is still expected that the RC will recover 60% of the material it processes, more attention has been paid to the different types of material that is delivered to the transfer stations as well as MarBorg's transfer station. About 33% of the material delivered to the site has been and will continue to be sent to the landfill directly bypassing the processing center because it is not processable. The bypass waste, in addition to the residue material from the RC, is an approximate 20% increase in quantity of material landfilled annually, therefore, the disposal capacity is shortened by approximately one year (from 2022-2026).

From the above disposal capacity impacts, an approximate 5.5 years has been taken from the site. Multiplied by a minimum 50% diversion rate, it equals approximately to 11 years lost.

Forecasting for years after operation of the RC is difficult since the density or compaction rate of the residual material after processing is not known. If the material is denser than existing waste or if the current acceptance of non-committed waste material is modified, then the current projection of reaching capacity in 2026 may change. However, the change (if any) would be on the order of a few years and would not be sufficient to reach the December 2038 date.

2.4 Engineering and Operational Project Objectives

The objectives for the project are to meet both local and regional needs, including the following specific objectives:

- Regain landfill service life (approximately 10 years) that was planned to be provided by the disposal reduction from the RC project.
- Reduce ratepayer burden of paying for debt service simultaneously with cost for transportation and disposal of residual trash at alternative landfill (Debt service for RC end date [2038]).
- Maximize disposal opportunities at the TSL and reduce environmental impacts associated with off-site hauling and disposal.
- Provide cost-effective, stable disposal capacity for MSW for existing and anticipated users of the TSL for that portion of the waste stream that cannot be recycled or diverted from landfilling, by expanding on an existing integrated, state-of-the-art, environmentally safe facility, which meets or exceeds local, State, and Federal standards.

- Minimize adverse environmental impacts associated with MSW disposal by providing TSL facilities for an efficient, combined resource recovery and disposal operation to reduce or eliminate the need for solid waste to be delivered to multiple locations for residuals disposal. Provide disposal capacity for disaster-related debris, such as from fires, floods, and earthquakes.
- Contribute to meeting the mandate of the California Integrated Waste Management Act of 1989 (CIWMA), which requires all California counties, including Santa Barbara County, to demonstrate a minimum of 15 years of assured disposal capacity in its Integrated Waste Management Plan.
- Maintain efficient, cost-effective, and high-quality TSL operations. Increase the efficiency of landfill site operations by achieving additional settlement of existing waste.
- Extend and increase the implementation of advanced waste recovery technologies, including the use of renewable landfill gas-generated electrical energy.
- Provide continued employment of TSL staff in a safe and humane work environment.

2.5 Overview of the Proposed Capacity Increase Project Elements

The proposed project would increase the permitted height, disposal area footprint, and design capacity of the landfill in order to extend the estimated closure year to approximately 2038. The area proposed for the increase in permitted height and disposal area is shown on Figure 6.

The proposed project would increase existing capacity by vertically increasing the maximum elevation of the landfill by approximately 30 feet, from 620 feet amsl to 650 feet amsl. The proposed increase would add approximately 14.25 acres to the permitted disposal area footprint, an increase from approximately 118 acres to 132.25 acres. The addition of approximately 6.1 mcy of airspace would increase the permitted total design capacity from approximately 23.3 mcy to approximately 29.4 mcy. As of April 2022, the existing (gross) remaining capacity was approximately 1.68 mcy. These proposed changes would require the existing JTD and Partial Final/Preliminary Closure and Post-Closure Maintenance Plan be updated to support a SWFP Revision to reflect these project element changes.

The total disturbance footprint, including the total excavation area and the refuse fill area (not including any increased footprint for the north sedimentation basin), is approximately 56.4 acres of which only approximately 1.5 acres is comprised of an area with previously undisturbed slopes. An additional 12.6 acres is comprised of previously disturbed revegetated slopes, along with approximately 4.6 acres of previously disturbed unvegetated areas (i.e., the north sedimentation basin and surrounding areas). Of the approximate 14.1 acres that have been previously disturbed and subsequently revegetated, approximately 9.75 acres would become part of the landfill capacity area, and the remaining 4.35 acres may be available for permanent revegetation (i.e., unlined slope areas). The Phase IV refuse fill would overlap the current permitted Phases I, II, and III by approximately 36.4 acres of the increased capacity.

The north sedimentation basin currently has a 15.8 acre-feet design capacity. With the proposed capacity increase, the basin capacity will be reduced to 5.6 acre-feet. Therefore, a secondary basin is planned for this project to capture the capacity as close as possible to the current 15.8 acre-feet capacity within the available site boundaries. The second basin would have a similar design as the existing basin, with an option to be either a concrete lined basin or an earthen basin with a manually operated skimmer system, which would discharge into Pila Creek after sediment is allowed to settle out of suspension (see Figure 7).

Relocation of RC utilities, stormwater features, accessory features (electrical line between MRF and ADF, pipeline connection between the CMU stormwater overflow system and the north sedimentation basin for storms exceeding the 25-year, 24-hour event, and access road to the ADF and CMU) will need to occur. The project would also require removal of the TSL maintenance shop, trailers used for labor crews and operators, relocation of storage containers used for landfill supplies, equipment and hazardous materials, relocation of oil storage containers ranging in size from 120 to 500 gallons, and relocation of three fuel tanks (red diesel, 20,000 gallons; clear diesel, 550 gallons; and unleaded gasoline, 230 gallons). The removal of these facilities would be required approximately two years before the TSL reaches its revised capacity as part of the final waste filling operations. Most of the displaced facilities would be relocated to the MRF deck or to the MRF building outside of the Coastal Zone. The maintenance shop and trailers would be removed and would not be replaced.

Table 2 (see Table 5 of the January 27, 2023 memorandum) provides the diminishing landfill capacity projections with operation of the RC and the proposed capacity increase and the assumed continued acceptance of some non-contractually committed waste that is generated in the TSL service area. Table 3 (see Table 6 of the January 27, 2023 memorandum) provides an overview of the key parameters of the proposed capacity increase and other design alternatives that were considered.

2.6 Design Parameters

The following discussion identifies potential changes with the project's design parameters.

- Site Preparation, Grading and Construction Phasing

  To ensure that the TSL has adequate disposal capacity to maintain operations until at least December 2038, the landfill will have to increase its current capacity as presented on Figure 4 (see Figure 4 of the January 27, 2023 memorandum) and Table 1. As shown on Figure 5 (Figure 9 of SWT January 27, 2023 memorandum), the membrane lined cell (Phase IV) would be excavated for refuse placement, while impacting approximately 1.5 acres of undisturbed area. This area encroaches upon the existing north sedimentation basin, so the north sedimentation basin will have to be reconfigured (i.e., second sedimentation basin added) will be required to meet the demand of the existing and proposed increased capacity. The second basin would have a similar design as the existing basin, with an option to be either a concrete lined basin or an earthen basin with a manually operated skimmer system, which would discharge into Pila Creek after sediment is allowed to settle out of suspension (see Figure 7).

  To provide the additional disposal capacity, approximately 566,400 cy of grading (excavation) would be required to provide approximately 12.5 acres of additional slope liner area and approximately 1.75 acres of additional base liner area (Figure 5) (Figure 9 of SWT January 27, 2023 memorandum). The additional waste disposal capacity would be created by placing waste on top of the existing permitted waste disposal area, thereby increasing the existing design height of the Phase 2 and 3 fill area from approximately 576 feet to a maximum height of 650 feet, with the overall maximum permitted height of the landfill increasing from 620 feet to 650 feet amsl. The Phase IV cell expansion would excavate/blast a maximum of approximately 30 feet below the ground surface of the existing north sedimentation basin top, as well as excavating the slopes north and east of the existing waste footprint to match the overall existing cut slopes of Phase III. All slopes will be constructed to a 2:1 (horizontal to vertical) inclination except for the northern excavated slope at the bottom of Phase IV will be constructed at a 1:1 inclination for stability purposes. The Phase IV area will require overburden material to be excavated using conventional earthmoving equipment. When the material being excavated becomes too hard to rip or excavate with conventional equipment, a licensed blasting contractor will be utilized. Blasting will occur in multiple events. The licensed blasting contractor will provide a plan for the blasting and management of the Breccia material prior to any blasting work being performed. The plan will include, at a minimum, the following:

- Construction bid documents will require the General Contractor or a listed sub-contractor to have a valid California "Blaster's License".
- Licensed blasters shall have a site-specific Health and Safety Plan for blasting.
- Licensed blasters shall provide calculations and a drilling layout of the explosives to control the adverse effects of blasting.
- Licensed blasters shall provide calculations to minimize noise and vibrations caused by the blasting process to nearby structures and native slopes.
- Proper notification of blasting will be made to local agencies and surrounding neighborhoods.

The blasting contractor will drill holes in a grid pattern to a pre-determined blast depth of their choosing. Charges will be placed in the lower reaches of the drilled holes, with the upper portion of the drilled holes backfilled with stemming material to control flyrock prior to the actual blast. The drilling pattern, depth of drilled holes, amount of blasting agent used, and type of blast timing will be designed to provide a safe blast resulting in a material with a maximum particle size of approximately 12 inches. The charges will be set, and the blast will normally occur on the same day the blast holes are loaded. The blasting plan will be prepared by the blasting contractor and reviewed by a blasting expert. The blasting plan will be designed to limit the ground vibrations and noise from the blasting at the property boundaries to meet local regulatory requirements. The blasting plan will also be designed to protect existing nearby structures and prevent slope instabilities. Once blasting has been completed and the area has been deemed safe for removal, the blasted material will be placed in the North Stockpile for use as future daily cover.

The initial excavation and liner will be completed in phases and take up to approximately 7 months to construct and would be limited to a dry season (May 1 to November 14, as identified in the HCP). The remaining expansion liner would require additional phases (up to four phases) and construction would also be limited to dry seasons.

Equipment used to construct the new waste disposal area would include the following:

- Scrapers
- Dozers
- Loaders/Excavators
- Drill Rig for Blasting
- Compactors
- Dump Trucks
- Haul Tucks
- Soil Screening Equipment
- Motor Grader
- Water Truck
- Liner Roll Stinger
- Pick-up Trucks
- Low-Pressure ATV's

➢ Drainage

After the initial excavation, stormwater pumping of the excavated area may be required during the rainy season until the area is filled with refuse to a level where positive drainage can be achieved naturally. Pumping of accumulated water would be accomplished within 1-2 days of rain events using portable pumps. Relevant avoidance and minimization measures (such as pre-pumping surveys and screens on the pump intakes) employed in association with draining residual water from the north and south sedimentation basins would be implemented.

Temporary and permanent drainage control facilities are constructed as required to control storm flows at all times. Final drainage would include installation of down drains, v-ditches fiber rolls, check dams, and hydroseed. The top deck of the new fill area would have a crest of 650 feet amsl and slope at 5% to prevent infiltration into the waste. Water from the disposal area would be directed to the reconstructed north sedimentation basin for treatment/sediment removal prior to discharge to Pila Creek.

➢ Slope Stability

Similar to the existing landfill, when final grades are achieved, the capacity increase area would be constructed with a series of benches (at a minimum of 15 feet wide) placed at a maximum of 50 feet vertically, and final slopes no steeper than 2:1 between benches. As part of the horizontal and vertical increased capacity, a stability toe berm (toe berm) is anticipated to be required. The toe berm will be installed from the top of bank of the existing lined and unlined Pila Creek channel west of the existing landfill (see Figure 9). The conceptual design berm be comprised of 60,000 CY of soil compacted to 95%. The toe berm will vary in height from 6 to 40 feet, have a total length of approximately 1,500 feet, and vary in width from 30 to 100 feet wide (dependent on the location) but will generally be projected up to the same height as the existing haul road on the southern side, and just above the existing drainage bench on the northern side to drain to the north towards the UNSB. The stability toe berm will have to be keyed in and compacted per the Geotechnical Engineers recommendations. The berm will be installed in two stages, stage 1 will act as a haul road into the Phase IV excavated lined cell with a paved access road approximately 30 feet wide. The second stage will be completing the berm to drain to the

UNSB at a minimum of 2% and to stabilize the Phase IV fill design, Stage 2 may or may not include a paved access road. There will be no impact to the landfill or the MRF/ADF with the construction of the stability toe berm.

- Relocated Utilities/Stormwater Features/ADF and CMU Access

An electrical power distribution and communication line (same poles and alignment) connecting the RC MRF to the ADF would need to be relocated (see Figure 5). An existing 30-inch diameter pipeline (on grade) connecting overflow from the CMU stormwater runoff collection tank would also need to be relocated and reconnected to the redesigned north sedimentation basin (see Figure 5). The access road to the top deck would need to be re-routed across the proposed refuse face to ensure proper capacity for the site (see Figure 6).

- Material/Soil Stockpiling

Excavated soils would be stockpiled within the historic disturbance limits of the permitted northern stockpile/borrow area. The soils would be placed in the stockpile during the first dry season of each construction phase. Drainage structures (i.e., v-ditch and pipe down drains) would be installed for stormwater runoff. Work related to the site preparation would be limited to the dry season (May 1 to November 14 as per the TSL's HCP) and would occur over the course of two consecutive dry seasons.

The stockpile would be used for liner operations soil, daily/intermediate cover, and final cover, as appropriate. Soil requirements are presented in Table 4 (Table 8 from SWT January 27, 2023 memorandum). Construction of the capacity increase disposal area (including soil for the Phase IIIF liner system) would require 1,629,700 cubic yards of soil. The amount of soil available from the north stockpile is 1,285,500cubic yards and the project would excavate an additional 566,000 cubic yards result in a net of approximately 221,800 cy of soil material, which is proposed to remain in the stockpile area based on a 5:1 (5 parts of waste to 1 part of soil) soil to waste ratio. If the site were to use soil to waste ratio higher than 5:1 (i.e., 4:1), the site would still have appropriate soil available onsite.

- Construction Water Demand/Supply

During each year of construction and during liner installation, water will be required for soil conditioning, compaction, and dust control. The CCRWQCB allows use of impacted groundwater (i.e., Groundwater Interceptor Trench-extracted groundwater) for dust control over the lined waste footprint, but its use would not be allowed in the new excavation area. The water supply for construction would be provided by the on-site water wells 5 and 3 and other sources, if required (i.e., Aera/Shell well, stored stormwater in the north sedimentation basin [pursuant to the requirements set forth in the TSL HCP], reclaimed water from off-sites sources, or well 8 [approved but not yet constructed]).

2.7 Sediment/Stormwater Control

The landfill has a north and a south sedimentation basin. The north sedimentation basin is located on the northwestern side of the landfill (APN 081-150-026, Figure 2) and the south sedimentation basin is located at the toe of the landfill (APN 081-150-042, Figure 2). Both basins are equipped with dual skimmers to help remove sediment from collected runoff before discharging into Pila Creek. The north sedimentation basin was installed to reduce the amount of sediment discharged from the TSL, as well as control the rate of discharge into Pila Creek. The basin is designed to settle out material in the fine to coarse sediment range

The proposed waste footprint increase would extend over a portion of the existing north sedimentation basin removing 10.2 acre feet in volume and requiring the removal and relocation of the existing skimmer system and outlet pipe into Pila Creek. This basin currently has a capacity of approximately 15.8 acre-feet and the proposed footprint increase would reduce the current basin capacity to approximately 5.6 acre-feet. The sedimentation basin has a concrete bottom and sides and is drained using a skimmer system which is lowered after sediment is allowed to settle out or flows to Pila creek via an overflow standpipe/riser when the basin storage volume is exceeded. The north sedimentation basin is an important part of the landfill's stormwater management program. As discussed in Section 2.5, a second basin is planned for this project to capture the loss in capacity to the current approximate 15.8 acre-feet capacity. The second basin would be west of the remaining section of the north sedimentation basin and would have a similar design as the existing basin, with a manually operated skimmer system, and will be constructed as either a lined concrete basin or an earthen sedimentation basin which would also discharge into Pila Creek after sediment is allowed to settle out of suspension (see Figure 7). The LNSB has a conceptual design capacity of approximately 12.4 acre-feet in volume for storm water run-off from the additional increased capacity and surrounding areas. The total design capacity of the UNSB and the LNSB will be approximately 18.0 acre-feet in volume when completely emptied.

The two reconstructed north basins are identified as the Upper North Sedimentation Basin (UNSB) and the Lower North Sedimentation Basin (LNSB). The toe berm of the excavated Phase IV cell construction within the reduced UNSB will also be concrete lined to join the existing concrete slopes. The UNSB will act as the first basin to receive storm water from the landfill and operational surrounding areas (i.e., excavated vegetated slopes, the north stockpile, ADF, etc.), and once filled, it will discharge over the existing spillway into the earthen LNSB. The LNSB will also have an overflow standpipe/riser connected to a skimmer system (similar to the existing design), which will also drain into Pila Creek. Once filled, the LNSB will then discharge over a new spillway into the existing lined Pila Creek in the same location that it currently does.

The UNSB and LNSB will be equipped with two 8-inch Faircloth skimmers (similar to the ones installed with the existing system), which will be connected to a support frame so that they can be raised and lowered into the basin to drain when needed. The skimmers float on the surface and "skim" the surface of the storm water retained within the basin to discharge the cleaner water as sediment drops to the bottom of the basin. One 8-inch skimmer can drain approximately 98,000 cubic feet per day (or approximately 2.25 acre-feet per day). Therefore, the UNSB with two 8-inch skimmers can drain 5.6 acre-feet within approximately 30.0 hours, while the LNSB with two 8-inch skimmers can drain 12.4 acre-feet within approximately 66.25 hours.

Operation and maintenance of the reconstructed UNSB and new LNSB will be consistent with existing operations and with the landfill's HCP and ITP.

With the construction of the LNSB and the stability toe berm, access to the lined section of Pila Creek will be removed, but the LNSB western berm will include access ramps to allow entry into the channel for annual maintenance. The Pila Creek Inundation Area (PCIA) will also be affected by the LNSB and stability toe berm (see Figure 8). In order to maintain the existing detention capacity of approximately 22.3 acre-feet of storm water volume (to control the downstream flow), the existing spillway system of the Pila Creek flow control structure will have to be modified. The spillway height will have to be raised vertically by approximately 2.7 feet from the approximate elevation of 390.5 amsl to the approximate elevation of 393.2 amsl. The existing flow control structure will remain, but a new spillway wall will be installed by saw cutting into the existing concrete and tying the new spillway wall into the existing structure (conceptual design on Figure 8). The flow control structure has a 42-inch flow control pipe to control the amount of downstream flow into Pila Creek. No other modifications to the flow control structure are expected in association with the increase in head pressure from raising the existing spillway approximately 2.7 feet vertically, as the 42-inch inlet pipe maintains the maximum allowed downstream flow. The increased height of the flow control structure and the construction of the new LNSB will result in a change in the Pila Creek inundation area (PCIA). The LNSB and stability toe berm could be periodically inundated during storm events. However, because the inundation would be limited in duration no adverse impacts are expected to the function of the LNSB berm or the stability toe berm, but the impact should be analyzed further by a Geotechnical Engineer.

2.8 Operational Parameters

The following discussion identifies potential changes with the project's operational parameters.

- Hours of Operation – Receipt of Waste/Disposal

  The landfill's permitted hours for receipt of waste from off-site are currently Monday – Tuesday, 7:00 a.m. to 5:00 p.m. and Wednesday – Saturday 7:00 a.m. to 4:00 p.m. The TSL is closed on Sundays, New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The hours for receipt of waste from off-site is proposed to be Monday – Saturday, 6:00 a.m. to 4:00 p.m.

  The permitted hours for waste disposal cover, compaction, maintenance, landfill construction, waste processing, and special occurrences would remain the same as currently identified on the SWFP. The existing SWFP is included as Attachment 2.

- Waste Permitted Tonnage (Received/Buried)

  The landfill's permitted maximum tonnage (including MRF capacity and bypass waste) is currently 1,500 tpd. RRWMD is proposing to modify the incoming tonnage to eliminate the daily maximum of 1,500 tpd and instead implement a maximum 6-day operating tonnage of 9.000 tons.

- Traffic Volume

  Currently, the permitted traffic volume at the landfill is 184 vpd, not including the 50 vpd for employees, contractors, deliveries, regulatory agencies, and other visitors. No change in the permitted traffic volume is proposed.

- Personnel

The landfill has an operational staff of 16 employees (4 of which are assigned part-time at the landfill and part-time at other RRWMD solid waste facilities). No change in the operational staff is proposed.

- Equipment

Equipment used for landfill operations includes motor graders, loaders, scrapers, compactors, bulldozers, excavators, mowers, tarp machines, small off-road vehicles, water trucks, fuel trucks, and pick-up trucks. No change in operational equipment use is proposed.

- Security/Safety

The TSL is a secure site, gated and surrounded by fences, topped with barb wire strands. Only authorized personnel (staff, delivery vehicles, authorized visitors escorted by staff) are allowed to enter the site. Entrance gates include electronic access/security control system to provide after-hours access and exit for MRF, ADF, and CMU employees and recyclable and compost export trucks. The scale house is located on the west side of the entrance scale within the entrance road. This affords the scale house attendant a view of traffic entering or leaving the facility. Security cameras are also installed in the administrative areas and around the perimeter of the facilities.

- Waste Handling Procedures

The TSL receives MSW, green waste, special waste (which bypasses the MRF), CSSR, and source separated organic waste (SSOW). The MSW is directed to the MRF where recyclables and organic waste are recovered. The CSSR is directed to the MRF for processing and the SSOW is directed to the ADF for processing. Green waste is directed to the green waste processing deck and is ground into a mulch product. Waste disposed in the landfill currently and which would continue to be disposed in the capacity increase area, consists of the bypassed special waste (i.e., non-friable asbestos, large dead animals, treated wood waste, and grit/sludge from water treatment facilities) and non-recyclable residuals from the MRF and ADF.

- Green Waste Operations

Green Waste, which includes, but is not limited to, yard trimmings, untreated wood wastes, paper products, and natural fiber products (pursuant to 27 CCR, Section 20690) are delivered at an average rate of up to 145 tpd. Green wastes delivered to the site are processed to remove contaminants such as plastic bags and ground into a mulch product for use at the CMU as a bulking agent and odor control and/or distribution to the public. No change in green waste tonnage or operations are proposed.

- Environmental Protection/Control Systems (Leachate, LFG, Stormwater)

The existing landfill construction is subdivided into Phases I through III. Each phase is further subdivided into smaller sub-areas to meet forecasted waste disposal needs and construction resource availability. The area proposed for the increased capacity would be designated as Phase IV. Groundwater protection systems consisting of an engineered composite liner system (liners) are installed in each phase to prevent water percolating through the waste or generated by decomposition of the waste (leachate) from impacting groundwater. The leachate is collected in a trench containing a perforated pipe, stored in onsite tanks, and is permitted to be used for dust control on lined portions of the landfill. Two liners would be installed in the Phase IV area, a base liner of approximately 1.75 acres and a slope liner of approximately 12.5 acres for a total of approximately 14.25 acres of additional lined waste disposal area. The existing subdrain system piping will be extended as part of the Phase IV liner system to collect any potential seepage. A potential overliner may be required within the Subtitle D height increase area by the CCRWQCB. This potential overliner can be analyzed and designed prior to placement, if required, and has no major impact to the fill design.

LFG is generated from anaerobic biological decomposition of organic matter deposited in the landfill. LFG consists primarily of methane and carbon dioxide (CO_2), with smaller amounts of non-methane organic compounds (NMOC). Some NMOCs are reactive organic compounds (ROC). The LFG is collected via horizontal and vertical landfill gas extraction wells. LFG is generally used by two onsite internal combustion engines (generators) to create electricity up to a maximum electrical production of 2.8 megawatts. The flare is used to combust excess landfill gas not needed to fuel the generators, or when the generators are not operating. The gas recovery system controls downward and lateral migration of methane and VOCs associated with landfill gas, and limits the dissolution of landfill gas in groundwater and soil moisture. The LFG collection system will be extended into the expanded disposal area as it is filled with waste.

➢ Site Access

Access to the landfill property is via a paved approximate 30-foot wide road that runs north from U.S. Highway 101. This intersection provides access to the property via a left-hand turn lane for southbound traffic and a right-hand turn lane for northbound traffic. Traffic exiting the TSL must first stop at a stop sign located at the intersection of the access road and U.S. Highway 101. Traffic traveling southbound enters a median strip before entering an acceleration lane and merging with the number one highway lane. Northbound traffic exiting the property has direct access to an acceleration lane before merging with the number two highway lane.

➢ Access to the Waste Filling Area

Paved access roads currently extend into the back canyon area of the landfill to a point just south of the proposed capacity increase area. New access roads are constructed as landfill operations areas move in accordance with the proposed final grading plan (Figure 6) and the proposed increased capacity. Access to the proposed area would be provided by an existing paved road that would extend from the current waste disposal area. The paved road extension would be approximately 2,900 feet in length and 35 feet in width.

➢ Waste Cover and Other Material Requirements

The scrapers and loaders move cover soil from the landfill stockpile/borrow areas and transport it to the active working face. Excavation of soil for daily and intermediate cover, and landfill maintenance is currently taken from the north borrow/stockpile area. As noted previously, 566,000 cy of grading (excavation) (see Figure 5 [Figure 9 from SWT January

27, 2023 memorandum]) would be required for installation of new liner in the increased capacity waste disposal area. As identified in Table 4 (Table 8 from SWT January 27, 2023 memorandum), the total soil requirements of the proposed project for construction, daily cover, and landfill closure would be approximately 1,629,700 cy. Soil availability in the north borrow/stockpile area, including the soil excavated from the increased capacity, would be approximately 1,851,500 cy. Therefore, sufficient soil would be available for daily cover and closure and an estimated 221,800 cy would remain in the north borrow/stockpile area after closure.

2.9 Closure and Post-Closure Maintenance

Currently, RRWMD has proposed four phases of closure for the TSL. Phase 1 has already received a final cover system and construction of Phase 2 and 3 was completed in stages from 2017 through 2020. The Phase 4 Closure area would be revised to include the increased capacity project area. The existing Closure and Post-Closure Maintenance Plan presents a description of the closure and post-closure maintenance activities that will ensure proper closure of the different Phases at the landfill including, but not limited to: proposed drainage and erosion control, final grading, final cover, construction quality assurance (CQA), LFG control/monitoring system, groundwater monitoring system, the leachate collection and removal system (LCRS), landfill settlement, and site security. Additionally, the Closure and Post-Closure Maintenance Plans provide a basis for developing required closure/post-closure funding levels. The closure plan will be amended to include the additional closure area.

At closure, the final cover system for the Phase 4 area (including the capacity increase area) would consist of a combined prescriptive cover on the top deck and an engineered alternative (monolithic soil cover) on the slopes. The finished surface of the landfill will be vegetated with native plants suitable for replanting on the cover (e.g., coastal sage scrub or grassland). Although not part of the TSL closure area, the north borrow area would also be revegetated with native plants (e.g., coastal sage scrub/chaparral). In accordance with 27 CCR, Section 21180, the landfill shall be maintained and monitored (as part of post-closure) for a minimum 30-year period after the completion of closure of the entire landfill.

2.10 Project Approval and Permits

- CalRecycle Solid Waste Facility Permit

Class III solid waste facilities are required to have a SWFP issued by the LEA and concurred with by CalRecycle. The SWFP conditions general design parameters, operations, and closure of the solid waste facility, including monitoring requirements. TSL operates under SWFP No. 42-AA-0015. The proposed project would require a revision to the landfill’s current SWFP issued by the LEA with concurrence from CalRecycle. CalRecycle, as responsible agency, has approval authority and responsibility for reviewing potential environmental effects of the project as a whole. This CEQA document will be used for the approval of a revised SWFP by the LEA/CalRecycle.

Summary of Proposed Changes to SWFP No. 42-AA-0015

Solid Waste Facility Permit Parameter	Permitted	Proposed
Permitted Hours of Operation Waste Receipt (No change to disposal, composting, cover, compaction, maintenance, construction or waste processing and special occurrences hours)	7:00 a.m. – 5:00 p.m. Monday-Tuesday; and 7:00 a.m. – 4:00 p.m. Wednesday-Saturday	6:00 a.m. – 4:00 p.m. Monday – Saturday
Permitted Disposal Area	118 acres	132.25 acres
Design Capacity	23.3 mcy	29.4 mcy
Maximum Elevation	620 feet amsl	650 feet amsl
Total Operational Area	357 acres	357 acres (No change)
Estimated Closure Year	2036 (*2026 based on April 2022 capacity projections)	2038
Permitted Maximum Tonnage	1,500 tpd	9,000 Tons Per Week 9,000 tons/operating week (Monday – Saturday)
Permitted Traffic Volume	184 vpd (+50 additional vpd miscellaneous traffic	184 vpd (+50 additional vpd miscellaneous traffic (No change)

- Santa Barbara County Countywide Integrated Waste Management Plan

The TSL is included in the adopted Santa Barbara County Integrated Waste Management Plan (ColWMP), which analyzes the current and desired state of waste and materials management in the County. The ColWMP contains a set of goals, objectives and policies that address disposal capacity, responsible infrastructure, materials management, public engagement, regional collaboration, and funding. The proposed project would require an amendment or addendum to the ColWMP.

- Other Approvals

Additional regulatory agencies whose review/concurrence may be required includes the CCRWQCB and SBAPCD (associated permits will be updated, as necessary).

<u>Tables</u>

<u>Figures</u>

<u>Attachments</u>

TABLES

TABLE 1 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND OPTION 1 NO PROJECT

ASSUMPTIONS

AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2):	0	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(3):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	1,423,900	174,730	356,592	310,063	632,782	59,432	791,118
2024	1,423,900	176,480	360,163	486,543	992,946	60,027	430,954
2025	1,423,900	178,240	363,755	664,783	1,356,701	60,626	67,199
2026	1,423,900	30,928	67,199	695,711	1,423,900	11,200	0
Anticipated Site Capacity Reached =			March-26	Projected Daily Cover Soil =		237,317	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) No Proposed Increased Capacity only using the existing remaining capacity of the site.

(3) The airspace utilization factor is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill which started in July 2021.

(5) Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 2 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND PROPOSED CAPACITY INCREASE

ASSUMPTIONS

AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2)&(3):	5,025,300	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(6):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	6,449,200	174,730	356,592	310,063	632,782	59,432	5,816,418
2024	6,449,200	176,480	360,163	486,543	992,946	60,027	5,456,254
2025	6,449,200	178,240	363,755	664,783	1,356,701	60,626	5,092,499
2026	6,449,200	180,030	367,408	844,813	1,724,109	61,235	4,725,091
2027	6,449,200	181,830	371,082	1,026,643	2,095,190	61,847	4,354,010
2028	6,449,200	183,650	374,796	1,210,293	2,469,986	62,466	3,979,214
2029	6,449,200	185,490	378,551	1,395,783	2,848,537	63,092	3,600,663
2030	6,449,200	187,340	382,327	1,583,123	3,230,864	63,721	3,218,336
2031	6,449,200	189,210	386,143	1,772,333	3,617,007	64,357	2,832,193
2032	6,449,200	191,110	390,020	1,963,443	4,007,027	65,003	2,442,173
2033	6,449,200	193,020	393,918	2,156,463	4,400,946	65,653	2,048,254
2034	6,449,200	194,950	397,857	2,351,413	4,798,803	66,310	1,650,397
2035	6,449,200	196,900	401,837	2,548,313	5,200,639	66,973	1,248,561
2036	6,449,200	198,870	405,857	2,747,183	5,606,497	67,643	842,703
2037	6,449,200	200,860	409,918	2,948,043	6,016,415	68,320	432,785
2038	6,449,200	202,870	414,020	3,150,913	6,430,435	69,003	18,765
Anticipated Site Capacity Reached =			December-38	Projected Daily Cover Soil =		1,071,739	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) The Proposed Increased Capacity provides approximately 6,100,000 cy minus the liner Protective Cover Soil of 51,500 cy, and minus the additional final cover of 104,800 cy (just for the expansion area areas), and the additional soil required for going from deck closure to slope closure of approximately 75,400 cy & Bench Fills, for a remaining refuse capacity of 5,868,300 cy.

(3) The Proposed Increased Capacity has applied a Capacity Lost Factor (CLF) and a Disaster Cleanup Capacity Impacts (DCCI) as explained below:

A) The CLF is the estimated capacity that is unattainable from the theoretical maximum capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved, however due too constructability with trash and refuse settlement of the slopes the facility will not obtain the total capacity represented by the final grading plan. Therefore approximately 10% of the combine remaining airspace (approx. 643,000 cy) is deducted from the potential increase capacity airspace.

B) The DCCI for potential wild fires, floods or earthquakes can cause large disposal events, therefore a projected capacity of approximately 200,000 cy over the extended life of the landfill is also deducted from the potential increase capacity airspace and only used on an as needed basis.

C) Therefore the final potential Increased Capacity Airspace is approximately 5,868,300 cy - 643,000 cy -200,000 cy = 5,025,300 cy to accommodate the anticipated annual buried tonnage per Table 1 Assumptions 5 & 6.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill starting in July 2021.

(5) The airspace utilization factor (AUF) is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff. Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 3 - TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY ASSUMPTIONS - AS OF APRIL 2022

Assumptions

1 January 2022 - June 2022 = 101,500 Tons Buried*

2022 Annual Projection Buried = 203,000 Tons Buried*

Jan 2022 - June 2022 Organics = 15,000 Tons Buried*

2022 Annual Projection Organics = 30,000 Tons* to be removed

2023 Annual Waste Diversion = 0 Tons* to be removed

2023 Annal Projected Buried +1%= 174,730 Tons Buried - Organics*

*Data provided by County Staff

2 **ReSource Center Start Date of July 1, 2021.**

Monthly tonnage is based on County's projected "Total Annual Buried" refuse divided by 12 months.

3 **Annual Tonnage Increase**

1% Increase in tonnage per year starting in 2023 based on the projected "Total Annual Delivered" for 2022.

4 **Airspace Utilization Factor (tons/cy) - (AUF)**

SWT recommends using an AUF, for planning purposes, as the site has no track record of attainable densities post ReSource Center.

5 **Capacity Loss Factor (CLF) - 10%**

Capacity Lost Factor - Is the estimated capacity that is unattainable from the theoretical capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved however due to constructability with trash and refuse settlement of the slopes the facility will not obtain the total capacity represented by the final grading plan. This is especially true for facilities like Tajiguas with steep outside slopes.

6 **Disaster Cleanup Capacity Impacts (DCCI)**

Wild fire, floods or earthquakes can cause large event disposal, therefore assumed **4 - 50,000 cy events** during the 16+ year period.

7 **Protective Cover Soil (PCS) for Liner and Final Closure Soil**

PCS for 14.25 acres of Liner = 51,500 cy

Existing ~47 Acres @ 4 foot thick +12% for 2:1 slope factor (for 80% of the area only) = 332,400 cy

Additional 14.25 Acres @ 4 foot thick +12% = 104,800 cy

Total Additional PCS and Final Cover Soil = 488,700 cy

8 **2022 Buried Tonnage**

The total buried tonnage for 2022 is only from May 2022 through the end of December 2022, approximately 66.67% of the projected yearly 203,000 tons.

CAPACITY PROJECTION

YEAR	Estimated Tonnage	Buried Tonnage (3)	AUF (cy/ton) 0.480	0.490	0.500	Units
2022 (8)	-	135,333	281,944	276,190	270,667	cy
2023	254,520	174,730	364,021	356,592	349,460	cy
2024	257,070	176,480	367,667	360,163	352,960	cy
2025	259,640	178,240	371,333	363,755	356,480	cy
2026	262,240	180,030	375,063	367,408	360,060	cy
2027	264,860	181,830	378,813	371,082	363,660	cy
2028	267,510	183,650	382,604	374,796	367,300	cy
2029	270,190	185,490	386,438	378,551	370,980	cy
2030	272,890	187,340	390,292	382,327	374,680	cy
2031	275,620	189,220	394,208	386,163	378,440	cy
2032	278,380	191,110	398,146	390,020	382,220	cy
2033	281,160	193,020	402,125	393,918	386,040	cy
2034	283,970	194,950	406,146	397,857	389,900	cy
2035	286,810	196,900	410,208	401,837	393,800	cy
2036	289,680	198,870	414,313	405,857	397,740	cy
2037	292,580	200,860	418,458	409,918	401,720	cy
2038	295,510	202,870	422,646	414,020	405,740	cy
Min Capacity			**6,564,424**	**6,430,456**	**6,301,847**	**cy**
CLF (5)			**656,442**	**643,046**	**630,185**	**cy**
DCCI (6)			**200,000**	**200,000**	**200,000**	**cy**
PCS & Final Cover Soil (7)			**488,700**	**488,700**	**488,700**	**cy**
Target Capacity			**7,909,566**	**7,762,201**	**7,620,731**	**cy**

PROJECTED INCREASED CAPACITY NEEDED

Phases 2 & 3 Remaining Capacity	1,680,900	1,680,900	1,680,900	cy
Increased Capacity Needed	**6,228,666**	**6,081,301**	**5,939,831**	**cy**

<-- As of April 2022

2022 Buried Tonnage	
Jan	17,490
Feb	15,120
Mar	19,430
April	16,180
May	16,560
June	16,720
July*	16,917
Aug*	16,917
Sept*	16,917
Oct*	16,917
Nov*	16,917
Dec*	16,917
Total	**203,000**

*Note: July through December tonnages were projected based on the average monthly tonnage from January through June.

TABLE 4 - TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY SOIL REQUIREMENTS
(QUANTITIES BASED ON APRIL 2022 AERIAL)

SOIL REQUIREMENTS

Description		Cubic Yards
Phase IIIF	Liner System (1)	6,000
Phase IV Increased Capacity Liner (14.25 acres)	Liner System (1)	51,500
Stability Toe Berm/Road Fill	Landfill Stability and Drainage	60,000
Remaining Airspace (w/ Increased Capacity)	5:1 Daily Cover Soil (2)	1,075,000
Total Phase 4 Closure (w/ Increased Capacity)	Preliminary Closure	437,200
	Approximate Total Soil Required =	**1,629,700**

SOIL AVAILABILITY

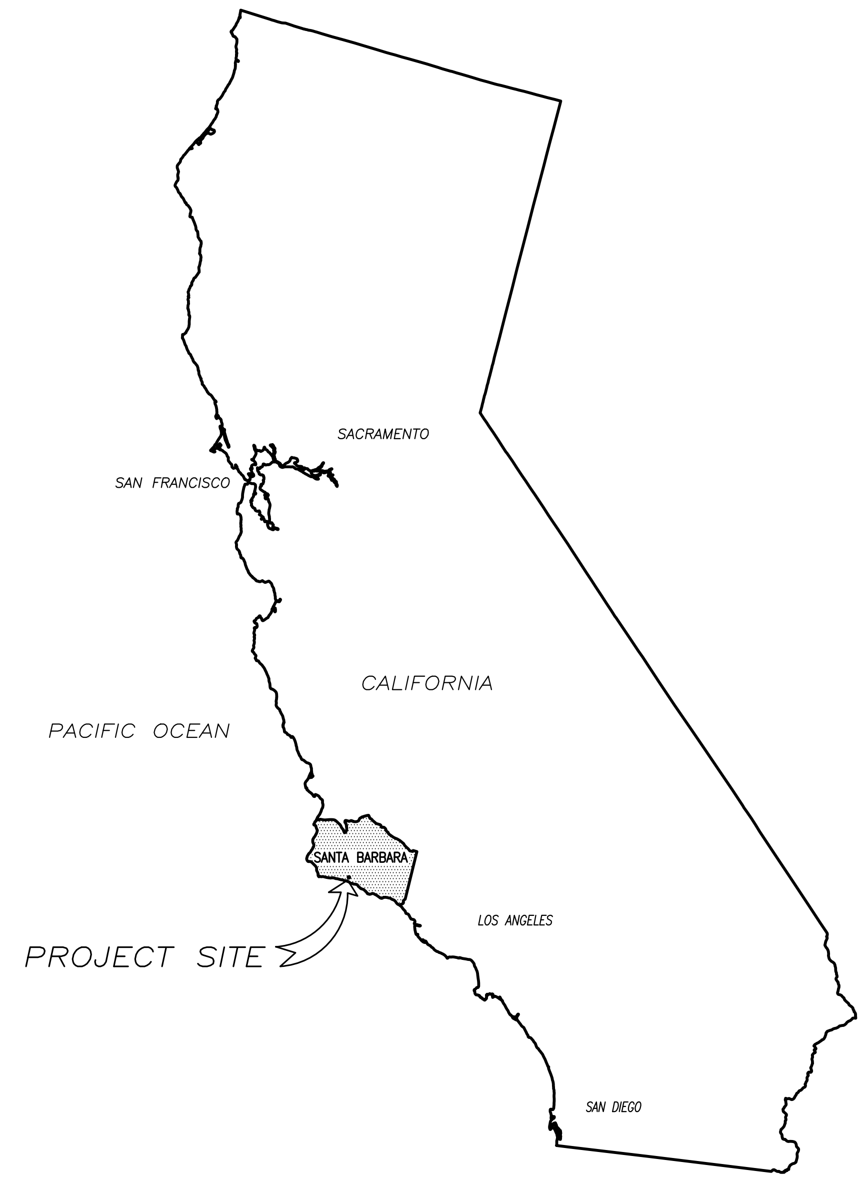
Description		Cubic Yards
North Stockpile	Current Borrow Soil	1,285,500
Phase IV Increased Capacity	Excavation Soil	566,000
East Ridge Stockpile	Borrow Soil	0
	Approximate Total Soil Available =	**1,851,500**

Approximate Available Soil =	**1,851,500**
Approximate Soil Required =	**1,629,700**
Approximate Soil to Remain in Stockpile =	**221,800**

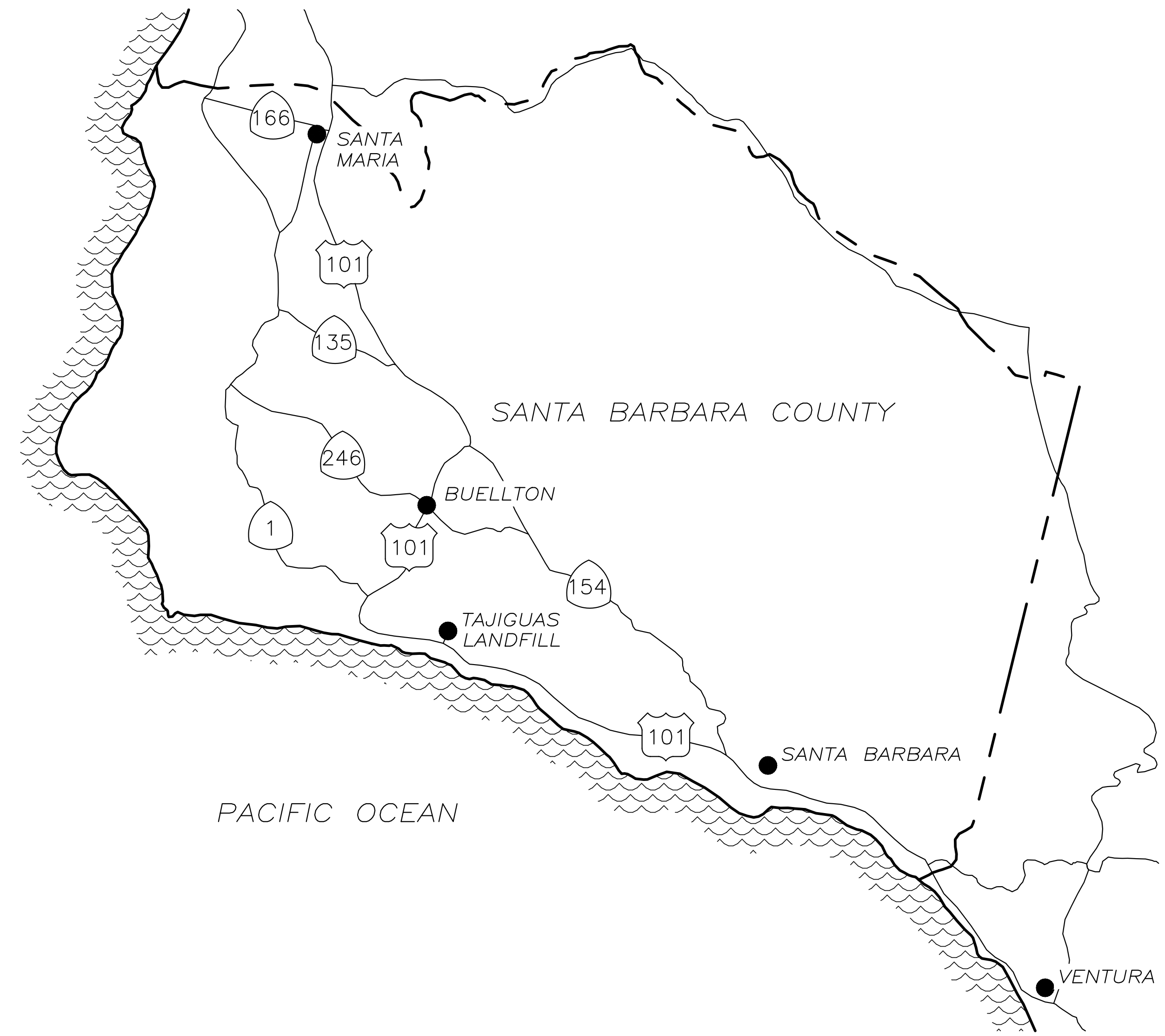
Notes:
(1) Protective Cover Soil and/or Low-Permeability.
(2) Daily and Intermediate Cover is based on a Waste to Soil Ratio of 5:1.
(3) North stockpile information is based on the comaprision of the 2002 and January 2023 Aerials.

Description		Remaining Cubic Yards (or Shortage)
Daily Soil Required	4:1 Daily Cover Soil	6,800
Daily Soil Required	3:1 Daily Cover Soil	-315,700

FIGURES



VICINITY MAP
NTS



LOCATION MAP
NTS

PREPARED BY:
SWT Civil & Environmental Engineering
800-C SOUTH ROCHESTER AVENUE
ONTARIO, CALIFORNIA 91761

FIGURE 1

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

VICINITY AND SITE LOCATION MAPS

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\01-VICINITY AND SITE LOCATION MAPS

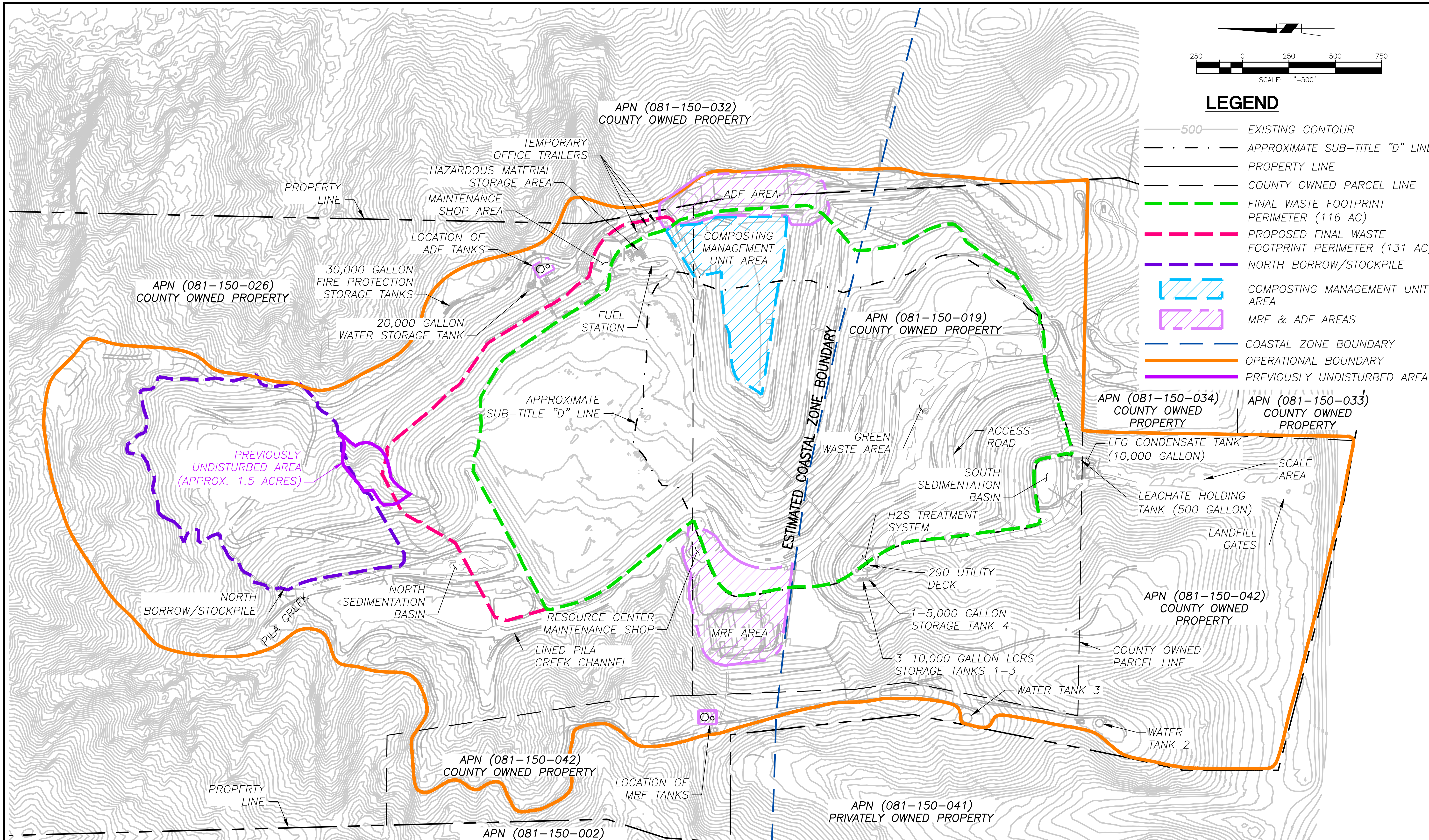


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FIGURE 2

TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY PROJECT 2022
SITE MAP

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Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\02-SITE MAP

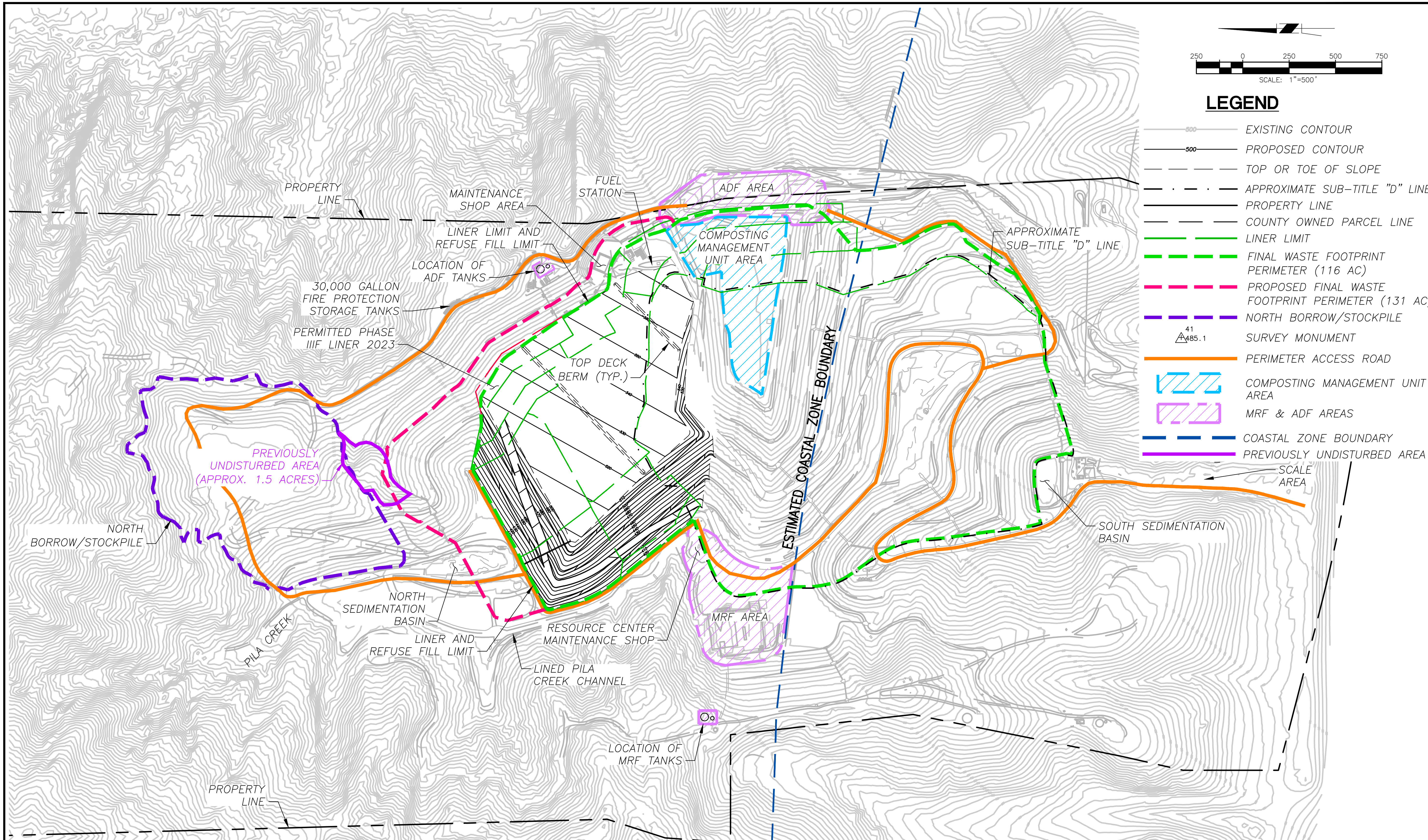

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FIGURE 3

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PERMITTED MASTER FILL PLAN

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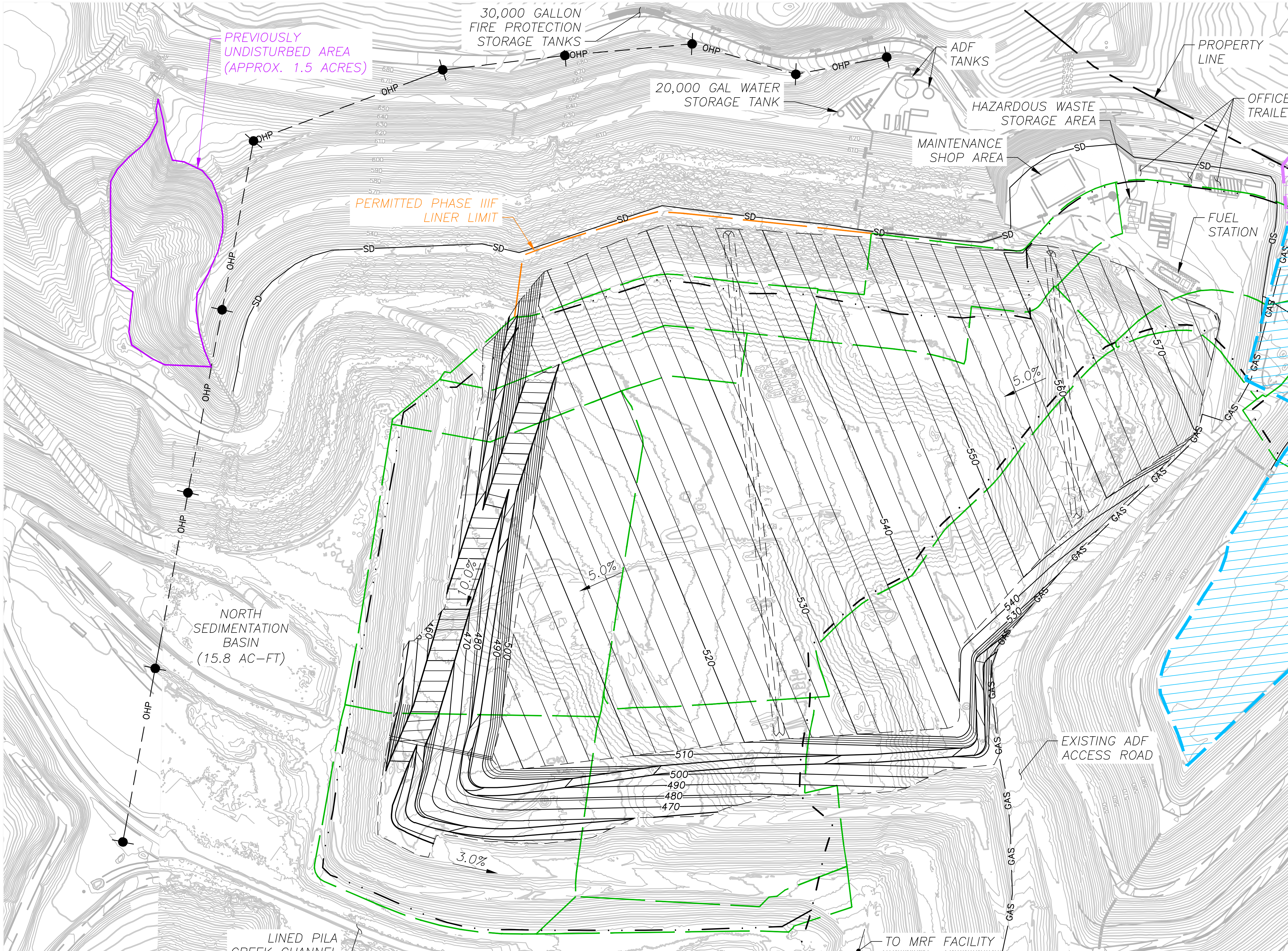
Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\03-PERMITTED MASTER FILL PLAN



100 0 100 200 300

SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- PREVIOUSLY UNDISTURBED AREA
- OHP OVERHEAD POWER LINE/POLE
- SD EXISTING CMU DECK DRAIN
- GAS EXISTING ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 1 INCREASED CAPACITY*	0 CY
TOTAL AIRSPACE CAPACITY*	1,680,900 CY
MAXIMUM REFUSE HEIGHT	ELEV 576
PROJECTED SITE LIFE (AS APRIL 2022)	3.9 YEARS
ADDITIONAL SLOPE LINER AREA	0.0 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

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FIGURE 4

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

REMAINING PERMITTED CAPACITY

JANUARY 2023

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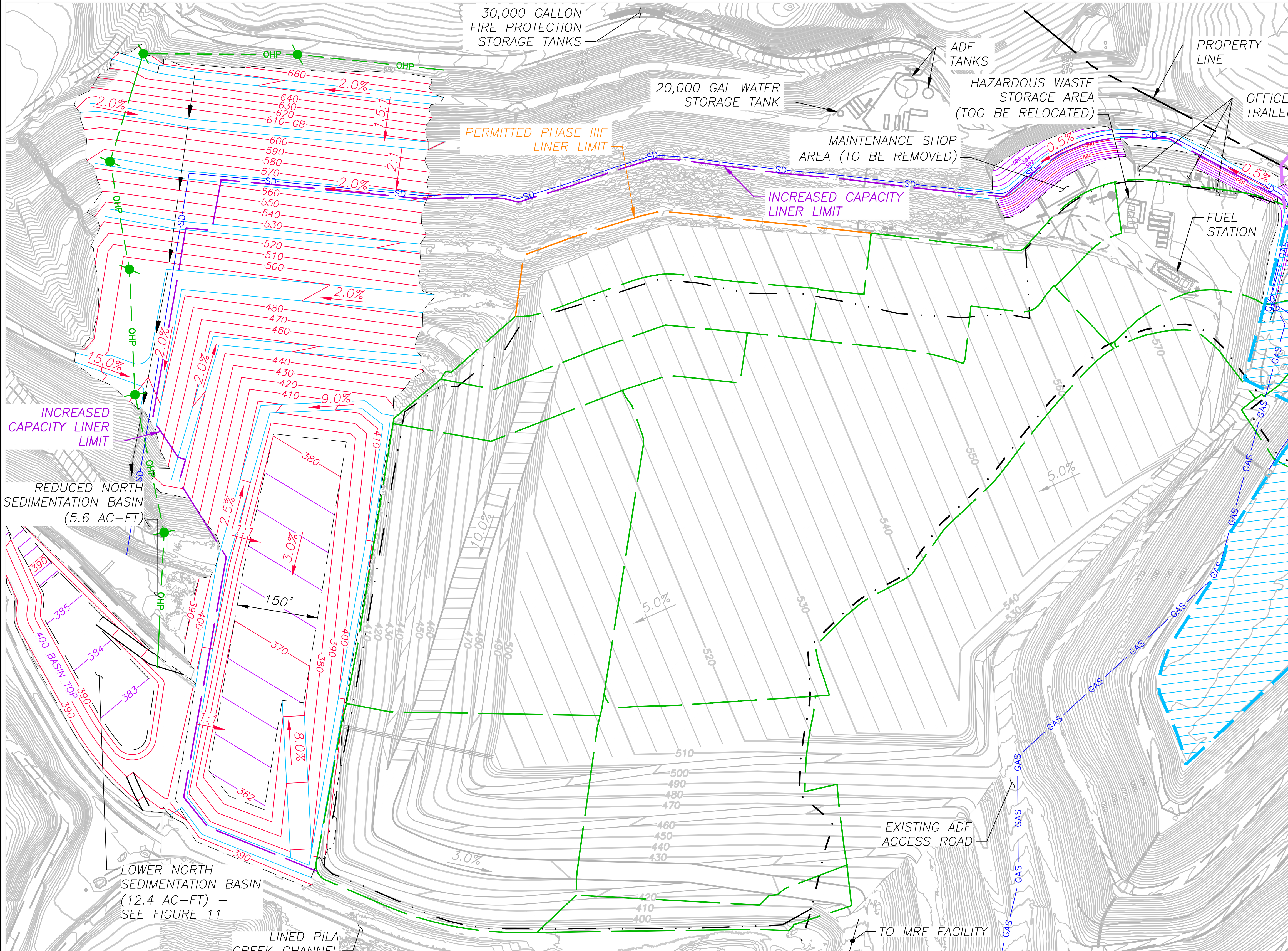

100 0 100 200 300

SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 — EXISTING MAJOR CONTOUR
- 500 — MASTER FILL PLAN MAJOR CONTOUR
- 500 — PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 — PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% — FLOW GRADE AND DIRECTION
- OHP — OVERHEAD POWER LINE/POLE
- OHP — OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD — ADJUSTED CMU DECK DRAIN
- GAS — ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
INCREASED CAPACITY EXCAVATION	586,400 CY
ADDITIONAL SLOPE LINER AREA	12.50 ACRES
ADDITIONAL BASE LINER AREA	1.75 ACRES
ADDITIONAL TOTAL LINER AREA	14.25 ACRES

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FIGURE 5

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PROPOSED INCREASED CAPACITY EXCAVATION PLAN WITH ADD'TL LINER

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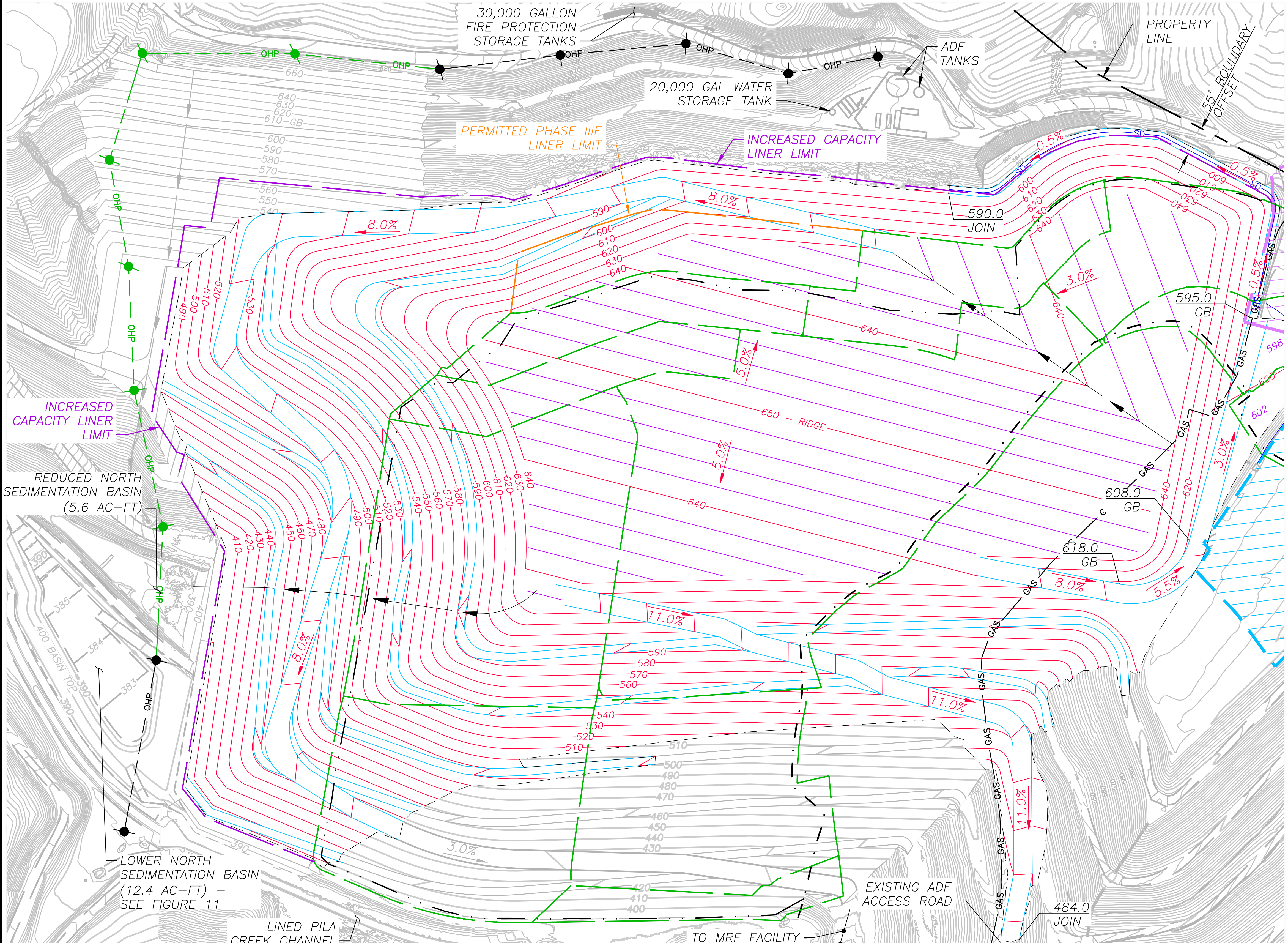
Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\05–PROPOSED CAPACITY INCREASE EXCAVATION AND LINER PLAN



LEGEND

- APPROXIMATE SUB–TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 — EXISTING MAJOR CONTOUR
- 500 — MASTER FILL PLAN MAJOR CONTOUR
- 500 — PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 — PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP — OVERHEAD POWER LINE/POLE
- OHP — OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD — CMU DECK DRAIN ADJUSTMENT

SCALE: 1"=200'

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 5 HORIZ./VERT. INCREASED CAPACITY*	6,100,000 CY
TOTAL AIRSPACE CAPACITY*	7,780,900 CY
MAXIMUM REFUSE INCREASED HEIGHT	ELEV 650
PROJECTED SITE LIFE (AS APRIL 2022)	16.66 YEARS
ADDITIONAL LINER AREA	14.25 ACRES + POTENTIAL OVERLINER

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

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FIGURE 6

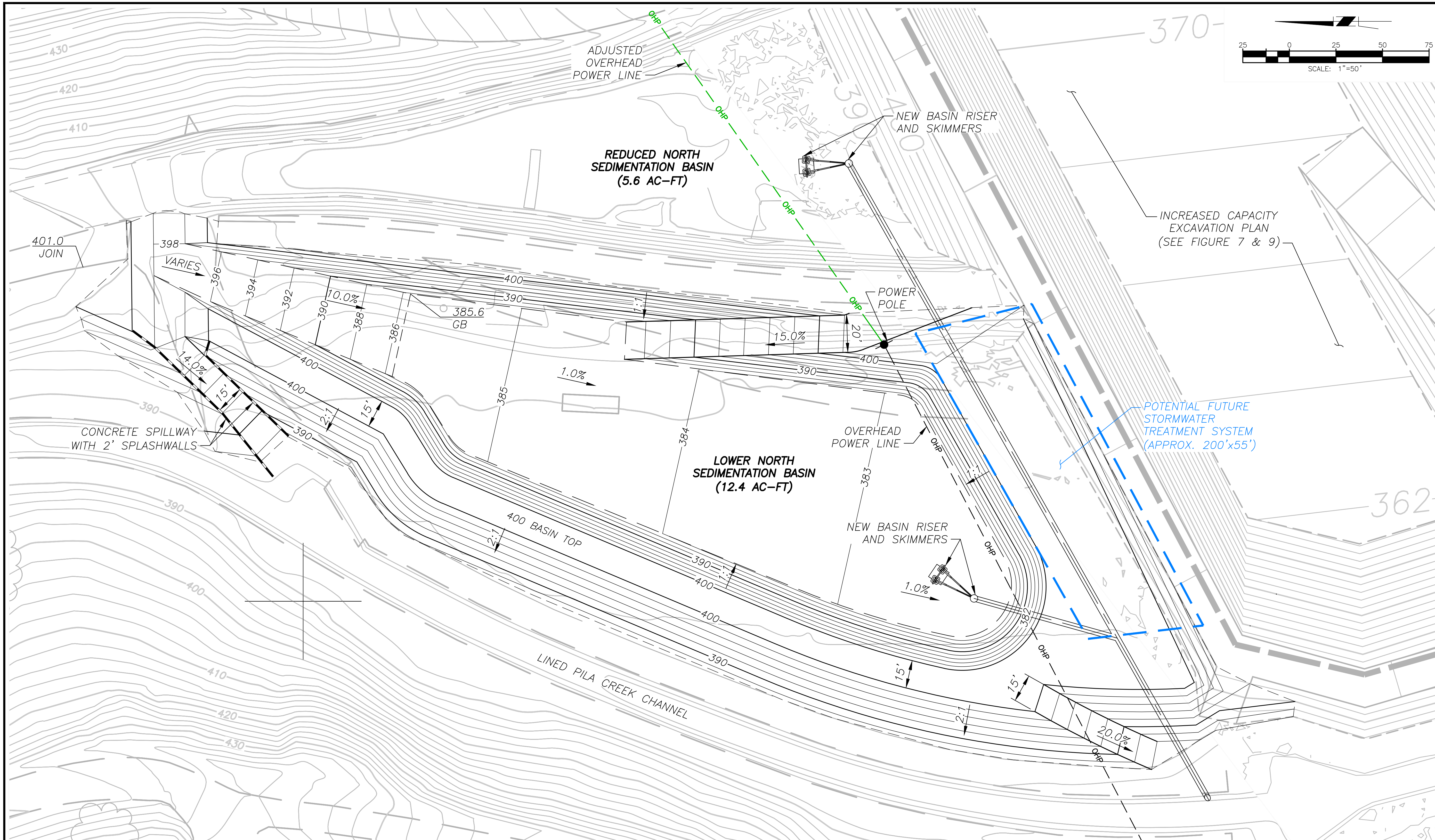
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PROPOSED CAPACITY INCREASE FINAL GRADING PLAN

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\06–PROPOSED CAPACITY INCREASE FINAL GRADING PLAN



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VOLUMETRIC ANALYSIS	
LOWER NORTH BASIN EXCAVATION	8,600 CY
LOWER NORTH BASIN FILL	15,000 CY

FIGURE 7

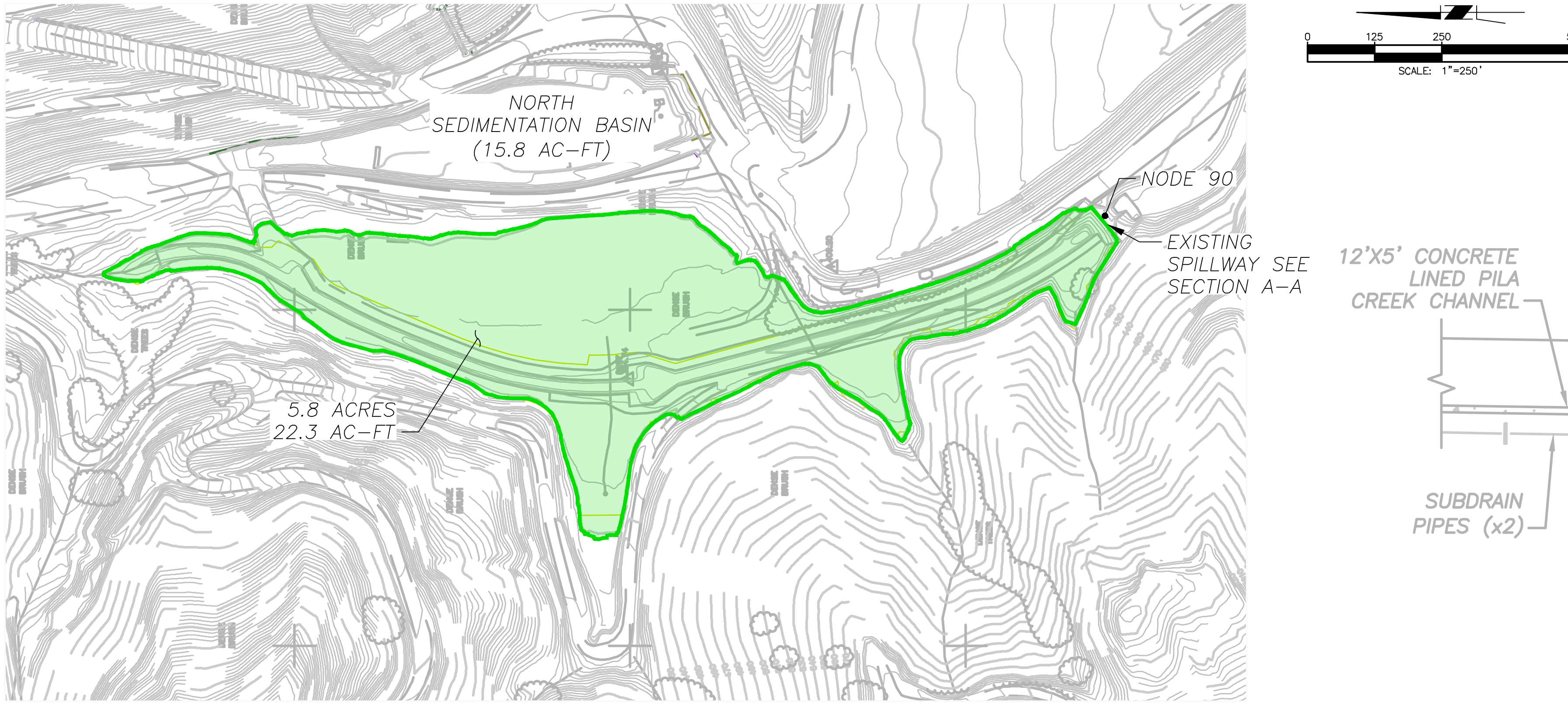
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

LOWER NORTH SEDIMENTATION BASIN

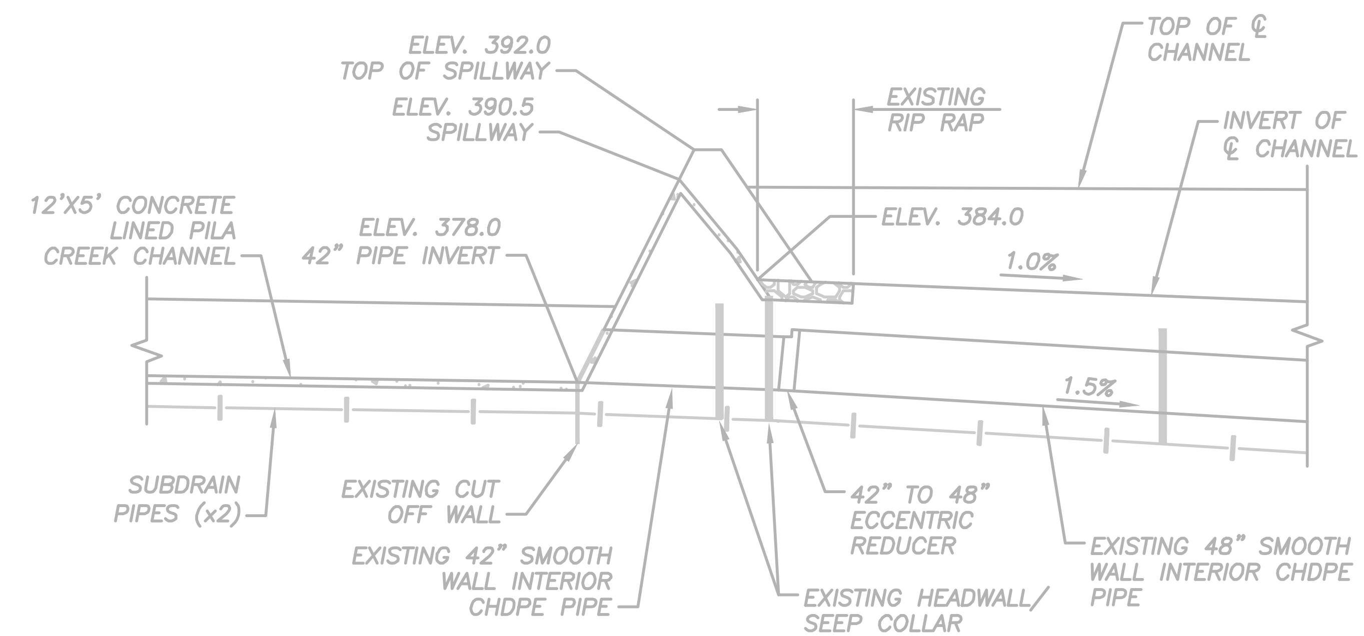
JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\07–PROPOSED LOWER NORTH SEDIMENTATION BASIN



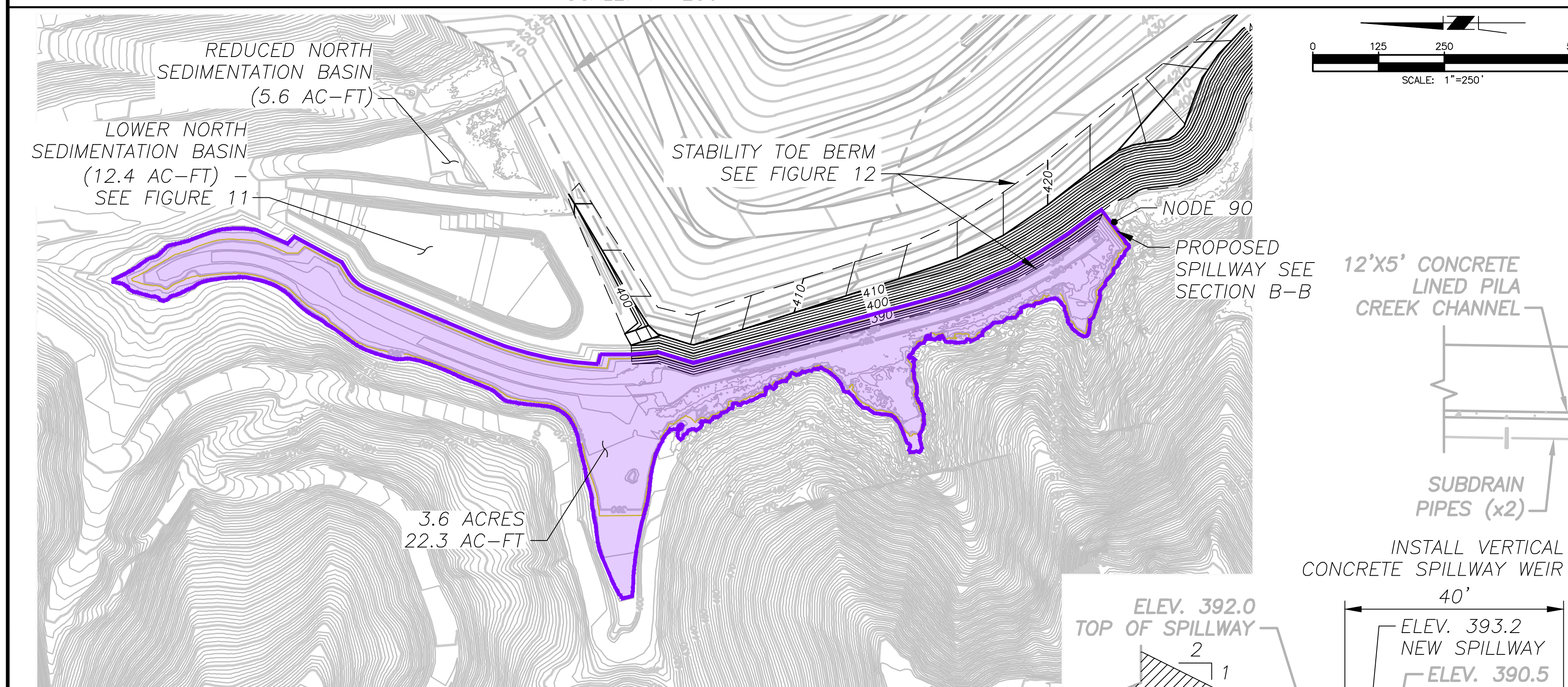
EXISTING CONDITION - WATER SURFACE ELEV. 390.5

SCALE: 1"=250'



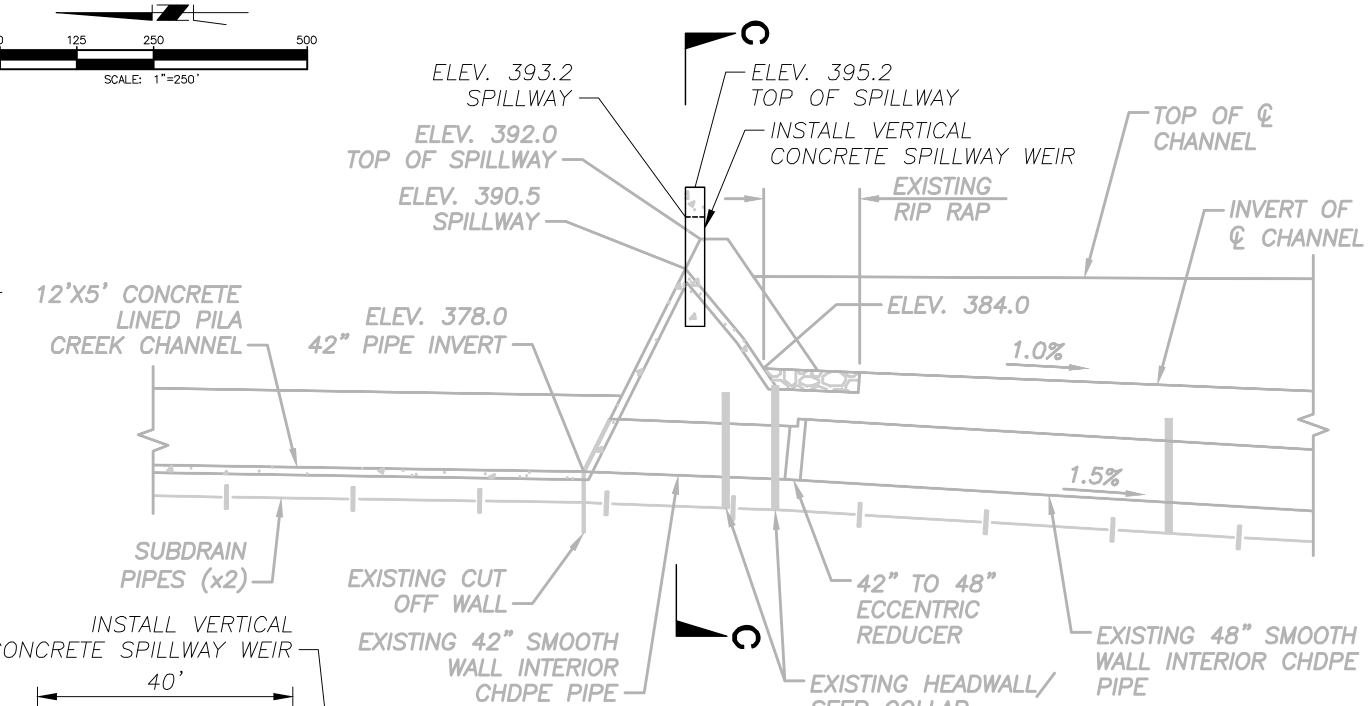
SECTION A-A

NTS



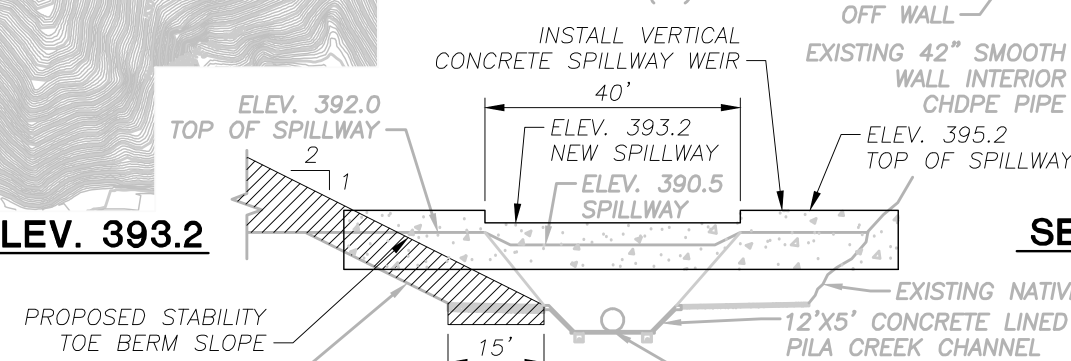
PROPOSED CONDITION - WATER SURFACE ELEV. 393.2

SCALE: 1"=250'



SECTION B-B

NTS



SECTION C-C

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FIGURE 8

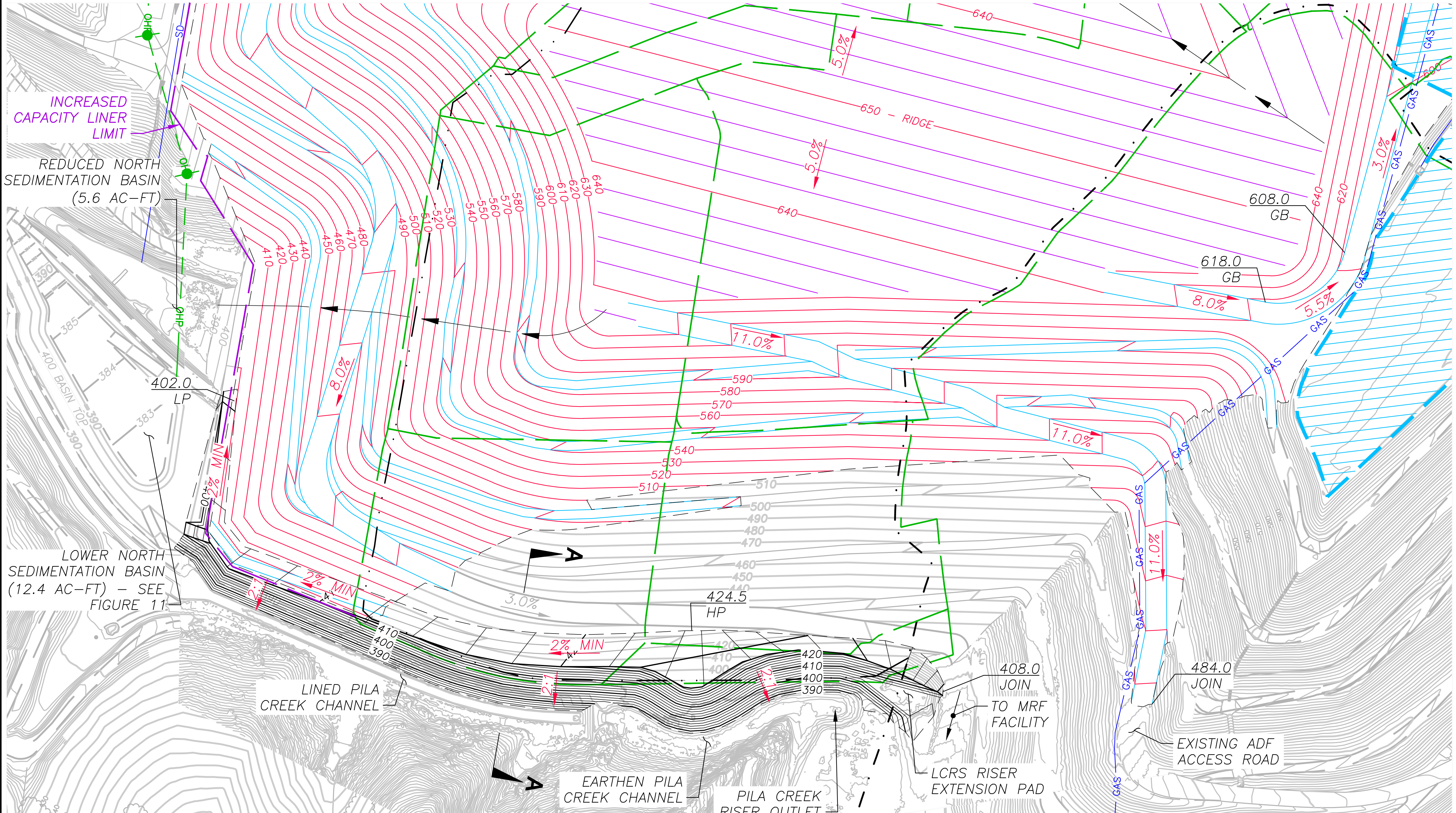
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PILA CREEK DETENTION AREA ENHANCEMENTS

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\08–PILA CREEK ENHANCEMENT

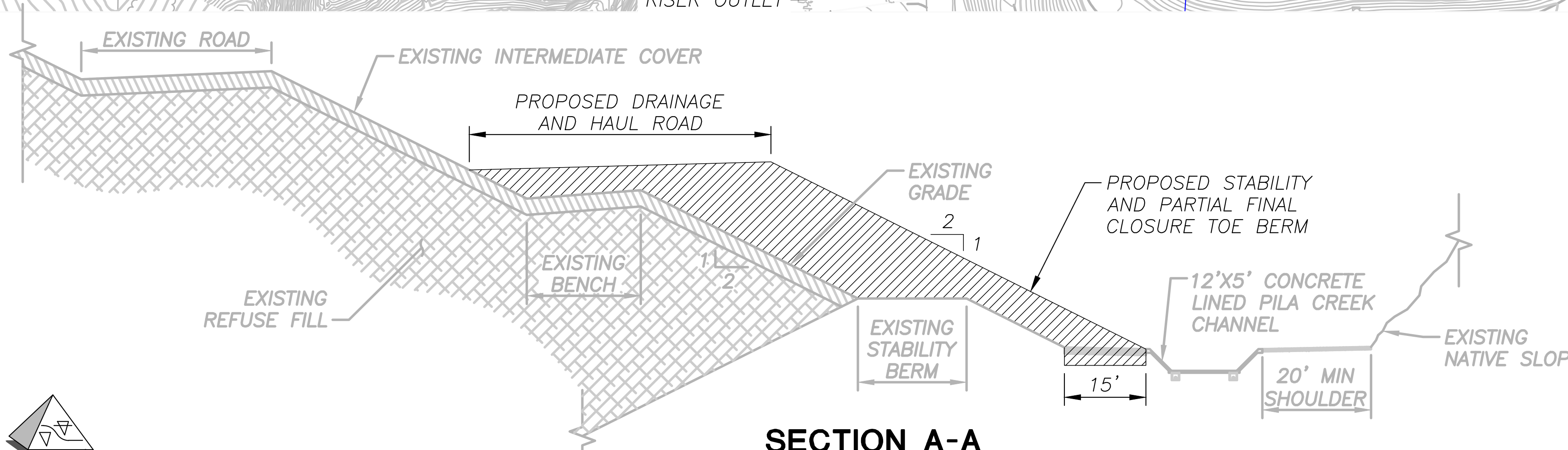


100 0 100 200 300
SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB–TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- 500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP OVERHEAD POWER LINE/POLE
- OHP OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD ADJUSTED CMU DECK DRAIN
- GAS ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
STABILITY TOE BERM FILL	60,000 CY



SECTION A-A
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FIGURE 9

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

INCREASED CAPACITY STABILITY TOE BERM FILL PLAN

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\PROJECT DESCRIPTION 2022\ACAD\FIGURES\09–STABILITY TOE BERM GRADING PLAN

ATTACHMENTS

ATTACHMENT 1

TECHNICAL MEMORANDUM
INCREASED CAPACITY AT THE TAJIGUAS SANITARY LANDFILL
(SWT, JANUARY 27, 2023)

TECHNICAL MEMORANDUM

TO: Leslie Wells, Deputy Director of Public Works
Travis Spier, PE, RR&WMD Operations
Jeanette Gonzales-Knight, PE, RR&WMD Compliance

DATE: January 27, 2023

FROM: Michael Cullinane, PE, Principle Engineer, SWT Engineering
Jeremy Botica, PE, MS, Project Manager, SWT Engineering

RE: INCREASED CAPACITY AT THE TAJIGUAS SANITARY LANDFILL 2023 REPORT

The following document was assembled by SWT Engineering (SWT) to outline the proposed Increased Capacity for the Tajiguas Sanitary Landfill (TSL). The Increased Capacity is based on the feedback provided by the County of Santa Barbara and the recommendations of SWT to reach a refuse disposal filling date of December 2038, based on the ReSource Center being fully operational during this time period. Figures 1 through 3 show the location, current site plan, and existing permitted liner and fill plan for the TSL.

To ensure that the TSL has adequate disposal capacity to maintain operations until December 2038, the landfill will have to increase its current capacity. SWT looked into five different options (see Figures 4 - 10) for the site as follows:

- Option 1 – Figure 4– Remaining capacity and not increased capacity (No Project);
- Option 2 – Figure 5 – Vertical increase to max elevation over the existing footprint;
- Option 3 – Figure 6 – Horizontal increase to the north but not exceeding the permitted elevation height of 620 above mean sea level (AMSL) or impacting previously undisturbed areas;
- Option 4 – Figures 7 & 8 – Horizontal and vertical increase to the north and east to a max elevation height of 650 AMSL with no infrastructure impacts;
- Option 5 (proposed project)– Figures 9 & 10 – Horizontal and vertical increase to the north and east while removing/relocating landfill infrastructure on the landfill maintenance and storage deck to a max elevation height of 650 AMSL.

Based on 2022 tonnage projections with an annual increase of 1% each year, and a ReSource Center diversion rate of approximately 31.35%, Options 1-4 do not provide adequate capacity to reach the goal of December 2038 as shown on the diminishing capacity tables for each option (Tables 1-5) attached. Option 5 does meet the capacity needs for the County and is the only Option analyzed in detail in this Technical Memorandum, as discussed below.

The assumptions that SWT and the County utilized to ensure proper capacity is met, are stated on Table 6.. They include organic diversion, annual tonnage increase, a capacity loss factor for outside slope projections (discussed on Table 6), disaster clean up capacity, and the liner and final cover soil material requirements. Ultimately, an approximate 14.25-acre membrane lined cell (Phase IV) would be excavated placement, in multiple phases while impacting approximately 1.5 acres of previously undisturbed area (as shown on Figures 9 & 10).

The 14.25-acre lined increased capacity would provide approximately 6.1 million cubic yards of additional airspace as shown on Figure 10 (which includes a capacity loss factor of 10% for outside slope settlement, potential disaster cleanup of 200,000 CY as needed, and the liner protective cover/final cover airspace volume at approximately 490,000 CY) to reach the December 2038 date (see Tables 5 & 6).

The Option 5 design would require some enhancements to the existing conditions. The first enhancement is required because the proposed Option 5 14.25-acre increased capacity design encroaches upon the existing North Sedimentation Basin. To replace the capacity of the North Sedimentation Basin, an additional stormwater management system (i.e., lower sedimentation basin, see Figure 11) would be required.

The second enhancement is a toe buttress/berm (stability toe berm) to help the overall landfill stability meet the 1.5 factor of safety with the increased height and increased lateral footprint (See Figure 12). The toe berm will create a factor of safety for a residual seismic event at 1.5, meeting regulatory requirements. Although all options were not analyzed, it is assumed that all options would potentially require some kind of stability toe berm in order to accommodate the increased height and increased lateral footprint. The stability toe berm for Option 5 would require approximately 60,000 CY of compacted soil at 95% compaction to provide the required stability needed for the increased capacity final build out. It is anticipated that the berm may be installed in phases and will incorporate a partial final closure on the external slopes that it covers.

The third enhancement would to be to raise the existing spillway for the Pila Creek flow control structure to ensure that there is still adequate detention capacity (referred to as the Pila Creek Inundation Area) as shown on Figure 13. The spillway height would be raised from approximately 390.5 feet AMSL to approximately 393.2 feet AMSL. This 2.7 vertical rise in the spillway would ensure the Pila Creek Inundation Area provides the current 22.3 acre foot capacity while maintaining the maximum pressure head on the existing 42-inch inlet pipe in the flow control structure at the end of the lined Pila Creek channel.

Table 7 provides a comparison of the design parameters for the increased capacity options discussed in this memo. SWT has also calculated if there is sufficient soil stockpiled for the increased airspace to use for: daily cover,construction of the stability toe berm, liner protective cover, and final cover for the entire site with the proposed Increased Capacity Project (Option 5) and is shown on Table 8.

A preliminary Engineer's Cost Opinion for the capital improvements of this proposed increased capacity has been created, which includes costs for liner, infrastructure improvements, miscellaneous improvements, stability toe berm, additional closure, Engineering/Permitting, and additional Construction Quality Assurance/Construction Management costs for both the increased capacity construction and closure (see Table 9) based on 2022 current dollar evaluation. The Proposed Increased Capacity cell/liner construction is estimated at an approximate $15.5 million cost opinion. The additional closure cost is estimated at an approximate $2.9 million cost opinion (which accounts for an approximate $0.36 million savings due to the reduction in the top deck membrane lined closure system required). Also included in the Engineers Cost Opinion are the estimated costs for Engineering, Permitting, Construction Quality Assurance, and Construction Management at an approximate $2.8 million cost opinion. The total estimated Increased Capacity Engineer's Capital Cost Opinion for the County of Santa Barbara is approximately $21.2 million. The cost break down per additional year (Jan 2026 - Dec 2038), per added cubic yard of airspace, and per projected additional ton added are shown on Table 9 for reference.

SWT is pleased to present this memorandum to the County for the proposed Increased Capacity at the Tajiguas Sanitary Landfill. If there are any questions or changes in the design requirements, then please reach out to me directly at 909-390-1328 or via email at mac@swteng.com or the Project Manager Jeremy Botica at jab@swteng.com.

SWT Engineering, Inc.

Michael A. Cullinane, PE 41981
Principal Engineer

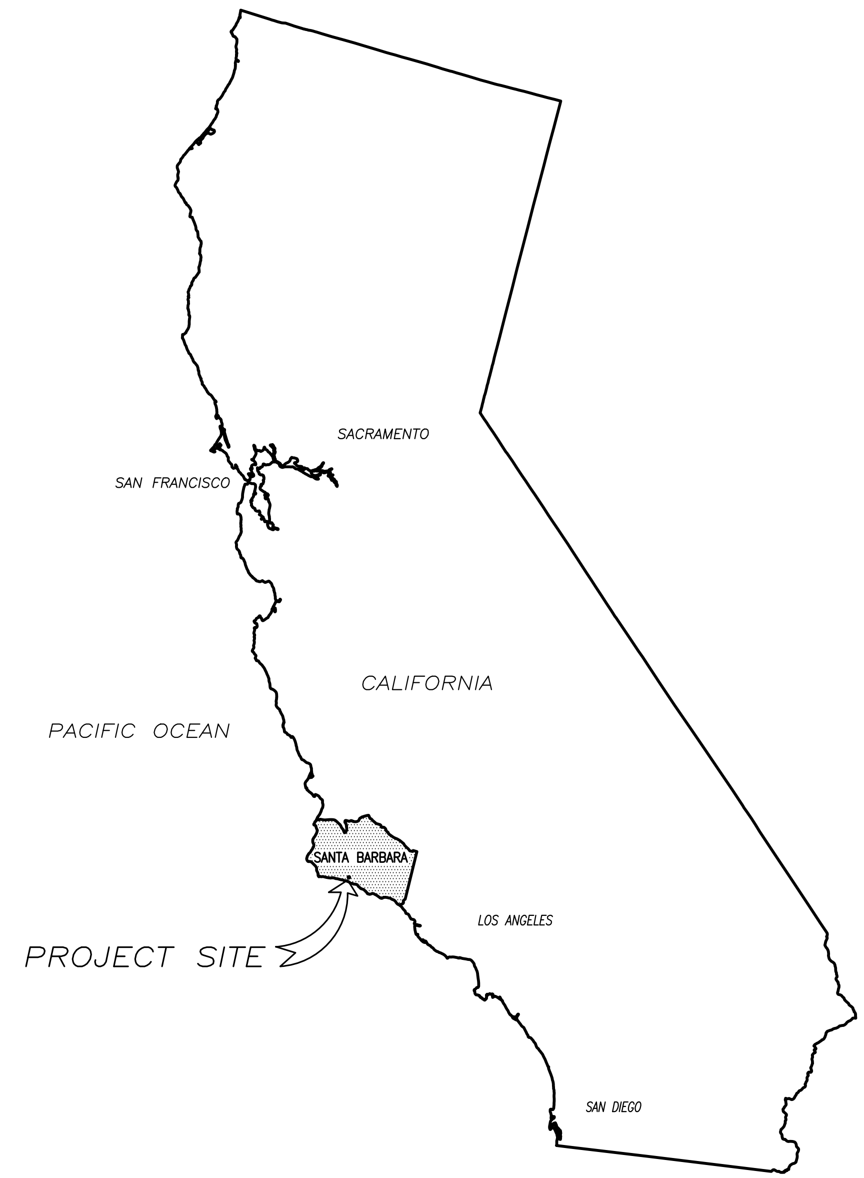
REGISTERED PROFESSIONAL ENGINEER
MICHAEL A. CULLINANE
No. 41981
CIVIL
STATE OF CALIFORNIA

FIGURES

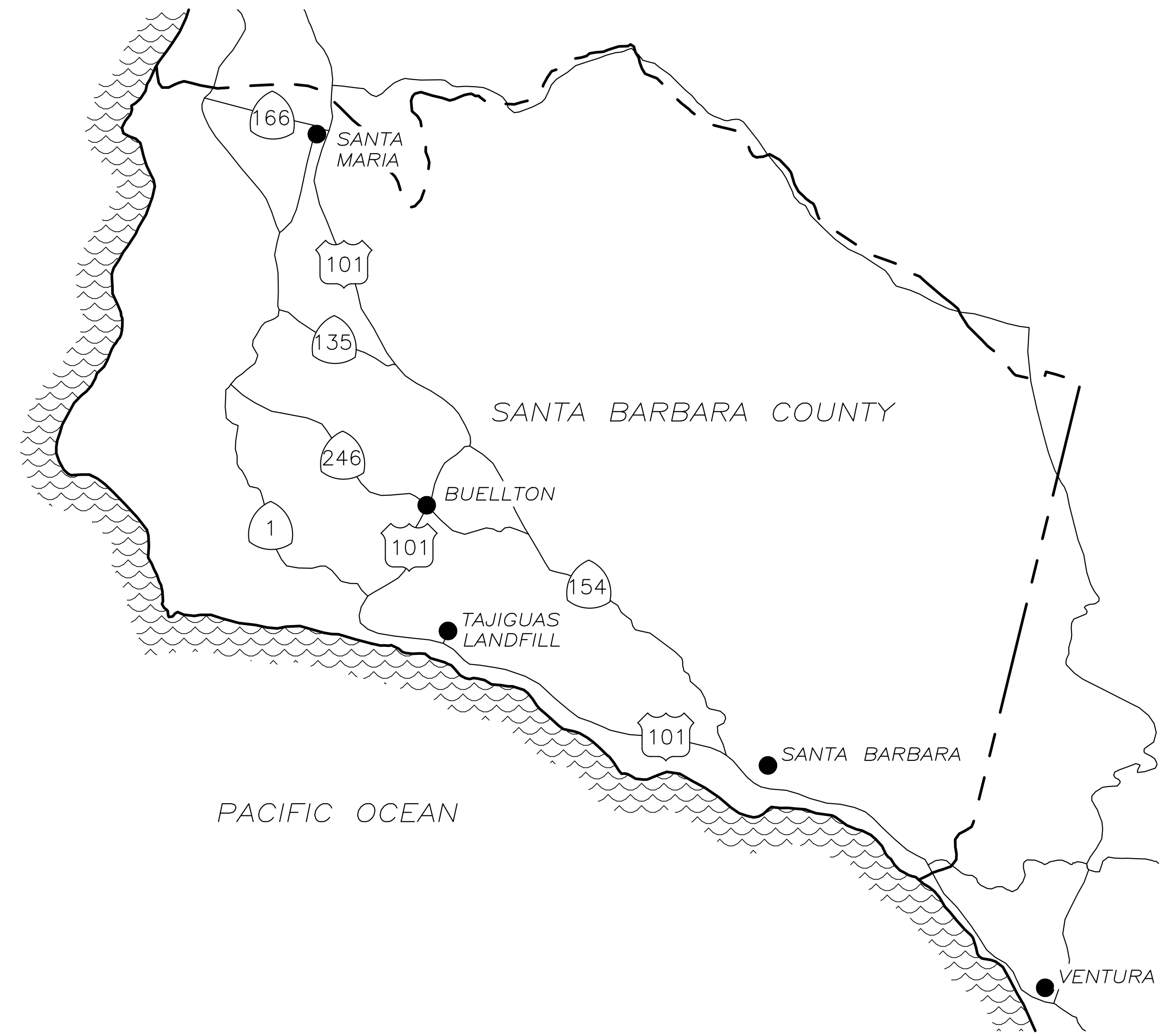
Figure 1:	Vicinity and Site Location Maps
Figure 2:	Site Map
Figure 3:	Master Fill Plan
Figure 4:	Option 1 – Remaining Permitted Capacity (No Project)
Figure 5:	Option 2 – Vertical Increased Capacity without Additional Liner
Figure 6:	Option 3 – Horizontal Increased Capacity with North Slope Liner
Figure 7:	Option 4 – Increased Capacity Excavation Plan with Additional Liner
Figure 8:	Option 4 – Horizontal/Vertical Increased Capacity Final Grading Plan, with no ADF/CMU Infrastructure Impacts
Figure 9:	Option 5 – Increased Capacity Excavation Plan with Additional Liner
Figure 10:	Option 5 – Horizontal/Vertical Increased Capacity Final Grading Plan, with ADF/CMU Infrastructure Impacts
Figure 11:	Lower North Sedimentation Basin Expansion Plan
Figure 12	Increased Capacity Stability Toe Berm Plan
Figure 13	Pila Creek Inundation Area Enhancements

TABLES

FIGURES



VICINITY MAP
NTS



LOCATION MAP
NTS

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ONTARIO, CALIFORNIA 91761

FIGURE 1

TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY PROJECT 2022
VICINITY AND SITE LOCATION MAPS

NOVEMBER 2022

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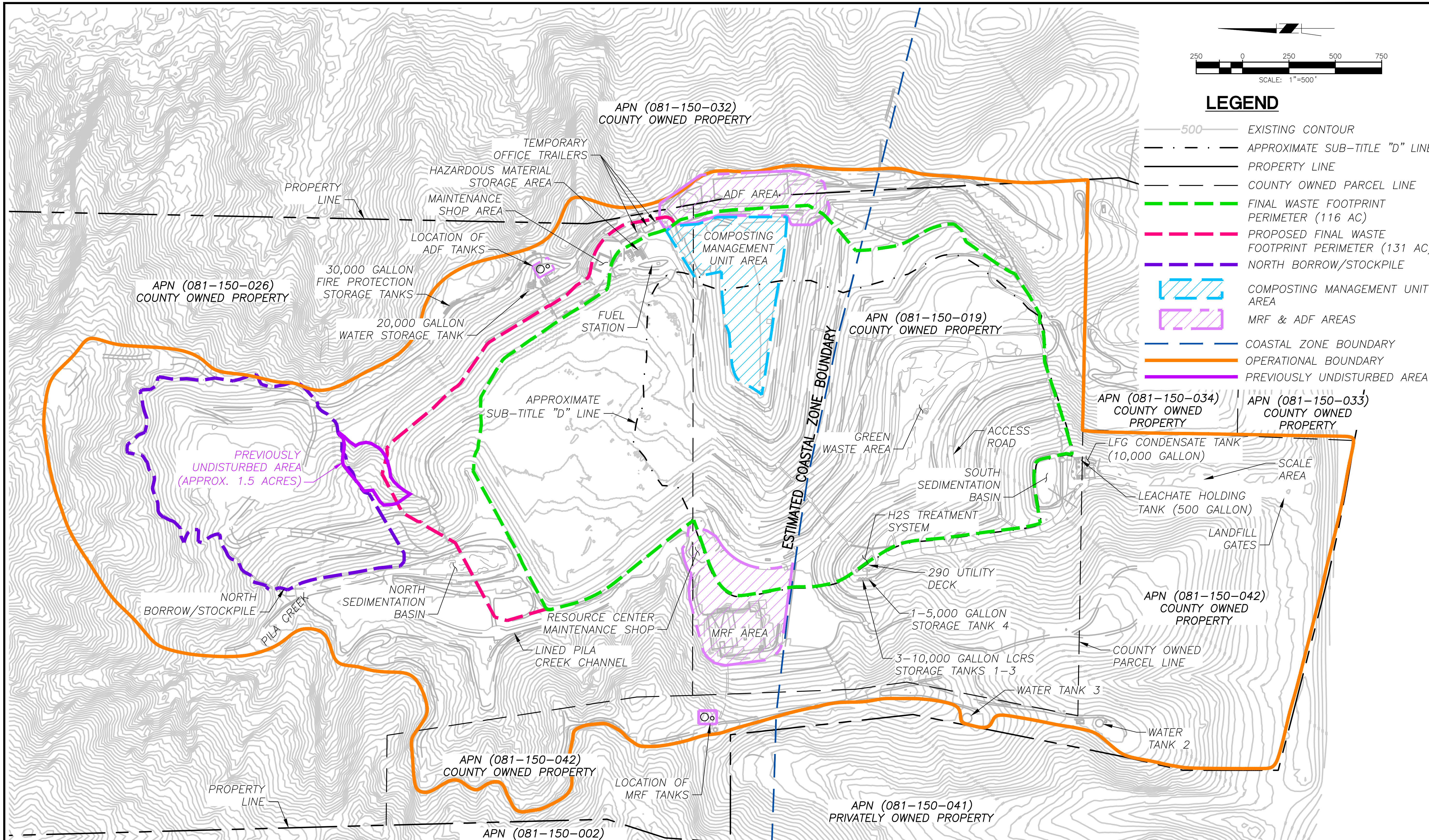

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FIGURE 2

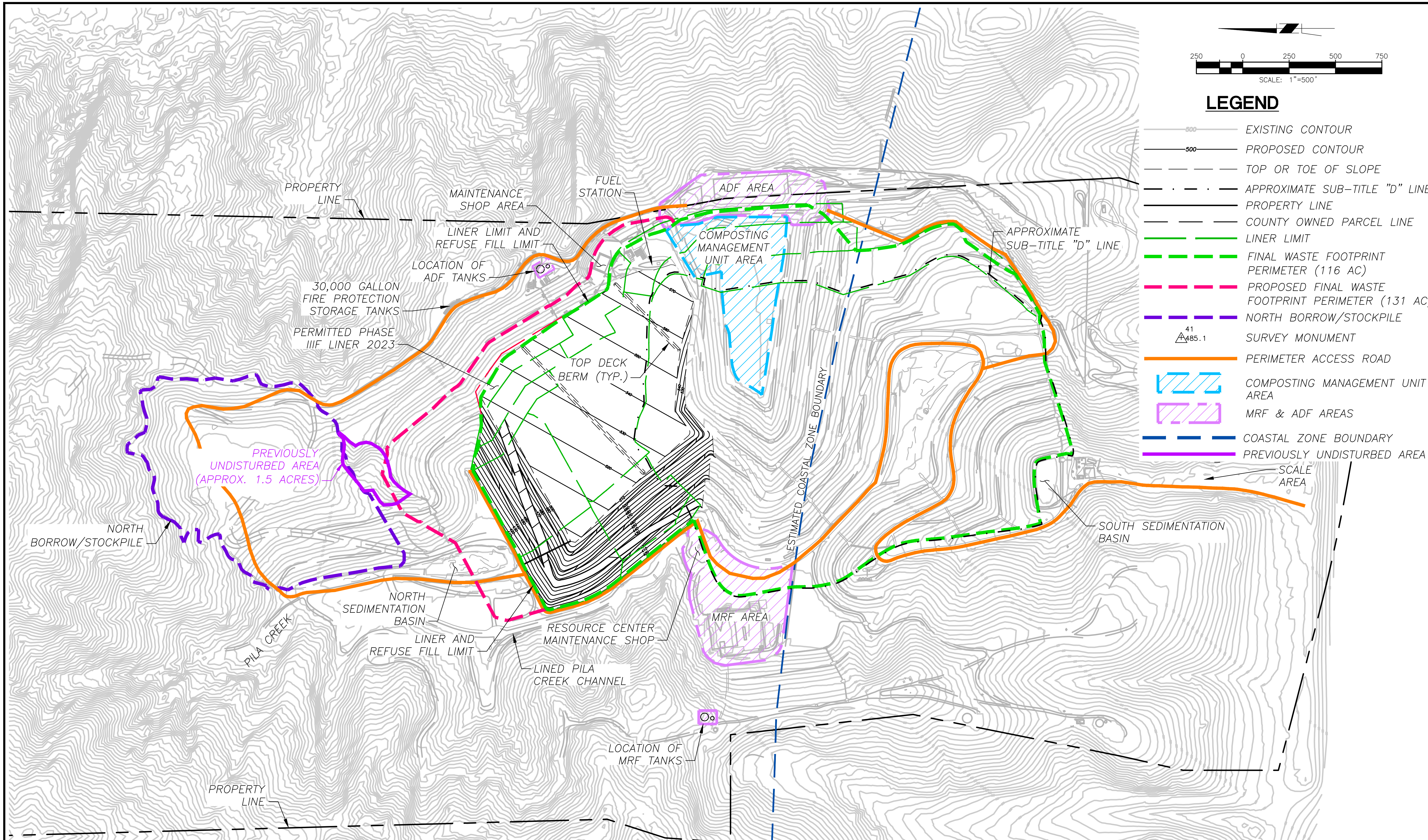
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

SITE MAP

NOVEMBER 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\02-SITE MAP



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DATE OF TOPOGRAPHY: NOVEMBER 2, 2020 WITH APRIL 26, 2022

FIGURE 3

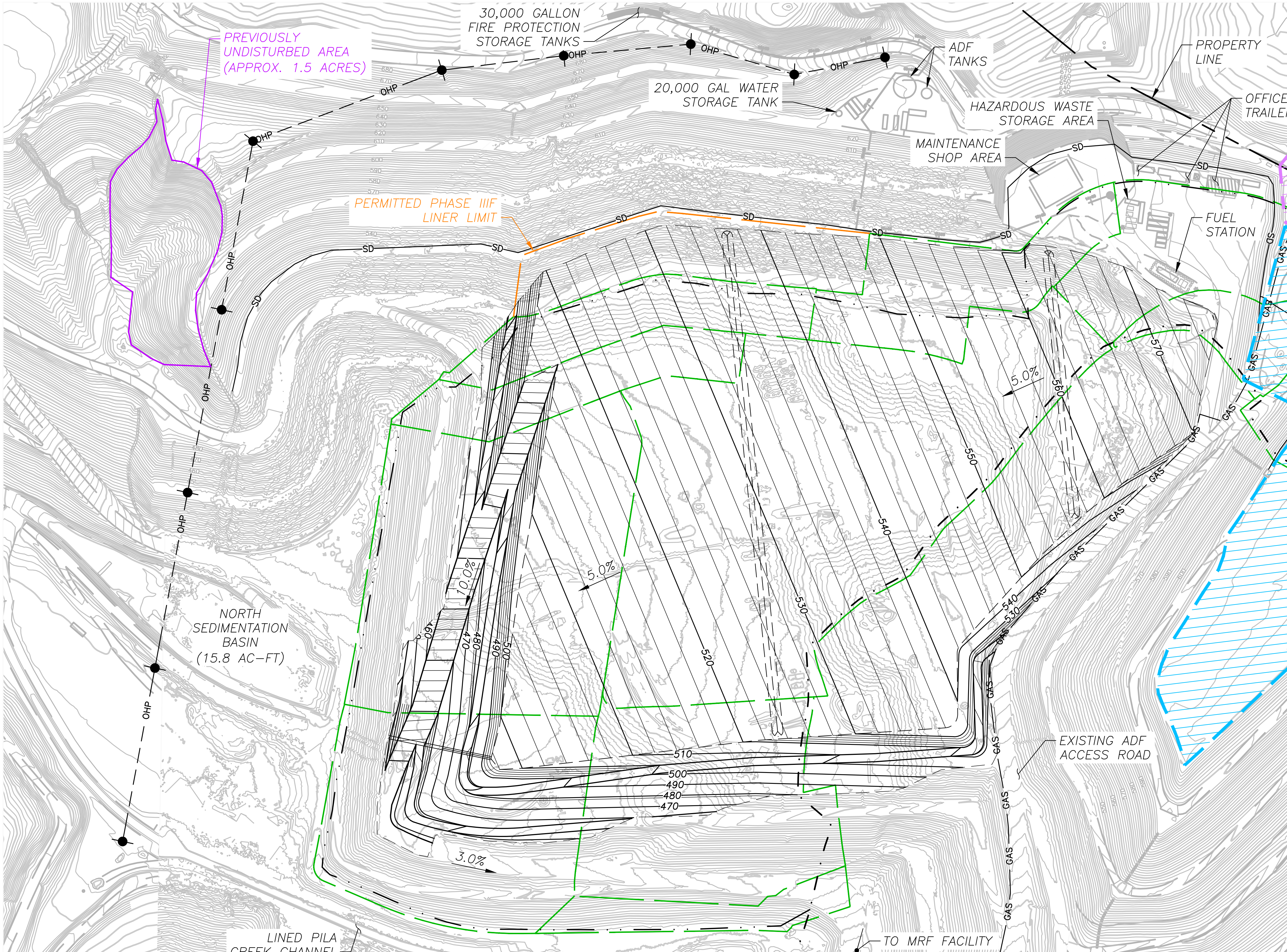
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

MASTER FILL PLAN

NOVEMBER 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\03-MASTER FILL PLAN



SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
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- PERMITTED LINER LIMITS
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- PREVIOUSLY UNDISTURBED AREA
- OHP OVERHEAD POWER LINE/POLE
- SD EXISTING CMU DECK DRAIN
- GAS EXISTING ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 1 INCREASED CAPACITY*	0 CY
TOTAL AIRSPACE CAPACITY*	1,680,900 CY
MAXIMUM REFUSE HEIGHT	ELEV 576
PROJECTED SITE LIFE (AS APRIL 2022)	3.9 YEARS
ADDITIONAL SLOPE LINER AREA	0.0 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

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DATE OF TOPOGRAPHY: SEPTEMBER 18, 2019 WITH APRIL 26, 2022

FIGURE 4

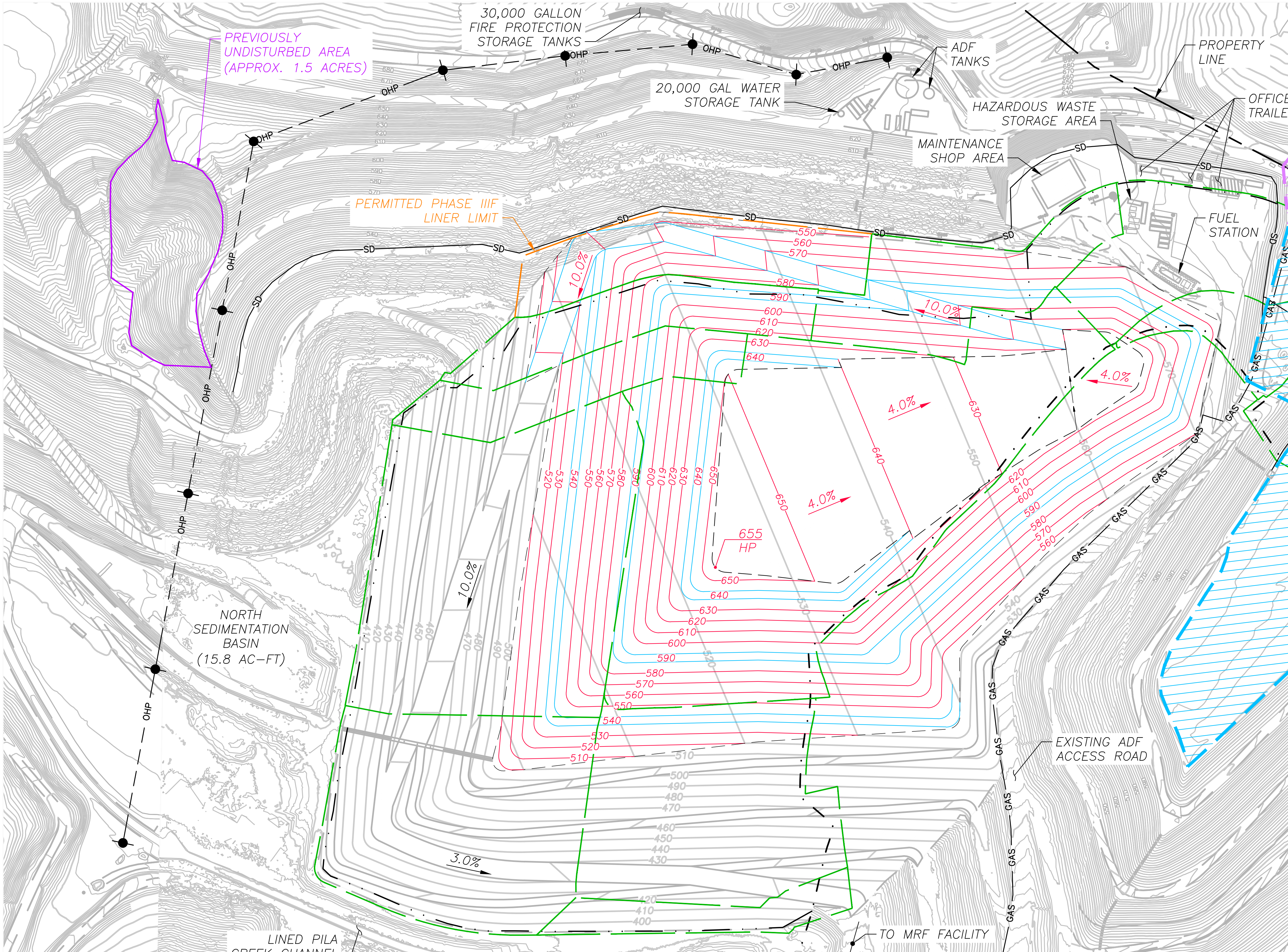
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 1 - REMAINING PERMITTED CAPACITY (NO PROJECT)

NOVEMBER 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\04–OPT.1–REMAINING PERMITTED CAPACITY



100 0 100 200 300

SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
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- GAS EXISTING ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 2 VERTICAL INCREASED CAPACITY*	2,153,920 CY
TOTAL AIRSPACE CAPACITY*	3,834,820 CY
MAXIMUM REFUSE EXPANSION HEIGHT	ELEV 655
PROJECTED SITE LIFE (AS APRIL 2022)	9.6 YEARS
ADDITIONAL SLOPE LINER AREA	0.0 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

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FIGURE 5

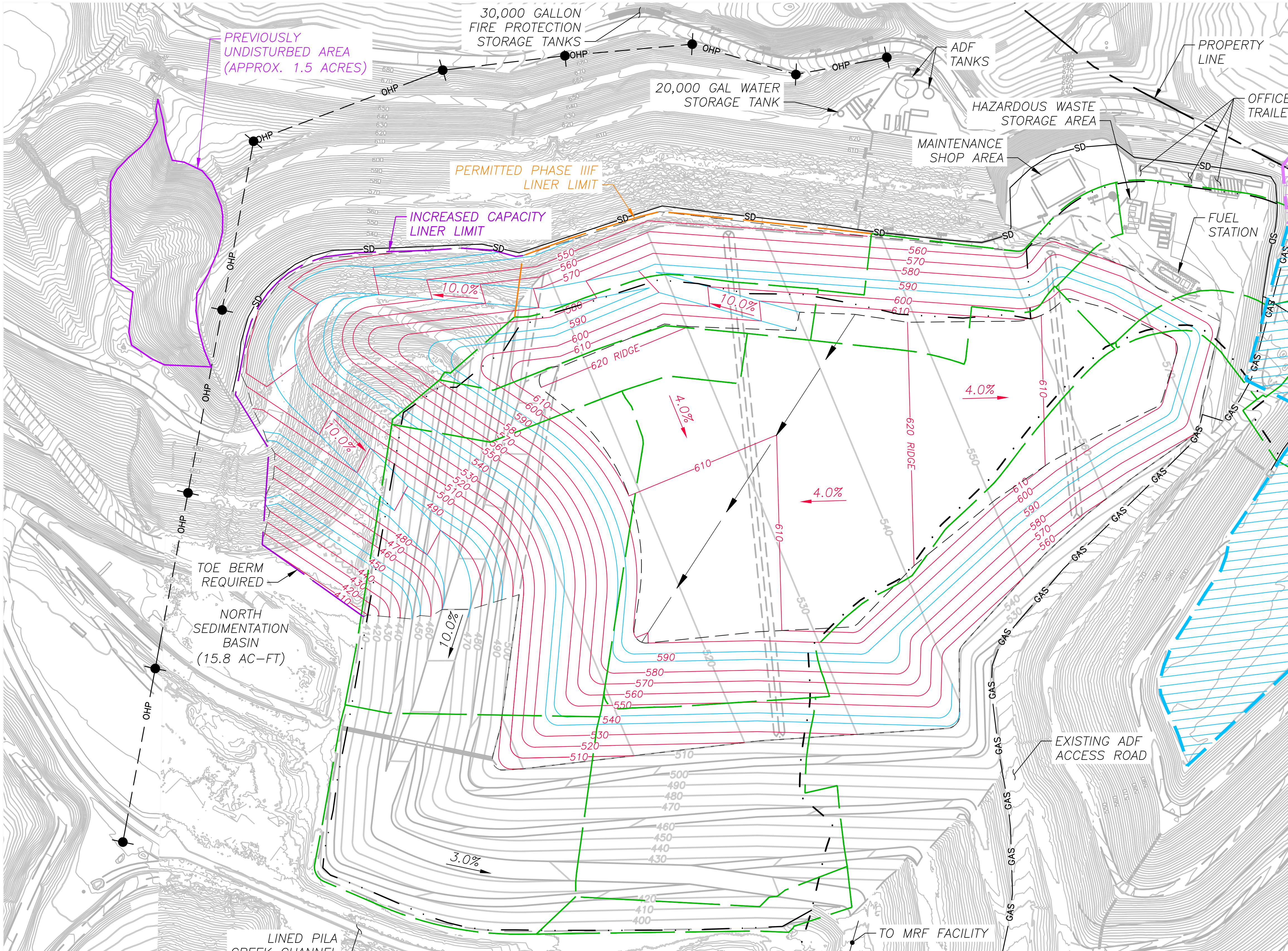
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 2 - VERTICAL INCREASED CAPACITY WITHOUT ADDITIONAL LINER

NOVEMBER 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\05–OPT.2–VERT INCREASED CAPACITY WO ADD LINER



100 0 100 200 300

SCALE: 1"=200'

LEGEND

APPROXIMATE SUB-TITLE "D" LINE

APPROXIMATE EXISTING REFUSE LIMIT

APPROXIMATE PROPERTY LINE

500 EXISTING MAJOR CONTOUR

500 MASTER FILL PLAN MAJOR CONTOUR

500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR

590 PROPOSED INCREASED CAPACITY BENCH

APPROXIMATE LINER LIMITS

PERMITTED LINER LIMITS

INCREASED CAPACITY LINER LIMIT

COMPOSTING MANAGEMENT UNIT AREA

ADF AREA

4.0% FLOW GRADE AND DIRECTION

PREVIOUSLY UNDISTURBED AREA

OHP OVERHEAD POWER LINE/POLE

SD EXISTING CMU DECK DRAIN

GAS EXISTING ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 3 HORIZONTAL INCREASED CAPACITY*	2,712,000 CY
TOTAL AIRSPACE CAPACITY*	4,392,900 CY
MAXIMUM REFUSE EXPANSION HEIGHT	ELEV 620
PROJECTED SITE LIFE (AS APRIL 2022)	10.8 YEARS
ADDITIONAL SLOPE LINER AREA	4.5 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

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FIGURE 6

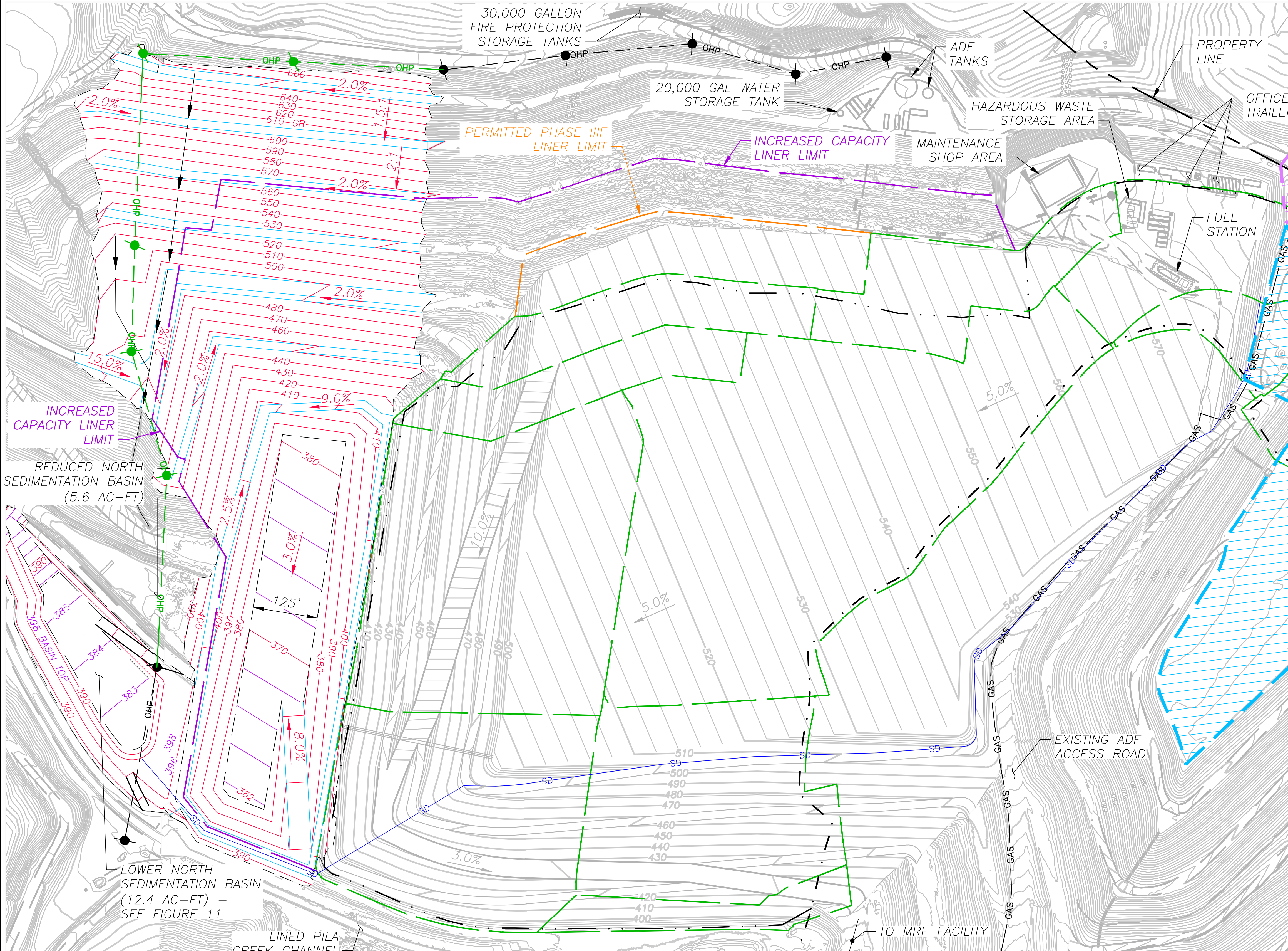
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 3 - HORIZ. INCREASED CAPACITY WITH ADDITIONAL NORTH SLOPE LINER

NOVEMBER 2022

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\06-OPT.3-VERT INCREASED CAPACITY W ADD N SLOPE LINER



100 0 100 200 300

SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- 500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP OVERHEAD POWER LINE/POLE
- OHP OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD ADJUSTED CMU DECK DRAIN
- GAS ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
INCREASED CAPACITY EXCAVATION	566,400 CY
ADDITIONAL SLOPE LINER AREA	11.55 ACRES
ADDITIONAL BASE LINER AREA	1.75 ACRES
ADDITIONAL TOTAL LINER AREA	13.30 ACRES

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FIGURE 7

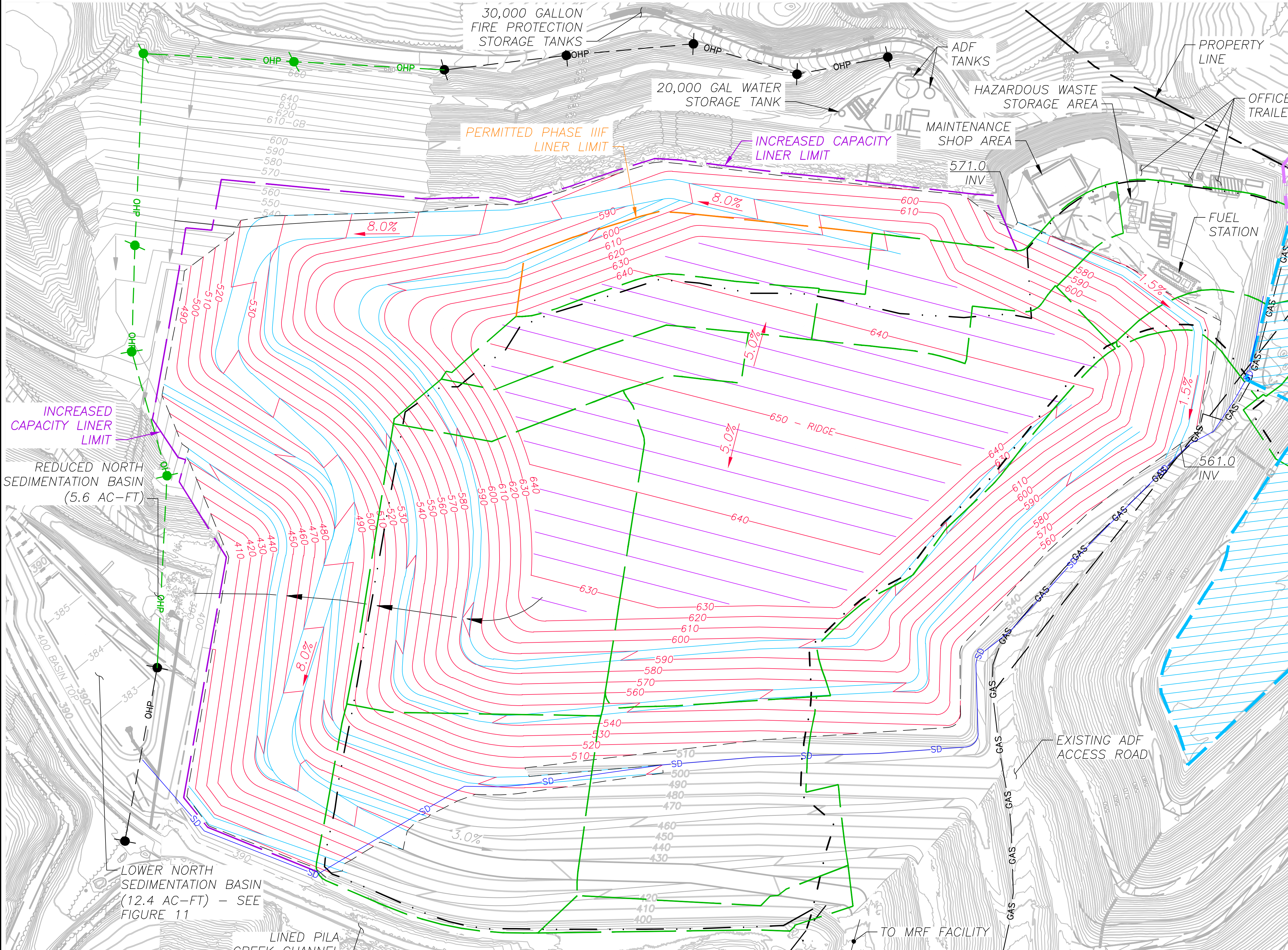
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 4 - INCREASED CAPACITY EXCAVATION PLAN WITH ADD'TL LINER

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\07-OPT.4-INCREASED CAPACITY EXCAVATION PLAN



SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- 500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP OVERHEAD POWER LINE/POLE
- OHP OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD ADJUSTED CMU DECK DRAIN
- GAS ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 4 HORIZ./VERT. INCREASED CAPACITY*	5,218,000 CY
TOTAL AIRSPACE CAPACITY*	6,898,900 CY
MAXIMUM REFUSE INCREASED HEIGHT	ELEV 650
PROJECTED SITE LIFE (AS APRIL 2022)	15.6 YEARS
ADDITIONAL LINER AREA	13.3 ACRES

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

FIGURE 8

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 4 - HORIZ./VERT. INCREASED CAPACITY FINAL GRADING PLAN

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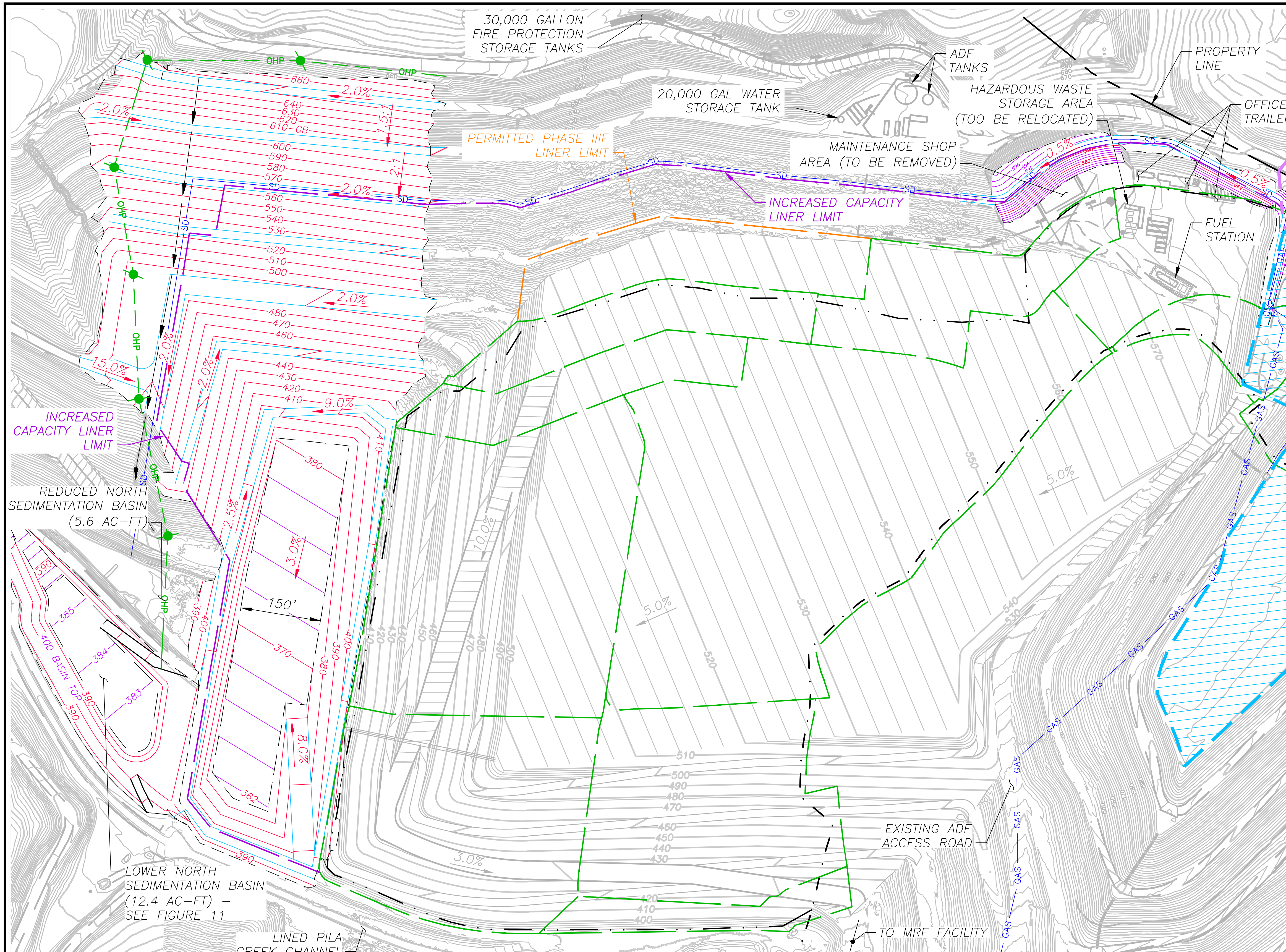
Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\08-OPT.4-INCREASED CAPACITY FINAL GRADING PLAN



SCALE: 1"=200'

LEGEND

— · —	APPROXIMATE SUB-TITLE "D" LINE
— · · —	APPROXIMATE EXISTING REFUSE LIMIT
— — —	APPROXIMATE PROPERTY LINE
500	EXISTING MAJOR CONTOUR
500	MASTER FILL PLAN MAJOR CONTOUR
500	PROPOSED INCREASED CAPACITY MAJOR CONTOUR
590	PROPOSED INCREASED CAPACITY BENCH
— —	APPROXIMATE LINER LIMITS
— —	PERMITTED LINER LIMITS
— —	INCREASED CAPACITY LINER LIMIT
	COMPOSTING MANAGEMENT UNIT AREA
	ADF AREA
4.0%	FLOW GRADE AND DIRECTION
OHP	OVERHEAD POWER LINE/POLE
OHP	OVERHEAD POWER LINE/POLE ADJUSTMENT
SD	ADJUSTED CMU DECK DRAIN
GAS	ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
INCREASED CAPACITY EXCAVATION	586,400 CY
ADDITIONAL SLOPE LINER AREA	12.50 ACRES
ADDITIONAL BASE LINER AREA	1.75 ACRES
ADDITIONAL TOTAL LINER AREA	14.25 ACRES

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FIGURE 9

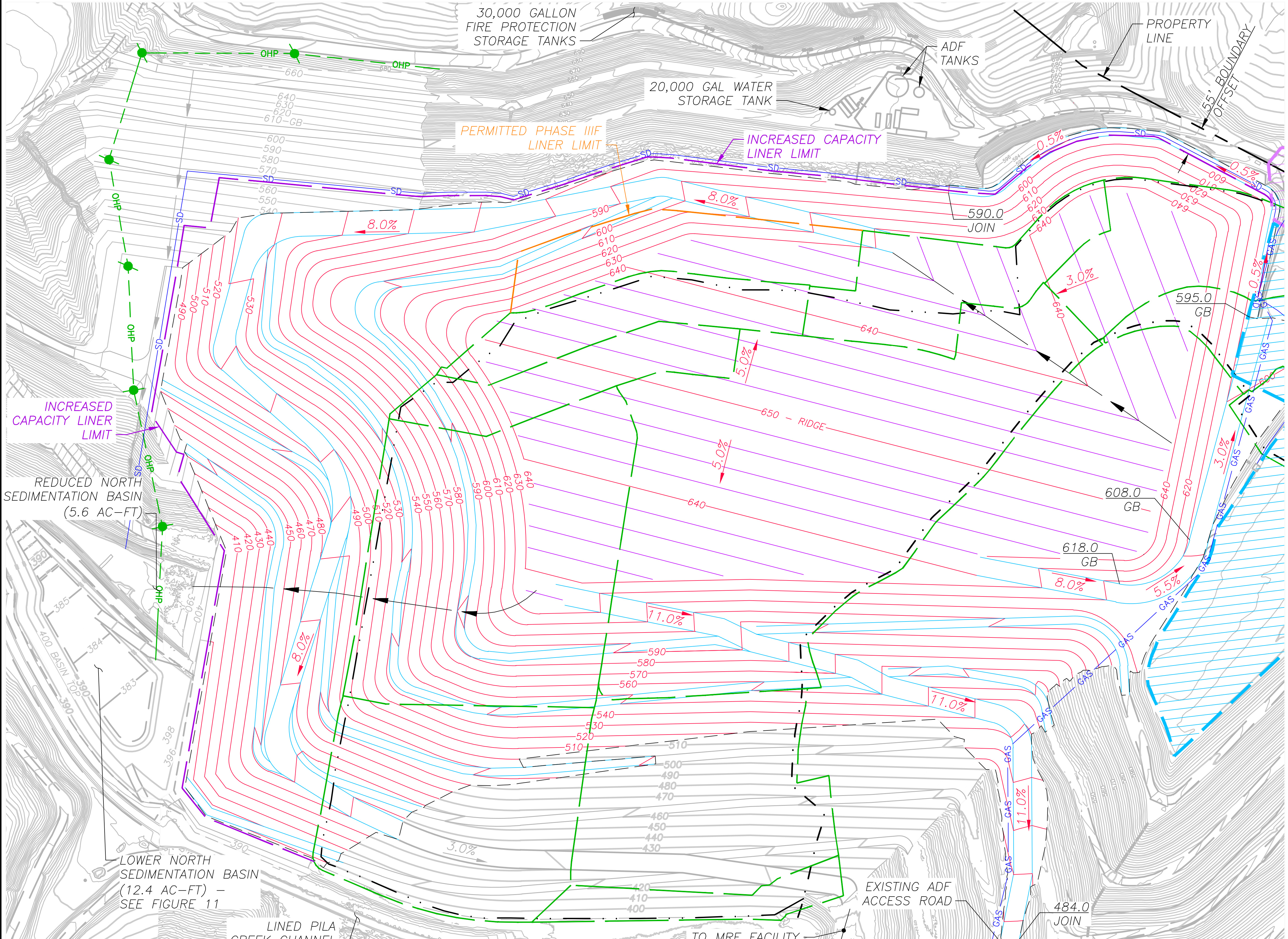
TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 5 - INCREASED CAPACITY EXCAVATION PLAN WITH ADD'TL LINER

JANUARY 2023

Z:\PROJECTS\SANTA BARBARA\TAJIGUAS\EXPANSION ALTERNATIVES\2022 EXPANSION STUDY UPDATE\ACAD\FIGURES\09-OPT.5-INCREASED CAPACITY EXCAVATION PLAN



SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB-TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- 500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP OVERHEAD POWER LINE/POLE
- OHP OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD ADJUSTED CMU DECK DRAIN
- GAS ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS

MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 5 HORIZ./VERT. INCREASED CAPACITY*	6,100,000 CY
TOTAL AIRSPACE CAPACITY*	7,780,900 CY
MAXIMUM REFUSE INCREASED HEIGHT	ELEV 650
PROJECTED SITE LIFE (AS APRIL 2022)	16.66 YEARS
ADDITIONAL LINER AREA	14.25 ACRES + POTENTIAL OVERLINER

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

FIGURE 10

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

OPTION 5 - HORIZ./VERT. INCREASED CAPACITY FINAL GRADING PLAN

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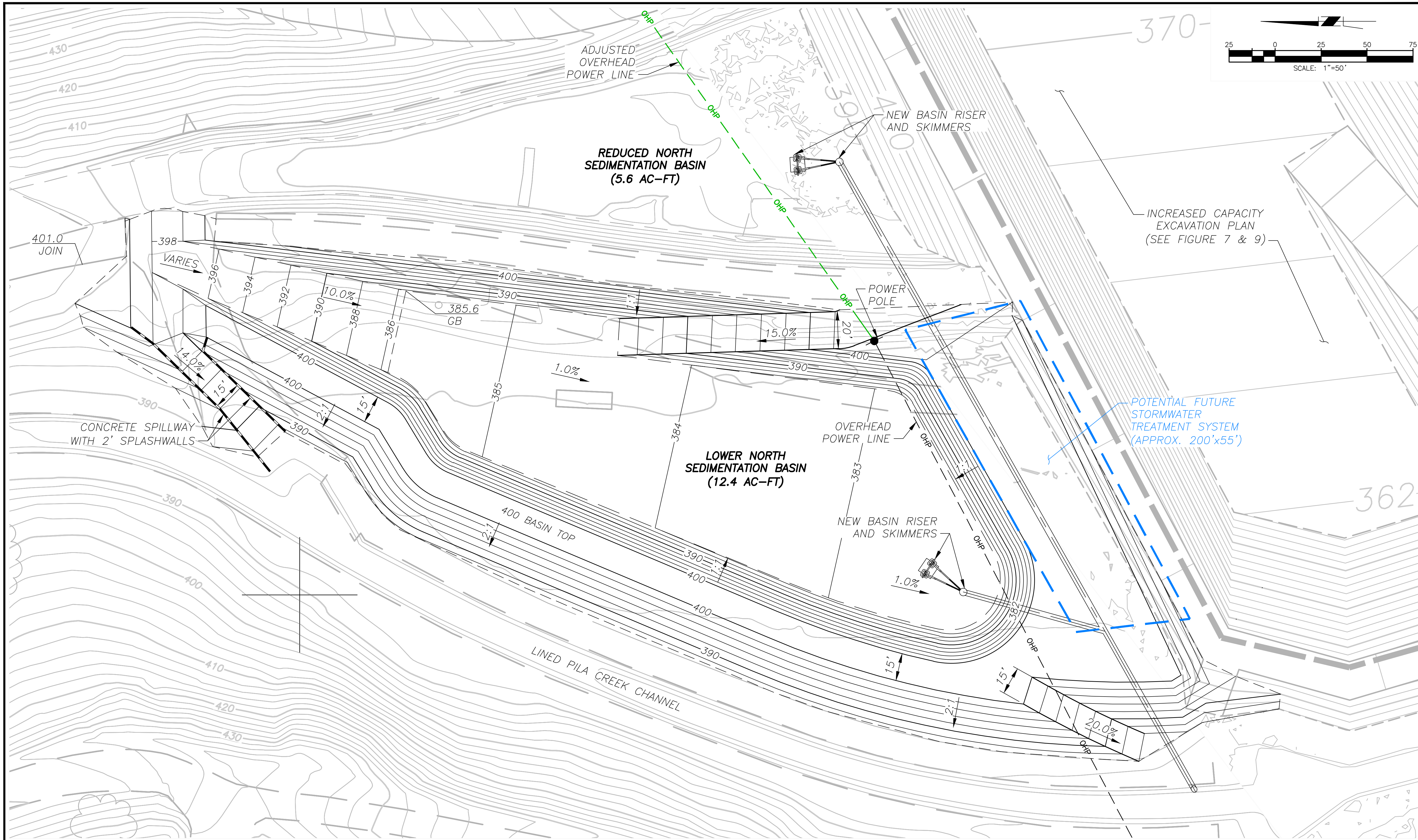

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VOLUMETRIC ANALYSIS	
LOWER NORTH BASIN EXCAVATION	8,600 CY
LOWER NORTH BASIN FILL	15,000 CY

FIGURE 11

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

LOWER NORTH SEDIMENTATION BASIN

JANUARY 2023

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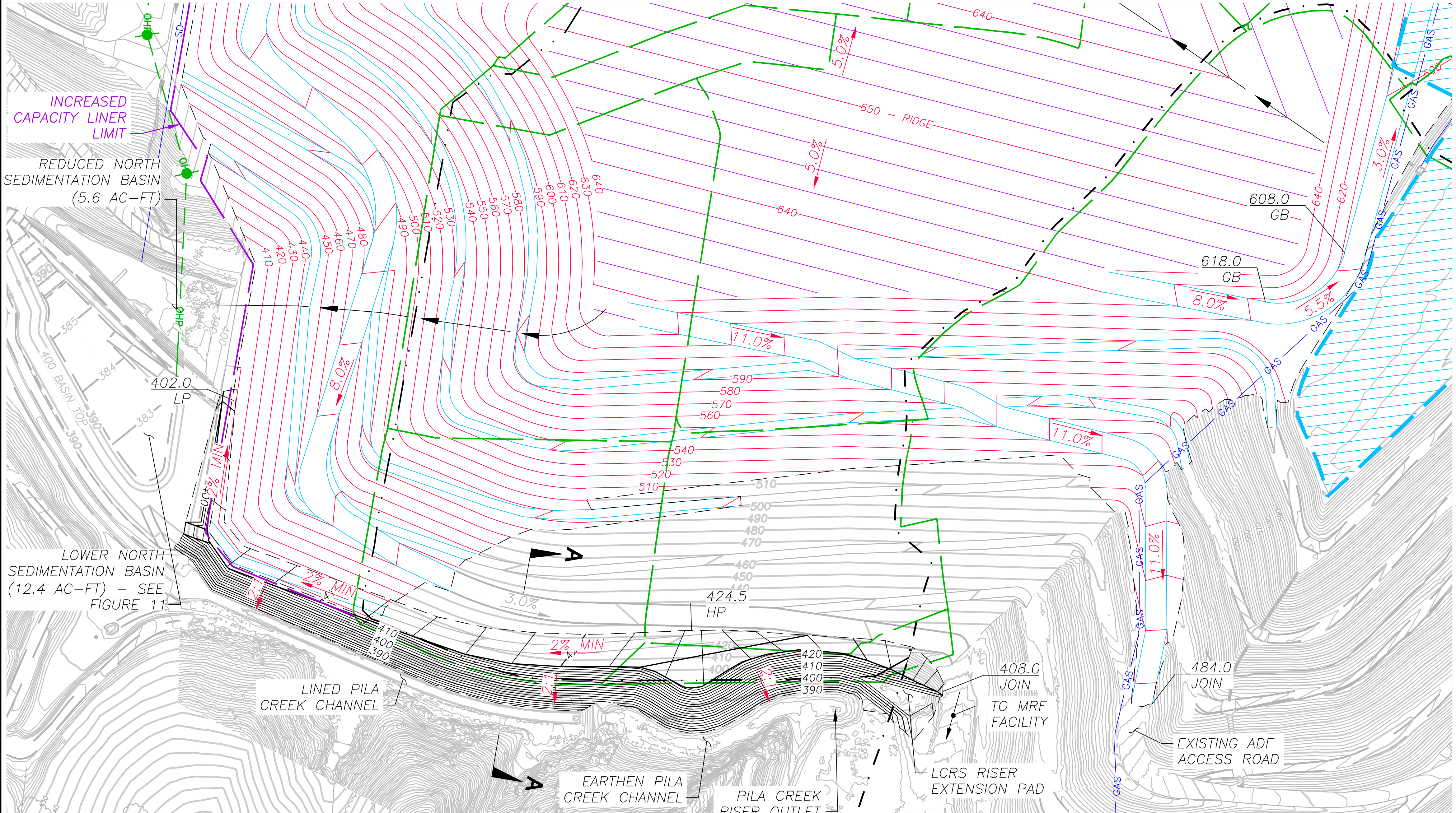

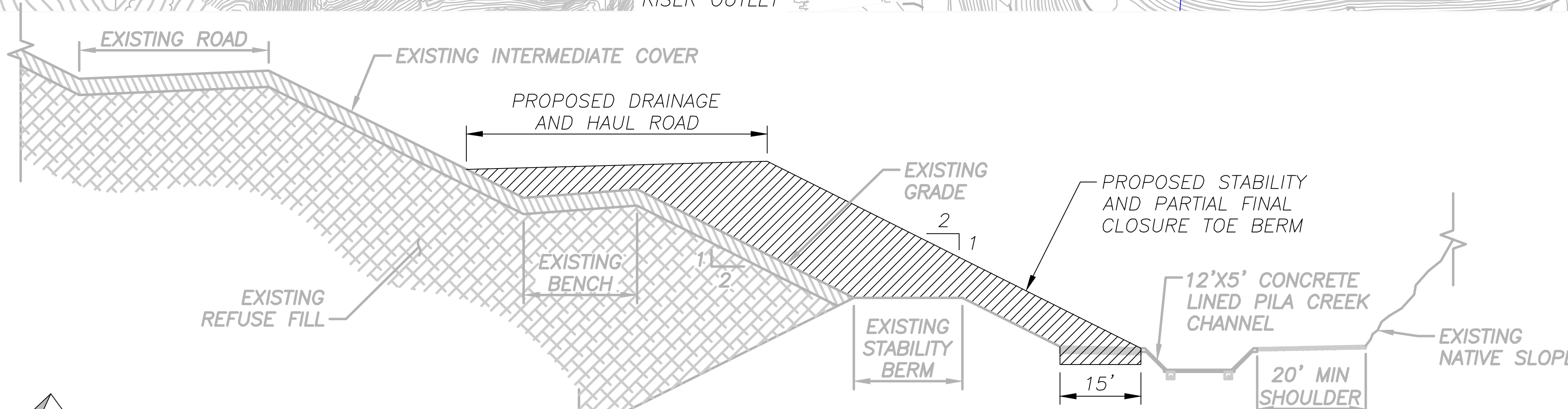

SECTION A-A
NTS

SCALE: 1"=200'

LEGEND

- APPROXIMATE SUB–TITLE "D" LINE
- APPROXIMATE EXISTING REFUSE LIMIT
- APPROXIMATE PROPERTY LINE
- 500 EXISTING MAJOR CONTOUR
- 500 MASTER FILL PLAN MAJOR CONTOUR
- 500 PROPOSED INCREASED CAPACITY MAJOR CONTOUR
- 590 PROPOSED INCREASED CAPACITY BENCH
- APPROXIMATE LINER LIMITS
- PERMITTED LINER LIMITS
- INCREASED CAPACITY LINER LIMIT
- COMPOSTING MANAGEMENT UNIT AREA
- ADF AREA
- 4.0% FLOW GRADE AND DIRECTION
- OHP OVERHEAD POWER LINE/POLE
- OHP OVERHEAD POWER LINE/POLE ADJUSTMENT
- SD ADJUSTED CMU DECK DRAIN
- GAS ADJUSTED ADF TO MRF LANDFILL GAS LINE

VOLUMETRIC ANALYSIS	
STABILITY TOE BERM FILL	60,000 CY

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DATE OF TOPOGRAPHY: SEPTEMBER 18, 2019 WITH APRIL 26, 2022

FIGURE 12

TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY PROJECT 2022
INCREASED CAPACITY STABILITY TOE BERM FILL PLAN

JANUARY 2023

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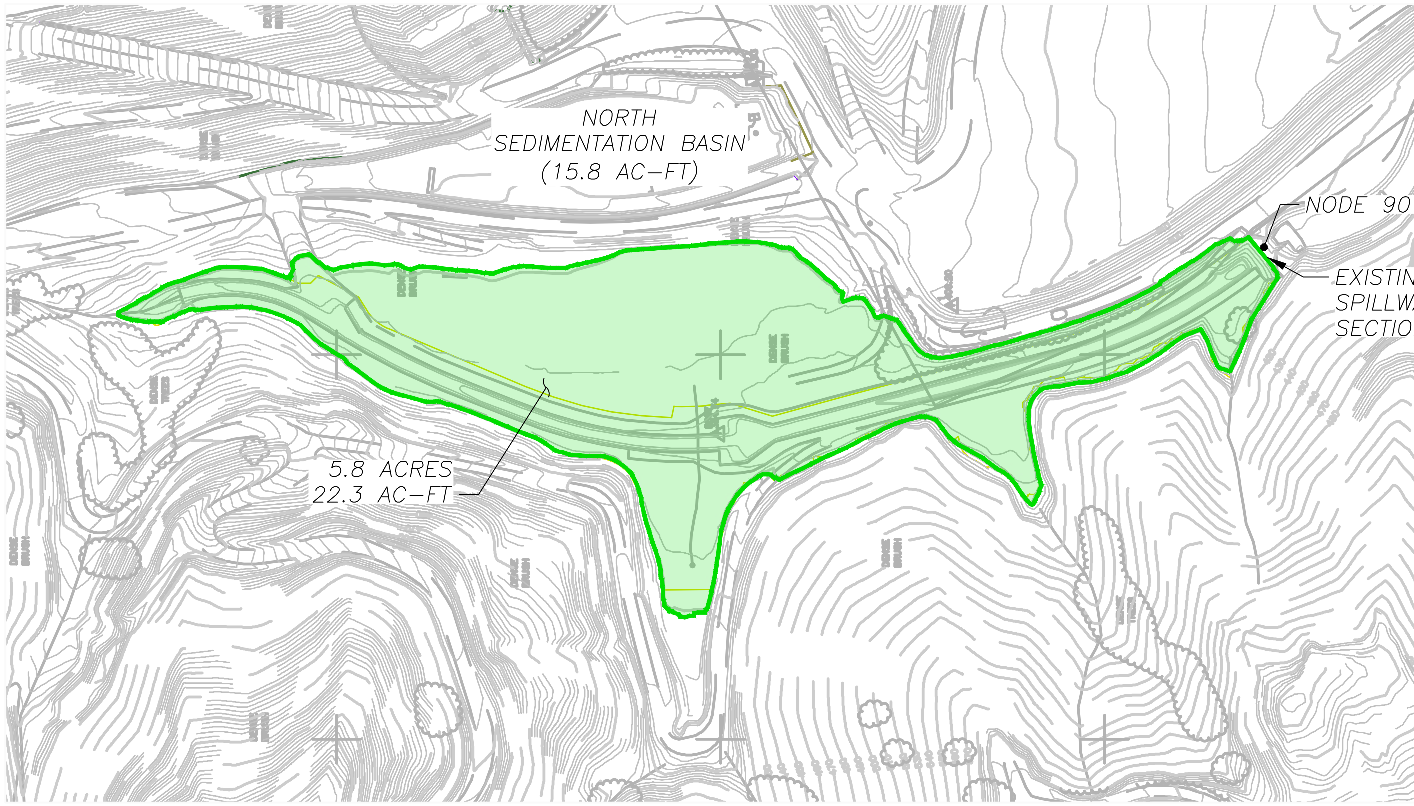
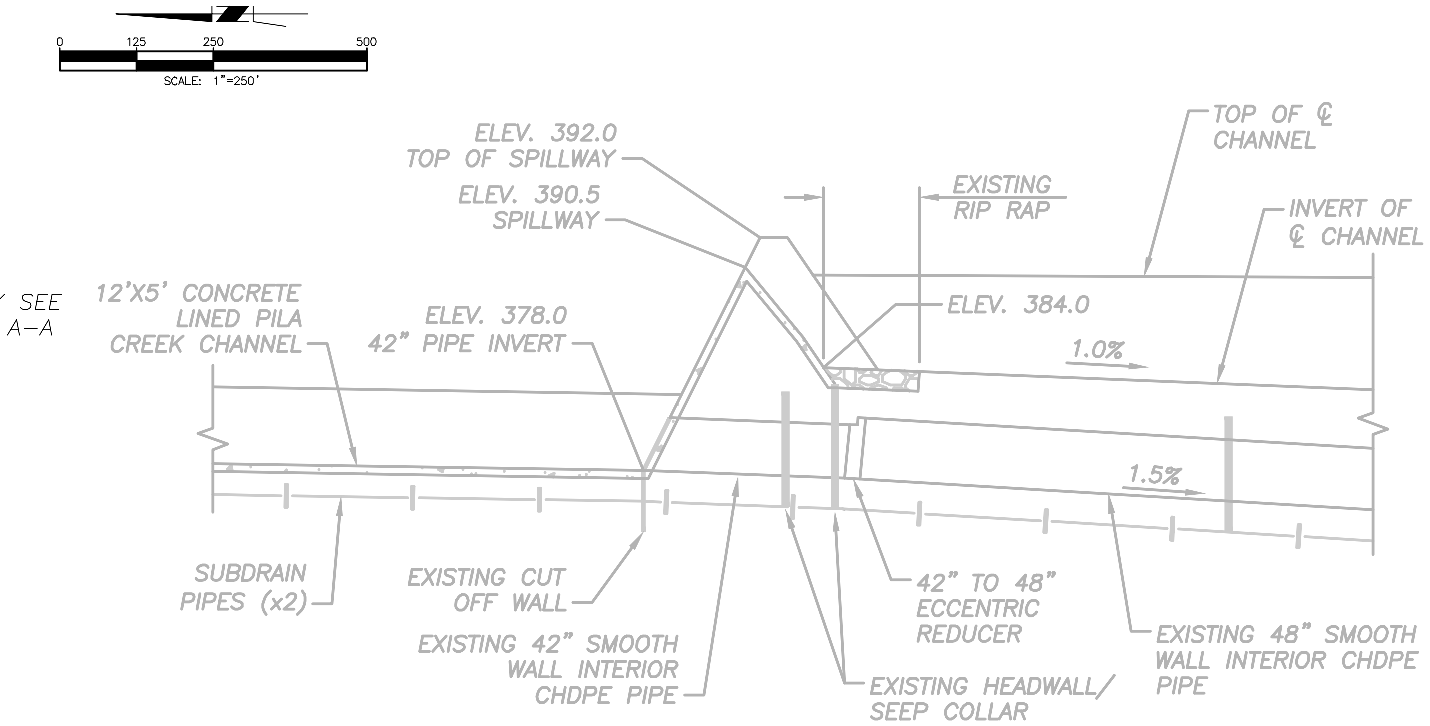


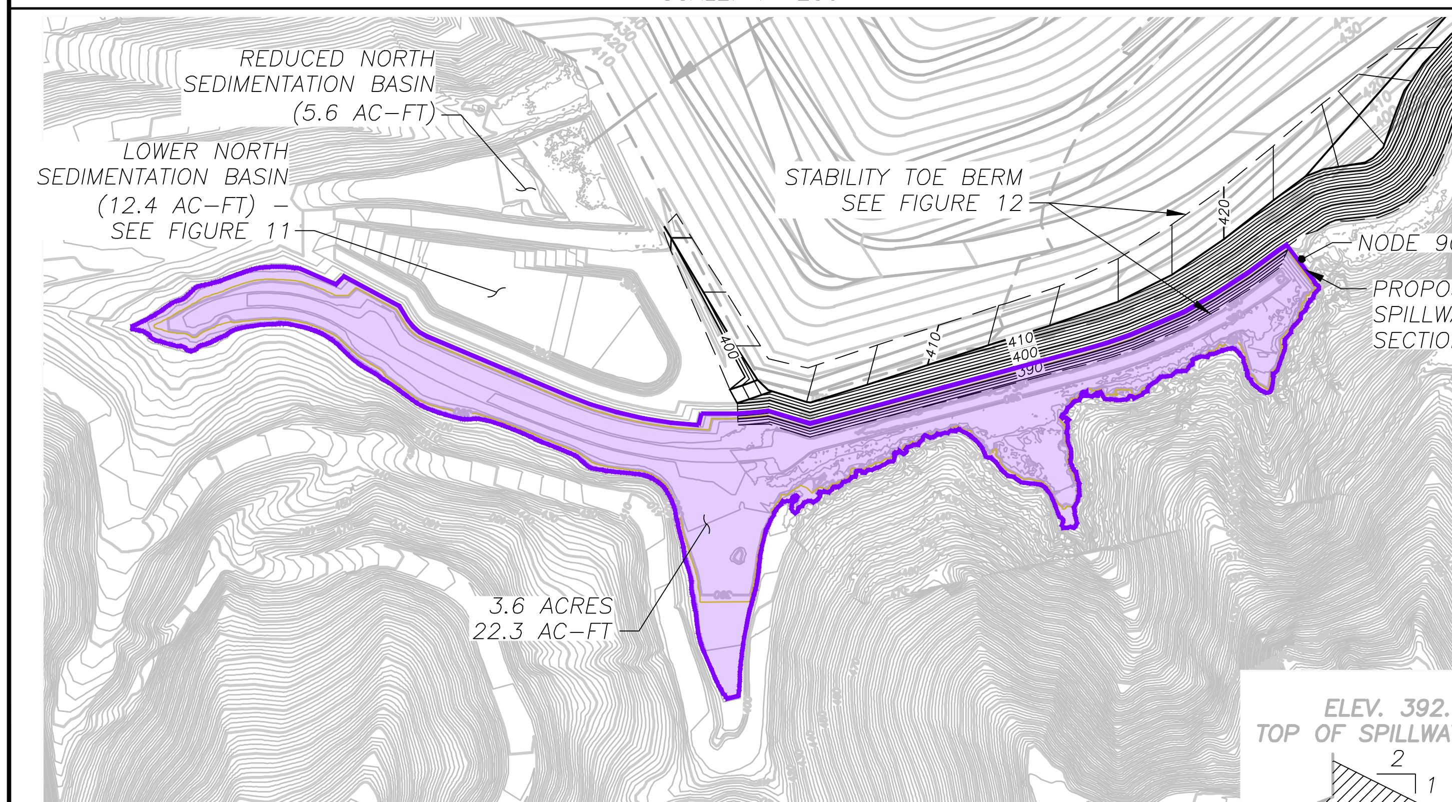
EXISTING CONDITION - WATER SURFACE ELEV. 390.5

SCALE: 1"=250'



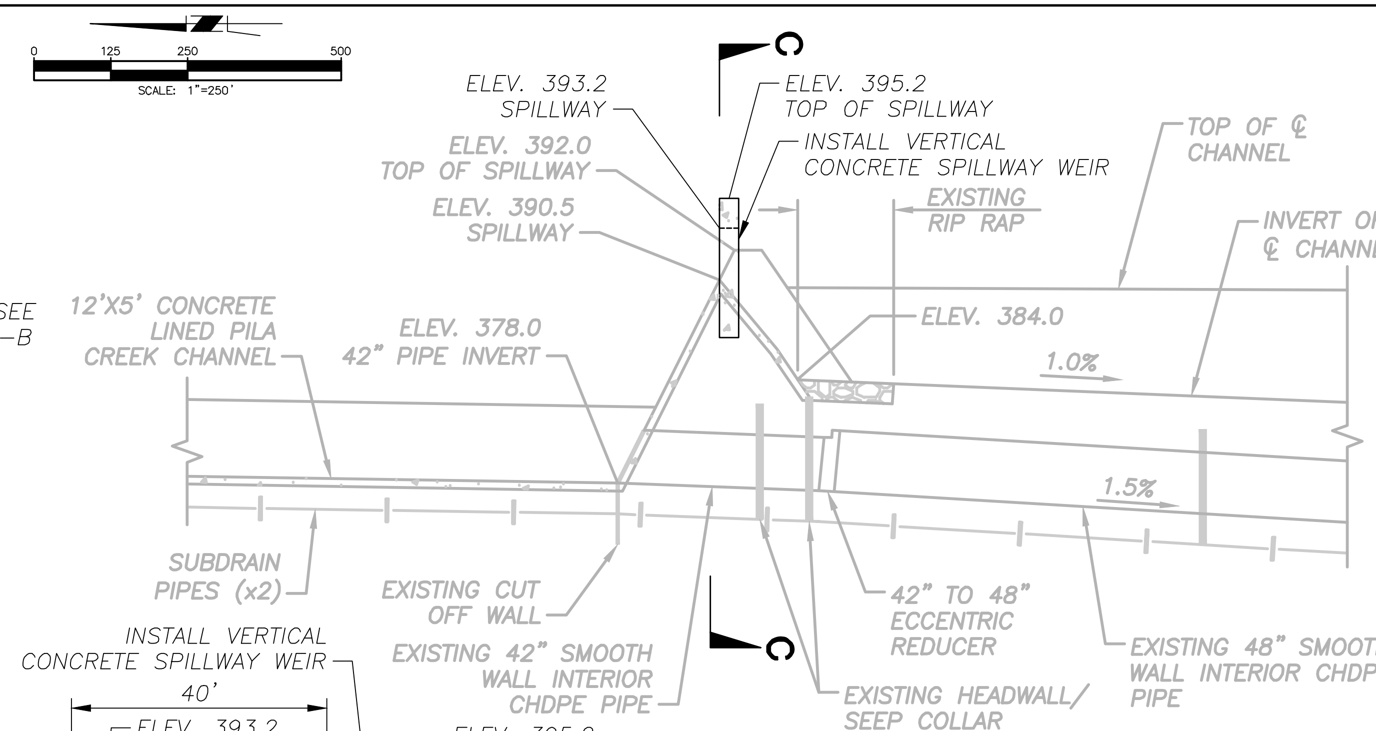
SECTION A-A

NTS



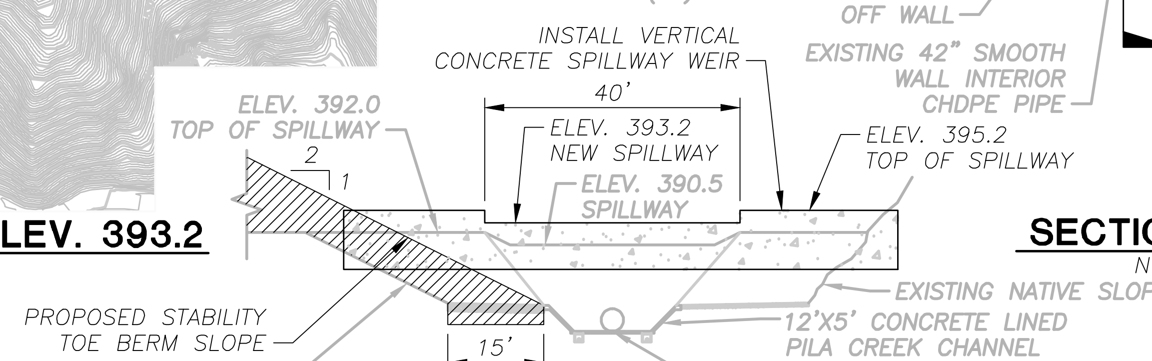
PROPOSED CONDITION - WATER SURFACE ELEV. 393.2

SCALE: 1"=250'



SECTION B-B

NTS



SECTION C-C

NTS

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FIGURE 13

TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY PROJECT 2022

PILA CREEK DETENTION AREA ENHANCEMENTS

JANUARY 2023

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TABLES

TABLE 1 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND OPTION 1 NO PROJECT

ASSUMPTIONS		
AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2):	0	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(3):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	1,423,900	174,730	356,592	310,063	632,782	59,432	791,118
2024	1,423,900	176,480	360,163	486,543	992,946	60,027	430,954
2025	1,423,900	178,240	363,755	664,783	1,356,701	60,626	67,199
2026	1,423,900	30,928	67,199	695,711	1,423,900	11,200	0
Anticipated Site Capacity Reached =			March-26	Projected Daily Cover Soil =		237,317	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) No Proposed Increased Capacity only using the existing remaining capacity of the site.

(3) The airspace utilization factor is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill which started in July 2021.

(5) Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 2 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND OPTION 2 VERTICAL INCREASED CAPACITY

ASSUMPTIONS

AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE[(1)]:	1,423,900	CY
INCREASED CAPACITY AIRSPACE[(2)]:	2,153,920	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)[(3)]:	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE [(4)]:	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE [(4)]	CONSUMED AIRSPACE (CY) [(5)]	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 [(6)]	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	3,577,820	174,730	356,592	310,063	632,782	59,432	2,945,038
2024	3,577,820	176,480	360,163	486,543	992,946	60,027	2,584,874
2025	3,577,820	178,240	363,755	664,783	1,356,701	60,626	2,221,119
2026	3,577,820	180,030	367,408	844,813	1,724,109	61,235	1,853,711
2027	3,577,820	181,830	371,082	1,026,643	2,095,190	61,847	1,482,630
2028	3,577,820	183,650	374,796	1,210,293	2,469,986	62,466	1,107,834
2029	3,577,820	185,490	378,551	1,395,783	2,848,537	63,092	729,283
2030	3,577,820	187,340	382,327	1,583,123	3,230,864	63,721	346,956
2031	3,577,820	170,008	346,956	1,753,132	3,577,820	57,826	0
Anticipated Site Capacity Reached =			**November-31**	**Projected Daily Cover Soil =**		**596,303**	**CY Needed**

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) The Proposed Increased Capacity provides approximately 2,153,920 cy , final cover is accounted for already as this is only a vertical increase.

(3) The airspace utilization factor is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill which started in July 2021.

(5) Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 3 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND OPTION 3 NORTH INCREASED CAPACITY

ASSUMPTIONS		
AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2):	2,664,000	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(3):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	4,087,900	174,730	356,592	310,063	632,782	59,432	3,455,118
2024	4,087,900	176,480	360,163	486,543	992,946	60,027	3,094,954
2025	4,087,900	178,240	363,755	664,783	1,356,701	60,626	2,731,199
2026	4,087,900	180,030	367,408	844,813	1,724,109	61,235	2,363,791
2027	4,087,900	181,830	371,082	1,026,643	2,095,190	61,847	1,992,710
2028	4,087,900	183,650	374,796	1,210,293	2,469,986	62,466	1,617,914
2029	4,087,900	185,490	378,551	1,395,783	2,848,537	63,092	1,239,363
2030	4,087,900	187,340	382,327	1,583,123	3,230,864	63,721	857,036
2031	4,087,900	189,210	386,143	1,772,333	3,617,007	64,357	470,893
2032	4,087,900	191,110	390,020	1,963,443	4,007,027	65,003	80,873
2033	4,087,900	39,628	80,873	2,003,071	4,087,900	13,479	0
Anticipated Site Capacity Reached =			March-33	Projected Daily Cover Soil =		681,317	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) The Proposed Increased Capacity provides approximately 2,712,000 cy minus the liner Protective Cover Soil of 16,000 cy, and minus the additional final cover of 32,000 cy (just for the expansion area areas), for a remaining refuse capacity of 2,664,000 cy.

(3) The airspace utilization factor is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill which started in July 2021.

(5) Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 4 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND OPTION 4 NORTH/VERTICAL INCREASED CAPACITY

ASSUMPTIONS

AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2)&(3):	4,293,225	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(6):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	5,717,125	174,730	356,592	310,063	632,782	59,432	5,084,343
2024	5,717,125	176,480	360,163	486,543	992,946	60,027	4,724,179
2025	5,717,125	178,240	363,755	664,783	1,356,701	60,626	4,360,424
2026	5,717,125	180,030	367,408	844,813	1,724,109	61,235	3,993,016
2027	5,717,125	181,830	371,082	1,026,643	2,095,190	61,847	3,621,935
2028	5,717,125	183,650	374,796	1,210,293	2,469,986	62,466	3,247,139
2029	5,717,125	185,490	378,551	1,395,783	2,848,537	63,092	2,868,588
2030	5,717,125	187,340	382,327	1,583,123	3,230,864	63,721	2,486,261
2031	5,717,125	189,210	386,143	1,772,333	3,617,007	64,357	2,100,118
2032	5,717,125	191,110	390,020	1,963,443	4,007,027	65,003	1,710,098
2033	5,717,125	193,020	393,918	2,156,463	4,400,946	65,653	1,316,179
2034	5,717,125	194,950	397,857	2,351,413	4,798,803	66,310	918,322
2035	5,717,125	196,900	401,837	2,548,313	5,200,639	66,973	516,486
2036	5,717,125	198,870	405,857	2,747,183	5,606,497	67,643	110,628
2037	5,717,125	54,208	110,628	2,801,391	5,717,125	18,438	0
Anticipated Site Capacity Reached =			April-37	Projected Daily Cover Soil =		952,854	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) The Proposed Increased Capacity provides approximately 5,218,000 cy minus the liner Protective Cover Soil of 47,250 cy, and minus the additional final cover of 94,500 cy (just for the expansion area areas), and the additional soil required for going from deck closure to slope closure of approximately 75,400 cy & Bench Fills, for a remaining refuse capacity of 5,000,850 cy.

(3) The Proposed Increased Capacity has applied a Capacity Lost Factor (CLF) and a Disaster Cleanup Capacity Impacts (DCCI) as explained below:

A) The CLF is the estimated capacity that is unattainable from the theoretical maximum capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved, however due too constructability with trash and refuse settlement of the slopes the facility will not obtain the total capacity represented by the final grading plan. Therefore approximately 10% of the combine remaining airspace (approx. 507,625 cy) is deducted from the potential increase capacity airspace.

B) The DCCI for potential wild fires, floods or earthquakes can cause large disposal events, therefore a projected capacity of approximately 200,000 cy over the extended life of the landfill is also deducted from the potential increase capacity airspace and only used on an as needed basis.

C) Therefore the final potential Increased Capacity Airspace is approximately 4,910,850 cy - 507,625 cy -200,000 cy = 4,293,225 cy to accommodate the anticipated annual buried tonnage per Table 1 Assumptions 5 & 6.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill starting in July 2021.

(5) The airspace utilization factor (AUF) is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff. Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 5 - TAJIGUAS SANITARY LANDFILL
DIMINISHING LANDFILL CAPACITY PROJECTION (AS OF APRIL 2022)
WITH RESOURCE CENTER DIVERSION AND NORTH/VERTICAL INCREASED CAPACITY

ASSUMPTIONS		
AERIAL TOPOGRAPHY DATE:	April 26, 2022	
INITIAL REMAINING AIRSPACE(1):	1,423,900	CY
INCREASED CAPACITY AIRSPACE(2)&(3):	5,025,300	CY
DAYS/WK REFUSE ACCEPTED:	6	DAYS/WK
PRE RESOURCE CENTER YEARLY TONNAGE:	254,520	TONS
AIRSPACE UTILIZATION FACTOR (AUF)(6):	0.49	TONS/CY
YEARLY TONNAGE GROWTH RATE (4):	1.0%	
WASTE TO SOIL RATIO:	5.0	: 1
RESOURCE CENTER WASTE DIVERSION RATIO(4):	31.35%	Diverted

YEAR	AVAILABLE CONSTRUCTED AIRSPACE (CY)	CONSUMED TONNAGE (4)	CONSUMED AIRSPACE (CY) (5)	CUMULATIVE CONSUMED TONNAGE	CUMULATIVE CONSUMED AIRSPACE (CY)	DAILY COVER SOIL CONSUMPTION (CY)	AVAILABLE AIRSPACE AT END OF YEAR (CY)
2022 (6)	1,423,900	135,333	276,190	135,333	276,190	46,032	1,147,710
2023	6,449,200	174,730	356,592	310,063	632,782	59,432	5,816,418
2024	6,449,200	176,480	360,163	486,543	992,946	60,027	5,456,254
2025	6,449,200	178,240	363,755	664,783	1,356,701	60,626	5,092,499
2026	6,449,200	180,030	367,408	844,813	1,724,109	61,235	4,725,091
2027	6,449,200	181,830	371,082	1,026,643	2,095,190	61,847	4,354,010
2028	6,449,200	183,650	374,796	1,210,293	2,469,986	62,466	3,979,214
2029	6,449,200	185,490	378,551	1,395,783	2,848,537	63,092	3,600,663
2030	6,449,200	187,340	382,327	1,583,123	3,230,864	63,721	3,218,336
2031	6,449,200	189,210	386,143	1,772,333	3,617,007	64,357	2,832,193
2032	6,449,200	191,110	390,020	1,963,443	4,007,027	65,003	2,442,173
2033	6,449,200	193,020	393,918	2,156,463	4,400,946	65,653	2,048,254
2034	6,449,200	194,950	397,857	2,351,413	4,798,803	66,310	1,650,397
2035	6,449,200	196,900	401,837	2,548,313	5,200,639	66,973	1,248,561
2036	6,449,200	198,870	405,857	2,747,183	5,606,497	67,643	842,703
2037	6,449,200	200,860	409,918	2,948,043	6,016,415	68,320	432,785
2038	6,449,200	202,870	414,020	3,150,913	6,430,435	69,003	18,765
Anticipated Site Capacity Reached =			December-38	Projected Daily Cover Soil =		1,071,739	CY Needed

NOTES:

(1) Based on the aerial topo date of April 2022 with all stockpiles removed. The remaining capacity is approximately 1,680,900 cy, minus the final cover of 257,000 cy (just in the remaining fill areas), for a remaining refuse capacity of 1,423,900 cy.

(2) The Proposed Increased Capacity provides approximately 6,100,000 cy minus the liner Protective Cover Soil of 51,500 cy, and minus the additional final cover of 104,800 cy (just for the expansion area areas), and the additional soil required for going from deck closure to slope closure of approximately 75,400 cy & Bench Fills, for a remaining refuse capacity of 5,868,300 cy.

(3) The Proposed Increased Capacity has applied a Capacity Lost Factor (CLF) and a Disaster Cleanup Capacity Impacts (DCCI) as explained below:

A) The CLF is the estimated capacity that is unattainable from the theoretical maximum capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved, however due too constructability with trash and refuse settlement of the slopes the facility will not obtain the total capacity represented by the final grading plan. Therefore approximately 10% of the combine remaining airspace (approx. 643,000 cy) is deducted from the potential increase capacity airspace.

B) The DCCI for potential wild fires, floods or earthquakes can cause large disposal events, therefore a projected capacity of approximately 200,000 cy over the extended life of the landfill is also deducted from the potential increase capacity airspace and only used on an as needed basis.

C) Therefore the final potential Increased Capacity Airspace is approximately 5,868,300 cy - 643,000 cy -200,000 cy = 5,025,300 cy to accommodate the anticipated annual buried tonnage per Table 1 Assumptions 5 & 6.

(4) A starting tonnage growth rate (starting in 2022) is based on an increase of 1% each year, with the Resource Center diverting a total of approximately 31.35% of the incoming waste to the landfill starting in July 2021.

(5) The airspace utilization factor (AUF) is based on the tonnage buried vs the volume consumed, at approximately 0.49 per County Staff. Consumed airspace is based on the tonnage divided by the AUF.

(6) The consumed tonnage for 2022 is based on a partial year from May 2022 - December 2022 only.

TABLE 6 - TAJIGUAS SANITARY LANDFILL

INCREASED CAPACITY ASSUMPTIONS - AS OF APRIL 2022

Assumptions

1 January 2022 - June 2022 = 101,500 Tons Buried*

2022 Annual Projection Buried = 203,000 Tons Buried*

Jan 2022 - June 2022 Organics = 15,000 Tons Buried*

2022 Annual Projection Organics = 30,000 Tons* to be removed

2023 Annual Waste Diversion = 0 Tons* to be removed

2023 Annal Projected Buried +1%= 174,730 Tons Buried - Organics*

*Data provided by County Staff

2 **ReSource Center Start Date of July 1, 2021.**

Monthly tonnage is based on County's projected "Total Annual Buried" refuse divided by 12 months.

3 **Annual Tonnage Increase**

1% Increase in tonnage per year starting in 2023 based on the projected "Total Annual Delivered" for 2022.

4 **Airspace Utilization Factor (tons/cy) - (AUF)**

SWT recommends using an AUF, for planning purposes, as the site has no track record of attainable densities post ReSource Center.

5 **Capacity Loss Factor (CLF) - 10%**

Capacity Lost Factor - Is the estimated capacity that is unattainable from the theoretical capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved however due to constructability with trash and refuse settlement of the slopes the facility will not obtain the total capacity represented by the final grading plan. This is especially true for facilities like Tajiguas with steep outside slopes.

6 **Disaster Cleanup Capacity Impacts (DCCI)**

Wild fire, floods or earthquakes can cause large event disposal, therefore assumed **4 - 50,000 cy events** during the 16+ year period.

7 **Protective Cover Soil (PCS) for Liner and Final Closure Soil**

PCS for 14.25 acres of Liner =	51,500	cy
Existing ~47 Acres @ 4 foot thick +12% for 2:1 slope factor (for 80% of the area only) =	332,400	cy
Additional 14.25 Acres @ 4 foot thick +12% =	104,800	cy
Total Additional PCS and Final Cover Soil =	488,700	cy

8 **2022 Buried Tonnage**

The total buried tonnage for 2022 is only from May 2022 through the end of December 2022, approximately 66.67% of the projected yearly 203,000 tons.

CAPACITY PROJECTION

YEAR	Estimated Tonnage	Buried Tonnage (3)	AUF (cy/ton) 0.480	AUF (cy/ton) 0.490	AUF (cy/ton) 0.500	Units
2022(8)	-	135,333	281,944	276,190	270,667	cy
2023	254,520	174,730	364,021	356,592	349,460	cy
2024	257,070	176,480	367,667	360,163	352,960	cy
2025	259,640	178,240	371,333	363,755	356,480	cy
2026	262,240	180,030	375,063	367,408	360,060	cy
2027	264,860	181,830	378,813	371,082	363,660	cy
2028	267,510	183,650	382,604	374,796	367,300	cy
2029	270,190	185,490	386,438	378,551	370,980	cy
2030	272,890	187,340	390,292	382,327	374,680	cy
2031	275,620	189,220	394,208	386,163	378,440	cy
2032	278,380	191,110	398,146	390,020	382,220	cy
2033	281,160	193,020	402,125	393,918	386,040	cy
2034	283,970	194,950	406,146	397,857	389,900	cy
2035	286,810	196,900	410,208	401,837	393,800	cy
2036	289,680	198,870	414,313	405,857	397,740	cy
2037	292,580	200,860	418,458	409,918	401,720	cy
2038	295,510	202,870	422,646	414,020	405,740	cy
Min Capacity			**6,564,424**	**6,430,456**	**6,301,847**	**cy**
CLF (5)			**656,442**	**643,046**	**630,185**	**cy**
DCCI (6)			**200,000**	**200,000**	**200,000**	**cy**
PCS & Final Cover Soil (7)			**488,700**	**488,700**	**488,700**	**cy**
Target Capacity			**7,909,566**	**7,762,201**	**7,620,731**	**cy**

PROJECTED INCREASED CAPACITY NEEDED

Phases 2 & 3 Remaining Capacity	1,680,900	1,680,900	1,680,900	cy
Increased Capacity Needed	**6,228,666**	**6,081,301**	**5,939,831**	**cy**

<-- As of April 2022

2022 Buried Tonnage	
Jan	17,490
Feb	15,120
Mar	19,430
April	16,180
May	16,560
June	16,720
July*	16,917
Aug*	16,917
Sept*	16,917
Oct*	16,917
Nov*	16,917
Dec*	16,917
Total	**203,000**

*Note: July through December tonnages were projected based on the average monthly tonnage from January through June.

TABLE 7 - TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY SUMMARY

Description	OPTION 1 - Current Permitted Final Grading Plan (No Project)	OPTION 2 - Vert. Increased Capacity Final Grading Plan No Additional Liner	OPTION 3 - Horiz. Increased Capacity Final Grading Plan Not Above Elev 620	OPTION 4 - Horiz./Vert. Increased Capacity Final Grading Plan No Infrastructure Imp	OPTION 5 - Horiz./Vert. Increased Capacity Final Grading Plan w/ Infrastructure Imp
Phase III & IV Maximum Refuse Height (elev)	576	655	620	650	650
Phase III & IV Maximum Refuse Depth (feet)	155	285	250	280	280
Increased Refuse Footprint (acres)	No	No	Yes (Approx. 4.5 acres)	Yes (Approx. 13.3 acres)	Yes (Approx. 14.25 acres)
Modified Remaining Refuse Capacity* (CY)	1,423,900	1,423,900	1,423,900	1,423,900	1,423,900
Vertical and/or Horizontal Increased Refuse Capacity* (CY)	0	2,153,920	2,664,000	4,293,225	5,025,300
Total Refuse Airspace Capacity* (CY)	1,423,900	3,577,820	4,087,900	5,717,125	6,449,200
Phase 4 Liner/Final Cover Soil (CY)	257,000	257,000	257,000	257,000	257,000
Phase 4 Increased Capacity Liner/Final Cover Soil (CY)	NA	NA	48,000	217,150	231,700
Capacity Loss Factor (CLF) Airspace and Disaster Cleanup Capacity Impacts (DCCI) Airspace (CY)	NA	NA	NA	707,625	843,000
Total Design Capacity (CY)	1,680,900	3,834,820	4,392,900	6,898,900	7,780,900
Projected Site Life as of April 2022 (yrs)	3.90	9.60	10.80	15.60	16.66
Anticipated Site Closure Date **(Based on 0.49 AUF)**	Mar-26	Nov-31	Mar-33	Apr-37	Dec-38
Increased Base Liner Area (acres)	0.00	0.00	0.50	1.75	1.75
Increased Slope Liner Area (acres)	0.00	0.00	4.00	11.55	12.50
Total increased Capacity Lined Area (acres)	0.00	0.00	4.50	13.30	14.25
North Sedimentation Basin/Stormwater Impacts	No Impact	No Impact	No Impact	Reduced & Enlarged to the West (See Figure 11)	Reduced & Enlarged to the West (See Figure 11)
570 Maintenance Deck Infrastructure Impacts	No Impact	No Impact	No Impact	No Impact	Main. Shop Deck, Fuel Station, Haz Storage, Trailers
ADF/CMU Impacts	No Impact	No Impact	No Impact	ADF Electrical & CMU Drainage Rerouted	ADF Electrical & CMU Drainage & LFG Rerouted
Native Undisturbed Vegetation Removal Impacts	No Impact	No Impact	No Impact	Approx. 1.5 Acres Removed	Approx. 1.5 Acres Removed

*Note:
1. Refuse Capacity Volumes excludes Final Cover Thickness Volumes, the Capacity Loss Factor (approximately 10%) and the Disaster Cleanup Capacity Impacts (200,000 CY) as discussed in the assumption on Table 6.

TABLE 8 - TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY SOIL REQUIREMENTS
(QUANTITIES BASED ON APRIL 2022 AERIAL)

SOIL REQUIREMENTS

Description		Cubic Yards
Phase IIIF	Liner System (1)	6,000
Phase IV Increased Capacity Liner (14.25 acres)	Liner System (1)	51,500
Stability Toe Berm/Road Fill	Landfill Stability and Drainage	60,000
Remaining Airspace (w/ Increased Capacity)	5:1 Daily Cover Soil (2)	1,075,000
Total Phase 4 Closure (w/ Increased Capacity)	Preliminary Closure	437,200
	Approximate Total Soil Required =	**1,629,700**

SOIL AVAILABILITY

Description		Cubic Yards
North Stockpile	Current Borrow Soil	1,285,500
Phase IV Increased Capacity	Excavation Soil	566,000
East Ridge Stockpile	Borrow Soil	0
	Approximate Total Soil Available =	**1,851,500**

Approximate Available Soil =	**1,851,500**
Approximate Soil Required =	**1,629,700**
Approximate Soil to Remain in Stockpile =	**221,800**

Notes:
(1) Protective Cover Soil and/or Low-Permeability.
(2) Daily and Intermediate Cover is based on a Waste to Soil Ratio of 5:1.
(3) North stockpile information is based on the comaprision of the 2002 and January 2023 Aerials.

Description		Remaining Cubic Yards (or Shortage)
Daily Soil Required	4:1 Daily Cover Soil	6,800
Daily Soil Required	3:1 Daily Cover Soil	-315,700

TABLE 9 - TAJIGUAS SANITARY LANDFILL
INCREASED CAPACITY COST SUMMARY

Description	Quantity	Unit	Unit Price	Option 5 - Total Construction Cost
Mobilization/Construction SWPPP/Scheduling/Survey/ Facilities/Demobilization (~20% of Total Construction Costs)	20%	LS	$ 11,709,500	$ 2,341,900
Earthworks & Blasting	566,000	CY	$ 5.00	$ 2,830,000
Stability Toe Berm	60,000	CY	$ 4.00	$ 240,000
Increased Base Liner Area (acres) [1]	1.75	AC	$ 450,000	$ 787,500
Increased Slope Liner Area (acres) [1]	12.50	AC	$ 375,000	$ 4,687,500
Phase IV Sump	1	LS	$ 150,000	$ 150,000
North Basin Modification/Increased Capacity	1	LS	$ 600,000	$ 600,000
Drainage Improvements	1	LS	$ 400,000	$ 400,000
Erosion Control	1	LS	$ 25,000	$ 25,000
Additional Landfill Gas Collection System	1	LS	$ 775,000	$ 775,000
Power Pole Temporary/Final Realignment	1	LS	$ 150,000	$ 150,000
Miscellaneous Improvements (~10% of Construction Costs)	10%	LS	$ 10,645,000	$ 1,064,500
10% Contingency (~10% of Total Project Costs)	10%	LS	$ 14,051,400	$ 1,405,100
Additional Closure Costs (assumed as slopes only) [2]	14.25	AC	$ 125,000	$ 1,781,250
Reduced Top Deck Closure Costs [3]	4.80	AC	$ (75,000)	$ (360,150)
Increase 25' Access Road Paving (4" AC over 6" Base)	95,000	SF	$ 7.00	$ 665,000
Additional Landfill Gas Closure Costs	14.25	AC	$ 40,000	$ 570,000
Miscellaneous Closure Improvements (10% of Closure Costs)	10%	LS	$ 2,656,100	$ 265,600
Engineering Design / Permitting (~10% Overall Project)	10%	LS	$ 15,456,500	$ 1,545,650
Additional Liner CQA/CM (~8% of Increased Capacity Costs)	8%	LS	$ 13,114,600	$ 1,049,168
Additional Closure CQA/CM (~8% of Closure Costs)	8%	LS	$ 2,921,700	$ 233,700
			Increased Capacity Subtotal =	$ 15,456,500
			Additional Increased Capacity Closure Subtotal =	$ 2,921,700
			Additional Engineering/CQA/CM Support Subtotal =	$ 2,828,518
			Increased Capacity Total Capital Costs =	**$ 21,206,718**

Notes:

1. Approximate Base Liner Cost per Acre is Approximately $450,000 per acre (includes inflation) based on the Phase IIIB Liner Project and the Slope Liner Cost per Acre is approximately $375,000 per acre (includes inflation) based on the Phase IIIE Slope Liner Project.

2. Approximate Slope Closure Cost per Acre of $125,000 per acre (includes inflation) based on the Phase 2 Partial Final Closure Project and an approximate Top Deck Closure Cost of $200,000 per acre (includes inflation) based on the Phase 3 Part 2 Partial Final Closure Project.

3. Cost savings for reducing the Top Deck Closure is approximately $75,000 per acre reduced.

Description	Quantity	Unit	Total Capital Costs	Cost Per (Year / CY / Ton)
Annualized Cost Per Projected Site Life ($/yr) (Jan 2026-Dec 2038)	12.00	YR	$ 21,206,718	$1,767,227
Cost Per Projected Increased Capacity ($/CY)	6,100,000	CY	$ 21,206,718	$3.48
Cost Per Projected Buried Tonnage ($/Ton)	2,989,000	TONS	$ 21,206,718	$7.09
Cost Per Projected Delivered Tonnage ($/Ton)	3,926,052	TONS	$ 21,206,718	$5.40

ATTACHMENT 2

EXISTING SOLID WASTE FACILITY PERMIT

SOLID WASTE FACILITY PERMIT

Facility Number:

42-AA-0015

1. Name and Street Address of Facility:

Tajiguas Resource Recovery Project and Sanitary Landfill

14470 Calle Real, Goleta, CA 93117

2. Name and Mailing Address of Operator:

County of Santa Barbara Public Works Department
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101

3. Name and Mailing Address of Owner:

County of Santa Barbara Public Works Department,
Resource Recovery and Waste Management Division
130 E. Victoria Street, Suite 100
Santa Barbara, CA 93101

4. Specifications:

a. Permitted Operations:

☒ Solid Waste Disposal Site
☒ Transfer/Processing [Material Recovery Facility (MRF)]
☒ Green Waste Processing
☒ In-Vessel Digestion (MSW/GW)
☒ Composting Facility (MSW/GW)

b. Permitted Hours of Operation[1]:

DAYS OF WEEK	ACTIVITY: Waste Receipt[3], Disposal[3] and Composting Operations	Cover, compaction, and maintenance[3]	Construction Only	Waste Processing & Special occurrences
Monday - Tuesday	7:00 A.M. – 5:00 P.M.	6:00 A.M. – 6:00 P.M.	6:00 A.M. – 8:00 P.M.	24 Hours
Wednesday - Saturday	7:00 A.M. – 4:00 P.M.	6:00 A.M. – 6:00 P.M.	6:00 A.M. – 8:00 P.M.	24 Hours
Sunday[2]	—	—	7:00 A.M. – 6:00 P.M.	24 Hours

(1) These maximum facility hours may be further restricted by the hours specified in the LEA-approved JTD.
(2) Maximum of 20 Sundays per year will be permitted. The MRF will not process waste on Sundays.
(3) Closed for waste receipt on the following holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. When a holiday occurs on a Sunday, the landfill only is closed the following Monday. Compost product transportation off site may occur from Monday to Saturday 7:00 A.M. to 5:00 P.M. Transport of recyclables may occur up to 24 hours per day Monday to Saturday.

c. Permitted Maximum Tonnage: 1500 Tons per Day

Note: This maximum limit pertains to waste disposed and materials processed on site. It does not apply to materials received ready for use as earthen or alternative daily cover.

d. Permitted Traffic Volume: 184 Vehicles per Day

Note: Vehicle figure does not include an additional 50 VPD miscellaneous traffic such as employees, contractors, deliveries, regulatory agencies and other visitors.

e. Key Design Parameters (Detailed parameters are shown on site plans bearing EA and CalRecycle validations):

	Total	Disposal	GW Processing	Transfer/Processing	In-Vessel Digestion	Composting
Permitted Area (in acres)	357	118	See Figure 2 in JTD	See JTD Appendix M	See JTD Appendix N	See JTD Appendix N
Design Capacity (cu yds)		23,300,000	Refer to JTD Section 2	See JTD Appendix M	See JTD Appendix N	See JTD Appendix N
Max. Elevation (Ft. MSL)		620				
Estimated Closure Year		2036				

The attached permit findings and conditions are integral parts of this permit and supercede the conditions of any previously issued solid waste facility permits. This permit shall not be construed as authorizing the violation of or preventing the operator from complying with other applicable federal, state and/or local requirements including all mitigation and monitoring measures developed in accordance with certified environmental documents filed pursuant to Public Resources Code 21081.6. Nothing in this permit shall relieve the operator, owner and/or designee from the obligation of obtaining or complying with other permits, licenses, clearances and/or entitlements required by other regulatory agencies.

5. Approval:

Lars Seifert, Environmental Health Services Director

6. Local Enforcement Agency (LEA) Name and Address:

Santa Barbara County Environmental Health Services
225 Camino Del Remedio, Santa Barbara, CA 93110

7. Date Received by CalRecycle: January 24, 2017

8. CalRecycle Concurrence Date: January 30, 2017

9. Permit Issued Date: February 2, 2017

10. Permit Review Due Date: February 2, 2027

11. Owner/Operator Transfer Date (If applicable):

SOLID WASTE FACILITY PERMIT

Facility Number:

42-AA-0015

12. Legal Description of Facility:
The facility is contained in APN's 081-150-019, 081-150-026, 081-150-032, 081-150-042 as illustrated in Figure 2 of the JTD. The facility is located at 14470 Calle Real, Goleta, CA 93117, on unsectionalized land that is a portion of Nuestra Senora Del Refugio; Latitude 34 degrees, 28 minutes, 54 seconds N (North), Longitude 120 degrees, 07 minutes, 40 seconds W (West).

13. Findings:

a. This permit is consistent with the Santa Barbara County Integrated Waste Management Plan, which was approved by the California Department of Resources Recycling and Recovery (CalRecycle) on May 19, 1998. The location of the facility is identified in the Countywide Siting Element, and Non-Disposal Facility Element was updated by CalRecycle on May 27, 2016 to add the Tajiguas Resource Recovery Project (TRRP) pursuant to Public Resources Code (PRC), Section 50001(a).

b. This permit is consistent with the standards adopted by CalRecycle, pursuant to PRC 44010.

c. The design and operation of the facility is consistent with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the enforcement agency on September 8, 2016, pursuant to PRC 44009.

d. The Santa Barbara County Fire Department during a November 10, 2016 inspection determined that the facility was in conformance with applicable fire standards, pursuant to PRC 44151.

e. An Environmental Impact Report (SCH #98041003) was certified by the Santa Barbara County Board of Supervisors (BOS) on August 13, 2002. A Subsequent EIR (SEIR) (SCH #2008021052) was certified by the BOS on May 5, 2009. A second SEIR (SCH#2012041068) that analyzed impacts related to the TRRP was certified by the BOS on July 12, 2016. The EIR, and the two SEIR's describe and support the design and operation authorized by the issuance of this permit.

f. The Santa Barbara County Planning and Development Department (P&D) provided a letter dated October 24, 2013 stating that landfill projects within the inland area of the landfill property are not subject to local land use permit requirements. Within the Coastal Zone, permits are not required for activities and projects supporting the existing legal non-conforming landfill use. Also, in a public hearing on January 6, 2016, the Santa Barbara County Planning Commission found that the TRRP is in conformance with the Comprehensive Plan in compliance with Government Code Section 65402(a).

14. Prohibitions

The permittee is **prohibited from accepting any hazardous waste, designated waste, liquid waste or grease, liquid sludge or septic tank pumping, burning waste or hot ash, non-hazardous waste requiring special handling, radioactive waste or medical waste** (as defined in Health and Safety Code Sections 117600-118360), except as identified in the Joint Technical Document and LEA-approved amendments thereto and as approved by other federal, state, and local agencies.

15. The following documents also describe and/or restrict the operation of this facility:

	Date		Date
Joint Technical Document, Transfer Processing Report, In-Vessel Digestion Report and Report of Composting Site Information	October 2016	Letter from Planning & Development	October 24, 2013
Waste Discharge Requirements Order No. R3-2010-0006 (WDR's)	February 4, 2010	Closure Financial Assurance Documentation, Letter from CalRecycle Financial Assurances Section	October 12, 2016
APCD Permit to Operate #9788; and Part 70 Operating Permit #9788	November 27, 2002	Operating Liability Certification	October 3, 2016
Final Environmental Impact Report, SCH #98041003 Final Subsequent EIR, SCH #2008021052 Final Subsequent EIR, SCH #2012041068	July 2002 May 2009 July 2016	Phases 2 and 3 Partial Final Closure and Post-Closure Maintenance Plan and Phase 4 Preliminary Closure and Post-Closure Maintenance Plan	November 2015
County Integrated Waste Management Plan for the County of Santa Barbara as approved by CalRecycle	October 21, 1998	Non-Disposal Facility Element	May 27, 2016

# SOLID WASTE FACILITY PERMIT	Facility Number: **42-AA-0015**

16. Self Monitoring:

The Public Works Department shall submit the results of all self monitoring programs to Environmental Health Services within 30 days of the end of the reporting period *(for example, 1st quarter = January – March, the report is due by April 30, etc.. Information required on an annual basis shall be submitted with the 4th quarter monitoring report, unless otherwise stated.)*

Program	Reporting Frequency
a. Log of Special Occurrences, which includes records of fires, explosions, injury and property damage accidents, earth slides, sudden settlement, flooding, and other unusual events, such as landfill closure, with a brief description of the response to and resolution of each incident. Include visits by regulatory agencies.	Daily log maintained on site at each facility; summary provided in quarterly tonnage report
b. Results of the hazardous waste load checking program, including the quantities and types of hazardous wastes, medical wastes or otherwise prohibited wastes found in the waste stream, reporting agencies contacted, and the disposition of these materials. Include record of waste loads rejected.	Quarterly
c. Solid waste tonnage, including green waste and source-separated organic waste, and hauling vehicles entering the facility per day. Include daily averages and daily peaks for each calendar month. Provide incoming tonnage information for each facility, and compost product tonnage leaving the facility. Amount of materials used as ADC on site must also be reported.	Quarterly
d. Results of the perimeter subsurface and on-site structure landfill gas monitoring program.	Quarterly
e. Results of pathogen and metals testing of compost product as required in Title 14 of the California Code of Regulations, Division 7, Chapter 3.1, with a sampling frequency of no less than once every 12 months unless otherwise approved by the LEA through the JTD amendment process.	Quarterly
f. Copies of all written complaints regarding this facility and the operator's actions taken to resolve these complaints.	Annually
g. Wet weather preparedness report/winter operations plan.	Annual – due by October 1
h. Fill sequencing plan for the forthcoming year.	Annually
i. Current disposal area topography map with updated calculation of remaining site capacity.	Annual – due by June 30

SOLID WASTE FACILITY PERMIT

Facility Number:

42-AA-0015

17. Enforcement Agency (EA) Conditions:

a. This facility shall comply with state minimum standards for solid waste handling and disposal pursuant to applicable sections of Titles 14 and 27 of the California Code of Regulations.

b. This facility shall comply with all mitigation measures given in any certified or adopted environmental document that are within the authority of the LEA pursuant to the Public Resources Code Section 21081.6.

c. This permit supercedes the previous permit #42-AA-0015 issued February 10, 2014.

d. The following activities are prohibited:

1) Scavenging.
2) Standing water on fill areas.
3) Eating/Smoking near waste processing.
4) Vector propagation and harborage.
5) Off-site migration of waste, litter or leachate.
6) Off-site subsurface migration or on-site structure accumulation of explosive gas sufficient to create a safety hazard.

e. A daily special occurrences log as specified in section 16a on page 3 shall be maintained on site at each facility at all times and available for LEA inspection.

f. All reports specified in section 16 on page 3 shall be submitted to the LEA in a timely manner, and within 30 days of the reporting period.

g. The operator shall comply with the Waste Tire Storage and Disposal Standards in Title 14, Chapter 3, Article 5.5, Section 17350-17359.

h. This landfill is approved to use foam, geosynthetic tarps, processed green waste, and C&D tailings as alternative daily cover. Any other proposed alternative daily cover shall require approval from the LEA.

i. Site access shall be granted to the LEA for the purpose of inspection without prior notice from the LEA.

j. Adequate lighting shall be provided for all operations conducted before sunrise or after sunset as described in the JTD.

k. The operator, within the time frame specified by the LEA's request, shall furnish any additional information concerning the design and operation of this facility.

l. Any change that would cause the design or operation of this facility not to conform to the terms and conditions of the permit is prohibited. Any significant change that may be proposed for this facility shall require submission of an amended Joint Technical Document and application for a revised solid waste facility permit to the LEA at least 180 days prior to the anticipated date for implementation of the change.

m. This permit is subject to review by the EA and may be suspended or revoked at any time for sufficient cause, in accordance with Division 30 of the California Public Resources Code, Part 4, Chapter 4 Article 2, Sections 44305, et. seq.

n. The EA reserves the right to suspend or modify waste receiving and handling operations when deemed necessary due to an emergency, a potential health hazard, or the creation of a public nuisance.

o. The operator shall maintain a copy of this permit and the Joint Technical Document, including any future updates, at the facility to be available at all times to facility personnel and enforcement agency representatives.

****

2017

APPENDIX E

AIR QUALITY TECHNICAL REPORT

Tajiguas Sanitary Landfill Capacity Increase Project

Revised Air Quality Technical Report

March 1, 2024

Delivering a better world

Quality information

Prepared by

Mary Kaplan
Air Quality Specialist/Project Manager
Paola Peña, Air Quality Specialist
Adrienne Kieldsing, Air Quality Specialist
Ian Miller, Air Quality Engineer
Suzanne McFerran, Air Quality Specialist

Revision History

Revision	Revision date	Details	Authorized	Name	Position
0	8/11/2023	Initial Submittal		Mary Kaplan	Project Manager
1	01/24/2024	Revision		Mary Kaplan	Project Manager
2	03/01/2024	Revision		Mary Kaplan	Project Manager

Distribution List

# Hard Copies	PDF Required	Association / Company Name
0	1	County of Santa Barbara Public Works
0	1	Santa Barbara County Air Pollution Control District Resource Recovery & Waste Management Division (RRWMD)

Prepared for:

County of Santa Barbara (COSB) Public Works Department
Resource Recovery & Waste Management Division (RRWMD)
130 East Victoria Street, Suite 100
Santa Barbara, CA 93101

Prepared by:

AECOM
250 Apollo Drive
Chelmsford, MA 01824
aecom.com

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Tables

Acronyms and Abbreviations

AB	Assembly Bill
ADCs	Alternative Daily Covers
ADF	Anaerobic Digestion Facility
amsl	above mean sea level
AUF	Airspace Utilization Factor
AECOM	AECOM Technical Services, Inc.
AERMOD	Environmental Protection Agency preferred air dispersion model
AQAP	Air Quality Action Plan
ARM2	Ambient Ratio Method 2
ATC	Authority to Construct
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CAP	Climate Action Plan
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCRWQCB	Central Coast Regional Water Quality Control Board
CCUS	carbon capture, utilization and storage
CEQA	California Environmental Quality Act
CH_4	methane
CIWMA	California Integrated Waste Management Act
CLF	Capacity Loss Factor
CMU	Compost Management Unit
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
CPF	cancer potency factor
CQA	construction quality assurance
COSB	County of Santa Barbara
CSSR	comingled source-separated recyclables
cy	cubic yards
DCCI	Disaster Cleanup Capacity Impacts
DMV	Department of Motor Vehicles
DPM	diesel particulate matter
EMFAC	Emission Factors (the California Air Resources Board’s on-road emissions inventory model)
EO	Executive Order
g/s	grams per second
GEP	Good Engineering Practice
GHG	greenhouse gas
GWP	global warming potential

HARP2	California Air Resources' Board Hot Spots Analysis and Reporting Program
HCP	Habitat Conservation Plan
HFCs	hydrofluorocarbons
HI	Hazard Index
HRA	Health Risk Assessment
ITP	Incidental Take Permit
JTD	Joint Technical Document
LCFS	low carbon fuel standard
LCRS	leachate collection and removal system
LEA	Local Enforcement Agency
LFC	Las Flores Canyon
LFG	landfill gas
LNSB	Lower North Sedimentation Basin
mcy	million cubic yards
MEIR	Maximum Exposed Individual Resident
MEIW	Maximum Exposed Individual Worker
MMT	million metric tons
MRF	Materials Recovery Facility
MSW	municipal solid waste
MT	metric tons
$\mu g/m^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NAD83	North American Datum 1983
NMOC	non-methane organic compounds
NO	nitric oxide
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
N_2O	nitrous oxide
OEHHA	California Office of Environmental Health Hazard Assessment
OLM	Ozone Limiting Method
PCIA	Pila Creek inundation area
PFCs	perfluorocarbons
PM	respirable particulate matter
PM_{10}	respirable particulate matter equal to or less than 10 micrometers in diameter
$PM_{2.5}$	respirable particulate matter equal to or less than 2.5 micrometers in diameter
PMI	Point of Maximum Impact
proposed project	Tajiguas Sanitary Landfill Capacity Increase Project
PVMRM	Plume Volume Molar Ratio Method
RC	ReSource Center
RMP	Risk Management Policy
ROC	reactive organic compounds
ROG	reactive organic gas

RPS	Renewables Portfolio Standard
RRWMD	Resource Recovery & Waste Management Division
SB	Senate Bill
SBCAPCD	Santa Barbara County Air Pollution Control District
SF_6	sulfur hexafluoride
SIP	State Implementation Plan
SO_2	sulfur dioxide
SSOW	source separated organic waste
SWCV	Solid Waste Collection Vehicle
SWFP	Solid Waste Facility Permit
TAC	toxic air contaminant
tpd	tons per day
TSL	Tajiguas Sanitary Landfill
UNFCCC	United Nations Framework Convention on Climate Change
UNSB	Upper North Sedimentation Basin
USEPA	United States Environmental Protection Agency
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOCs	volatile organic compounds
vpd	vehicles per day

1. Introduction

In support of the Environmental Impact Report (EIR) to comply with the California Environmental Quality Act (CEQA), this air quality technical report evaluates the air quality, health risk, odor and greenhouse gas (GHG) emissions impacts associated with construction and operation of the Tajiguas Sanitary Landfill (TSL) Capacity Increase Project (Project or Proposed Project). This technical report includes a description of air quality conditions, a summary of applicable regulations, and an analysis of construction and operational air quality, health risks, odor and GHG emission impacts with implementation of the Project.

1.1 Project Description

1.1.1 Facility Background

The TSL is located approximately 26 miles west of the City of Santa Barbara in the southern coastal portion of the County of Santa Barbara (COSB) as shown in Figure 1-1. The TSL opened in 1967 and is owned and operated by the County of Santa Barbara (COSB) Resource Recovery & Waste Management Division (RRWMD). The TSL is a Class III landfill as defined by 27 CCR, Section 20260. The landfill property comprises 497 acres, a permitted operational area of 357 acres, a permitted waste disposal footprint of 118 acres, a permitted disposal capacity of 23.3 million cubic yards (mcy), permitted maximum elevation of 620 feet above mean sea level (amsl), permitted maximum tonnage of 1,500 tons per day (tpd) and a permitted traffic volume of 184 vehicles per day (vpd) (not including an additional 50 vpd for miscellaneous traffic) (Solid Waste Facility Permit [SWFP] No. 42-AA-0015). The permitted waste disposal footprint is comprised of both lined and unlined areas.

The TSL serves 55% of the County population including the cities of Buellton, Goleta, Santa Barbara, Solvang and the unincorporated areas of Montecito/Summerland, Mission Canyon, Eastern Goleta Valley, Isla Vista and the Santa Ynez and Cuyama Valleys. Municipal solid waste (MSW) is transported to the landfill from the South Coast Recycling and Transfer Station, the Santa Ynez Valley Recycling and Transfer Station, the New Cuyama Transfer Station, and the Ventucopa Transfer Station.

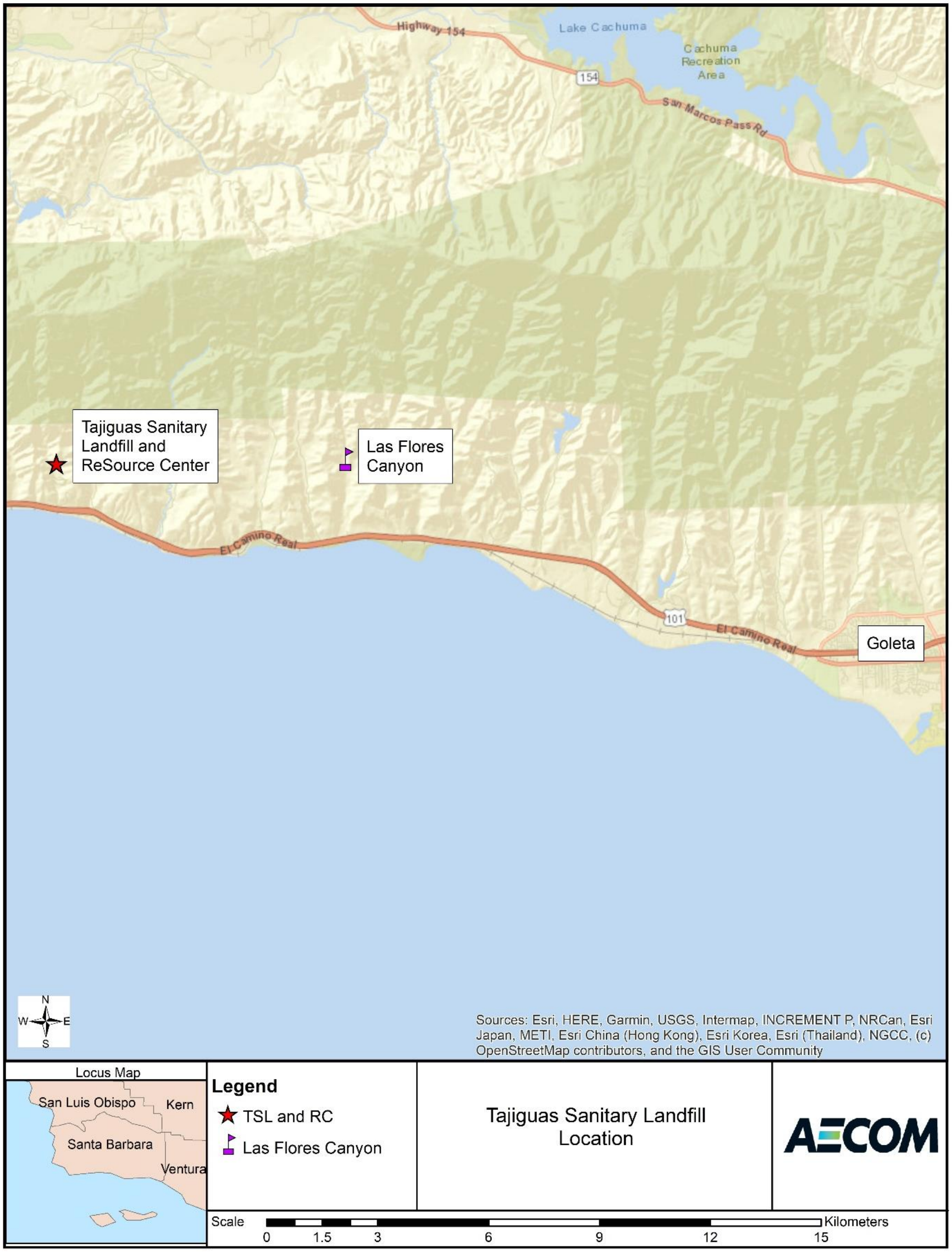
With the exception of guided educational programs, there is no public access to the TSL and ReSource Center (RC) for waste disposal. The TSL accepts waste primarily from franchise haulers, private haulers, and the County-operated transfer stations. Some spot market waste generated within Santa Barbara County is also accepted. Capacity increases of the TSL were approved in 1987 and 2002, and reconfiguration of the landfill waste footprint was approved in 2009. In 2017, a modification to TSL operations was approved to include the construction and operation of the RC to further recover recyclable material from the waste stream and provide an alternative to burying organic waste.

The proposed capacity increase area is located outside of the Coastal Zone, however existing access roads, ancillary facilities, and environmental control systems/facilities located in the Coastal Zone would continue to be used to support the ongoing landfilling activities in the inland area.

1.1.2 Relationship to the ReSource Center

The RC, consisting of a Materials Recovery Facility (MRF), an Anaerobic Digestion Facility (ADF), and a Compost Management Unit (CMU), operates on the landfill property owned by the COSB. The MRF is operated under contract to the COSB by MarBorg Industries as a subcontractor to MSB Investors. The ADF and CMU are operated under contract to the COSB by MSB Investors. The RC is publicly financed and the debt service on the financing ends in December 2038.

Figure 1-1
Tajiguas Sanitary Landfill Location



All waste entering the site passes through the landfill scale house. Bypass waste, such as special waste loads, etc., (~161 tpd) goes straight to the working face for disposal, green waste (~129 tpd) is brought to the green waste processing deck, and all other waste (~500 tpd) goes to the MRF for sorting and processing. The MRF also receives comingled source-separated recyclables (CSSR) (~109 tpd) for processing. Non-recyclable or compostable residue from the MRF is transported to the landfill working face for disposal (~216 tpd or 40% of waste received at the MRF). The TSL also receives residue from the ADF/CMU (~60 tpd) for landfilling (projected contracted volumes converted to tpd based on 311 operating days/year. All tonnages were provided in the Technical Project Description (COSB RRWMD 2023).

No changes to the RC facilities or operations are proposed as part of this Project. Relocation of some RC utilities/infrastructure facilities (such as the access road to the ADF and CMU, the electrical distribution line between the MRF and ADF and the stormwater pipeline connecting the CMU runoff collection tank to the north sedimentation basin) would be required.

1.1.3 Need for the Increased Capacity Project

The total permitted airspace for the TSL is 23.3 mcy. The current remaining capacity of the TSL is 1,680,900 cubic yards (cy) (includes final cover for remaining fill areas), as of April 2022. In order to calculate the site life for TSL based on the April 2022 remaining capacity, the following criteria was utilized:

- Airspace Utilization Factor (AUF) 0.49 tons/cy
- Annual Growth Rate 1.0%

Based on the above criteria, the TSL currently has a projected remaining landfill site life of approximately 3.9 years, as of April 2022, through approximately March 2026, assuming continued acceptance of non-contractually committed waste. However, as discussed below, while capacity is a fixed volume site life is variable and can be affected by several factors.

Factors Affecting Landfill Capacity/Landfill Life

A landfill is typically designed and permitted based on cubic yards of disposal capacity. The difficulty is translating this cubic yard amount into years of service (landfill life). There are many factors that can affect the space used each year to dispose of a community's waste. These include:

- Variations in Annual Tonnage Buried
  - The quantity of waste buried correlates with the quantity of waste generated. Generation rates are typically affected by the state of the economy and this correlation has tracked very closely at the TSL with growth occurring year over year from 2012 through 2019 followed by a two-year reduction due to COVID-19. As the local economy is improving, the waste generation is now rebounding post-pandemic.
  - Quantity of waste buried can also be impacted by the type of waste generated and if it is suitable for processing to recover recyclables or organics. If it is not processable, then it is directly landfilled.
  - The condition of global recycling markets affects the quantity of materials that can be recovered for sale and diverted from landfilling. When markets are low, then more material will be buried.
- Compaction Rates
  - Waste is compacted after being deposited at a landfill. Compaction rates can be impacted by the type of material being buried with some material being denser than other material. Lighter materials, such as paper and plastic, are recovered when waste is processed, and the residual material left to be buried may be denser.
- Use of Alternative Daily Covers (ADCs)
  - Buried waste is covered at the end of each operating day. Typical cover material is soil, which will consume valuable landfilling space. A variety of approved ADC materials may be used in accordance with 27 CCR, Section 20690, with use approved by the Local Enforcement Agency (LEA). Tarps are currently used at TSL as a space saving measure but are difficult to use during wet or windy weather. The TSL is also permitted to use other

approved ADC materials, as discussed in the February 2022 Joint Technical Document (JTD).

- Decomposition and Settlement of Buried Waste
    - Some types of waste consume less space in a landfill over time as its components decompose. The total effects of settlement will depend on various factors or processes, such as the types of refuse placed and their corresponding moisture content, the refuse placement density, consolidation of the refuse under loads imposed by overlying fill, and biological and chemical decomposition.

Landfill Capacity Projections

RRWMD is proposing to increase its current capacity to reach a projected refuse disposal filling date of December 2038 based on the RC being fully operational during this time period assuming a 31.35% diversion rate based on current RC operational data and a 1% growth rate in refuse received at the facility. An approximate 14.25-acre lined area (for the proposed Phase IV membrane lined cell) would be excavated for refuse placement, while impacting approximately 1.5 acres of previously undisturbed area. The proposed final grades are shown on Figure 1-2. This area encroaches upon the existing north sedimentation basin, so the north sedimentation basin will have to be reconfigured (i.e., second/lower sedimentation basin added) will be required to meet the demand of the existing and proposed increased capacity.

The approximate 14.25-acre capacity increase would provide approximately 6.1 mcy of additional airspace which includes a Capacity Loss Factor (CLF), potential Disaster Cleanup Capacity Impacts (DCCI), and liner/final cover soil volumes) to reach a December 2038 estimated closure date. The permitted maximum elevation of the landfill would increase from 620 feet amsl (per the current SWFP) to 650 feet amsl. An overview of the proposed project elements for the capacity increase is discussed in Section 1.1.5.

The proposed capacity increase has applied a CLF and a DCCI as follows:

- The CLF is the estimated capacity that is unattainable from the theoretical maximum capacity. The permitted grading plan is the maximum theoretical capacity that can be achieved, however due to constructability with trash and refuse settlement of the slopes (from year-to-year or year-over-year), the facility will not obtain the total capacity represented by the final grading plan (i.e., the higher the fill, the greater the settlement of outside slopes, therefore reducing the top deck outside hinge more and more, every year). Therefore, approximately 10% of the combined remaining airspace is deducted from the potential increase capacity airspace.
- The DCCI for potential wildfires, floods, or earthquakes can cause large disposal events at unknown times, therefore, a projected capacity of approximately 200,000 cy (4 events at 50,000 cy/event) over the extended life of the landfill is also deducted from the potential increase capacity airspace design and only used on an as needed basis.

SWT has also calculated that there is appropriate soil for the increased airspace including liner operations soil, daily cover, and final cover for the entire site with the increased capacity.

When the capacity increase of the TSL was approved in 2003 for an additional 8.2 mcy (for the currently permitted design capacity of 23.3 mcy), the disposal capacity was expected to serve the community until 2020. When projections of disposal capacity were calculated in 2016 as part of the effort to permit and seek approval of the RC, the disposal capacity was projected to last until 2026. With the expected development and operation of the RC, which was designed to recover 60% of material that it processed, it was anticipated the site life would be extended to 2036, as reflected on the current SWFP (No. 42-AA-0015, February 2, 2017).

Based on the most recent disposal capacity evaluation (as of April 2022), the remaining capacity is estimated to be reached by approximately March 2026 based on continuing to dispose of non-contractually committed waste. This anticipated timeline/landfill life has been affected for several reasons listed below:

- Delays in project construction (Coastal Zone Boundary discrepancy – 9 months and CEQA litigation – 9 months) totaling 1.5-year delay.
- Delays in construction due to COVID-19 (staffing and supply chain issues), which delayed RRWMD's ability to divert 60% by approximately one year.

- The actual amount of tonnage received at the landfill was 15%+ (or 30,000 tons) greater per year than the amount included in the 2016 and 2018 landfill capacity projection reports.

An assumption was made that 60% of what was delivered to the landfill would be recovered at the RC. While it is still expected that the RC will recover 60% of the material it processes, more attention has been paid to the different types of material that is delivered to the transfer stations as well as MarBorg's transfer station. About 33% of the material delivered to the site has been and will continue to be sent to the landfill directly bypassing the processing center because it is not processable. The bypass waste, in addition to the residue material from the RC, is an approximate 20% increase in quantity of material landfilled annually. From the above disposal capacity impacts, an approximate 5.5 years has been taken from the site. Multiplied by a minimum 50% diversion rate, it equals approximately to 11 years lost.

Forecasting for years after operation of the RC is difficult since the density or compaction rate of the residual material after processing is not known. If the material is denser than existing waste or if the current acceptance of non-committed waste material is modified, then the current projection of reaching capacity in 2026 may change. However, the change (if any) would be on the order of a few years and would not be sufficient to reach the December 2038 date.

1.1.4 Engineering and Operational Project Objectives

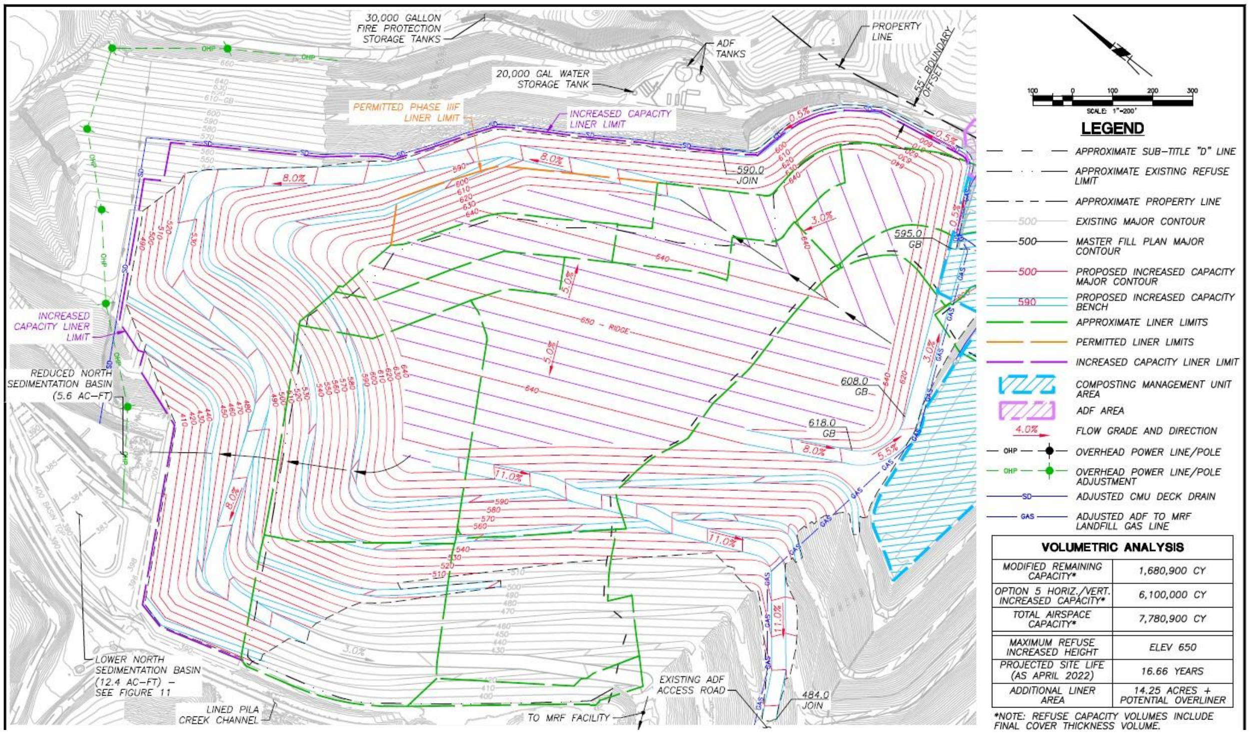
The objectives for the project are to meet both local and regional needs, including the following specific objectives:

- Regain landfill service life (approximately 10 years) that was planned to be provided by the disposal reduction from the RC project.
- Reduce ratepayer burden of paying for debt service simultaneously with cost for transportation and disposal of residual trash at alternative landfill (Debt service for RC end date [2038]).
- Maximize disposal opportunities at the TSL and reduce environmental impacts associated with off-site hauling and disposal.
- Provide cost-effective, stable disposal capacity for MSW for existing and anticipated users of the TSL for that portion of the waste stream that cannot be recycled or diverted from landfilling, by expanding on an existing integrated, state-of-the-art, environmentally safe facility, which meets or exceeds local, State, and Federal standards.
- Minimize adverse environmental impacts associated with MSW disposal by providing TSL facilities for an efficient, combined resource recovery and disposal operation to reduce or eliminate the need for solid waste to be delivered to multiple locations for residuals disposal. Provide disposal capacity for disaster-related debris, such as from fires, floods, and earthquakes.
- Contribute to meeting the mandate of the California Integrated Waste Management Act of 1989 (CIWMA), which requires all California counties, including Santa Barbara County, to demonstrate a minimum of 15 years of assured disposal capacity in its Integrated Waste Management Plan.
- Maintain efficient, cost-effective, and high-quality TSL operations. Increase the efficiency of landfill site operations by achieving additional settlement of existing waste.
- Alleviate storm water quality concerns by utilizing a sweeper vacuum truck on all paved roadways to eliminate debris.
- Extend and increase the implementation of advanced waste recovery technologies, including the use of renewable landfill gas-generated electrical energy.
- Provide continued employment of TSL staff in a safe and humane work environment.

1.1.5 Overview of the Proposed Capacity Increase Project Elements

The proposed project would increase the permitted height, disposal area footprint, and design capacity of the landfill in order to extend the estimated closure year to approximately 2038. The area proposed for the increase in permitted height and disposal area is shown on Figure 1-2.

Figure 1-2
Tajiguas Sanitary Landfill Final Grade and Extent



The proposed project would increase existing capacity by vertically increasing the maximum elevation of the landfill by approximately 30 feet, from 620 feet amsl to 650 feet amsl. The proposed increase would add approximately 14.25 acres to the permitted disposal area footprint, an increase from approximately 118 acres to 132.25 acres. The addition of approximately 6.1 mcy of airspace would increase the permitted total design capacity from approximately 23.3 mcy to approximately 29.4 mcy. As of April 2022, the existing (gross) remaining capacity was approximately 1.68 mcy. These proposed changes require the existing JTD and Partial Final/Preliminary Closure and Post-Closure Maintenance Plan be updated to support a SWFP Revision to reflect these project element changes.

The total disturbance footprint, including the total excavation area and the refuse fill area (not including any increased footprint for the north sedimentation basin), is approximately 56.4 acres of which only approximately 1.5 acres is comprised of an area with previously undisturbed slopes. An additional 12.6 acres is comprised of previously disturbed revegetated slopes, along with approximately 4.6 acres of previously disturbed unvegetated areas (i.e., the north sedimentation basin and surrounding areas). Of the approximate 14.1 acres that have been previously disturbed and subsequently revegetated, approximately 9.75 acres would become part of the landfill capacity area, and the remaining 4.35 acres may be available for permanent revegetation (i.e., unlined slope areas). The Phase IV refuse fill would overlap the current permitted Phases I, II, and III by approximately 36.4 acres of the increased capacity.

The north sedimentation basin currently has a 15.8 acre-feet design capacity. With the proposed capacity increase, the basin capacity will be reduced to 5.6 acre-feet. Therefore, a secondary basin is planned for this project to capture the capacity as close as possible to the current 15.8 acre-feet capacity within the available site boundaries. The second basin would have a similar design as the existing basin, with an option to be either a concrete lined basin or an earthen basin with a manually operated skimmer system, which would discharge into Pila Creek after sediment is allowed to settle out of suspension.

Relocation of RC utilities, stormwater features, accessory features (electrical line between MRF and ADF, pipeline connection between the CMU stormwater overflow system and the north sedimentation basin for storms exceeding the 25-year, 24-hour event, and access road to the ADF and CMU) will need to occur. The project would also require removal of the TSL maintenance shop, trailers used for labor crews and operators, relocation of storage containers used for landfill supplies, equipment and hazardous materials, relocation of oil storage containers ranging in size from 120 to 500 gallons, and relocation of three fuel tanks (red diesel, 20,000 gallons; clear diesel, 550 gallons; and unleaded gasoline, 230 gallons). The removal of these facilities would be required approximately two years before the TSL reaches its revised capacity as part of the final waste filling operations. Most of the displaced facilities would be relocated to the MRF deck or to the MRF building outside of the Coastal Zone. The maintenance shop and trailers would be removed and would not be replaced.

1.1.6 Design Parameters

The following discussion identifies potential changes with the project's design parameters.

- Site Preparation, Grading and Construction Phasing

To ensure that the TSL has adequate disposal capacity to maintain operations until at least December 2038, the landfill will have to increase its current capacity. The membrane lined cell (Phase IV) would be excavated for refuse placement, while impacting approximately 1.5 acres of undisturbed area. This area encroaches upon the existing north sedimentation basin, so the north sedimentation basin will have to be reconfigured (i.e., second sedimentation basin added) will be required to meet the demand of the existing and proposed increased capacity. The second basin would have a similar design as the existing basin, with an option to be either a concrete lined basin or an earthen basin with a manually operated skimmer system, which would discharge into Pila Creek after sediment is allowed to settle out of suspension.

To provide the additional disposal capacity, approximately 566,400 cy of grading (excavation) would be required to provide approximately 12.5 acres of additional slope liner area and approximately 1.75 acres of additional base liner area. The additional waste disposal capacity would be created by placing waste on top of the existing permitted waste disposal area, thereby increasing the existing design height of the Phase 2 and 3 fill area from approximately 576 feet to a maximum height of 650 feet, with the overall maximum permitted height of the landfill increasing from 620 feet to 650 feet amsl. The Phase IV cell expansion would excavate/blast a maximum of approximately 30 feet below the ground surface of the existing north sedimentation basin top, as well as excavating the slopes north and east of the existing waste footprint to match the overall existing cut slopes of Phase III. All slopes will be constructed to a 2:1 (horizontal to vertical) inclination except for the northern excavated slope at the bottom of Phase IV will be constructed at a 1:1 inclination for stability purposes. The Phase IV area will require overburden material to be excavated using conventional earthmoving equipment. When the material being excavated becomes too hard to rip or excavate with conventional equipment, a licensed blasting contractor will be utilized. Blasting will occur in multiple events. The licensed blasting contractor will provide a plan for the blasting and management of the Breccia material prior to any blasting work being performed. The plan will include, at a minimum, the following:

  - Construction bid documents will require the General Contractor or a listed sub-contractor to have a valid California "Blaster's License".
  - Licensed blasters shall have a site-specific Health and Safety Plan for blasting.
  - Licensed blasters shall provide calculations and a drilling layout of the explosives to control the adverse effects of blasting.
  - Licensed blasters shall provide calculations to minimize noise and vibrations caused by the blasting process to nearby structures and native slopes.
  - Proper notification of blasting will be made to local agencies and surrounding neighborhoods.

The blasting contractor will drill holes in a grid pattern to a pre-determined blast depth of their choosing. Charges will be placed in the lower reaches of the drilled holes, with the upper portion of the drilled holes backfilled with stemming material to control flyrock prior to the actual blast. The drilling pattern, depth of drilled holes, amount of blasting agent used, and type of blast timing will be designed to provide a safe blast resulting in a material with a maximum particle size of approximately 12 inches. The charges will be set, and the blast will normally occur on the same day the blast holes are loaded. The blasting plan will be prepared by the blasting contractor and reviewed by a blasting expert. The blasting plan will be designed to limit the ground vibrations and noise from the blasting at the property boundaries to meet local regulatory requirements. The blasting plan will also be designed to protect existing nearby structures and prevent slope instabilities. Once blasting has been completed and the area has been deemed safe for removal, the blasted material will be placed in the North Stockpile for use as future daily cover.

The initial excavation and liner will be completed in phases and take up to approximately 7 months to construct and would be limited to a dry season (May 1 to November 14, as identified in the Habitat Conservation Plan [HCP]). The remaining expansion liner would require up to four additional phases and construction would also be limited to dry seasons.

Equipment used to construct the new waste disposal area would include the following:

- Scrapers
- Dozers
- Loaders/Excavators
- Drill Rig for Blasting
- Compactors
- Dump Trucks
- Haul Tucks
- Soil Screening Equipment
- Motor Grader
- Water Truck
- Liner Roll Stinger
- Pick-up Trucks
- Low-Pressure All-Terrain Vehicles (ATV's)

➢ Drainage

After the initial excavation, stormwater pumping of the excavated area may be required during the rainy season until the area is filled with refuse to a level where positive drainage can be achieved naturally. Pumping of accumulated water would be accomplished within 1-2 days of rain events using portable pumps. Relevant avoidance and minimization measures (such as pre-pumping surveys and screens on the pump intakes) employed in association with draining residual water from the north and south sedimentation basins would be implemented.

Temporary and permanent drainage control facilities are constructed as required to control storm flows at all times. Final drainage would include installation of down drains, v-ditches fiber rolls, check dams, and hydroseed. The top deck of the new fill area would have a crest of 650 feet amsl and slope at 5% to prevent infiltration into the waste. Water from the disposal area would be directed to the reconstructed north sedimentation basin for treatment/sediment removal prior to discharge to Pila Creek.

➢ Slope Stability

Similar to the existing landfill, when final grades are achieved, the capacity increase area would be constructed with a series of benches (at a minimum of 15 feet wide) placed at a maximum of 50 feet vertically, and final slopes no steeper than 2:1 between benches. As part of the horizontal and vertical increased capacity, a stability toe berm (toe berm) is anticipated to be required. The toe berm will be installed from the top of bank of the existing lined and unlined Pila Creek channel west of the existing landfill. The conceptual design berm be comprised of 60,000 cy of soil compacted to 95%. The toe berm will vary in height from 6 to 40 feet, have a total length of approximately 1,500 feet, and vary in width from 30 to 100 feet wide (dependent on the location) but will generally be projected up to the same height as the existing haul road on the southern side, and just above the existing drainage bench on the northern side to drain to the north towards the Upper North Sedimentation Basin (UNSB). The stability toe berm will have to be keyed in and compacted per the Geotechnical Engineers recommendations. The berm will be installed in two stages, stage 1 will act as a haul road into the Phase IV excavated lined cell with a paved access road approximately 30 feet wide. The second stage will be completing the berm to drain to the UNSB at a minimum of 2% and to stabilize the Phase IV fill design, Stage 2 may or may not include a paved access road. There will be no impact to the landfill or the MRF/ADF with the construction of the stability toe berm.

- Relocated Utilities/Stormwater Features/ADF and CMU Access

An electrical power distribution and communication line (same poles and alignment) connecting the RC MRF to the ADF would need to be relocated. An existing 30-inch diameter pipeline (on grade) connecting overflow from the CMU stormwater runoff collection tank would also need to be relocated and reconnected to the redesigned north sedimentation basin. The access road to the top deck would need to be re-routed across the proposed refuse face to ensure proper capacity for the site.

- Material/Soil Stockpiling

Excavated soils would be stockpiled within the historic disturbance limits of the permitted northern stockpile/borrow area. The soils would be placed in the stockpile during the first dry season of each construction phase. Drainage structures (i.e., v-ditch and pipe down drains) would be installed for stormwater runoff. Work related to the site preparation would be limited to the dry season (May 1 to November 14 as per the TSL's HCP) and would occur over the course of two consecutive dry seasons.

The stockpile would be used for liner operations soil, daily/intermediate cover, and final cover, as appropriate. Construction of the capacity increase disposal area (including soil for the Phase IIIF liner system) would require 1,629,700 cy of soil. The amount of soil available from the north stockpile is 1,285,500 cy and the project would excavate an additional 566,000 cy result in a net of approximately 221,800 cy of soil material, which is proposed to remain in the stockpile area based on a 5:1 (5 parts of waste to 1 part of soil) soil to waste ratio. If the site were to use soil to waste ratio higher than 5:1 (i.e., 4:1), the site would still have appropriate soil available onsite.

- Construction Water Demand/Supply

During each year of construction and during liner installation, water will be required for soil conditioning, compaction, and dust control. The Central Coast Regional Water Quality Control Board (CCRWQCB) allows use of impacted groundwater (i.e., Groundwater Interceptor Trench-extracted groundwater) for dust control over the lined waste footprint, but its use would not be allowed in the new excavation area. The water supply for construction would be provided by the on-site water wells 5 and 3 and other sources, if required (i.e., Aera/Shell well, stored stormwater in the north sedimentation basin [pursuant to the requirements set forth in the TSL HCP), reclaimed water from off-sites sources, or well 8 [approved but not yet constructed]).

1.1.7 Sediment/Stormwater Control

The landfill has a north and a south sedimentation basin. The north sedimentation basin is located on the northwestern side of the landfill and the south sedimentation basin is located at the toe of the landfill. Both basins are equipped with dual skimmers to help remove sediment from collected runoff before discharging into Pila Creek. The north sedimentation basin was installed to reduce the amount of sediment discharged from the TSL, as well as control the rate of discharge into Pila Creek. The basin is designed to settle out material in the fine to coarse sediment range.

The proposed waste footprint increase would extend over a portion of the existing north sedimentation basin removing 10.2-acre feet in volume and requiring the removal and relocation of the existing skimmer system and outlet pipe into Pila Creek. This basin currently has a capacity of approximately 15.8 acre-feet and the proposed footprint increase would reduce the current basin capacity to approximately 5.6 acre-feet. The sedimentation basin has a concrete bottom and sides and is drained using a skimmer system which is lowered after sediment is allowed to settle out or flows to Pila creek via an overflow standpipe/riser when the basin storage volume is exceeded. The north sedimentation basin is an important part of the landfill's stormwater management program. A second basin is planned for this project to capture the loss in capacity to the current approximate 15.8 acre-feet capacity. The second basin would be west of the remaining section of the north sedimentation basin and would have a similar design as the existing basin, with a manually operated skimmer system, and will be constructed as either a lined concrete basin or an earthen sedimentation basin which would also discharge into Pila Creek after sediment is allowed to settle out of suspension. The Lower North Sedimentation Basin (LNSB) has a conceptual design capacity of approximately 12.4 acre-feet in volume for storm water run-off from the additional increased capacity and surrounding areas. The total design capacity of the UNSB and the LNSB will be approximately 18.0 acre-feet in volume when completely emptied.

The two reconstructed north basins are identified as the UNSB and the LNSB. The toe berm of the excavated Phase IV cell construction within the reduced UNSB will also be concrete lined to join the existing concrete slopes. The UNSB will act as the first basin to receive storm water from the landfill and operational surrounding areas (i.e., excavated vegetated slopes, the north stockpile, ADF, etc.), and once filled, it will discharge over the existing spillway into the earthen LNSB. The LNSB will also have an overflow standpipe/riser connected to a skimmer system (similar to the existing design), which will also drain into Pila Creek. Once filled, the LNSB will then discharge over a new spillway into the existing lined Pila Creek in the same location that it currently does.

The UNSB and LNSB will be equipped with two 8-inch Faircloth skimmers (similar to the ones installed with the existing system), which will be connected to a support frame so that they can be raised and lowered into the basin to drain when needed. The skimmers float on the surface and “skim” the surface of the storm water retained within the basin to discharge the cleaner water as sediment drops to the bottom of the basin. One 8-inch skimmer can drain approximately 98,000 cubic feet per day (or approximately 2.25 acre-feet per day). Therefore, the UNSB with two 8-inch skimmers can drain 5.6 acre-feet within approximately 30.0 hours, while the LNSB with two 8-inch skimmers can drain 12.4 acre-feet within approximately 66.25 hours. Operation and maintenance of the reconstructed UNSB and new LNSB will be consistent with existing operations and with the landfill’s HCP and Incidental Take Permit (ITP).

With the construction of the LNSB and the stability toe berm, access to the lined section of Pila Creek will be removed, but the LNSB western berm will include access ramps to allow entry into the channel for annual maintenance. The Pila Creek Inundation Area (PCIA) will also be affected by the LNSB and stability toe berm. In order to maintain the existing detention capacity of approximately 22.3 acre-feet of storm water volume (to control the downstream flow), the existing spillway system of the Pila Creek flow control structure will have to be modified. The spillway height will have to be raised vertically by approximately 2.7 feet from the approximate elevation of 390.5 amsl to the approximate elevation of 393.2 amsl. The existing flow control structure will remain, but a new spillway wall will be installed by saw cutting into the existing concrete and tying the new spillway wall into the existing structure. The flow control structure has a 42-inch flow control pipe to control the amount of downstream flow into Pila Creek. No other modifications to the flow control structure are expected in association with the increase in head pressure from raising the existing spillway approximately 2.7 feet vertically, as the 42-inch inlet pipe maintains the maximum allowed downstream flow. The increased height of the flow control structure and the construction of the new LNSB will result in a change in the PCIA. The LNSB and stability toe berm could be periodically inundated during storm events. However, because the inundation would be limited in duration no adverse impacts are expected to the function of the LNSB berm or the stability toe berm, but the impact should be analyzed further by a Geotechnical Engineer.

The quality of stormwater runoff from paved roadways will improve due to the use of a sweeper vacuum truck on all paved roadways at least once per day.

1.1.8 Operational Parameters

The following discussion identifies potential changes with the project’s operational parameters.

- Hours of Operation – Receipt of Waste/Disposal

The landfill’s permitted hours for receipt of waste from off-site are currently Monday – Tuesday, 7:00 a.m. to 5:00 p.m. and Wednesday – Saturday 7:00 a.m. to 4:00 p.m. The TSL is closed on Sundays, New Year’s Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, and Christmas Day. The hours for receipt of waste from off-site is proposed to be Monday – Saturday, 6:00 a.m. to 4:00 p.m.

The permitted hours for waste disposal cover, compaction, maintenance, landfill construction, waste processing, and special occurrences would remain the same as currently identified on the SWFP.

- Waste Permitted Tonnage (Received/Buried)

The landfill's permitted maximum tonnage (including MRF capacity and bypass waste) is currently 1,500 tpd. RRWMD is proposing to modify the incoming tonnage to eliminate the daily maximum of 1,500 tpd and instead implement a maximum 6-day operating tonnage of 9.000 tons.

- Traffic Volume

Currently, the permitted traffic volume at the landfill is 184 vpd, not including the 50 vpd for employees, contractors, deliveries, regulatory agencies, and other visitors. No change in the permitted traffic volume is proposed.

- Personnel

The landfill has an operational staff of 18 employees (4 of which are assigned part-time at the landfill and part-time at other RRWMD solid waste facilities). No change in the operational staff is proposed.

- Equipment

Equipment used for landfill operations includes motor graders, loaders, scrapers, compactors, bulldozers, excavators, mowers, tarp machines, small off-road vehicles, water trucks, fuel trucks, and pick-up trucks. No change in operational equipment use is proposed; however, several pieces of equipment will be replaced in 2026.

A sweeper vacuum truck will be added to the equipment list to clean all paved roads a minimum of once per day.

- Security/Safety

The TSL is a secure site, gated and surrounded by fences, topped with barb wire strands. Only authorized personnel (staff, delivery vehicles, authorized visitors escorted by staff) are allowed to enter the site. Entrance gates include electronic access/security control system to provide after-hours access and exit for MRF, ADF, and CMU employees and recyclable and compost export trucks. The scale house is located on the west side of the entrance scale within the entrance road. This affords the scale house attendant a view of traffic entering or leaving the facility. Security cameras are also installed in the administrative areas and around the perimeter of the facilities.

- Waste Handling Procedures

The TSL receives MSW, green waste, special waste (which bypasses the MRF), CSSR, and source separated organic waste (SSOW). The MSW is directed to the MRF where recyclables and organic waste are recovered. The CSSR is directed to the MRF for processing and the SSOW is directed to the ADF for processing. Green waste is directed to the green waste processing deck and is ground into a mulch product. Waste disposed in the landfill currently and which would continue to be disposed in the capacity increase area, consists of the bypassed special waste (i.e., non-friable asbestos, large dead animals, treated wood waste, and grit/sludge from water treatment facilities) and non-recyclable residuals from the MRF and ADF.

- Green Waste Operations

Green Waste, which includes, but is not limited to, yard trimmings, untreated wood wastes, paper products, and natural fiber products (pursuant to 27 CCR, Section 20690) are delivered at an average rate of up to 145 tpd. Green wastes delivered to the site are processed to remove contaminants such as plastic bags and ground into a mulch product for use at the CMU as a bulking agent and odor control and/or distribution to the public. No change in green waste tonnage or operations are proposed.

- Environmental Protection/Control Systems (Leachate, LFG, Stormwater)

The existing landfill construction is subdivided into Phases I through III. Each phase is further subdivided into smaller sub-areas to meet forecasted waste disposal needs and construction resource availability. The area proposed for the increased capacity would be designated as Phase IV. Groundwater protection systems consisting of an engineered composite liner system (liners) are installed in each phase to prevent water percolating through the waste or generated by decomposition of the waste (leachate) from impacting groundwater. The leachate is collected in a trench containing a perforated pipe, stored in onsite tanks, and is permitted to be used for dust control on lined portions of the landfill. Two liners would be installed in the Phase IV area, a base liner of approximately 1.75 acres and a slope liner of approximately 12.5 acres for a total of approximately 14.25 acres of additional lined waste disposal area. The existing subdrain system piping will be extended as part of the Phase IV liner system to collect any potential seepage. A potential overliner may be required within the Subtitle D height increase area by the CCRWQCB. This potential overliner can be analyzed and designed prior to placement, if required, and has no major impact to the fill design.

Landfill gas (LFG) is generated from anaerobic biological decomposition of organic matter deposited in the landfill. LFG consists primarily of methane and carbon dioxide (CO_2), with smaller amounts of non-methane organic compounds (NMOC). Some NMOCs are reactive organic compounds (ROC). The LFG is collected via horizontal and vertical landfill gas extraction wells. LFG is generally used by two onsite internal combustion engines (generators) to create electricity up to a maximum electrical production of 2.8 megawatts. The flare is used to combust excess landfill gas not needed to fuel the generators, or when the generators are not operating. The gas recovery system controls downward and lateral migration of methane and ROCs associated with landfill gas and limits the dissolution of landfill gas in groundwater and soil moisture. The LFG collection system will be extended into the expanded disposal area as it is filled with waste.

- Site Access

Access to the landfill property is via a paved approximate 30-foot-wide road that runs north from U.S. Highway 101. This intersection provides access to the property via a left-hand turn lane for southbound traffic and a right-hand turn lane for northbound traffic. Traffic exiting the TSL must first stop at a stop sign located at the intersection of the access road and U.S. Highway 101. Traffic traveling southbound enters a median strip before entering an acceleration lane and merging with the number one highway lane. Northbound traffic exiting the property has direct access to an acceleration lane before merging with the number two highway lane.

- Access to the Waste Filling Area

Paved access roads currently extend into the back canyon area of the landfill to a point just south of the proposed capacity increase area. New access roads are constructed as landfill operations areas move in accordance with the proposed final grading plan and the proposed increased capacity. Access to the proposed area would be provided by an existing paved road that would extend from the current waste disposal area. The paved road extension would be approximately 2,900 feet in length and 35 feet in width.

- Waste Cover and Other Material Requirements

The scrapers and loaders move cover soil from the landfill stockpile/borrow areas and transport it to the active working face. Excavation of soil for daily and intermediate cover, and landfill maintenance is currently taken from the north borrow/stockpile area. As noted previously, 566,000 cy of grading (excavation) would be required for installation of new liner in the increased capacity waste disposal area. The total soil requirements of the proposed project for construction, daily cover, and landfill closure would be approximately 1,629,700 cy. Soil availability in the existing north borrow/stockpile area, including the soil excavated from the increased capacity, would be approximately 1,851,500 cy. Therefore, sufficient soil would be available for daily cover and closure and an estimated 221,800 cy would remain in the north borrow/stockpile area after closure.

1.1.9 Closure and Post-Closure Maintenance

Currently, RRWMD has proposed four phases of closure for the TSL. Phase 1 has already received a final cover system and construction of Phase 2 and 3 was completed in stages from 2017 through 2020. The Phase 4 Closure area would be revised to include the increased capacity project area. The existing Closure and Post-Closure Maintenance Plan presents a description of the closure and post-closure maintenance activities that will ensure proper closure of the different Phases at the landfill including, but not limited to proposed drainage and erosion control, final grading, final cover, construction quality assurance (CQA), LFG control/monitoring system, groundwater monitoring system, the leachate collection and removal system (LCRS), landfill settlement, and site security. Additionally, the Closure and Post-Closure

Maintenance Plans provide a basis for developing required closure/post-closure funding levels. The closure plan will be amended to include the additional closure area.

At closure, the final cover system for the Phase 4 area (including the capacity increase area) would consist of a combined prescriptive cover on the top deck and an engineered alternative (monolithic soil cover) on the slopes. The finished surface of the landfill will be vegetated with native plants suitable for replanting on the cover (e.g., coastal sage scrub or grassland). Although not part of the TSL closure area, the north borrow area would also be revegetated with native plants (e.g., coastal sage scrub/chaparral). In accordance with 27 CCR, Section 21180, the landfill shall be maintained and monitored (as part of post-closure) for a minimum 30-year period after the completion of closure of the entire landfill.

2. Environmental Setting

2.1 Air Quality

Air quality is defined by the concentration of pollutants in relation to their impact on human health. Concentrations of air pollutants are determined by the rate and location of pollutant emissions released by pollution sources, and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, and sunlight. Therefore, ambient air quality conditions within the local air basin are influenced by such natural factors as topography, meteorology, and climate, in addition to the amount of air pollutant emissions released by existing air pollutant sources.

2.1.1 Criteria Pollutants

Individual air pollutants at certain concentrations may adversely affect human or animal health, reduce visibility, damage property, and reduce the productivity or vigor of crops and natural vegetation. Six air pollutants have been identified by the U.S. Environmental Protection Agency (USEPA) and the California Air Resources Board (CARB) as being of concern on both nationwide and statewide levels: ozone, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), lead, and particulate matter (PM). PM is subdivided into two classes based on particle size: PM equal to or less than 10 micrometers in diameter (PM_{10}) and PM equal to or less than 2.5 micrometers in diameter ($PM_{2.5}$). Because the air quality standards for these air pollutants are regulated using human health and environmentally based criteria, they are commonly referred to as "criteria air pollutants".

Ozone. Ozone is the principal component of smog and is formed in the atmosphere through a series of reactions involving reactive organic gases (ROG) or volatile organic compounds (VOC), and nitrogen oxides (NO_X) in the presence of sunlight. ROG/VOC and NO_X are called precursors of ozone. NO_X includes various combinations of nitrogen and oxygen, including nitric oxide (NO), NO_2, and others. Significant ozone concentrations are usually produced only in the summer, when atmospheric inversions are greatest, and temperatures are high. ROG/VOC and NO_X emissions are both considered critical in ozone formation.

Individuals exercising outdoors, children, and people with pre-existing lung disease, such as asthma and chronic pulmonary lung disease, are considered the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in sports and live-in communities with high ozone levels.

Carbon Monoxide. CO is a colorless and odorless gas that, in the urban environment, is associated primarily with the incomplete combustion of fossil fuels in motor vehicles. Relatively high concentrations are typically found near crowded intersections and along heavily used roadways carrying slow-moving traffic. Even under most severe meteorological and traffic conditions, high concentrations of CO are limited to locations within a relatively short distance (300 to 600 feet) of heavily travelled roadways. Vehicle traffic emissions can cause localized CO impacts, and severe vehicle congestion at major signalized intersections can generate elevated CO levels, called "hot spots," which can be hazardous to human receptors adjacent to the intersections. Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport. Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Nitrogen Dioxide. NO_2 is a product of combustion and is generated in vehicles and in stationary sources, such as power plants and boilers. It is also formed when ozone reacts with NO in the atmosphere. As noted above, NO_2 is part of the NO_X family and is a principal contributor to ozone and smog generation. Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children, is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Airway contraction and increased resistance to air flow are observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

Sulfur Dioxide. SO_2 is a combustion product, with the primary source being power plants and heavy industries that use coal or oil as fuel. SO_2 is also a product of diesel engine combustion. SO_2 in the atmosphere contributes to the formation of acid rain. SO_2 can irritate lung tissue and increase the risk of acute and chronic respiratory disease. In asthmatics, increased resistance to air flow and a reduction in breathing capacity leading to severe breathing difficulties are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

Lead. Lead is a highly toxic metal that may cause a range of human health effects. Previously, the lead used in gasoline anti-knock additives represented a major source of lead emissions to the atmosphere from mobile and industrial sources. USEPA began working to reduce lead emissions soon after its inception, issuing the first reduction standards in 1973. In 1975, unleaded gasoline was introduced for motor vehicles equipped with catalytic converters. USEPA banned the use of leaded gasoline in highway vehicles in December 1995. As a result of USEPA's regulatory efforts to remove lead from gasoline, emissions of lead from the transportation sector and levels of lead in the air decreased dramatically. Fetuses, infants, and children are more sensitive than others to the adverse effects of lead exposure. Exposure to low levels of lead can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased lead levels are associated with increased blood pressure. Lead poisoning can cause anemia, lethargy, seizures, and death, although it appears that there are no direct effects of lead on the respiratory system.

Particulate Matter. PM is a complex mixture of extremely small particles that consists of dry solid fragments, solid cores with liquid coatings, and small liquid droplets. PM is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soot, and soil or dust particles. Natural sources of PM include windblown dust and ocean spray. The size of PM is directly linked to the potential for causing health problems. USEPA is concerned about particles that are 10 micrometers in diameter or smaller, because these particles generally pass through the throat and nose and enter the lungs. Once inhaled, these particles can affect the heart and lungs and cause serious health effects. Health studies have shown a significant association between exposure to PM and premature death. Other important effects include aggravation of respiratory and cardiovascular disease, lung disease, decreased lung function, asthma attacks, and certain cardiovascular problems such as heart attacks and irregular heartbeat (EPA 2022a). Individuals particularly sensitive to fine particle exposure include older adults, people with heart and lung disease, and children. A consistent correlation between elevated PM levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks, and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. USEPA groups PM into two categories, which are described below.

PM_{10}. PM_{10} includes both fine and coarse dust particles; the fine particles are $PM_{2.5}$. Coarse particles, such as those found near roadways and dust-producing industries, are larger than 2.5 micrometers and smaller than 10 micrometers in diameter. Sources of coarse particles include crushing or grinding operations and dust from paved or unpaved roads. Control of PM_{10} is primarily achieved through the control of dust at construction and industrial sites, the cleaning of paved roads, and the wetting or paving of frequently used unpaved roads.

$PM_{2.5}$. Fine particles, such as those found in smoke and haze, are $PM_{2.5}$. Sources of fine particles include all types of combustion activities (motor vehicles, power plants, wood burning, etc.) and certain industrial processes. $PM_{2.5}$ is also formed through reactions of gases, such as SO_2 and NO_X, in the atmosphere. $PM_{2.5}$ is the major cause of reduced visibility (haze) in California.

2.1.2 Air Quality Standards

Health-based air quality standards have been established for these criteria pollutants by EPA at the national level and by CARB at the state level. These standards were established to protect the public with a margin of safety from adverse health impacts due to exposure to air pollution. California has also established standards for sulfates, visibility-reducing particles, hydrogen sulfide, and vinyl chloride. Table 2-1 presents the National Ambient Air Quality Standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS).

Both EPA and CARB use ambient air quality monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. An “attainment” designation for an area signifies that pollutant concentrations did not exceed the established standard. In most cases, areas designated or re-designated as attainment must develop and implement maintenance plans (i.e., an area that was previously in nonattainment but now attains the standard). These areas are designated as “maintenance” areas and are currently under a maintenance plan to ensure continued compliance with the standard.

In contrast to attainment, a “nonattainment” designation indicates that a pollutant concentration has exceeded the established standard. Nonattainment may differ in severity. To identify the severity of the problem and the extent of planning and actions required to meet the standard, nonattainment areas are assigned a classification that is commensurate with the severity of their air quality problem (e.g., moderate, serious, severe, extreme). Finally, an unclassified designation indicates that insufficient data exist to determine attainment or nonattainment. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment.

As shown in Table 2-1, Santa Barbara County is designated as an attainment area for all criteria air pollutants except ozone and PM_{10} under the CAAQS as an attainment/unclassifiable area for all criteria air pollutants under the NAAQS. The most current monitoring station data and attainment designations for the area surrounding the Project site are shown in Table 2-2.

Table 2-1 NAAQS and CAAQS Attainment Status – Santa Barbara County Attainment and Nonattainment Designations

Criteria Pollutant	Averaging Time	CAAQS Averaging Time	CAAQS Designation	NAAQS Averaging Time	NAAQS Designation
Ozone (O_3)	1-Hour	0.09 ppm	Nonattainment	—	—
	8-Hour	0.070 ppm		0.070 ppm	Attainment/Unclassifiable
PM_{10}	24-hour	50 µg/m^3	Nonattainment	150 µg/m^3	Unclassifiable
	Annual	20 µg/m^3		—	—
$PM_{2.5}$	24Hour	—	—	35 µg/m^3	Attainment/Unclassifiable
	Annual	12.0 µg/m^3	Attainment	12.0 µg/m^3	Attainment/Unclassifiable
CO	1-Hour	20 ppm	Attainment	35 ppm	Attainment/Unclassifiable
	8-Hour	9 ppm		9 ppm	
NO_2	1-Hour	0.18 ppm	Attainment	0.10 ppm	Attainment/Unclassifiable
	Annual	0.030 ppm		0.053 ppm	Attainment/Unclassifiable
SO_2	1-Hour	0.25 ppm (655 µg/m^3)	Attainment	75 ppb	Attainment/Unclassifiable
	24-Hour	0.04 ppm (105 µg/m^3)		0.14 ppm	—
Lead	30-Day Average	1.5 µg/m^3	Attainment	—	—
	Rolling 3-Month Average 24 Hour	—		1.5 µg/m^3	Attainment/Unclassifiable
Sulfates	24-Hour	25 µg/m^3	Attainment	No National Standards	
Hydrogen Sulfides	1-Hour	0.03 ppm (42 µg/m^3)	Attainment		
Vinyl Chloride	24-Hour	0.01 ppm (26 µg/m^3)	—		

Notes: NO_2 = nitrogen dioxide; PM_{10} = suspended particulate matter less than 10 micrometers in diameter; $PM_{2.5}$ = fine particulate matter less than 2.5 micrometers in diameter; CO = carbon monoxide; SO_2 = sulfur dioxide; ppm = parts per million; µg/m^3 = micrograms per cubic meter.
Source: SBCAPCD 2023

2.1.3 Santa Barbara County Existing Air Quality

The Santa Barbara County Air Pollution Control District (SBCAPCD) is responsible for enforcing the rules and regulations protecting air quality in Santa Barbara County. Ambient air pollutant concentrations are measured at air quality monitoring stations operated by CARB and the SBCAPCD. The closest SBCAPCD air quality monitoring stations to the Project is the Las Flores Canyon #1 monitoring station. This station monitors ozone, NO_2, and PM_{10}. Air quality monitoring data for $PM_{2.5}$ were based on the Goleta-Fairview monitoring station. Table 2-2 presents three years of the most recent information available, summarizing the exceedances of standards and the highest recorded pollutant. These concentrations represent the existing, or baseline conditions, for the area surrounding the Project Site are based on the most recent information that is available.

As shown in Table 2-2, ambient air concentrations of NO_2 did not exceed the NAAQS or CAAQS in 2019 through 2021. The 1-hour and 8-hour ozone NAAQS and CAAQS were exceeded in 2019 and 2020. PM_{10} concentrations exceeded the CAAQS in 2019 and 2021; however, they did not exceed the NAAQS during this time period. $PM_{2.5}$ concentrations exceeded the NAAQS in 2020.

2.1.4 Toxic Air Contaminants

In addition to criteria pollutants, both federal and state air quality regulations also focus on toxic air contaminants (TACs). TACs can be separated into carcinogens and noncarcinogens based on the nature of the effects associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health impacts would not occur. Any exposure to a carcinogen poses some risk of contracting cancer. Noncarcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact is believed to occur. These levels are determined on a pollutant-by-pollutant basis.

TACs may be emitted by stationary, area, or mobile sources. Common stationary sources of TAC emissions include gasoline stations, dry cleaners, and diesel backup generators, which are subject to local air district permit requirements. The other, often more significant, sources of TAC emissions are motor vehicles on freeways, high-volume roadways, or other areas with high numbers of diesel particulate matter-emitting activities, such as distribution centers, warehouses, and railyards. Off-road mobile sources are also major contributors of TAC emissions and include construction equipment, ships, and trains.

2.1.5 Diesel Particulate Matter

Particulate exhaust emissions from diesel-fueled engines (diesel PM, DPM) were identified as a TAC by CARB in 1998. Federal and state efforts to reduce DPM emissions have focused on the use of improved fuels, adding particulate filters to engines, and requiring the production of new-technology engines that emit fewer exhaust particulates.

Diesel engines tend to produce a much higher ratio of fine particulates than other types of internal combustion engines. The fine particles that make up DPM tend to penetrate deep into the lungs and the rough surfaces of these particles makes it easy for them to bind with other toxins within the exhaust, thus increasing the hazards of particle inhalation. Long-term exposure to DPM is known to lead to chronic, serious health problems, including cardiovascular disease, cardiopulmonary disease, and lung cancer.

Table 2-2
Ambient Air Quality Summary

Pollutant Standards	2019	2020	2021
Ozone			
State maximum 1-hour concentration (0.09 ppm)	0.078	0.091	0.073
National maximum 8-hour concentration (0.070 ppm)	0.072	0.074	0.067
State maximum 8-hour concentration (0.070 ppm)	0.072	0.074	0.068
CAAQS Exceeded? NAAQS Exceeded?	Yes Yes	Yes Yes	No No
Number of Days Standard Exceeded			
CAAQS 1-hour	0	0	0
CAAQS 8- hour /NAAQS 8-hour	1/1	2/2	0/0
Nitrogen Dioxide (NO_2)			
National/State maximum 1-hour concentration (0.18 ppm/100 ppb)	0.011	0.010	0.062
National/State Annual Average (0.053 ppm/0.030 ppm)	0.01	0.00	*
NAAQS/CAAQS Exceeded?	No	No	No
Number of Days Standard Exceeded			
NAAQS 1-hour CAAQS 1-hour	0 0	0 0	0 0
Particulate Matter (PM_{10})			
National maximum 24-hour concentration (150 mg/m^3)	76.5	70.3	48.7
State maximum 24-hour concentration (50 mg/m^3)	79.4	72.9	50.7
State annual average concentration (20 mg/m^3)	13.9	15.0	*
CAAQS Exceeded?	Yes	No	Yes
NAAQS Exceeded?	No	No	No
Estimated Number of Days Standard Exceeded			
NAAQS 24-hour	0	0	0
CAAQS 24-hour	4	6	*
Particulate Matter ($PM_{2.5}$)			
National maximum 24-hour concentration (35 mg/m^3)	26.3	61.2	19.4
National annual average concentration (12.0 mg/m^3)	5.0	7.3	5.7
State annual average concentration (12 mg/m^3)	5.0	7.4	*
NAAQS Exceeded?	No	Yes	No
Measured Number of Days Standard Exceeded			
NAAQS 24-hour (>35 mg/m^3)	0	6	0

Notes: µg/m^3 = micrograms per cubic meter; CAAQS = California Ambient Air Quality Standards; NAAQS = National Ambient Air Quality Standards; ppb = parts per billion; ppm = parts per million
*Insufficient data to determine the value.
Source: CARB 2023

2.1.6 Odor

Odors are considered an air quality issue both at the local level (e.g., odor from wastewater treatment) and at the regional level (e.g., smoke from wildfires). Odors are generally regarded as an annoyance rather than a health hazard. However, manifestations of a person's reaction to foul odors can range from psychological (e.g., irritation, anger, or anxiety) to physiological (e.g., circulatory and respiratory effects, nausea, vomiting, and headache).

The ability to detect odors varies considerably among the population and is subjective. Some individuals have the ability to smell minute quantities of specific substances, while others may not have the same sensitivity but may have sensitivities to odors of other substances. In addition, people may have different reactions to the same odor; an odor that is offensive to one person (e.g., from a fast-food restaurant or bakery) may be perfectly acceptable to another. Unfamiliar odors may be more easily detected and likely to cause complaints than familiar ones.

Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eyes, nose, and throat, which can reduce respiratory volume. Second, the ROGs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects, such as stress.

Several examples of common land use types that generate substantial odors include wastewater treatment plants, landfills, composting/green waste facilities, recycling facilities, petroleum refineries, chemical manufacturing plants, painting/coating operations, rendering plants, and food packaging plants. The TSL is a common land use type that has the potential to generate substantial odors. However, as described in the Notice of Preparation for this Project, the landfill waste disposal and green waste processing have not been a source of odor complaints off-site.

2.2 Greenhouse Gas Emissions

2.2.1 Scientific Basis of Climate Change

Certain gases in the earth's atmosphere, classified as GHGs, play a critical role in determining the earth's surface temperature. A portion of the solar radiation that enters the earth's atmosphere is absorbed by the earth's surface, and a smaller portion of this radiation is reflected back toward space. This infrared radiation (i.e., thermal heat) is absorbed by GHGs within the earth's atmosphere. As a result, infrared radiation released from the earth that otherwise would have escaped back into space is instead "trapped," resulting in a warming of the atmosphere. This phenomenon, known as the "greenhouse effect," is responsible for maintaining a habitable climate on the earth.

GHGs are present in the atmosphere naturally, are released by natural and anthropogenic sources, and are formed from secondary reactions taking place in the atmosphere. Natural sources of GHGs include the respiration of humans, animals, and plants; decomposition of organic matter; and evaporation from the oceans. Anthropogenic sources include the combustion of fossil fuels, waste treatment, and agricultural processes. The following are GHGs that are widely accepted as the principal contributors to human-induced global climate change:

- Carbon dioxide (CO_2)
- Methane (CH_4)
- Nitrous oxide (N_2O)
- Hydrofluorocarbons (HFCs)
- Perfluorocarbons (PFCs)
- Sulfur hexafluoride (SF_6)

The majority of anthropogenic CO_2 emissions are byproducts of fossil fuel combustion. CH_4 is the main component of natural gas and is associated with agricultural practices and landfills. N_2O is a colorless GHG that results from industrial processes, vehicle emissions, and agricultural practices. HFCs are synthetic chemicals used as a substitute for chlorofluorocarbons in automobile air conditioners and refrigerants. PFCs are produced as a byproduct of various industrial processes associated with aluminum production and the manufacturing of semiconductors. SF_6 is an inorganic, odorless, colorless, nontoxic, nonflammable GHG used for insulation in electric power transmission and distribution equipment, and in semiconductor manufacturing. The primary GHGs that would be emitted during construction and operation of the Project are CO_2, CH_4, and N_2O. The Project would also store SF_6 onsite; thus, Project GHG emissions may also include fugitive emissions of SF_6.

Global warming potential (GWP) is a concept developed to compare the ability of each GHG to trap heat in the atmosphere relative to CO_2. The GWP of a GHG is based on several factors, including the relative effectiveness of a gas to absorb infrared radiation and length of time (i.e., lifetime) that the gas remains in the atmosphere ("atmospheric lifetime"). The reference gas for GWP is CO_2; therefore, CO_2 has a GWP of 1. The other main GHGs that have been attributed to human activity include CH_4, which has a GWP of 27.9, and N_2O, which has a GWP of 273 (IPCC 2021). For example, 1 ton of CH_4 has the same contribution to the greenhouse effect as approximately 27.9 tons of CO_2. GHGs with lower emissions rates than CO_2 may still contribute to climate change because they are more effective at absorbing outgoing infrared radiation than CO_2 (i.e., high GWP). The concept of CO_2-equivalents (CO_2e) is used to account for the different GWP potentials of GHGs to absorb infrared radiation.

Although the exact lifetime of any particular GHG molecule is dependent on multiple variables, it is understood by scientists who study atmospheric chemistry that more CO_2 is emitted into the atmosphere than is sequestered by ocean uptake, vegetation, and other forms of sequestration. GHG emissions related to human activities have been determined as "extremely likely" to be responsible (indicating 95 percent certainty) for intensifying the greenhouse effect and leading to a trend of unnatural warming of the earth's atmosphere and oceans, with corresponding effects on global circulation patterns and climate (CARB 2014).

2.2.2 GHG Inventories

2.2.2.1 National

USEPA prepares the official United States Inventory of Greenhouse Gas Emissions and Sinks to comply with existing commitments under the United Nations Framework Convention on Climate Change (UNFCCC). In 2021, the United States generated 6,340.2 million metric tons (MMT) CO_2e (EPA 2023). The transportation sector was the single largest source of GHG emissions in 2021, accounting for 29 percent of total GHG emissions. The transportation sector was followed by the electric power and industry sectors, which account for 25 and 24 percent of the total GHG emissions, respectively (EPA 2023).

2.2.2.2 California

CARB performs an annual GHG inventory for emissions and sinks of the six major GHGs. California produced 369.2 MMT CO_2e in 2020 (CARB 2022a). Combustion of fossil fuel in the transportation category was the single largest source of California's GHG emissions in 2020, accounting for 38 percent of total GHG emissions in the state. The transportation category was followed by the industrial and electric power (including in-state and out-of-state sources) categories, which account for 23 and 16 percent of the State's total GHG emissions, respectively (CARB 2022a). The total for all landfills in the state was approximately 8.5 MMT CO_2e, or 2.3 percent of the total.

2.2.2.3 Local

In June 2023, the COSB released the draft 2030 Climate Action Plan (draft CAP). The draft CAP is the County's roadmap to achieving the goal adopted by the Board of Supervisors of reducing GHG emissions in the unincorporated area to 50 percent below 2018 levels by 2030 and provide the foundation that aligns with the State's goals to reduce GHG emissions to 40 percent below 1990 levels and achieve carbon neutrality by 2045. In 2018, the County's total GHG emissions were 1,426,540 MT CO_2e (County of Santa Barbara 2023). The on-road transportation source category accounted for approximately 49 percent of the County's total GHG emissions. The on-road transportation source category was followed by the natural gas source category, which accounted for 21 percent of the City's total GHG emissions (County of Santa

Barbara 2023). The draft CAP is currently accepting public comments and has not been formally adopted at the time of this analysis.

3. Regulatory Framework

3.1 Air Quality

Air quality in the SCAB is regulated by USEPA, CARB, and the SBCAPCD. Each of these agencies develops rules, regulations, or policies, and/or goals to attain the directives imposed through legislation. Although USEPA regulation may not be superseded, both state and local regulations may be more stringent.

3.1.1 Federal

3.1.1.1 Clean Air Act

USEPA's air quality mandates are drawn primarily from the federal Clean Air Act (CAA), which was enacted in 1970 and amended in 1977 and 1990. The CAA requires USEPA to establish the NAAQS and requires each state with regions that have not attained the NAAQS to prepare a State Implementation Plan (SIP), detailing how these standards are to be met in each local area. The SIP is a legal agreement between each state and the federal government to commit resources to improving air quality. It serves as the template for conducting regional and project-level air quality analysis. The SIP is not a single document, but a compilation of new and previously submitted attainment plans, emissions reduction programs, district rules, state regulations, and federal controls.

The CAA Amendments also require that states and local air quality agencies develop a Title V Operating Permit Program, which requires all "major sources" of pollutants to obtain Title V permits. The program is designed to ensure compliance with all applicable requirements of the CAA and to enhance USEPA's ability to enforce the CAA. Air pollution sources subject to the program must obtain an operating permit; states must develop and implement the program; and USEPA must issue permit program regulations, review each state's proposed program, and oversee the state's efforts to implement any approved program.

Before 1994, there were no standards to limit the amount of emissions from off-road equipment. In 1994, USEPA established emission standards for hydrocarbons, NO_X, CO, and PM to regulate new pieces of off-road equipment. These emission standards came to be known as Tier 1. Since that time, increasingly more stringent Tier 2, Tier 3, and Tier 4 (interim and final) standards were adopted by USEPA, as well as by CARB. Tier 1 emission standards became effective in 1996. The more stringent Tier 2 and Tier 3 emission standards became effective between 2001 and 2008, with the effective date dependent on engine horsepower. Tier 4 interim standards became effective between 2008 and 2012, and Tier 4 final standards became effective in 2014 and 2015. Each adopted emission standard was phased in over time. New engines built in and after 2015 across all horsepower sizes must meet Tier 4 final emission standards. In other words, new manufactured engines cannot exceed the emissions established for Tier 4 final emissions standards.

3.1.2 State

3.1.2.1 California Clean Air Act

The federal CAA gives states primary responsibility for directly monitoring, controlling, and preventing air pollution. CARB is responsible for coordination and oversight of federal, state, and local air pollution control programs in California and for implementing the requirements of the federal CAA and California CAA. CARB oversees regional or local air quality management or air pollution control districts that are charged with developing attainment plans for the areas over which they have jurisdiction.

3.1.2.2 California Air Toxics Program

TACs in California are regulated primarily through the Tanner Air Toxics Act (Chapter 1047, Statutes of 1983) and the Air Toxics Hot Spots Information and Assessment Act (Chapter 1252, Statutes of 1987). Assembly Bill (AB) 1807 sets forth a formal procedure for CARB to designate substances as TACs. Research, public participation, and scientific peer review must occur before CARB can designate a substance as a TAC. The Air Toxics Hot Spots Information and Assessment Act requires that TAC emissions from stationary sources be quantified and compiled into an inventory according to criteria and guidelines developed by CARB, and if directed to do so by the local air district, a health risk assessment must be prepared to determine the potential health impacts of such emissions.

3.1.2.3 California Ambient Air Quality Standards

The CAAQS were established in 1959 by the California Department of Public Health to set air quality standards and controls for vehicle emissions. The CAAQS are often stricter than the NAAQS (as shown in Table 2-1). When state thresholds are exceeded at regional monitoring stations, an "attainment plan" must be prepared that outlines how an air quality district will achieve compliance with the state standards.

3.1.2.4 Heavy Duty Diesel Vehicle Standards

California has adopted standards for heavy-duty diesel vehicles. In California, under the In-Use Off-Road Diesel-Fueled Fleets Regulation, non-road equipment fleets can retain older equipment, but fleets must meet averaged emissions limits, new equipment must be Tier 3 or better after January 2018 (for large and medium fleets) or January 2023 (for small fleets), and over time the older equipment must be fitted with particulate filters. Large and medium fleets have increasingly strict fleet compliance targets through 2023 and small fleets through 2029. A small fleet has total horsepower of 2,500 or less, and a medium fleet has total horsepower of between 2,500 and 5,000. Compliance and reporting under the In-Use Off-Road Diesel-Fueled Fleets Regulation includes maintaining off-road equipment registered in the CARB Diesel Off-Road Online Registration System and each equipment labeled with the Equipment Identification Number.

3.1.2.5 Solid Waste Collection Vehicle Regulation

The Solid Waste Collection Vehicle (SWCV) regulation was adopted by CARB in 2004. All SWCVs, except for certain low-use vehicles, were required to have PM filters installed by December 31, 2010. In January 2019, the Board approved amendments to the SWCV regulation. The amended regulation continues to apply to 2006 model year and older engines in garbage roll-off and garbage packer trucks. Reporting of these trucks is now mandatory, and the information will be used to minimize the chance for unnecessary registration delays at the California Department of Motor Vehicles (DMV).

3.1.2.6 Truck and Bus Regulation

The CARB's Truck and Bus Regulation is one of the most far-reaching and important tools to reduce smog-forming and toxic emissions and protect public health in disadvantaged communities. The Truck and Bus Regulation is a key element in CARB's Diesel Risk Reduction Plan and the State Implementation Plan, both of which are designed to provide clean air for Californians by helping to meet state and federal health-protective standards.

The Truck and Bus Regulation requires all on-road and off-road vehicles, by January 1, 2023, to have 2010 or newer model year engines to reduce particulate matter and NO_x emissions. To help ensure that the benefits of this regulation are achieved, starting January 1, 2020, only vehicles compliant with this regulation will be registered by the California Department of Motor Vehicles. In 2023, the regulation accounts for an 80 percent reduction in PM emissions and a 60 percent reduction in NOx from diesel trucks when compared to normal truck replacements (CARB 2022b).

In June 2020, CARB adopted the Advanced Clean Truck regulation, which will require truck manufacturers to begin the transition from diesel to zero-emission trucks in 2024. By 2045, every new truck sold in California must be zero-emission.

3.1.3 Santa Barbara County Air Pollution Control District

Construction and operation of the Proposed Project would be required to comply with SBCAPCD regulations and rules. SBCAPCD implements air quality programs required by State and federal mandates, enforces rules and regulations based on air pollution laws, and educates businesses and residents about their role in protecting air quality. The SBCAPCD is also responsible for managing and permitting existing, new and modified sources of air emissions within the County.

The applicable rules and regulations include:

Rule 201 (Permits Required): This rule requires an Authority to Construct and Permit to Operate before the construction or operation, respectively, of non-exempt emission sources.

Rule 302 (Visible Emissions): This rule limits visible emissions from emission sources.

Rule 303 (Nuisance): This rule states that a person shall not discharge for any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance or annoyance to any considerable number of persons or to the public or which endanger the comfort, repose, health or safety or any such persons or the public or which cause or have a natural tendency to cause injury or damage to business or property.

Rule 305 (Particulate Matter, Southern Zone): This rule prohibits the discharge into the atmosphere from any source particulate matter in excess of specified concentrations measured in grains (gr) per standard cubic foot (set).

Rule 309 (Specific Contaminants): This rule sets limits on the concentrations of discharges of combustion contaminants, including SO2, NO2, CO, CO_2, and PM.

Rule 345 (Control of Fugitive Dust from Construction and Demolition Activities): This rule applies to any activity associated with construction or demolition of a structure or structures. Activities subject to this regulation are also subject to Rule 302 (Visible Emissions) and Rule 303 (Nuisance).

Rules 801 to 809 (New Source Review – NSR): These rules apply to any applicant for a new or modified stationary source which emits or may emit any affected pollutant.

3.2 Greenhouse Gas Emissions

3.2.1 Federal

EPA is the federal agency responsible for implementing the federal CAA. The Supreme Court of the United States ruled on April 2, 2007, that CO_2 is an air pollutant as defined under the CAA, and that EPA has the authority to regulate emissions of GHGs.

3.2.1.1 Greenhouse Gas Findings Under the Federal Clean Air Act

On December 7, 2009, EPA signed two distinct findings regarding GHGs under Section 202(a) of the CAA:

- Endangerment Finding: The Administrator finds that the current and projected concentrations of the six key well-mixed greenhouse gases—CO_2, CH_4, N_2O, HFCs, PFCs, and SF_6—in the atmosphere threaten the public health and welfare of current and future generations.
- Cause or Contribute Finding: The Administrator finds that the combined emissions of these well-mixed greenhouse gases from new motor vehicles and new motor vehicle engines contribute to the greenhouse gas pollution which threatens public health and welfare.

3.2.1.2 Mandatory Greenhouse Gas Reporting Rule

On September 22, 2009, EPA published the Final Mandatory Greenhouse Gas Reporting Rule (Reporting Rule) in the Federal Register. The Reporting Rule requires reporting of GHG data and other relevant information from fossil fuel and industrial GHG suppliers, vehicle and engine manufacturers, and all facilities that would emit 25,000 metric tons (MT) or more of CO_2e per year. Facility owners are required to submit an annual report with detailed calculations of facility GHG emissions on March 31 for emissions from the previous calendar year. The Reporting Rule also mandates recordkeeping and administrative requirements to enable USEPA to verify the annual GHG emissions reports. MSW landfills (including emissions from LFG destruction devices, i.e., flares and engines) report under Subpart HH of 40 CFR Part 98.

3.2.2 State

CARB is the agency responsible for coordination and oversight of state and local air pollution control programs in California and for implementing the California CAA.

3.2.2.1 Assembly Bill 1493

AB 1493, signed in July 2002, requires CARB to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with model year 2009. In June 2009, the USEPA Administrator granted a CAA waiver of pre-emption to California. This waiver allowed California to implement its own GHG emissions standards for motor vehicles beginning with model year 2009. California agencies worked with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger car model years 2017 through 2025. However, this waiver was revoked and the GHG emission standards were relaxed with the passage of the SAFE Rule, as discussed above.

3.2.2.2 Executive Order S-3-05

Executive Order (EO) S-3-05, signed in June 2005, proclaimed that California is vulnerable to the impacts of climate change. EO S-3-05 declared that increased temperatures could reduce the Sierra Nevada's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the executive order established total GHG emissions targets. Specifically, emissions were to be reduced to 2000 levels by 2010, to 1990 levels by 2020, and to 80 percent below the 1990 levels by 2050.

3.2.2.3 Assembly Bill 32

In 2006, California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500, et seq.). AB 32 further details and puts into law the mid-term GHG reduction target established in Executive Order S-3-05: reduce GHG emissions to 1990 levels by 2020. AB 32 also identifies CARB as the state agency responsible for the design and implementation of emissions limits, regulations, and other measures to meet the target. AB 32 also established several programs to achieve GHG emission reductions, including the Low Carbon Fuel Standard and the Cap-and-Trade program. As of 2017, the state has reduced emissions below the revised AB 32 limit of 427 MMT CO_2e.[1]

3.2.2.4 Senate Bill 32

In 2016, the California State Legislature adopted Senate Bill (SB) 32 and its companion bill AB 197, and both were signed by Governor Brown (California Legislative Information). SB 32 establishes a new climate pollution reduction target of 40 percent below 1990 levels by 2030.

3.2.2.4 Assembly Bill 1279

AB 1279 establishes the policy of the state to achieve carbon neutrality as soon as possible, but no later than 2045; to maintain net negative GHG emissions thereafter; and to ensure that by 2045 statewide anthropogenic GHG emissions are reduced at least 85 percent below 1990 levels. The bill requires CARB to ensure that Scoping Plan updates identify and recommend measures to achieve carbon neutrality, and to identify and implement policies and strategies that enable CO2 removal solutions and carbon capture, utilization, and storage (CCUS) technologies.

[1] For more detail, please see https://ww2.arb.ca.gov/ghg-2020-limit and https://ww2.arb.ca.gov/ghg-inventory-graphs.

3.2.2.5 CARB Climate Change Scoping Plan

In December 2008, CARB adopted its *Climate Change Scoping Plan. A Framework for Change* (Scoping Plan), which contains the main strategies California will implement to achieve the required GHG reductions required by AB 32 (CARB 2008). The Scoping Plan also includes CARB-recommended GHG reductions for each emissions sector of California's GHG inventory. CARB further acknowledges that decisions about how land is used will have large impacts on the GHG emissions that will result from the transportation, housing, industry, forestry, water, agriculture, electricity, and natural gas emissions sectors.

CARB is required to update the Scoping Plan at least once every five years to evaluate progress and develop future inventories that may guide this process. CARB approved *First Update to the Climate Change Scoping Plan: Building on the Framework* in June 2014 (CARB 2014). The Scoping Plan update includes a status of the 2008 Scoping Plan measures and other federal, state, and local efforts to reduce GHG emissions in California, and potential actions to further reduce GHG emissions by 2020.

In November 2017, CARB released the 2017 Climate Change Scoping Plan, which establishes a framework of action for California to reduce statewide emissions by 40 percent by 2030, compared to 1990 levels (CARB 2017a). The 2017 Scoping Plan builds upon the framework established by the 2008 Scoping Plan and the 2014 Scoping Plan Update, while also identifying new, technologically feasible and cost-effective strategies to ensure that California meets its GHG reduction targets.

In December 2022, CARB prepared the Final 2022 Scoping Plan Update, which lays out a path to achieve targets for carbon neutrality and reduce anthropogenic GHG emissions by 85 percent below 1990 levels no later than 2045, as directed by Assembly Bill 1279 (CARB 2022c). The major element of the 2022 Scoping Plan is the aggressive reduction of fossil fuels wherever they are currently used in California. The 2022 Scoping Plan Update acknowledges that despite these world-leading efforts, some amount of residual emissions will remain from hard-to-abate industries such as cement, internal combustion vehicles still on the road, and other sources of GHGs, including high global warming chemicals used as refrigerants. The plan addresses these remaining emissions by re-envisioning the natural and working lands—forests, shrublands/ chaparral, croplands, wetlands, and other lands—to ensure they play as robust a role as possible in incorporating and storing more carbon in the trees, plants, soil, and wetlands. The 2022 Scoping Plan Update identifies the following objectives:

Identifies a path to keep California on track to meet its SB 32 GHG reduction target of at least 40 percent below 1990 emissions by 2030.

Identifies a technologically feasible, cost-effective path to achieve carbon neutrality by 2045 and a reduction in anthropogenic emissions by 85 percent below 1990 levels.

Focuses on strategies for reducing California's dependency on petroleum to provide consumers with clean energy options that address climate change, improve air quality, and support economic growth and clean sector jobs.

Integrates equity and protecting California's most impacted communities as driving principles throughout the document.

Incorporates the contribution of natural and working lands to the state's GHG emissions, as well as their role in achieving carbon neutrality.

Relies on the most up-to-date science, including the need to deploy all viable tools to address the existential threat that climate change presents, including carbon capture and sequestration, as well as direct air capture.

Evaluates the substantial health and economic benefits of taking action.

Identifies key implementation actions to ensure success.

3.2.2.6 Executive Order S-1-07

EO S-1-07, which was signed by then California governor Arnold Schwarzenegger in 2007, proclaims that the transportation sector is the main source of GHG emissions in California, at more than 40 percent of statewide emissions. EO S-1-07 establishes a goal that the carbon intensity of transportation fuels sold in California should be reduced by a minimum of 10 percent by 2020. CARB adopted the low carbon fuel standard (LCFS) on April 23, 2009. In November 2015, the Office of Administrative Law approved re-adoption of the LCFS.

3.2.2.7 Executive Order B-30-15

In April 2015, Governor Edmund Brown issued an EO establishing a statewide GHG reduction goal of 40 percent below 1990 levels by 2030. The emission reduction target acts as an interim goal between the AB 32 goal (i.e., achieve 1990 emission levels by 2020) and Governor Brown's EO S-03-05 goal of reducing statewide emissions 80 percent below 1990 levels by 2050. In addition, the EO aligns California's 2030 GHG reduction goal with the European Union's reduction target (i.e., 40 percent below 1990 levels by 2030) that was adopted in October 2014.

3.2.2.8 Senate Bill 350

California's Renewables Portfolio Standard (RPS) was established in 2002 under SB 1078 and accelerated in 2006 under SB 107, by requiring that 20 percent of electricity retail sales be served by renewable energy sources by 2010. Subsequent recommendations in California energy policy reports advocated a goal of 33 percent by 2020, and on November 17, 2008, then Governor Arnold Schwarzenegger signed EO S-14-08 requiring retail sellers of electricity to serve 33 percent of their load with renewable energy by 2020. In April 2011, SB X1-2 codified EO S-14-08, setting the new RPS targets at 20 percent by the end of 2013, 25 percent by the end of 2016, and 33 percent by the end of 2020 for all electricity retailers. In October 2015, Governor Edmund Brown signed SB 350, which extended the RPS target by requiring retail sellers to procure 50 percent of their electricity from renewable energy resources by 2030. This was followed by SB 100 in 2018, which further increased the RPS target to 60 percent by 2030 along with the requirement that all of the state's electricity come from carbon-free resources by 2045.

3.2.3 Santa Barbara County Air Pollution Control District

In 1997, the SBCAPCD adopted Rule 341 (Municipal Solid Waste Landfills). The purpose of this rule is to reduce emissions from municipal solid waste landfills. The rule requires that municipal solid waste landfills with a design capacity equal to or greater than 2.5 million megagrams or 2.5 million cubic meters, and a non-methane organic compound emission rate of 50 megagrams per year or more, as calculated pursuant to 40 CFR 60.754 (Test Methods and Procedures), shall install a collection and control system with specific recordkeeping, reporting, and monitoring requirements.

4. Methodologies for Evaluating Air Quality and Greenhouse Gas Emissions Impacts

The methodologies presented in this technical report are based on the following guidance documents: Santa Barbara County's *Environmental Thresholds and Guidelines Manual* (2021) and *Guidelines for Implementation of the California Environmental Quality Act of 1970* (2020), SBCAPCD's *Scope and Content of Air Quality Sections in Environmental Documents* (2022), SBCAPCD Environmental Review Guidelines (2015) and *Modeling Guidelines for Health Risk Assessments* (APCD Form -15i) (2023), and EPA's Guideline on Air Quality Models (GAQM) (2017). The methodologies utilized to evaluate air quality and GHG impacts from the Proposed Project include emissions quantification of criteria pollutants, TACs, GHGs and odors generated during short-term, temporary construction activities, and long-term operations. Methods and models used to quantify and evaluate air quality and GHG impacts are described in the following subsections.

4.1 Calculation Methodologies for Construction Emission Sources

As described in more detail in Section 1.1, Project Description, construction activities associated with the Proposed Project would include site preparation, grading, blasting, drainage improvements, and utilities relocation. These activities would result in the temporary generation of GHG and criteria air pollutant emissions, including fugitive dust PM and exhaust combustion emissions. Fugitive dust would result from on-site ground disturbance and re-entrained roadway dust from construction-related vehicles travelling on paved roadways. Exhaust emissions would be generated by heavy-duty construction equipment and vehicles, vendor and haul trucks transporting materials and equipment to and from the site, and construction worker commute trips to and from the site.

On-road and off-road construction equipment emissions and fugitive dust emissions, except for blasting activities, were estimated using California Air Pollution Control Officers Association (CAPCOA) California Emissions Estimator Model (CalEEMod), version 2022.1 (CAPCOA 2022). CalEEMod applies the CARB's OFFROAD2021 and EMFAC2021 emission inventory models and USEPA's AP-42: Compilation of Air Emissions Factors. These emissions estimates reflect project-specific construction parameters including construction schedule, daily equipment activity, material delivery trips, and construction worker commute trips. Where project-specific information was not available, regionally specific default parameters for projects in Santa Barbara County, as provided by CalEEMod, were applied, such as for worker vehicle and material delivery truck fleet mix.

Emissions associated with blasting activities were estimated using the estimated amount of explosives per blast, the approximate number of blasts per day, and number of days blasting would occur per year. There will be up to six blasting events per year which will occur during the months of March through July in 2024 and 2025. Emissions of NOx, ROG, CO, and SOx for each ton of explosive were estimated using USEPA AP-42: Compilation of Air Emissions Factors, Section 13.3, Explosives Detonation emission factors (USEPA 1995). PM emissions from blasting activities were estimated using the San Diego Air Pollution Control District Drilling and Blasting Operations emissions factors which provides pounds of PM generated per blasting event (SDAPCD 2013). GHG emissions associated with blasting activities were based on the composition of the fuel oil used in the explosive material and The Climate Registry default emission factors for calculating CO_2 emissions from combustion of fossil fuel (The Climate Registry 2021).

Additional details and modeling outputs are available in Appendix A.

4.2 Calculation Methodologies for Operations Emission Sources

Operational emissions would be generated by a variety of sources, including off-road equipment, on-road vehicle traffic on-site and off-site, as well as fugitive PM from working face activities, ROC emissions from landfill gas fugitives, fuel storage tanks, and gasoline fueling, and indirect GHG emissions from an increase in electricity consumption. Additional details and modeling outputs are available in Appendices A and B.

4.2.1 Emissions from Off-Road Equipment

Emissions from off-road equipment are based on tracked hours of operation, fuel usage, and miles traveled for fiscal year 2017-2021 by the facility. Gallons of diesel fuel used over this time period, as summarized in Table 4-1, show the amount of fuel used has decreased as newer equipment replaces older equipment at the working face of the TSL.

Table 4-1
Historical Gallons of Fuel Used for Off-Road Equipment at the Working Face

Gallons of Fuel Used	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021
Compactor 8361	10,083	12,351	1,517	3,009
Compactor 836K	21,271	17,560	2,9721	13,084
Compactor 8363	*N/A*	*N/A*	*N/A*	11,239
Compactors Total	**31,354**	**29,911**	**31,238**	**27,332**
TrashCat D9T7	6,805	6,616	6,039	*N/A*
TrashCat D9T8	16,354	14,777	12,948	7,044
TrashCat D9T9	*N/A*	*N/A*	4,201	12,268
TrashCat Total	**23,159**	**21,393**	**23,188**	**19,312**
Dozer D6N1	1,494	1,158	1,057	1,349
Dozer D6T1	5,174	2,817	3,017	2,590
Dozers Total	**6,668**	**3,975**	**4,074**	**3,939**
Total Gallons per Year	**61,181**	**55,279**	**58,500**	**50,583**

N/A - Equipment did not operate in that specific year, either was not yet onsite or has been retired.

Diesel engine emissions are calculated based on USEPA engine tier emission factors based on the engine size in horsepower and the year of engine manufacture. Adjustments to the USEPA factors are made using load factors (a measure of the faction of full engine load is used) and fuel correction factors, which are corrections made based on differences in aromatic content of California specific fuel and fuel used to set the USEPA standards (CARB 2017b).

Gasoline engine emissions are based on federal regulations and where applicable, emission factors from AP-42. SO_2 emissions from both diesel and gasoline off-road engines are based on maximum allowable regulated fuel sulfur content and a mass balance of fuel consumption. GHG emission from both diesel and gasoline off-road engines are based on emission factors from Part 98 Subpart C Tables C-1 and C-2.

Some equipment used in off-road operations are motor vehicles. These include watering trucks, a fuel truck, and various pickup trucks which are used around the facility. Emission factors were obtained from EMFAC2021 for the specific vehicle classes (LHD1, LHD2, MDV, Class 6, Class 8) based on gross vehicle weight rating and model years. Speed bins between 5-15 miles per hour (limited to 10-15 mph for Class 8 vehicles) were averaged for use. 15 miles per hour was used as the upper limit for operation based on the posted speed limit on facility grounds.

4.2.2 Emissions from Vehicle Traffic

With respect to material delivery vehicle traffic, the Proposed Project proposes to retain the current permitted volume of 184 vehicles per day. However, the permitted volume has not been achieved and the peak level recorded in the past ten years was 163 vehicles. As such, the emission estimates associated with the Proposed Project is the net difference between the permitted 184 and baseline 163 roundtrips per day (21). Emissions from on-road motor vehicles were estimated using vehicle trips, vehicle miles traveled (VMT), and EMFAC2021 mobile source emission factors, as well as AP-42 emission factors for travel on paved roads.

On-site emissions were estimated using the average number of trips per day per each route based on information provided by the COSB and the route distance. Based on information provided by the applicant, approximately 75 percent of the fleet mix is diesel-fueled, and 25 percent is natural gas-powered. As such, emission factors from EMFAC2021 were obtained for a natural gas-powered 9-ton vehicle (modeled as a T7 solid waste collection vehicle class 8 vehicle category) and a diesel-fueled 10-ton vehicle (modeled as a T7 single dump class 8 vehicle category). On-site emissions associated with the Proposed Project were estimated by calculating the net increase in vehicle trips through the various routes. Paved road dust emissions were calculated using the silt loading factor of 7.4 g/m^2 for municipal solid waste landfills from AP-42 Table 13.2.1-3 with the exception of the following road segments:

- Between Highway 101 and the access gate, a silt loading factor of 0.5 g/m^2 will be incorporated into the TSL operating permit.
- Between the access gate and the green waste area, a silt loading factor of 1 g/m^2 will be incorporated into the TSL operating permit.
- Between the green waste area and the MRF, a silt loading factor of 2.5 g/m^2 will be incorporated into the permit.

Silt sampling will be conducted on these road segments in coordination with the SBCAPCD to confirm that the lower silt loading values are met. The COSB will be purchasing a sweeper vacuum truck to conduct daily road sweeping on all paved roads at the TSL to comply with these limits. Paved road dust for Highway 101 was calculated using the silt loading factor of 0.1 g/m^2, consistent with the RC ATC 14500 10 permit.

Similarly, off-site mobile source emissions were estimated using the net increase of 21 trips per day, a vehicle fleet mix of 77 percent diesel and 23 percent natural gas, and an average round trip distance of 50 miles from the areas where the waste is collected. Emissions for off-site vehicle trips were calculated using emission factors from EMFAC2021 for the T7 solid waste collection vehicle class 8 vehicle category for the natural gas fueled trucks and T7 single dump class 8 for the diesel fueled vehicle trips.

4.2.3 Fugitive Particulate Matter from Daily Working Face Activities

Fugitive dust emissions from bulldozing, scrapers and steel-wheeled compactors and the application of daily cover at the working face are estimated based on equations from AP-42 for material handling: Section 11.9 for bulldozing and Section 13.2.4 for material drops. The seven pieces of off-road equipment at the working face operate for a total of 18.23 to 19.59 hours per day total based on actual usage data from 2017 through 2021 as shown in Table 4-2. These emissions are spread out over the nine-hour operating day. The application of the daily cover was assumed to occur one hour per day, during the last hour of activity at the working face each day prior to covering the working face with the tarps.

Table 4-2
Historical Hours of Operation for Off-Road Equipment at the Working Face

Hours of Operation per Year	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021
Compactor 8361	704	883	112	226
Compactor 836K	1,479	1,328	2,155	937
Compactor 8363	*N/A*	*N/A*	*N/A*	1,018
Compactors Total	**2,183**	**2,211**	**2,267**	**2,181**
Hours per Day	**7.02**	**7.11**	**7.29**	**7.01**
TrashCat D9T7	668	741	792	*N/A*
TrashCat D9T8	1,928	1,919	1,577	860
TrashCat D9T9	*N/A*	*N/A*	567	1,655
TrashCat Total	**2,596**	**2,660**	**2,936**	**2,515**
Hours per Day	**8.35**	**8.55**	**9.44**	**8.09**
Dozer D6N1	307	284	277	395
Dozer D6T1	759	783	614	578
Dozers Total	**1,066**	**1,067**	**886**	**973**
Hours per Day	**3.43**	**3.44**	**2.86**	**3.13**
Total Hours per Day	**18.79**	**19.10**	**19.59**	**18.23**

N/A - Equipment did not operate in that specific year, either was not yet onsite or has been retired.
Calculated based on 311 operating days per year.

The hours of operation of the off-road equipment are not expected to change as part of the Project; however, the number of vehicles transporting waste to the landfill could increase from 163 vehicles per day to the permitted level of 184 vehicles per day (12.9% increase). This increase was conservatively applied to the emissions calculations for the off-road equipment.

4.2.4 Fugitive ROG Emissions from Landfill Gas Fugitives

ROG emissions from the new landfill areas are calculated based on using methodology from 40 CFR Part 60 Subpart WWW, §60.754(a)(1)(ii) and §60.755(a)(1)(i). These calculations provide estimates of NMOC and total LFG generated from the waste in the landfill cell as a function of the amount of waste disposed, the number of years since the waste was placed in the landfill, and time since landfill closure. Default factors from AP-42 Section 2.4 of 100 for methane generation potential "Lo" and a "k" factor of 0.02 based on historical rainfall were used in the calculations. An LFG collection factor of 68% was used based on previously approved submissions to APCD. From this collection value, the volume of methane can be estimated by use of a default values of LFG containing 50% methane. Non-methane organic portion of LFG is estimated using a concentration of 170 ppmv based on the highest sampled value from November 2021 through July 2023. A non-methane organic to ROG ratio of 0.93 is used to determine ROG emissions based on APCD Rule 341 and the associated staff report. No assumption of soil oxidation is included in this ROG estimate for the portion of LFG not collected.

4.2.5 ROG Emissions from Fuel Storage Tanks

Red and clear diesel tanks, and unleaded gasoline tank and gasoline fueling sources will be relocated from their current location to an area near the MRF building. The emissions are not expected to change as part of the project. The ROG from the tanks were calculated using TANKS 4.09 as submitted with the RC 14500 10 Authority to Construct (ATC) application.

4.2.6 ROG Emissions from Gasoline Fueling

The gasoline fueling, hose permeation, breathing and spillage emissions were calculated based on approved SBCAPCD emission factors for the U2 system type and the H3 hose type as listed in Form 25-T (SBCAPCD 2023).

4.2.7 Electricity Consumption

Indirect GHG emissions from electricity consumption was calculated using TSL's existing annual electricity usage of 118,091 kilowatt-hours per year, and an anticipated total electricity consumption increase of 2 percent with project implementation, based on information provided by the COSB. As such, the Proposed Project would require approximately additional 2,362 kilowatt-hours per year. While the TSL has on-site renewable energy generation via the existing photovoltaic panels, indirect GHG emissions were conservatively estimated using the Southern California Edison general power mix GHG intensity of 580 pounds per megawatt-hours per year based on the 2021 Power Content Label (CEC 2021).

4.3 Ambient Air Dispersion Modeling

Ambient air dispersion modeling evaluates the impact of Project-related emissions of criteria pollutants (CO, NO_2, SO_2, PM_{10}, $PM_{2.5}$), ROC and toxic air contaminants (TACs) (e.g., diesel PM) along the ambient air boundary and at existing nearby sensitive receptors such as residences and schools. EPA's AERMOD model (Version 23132) was used to analyze the impacts from the Proposed Project. AERMOD was applied with default options, as described in SBCAPCD Guidance. The modeling was run with five years (2012-2016) of meteorological data from SBCAPCD's website consisting of surface observations from Las Flores Canyon (LFC) Site #4, in Goleta, California, and concurrent upper air data from Vandenberg Air Force Base in Vandenberg, California. A windrose is shown in Figure 4-1.

4.3.1 Modeling of NO_2

USEPA has developed a three-tiered approach to handle the NO to NO_2 conversion in AERMOD (for combustion sources, most NO_x emissions are NO, which converts via ozone oxidation processes to NO_2 after being emitted (USEPA 2011). The three tiers for NO_2 modeling are as follows:

Tier 1: assume immediate and full conversion of NO to NO_2. In other words, this tier assumes that all NO_x is emitted as NO_2.

Tier 2: use the Ambient Ratio Method 2 (ARM2) method, which uses a semi-empirical, conservative NO_2/NO_x ratio that is a function of total predicted NO_x.

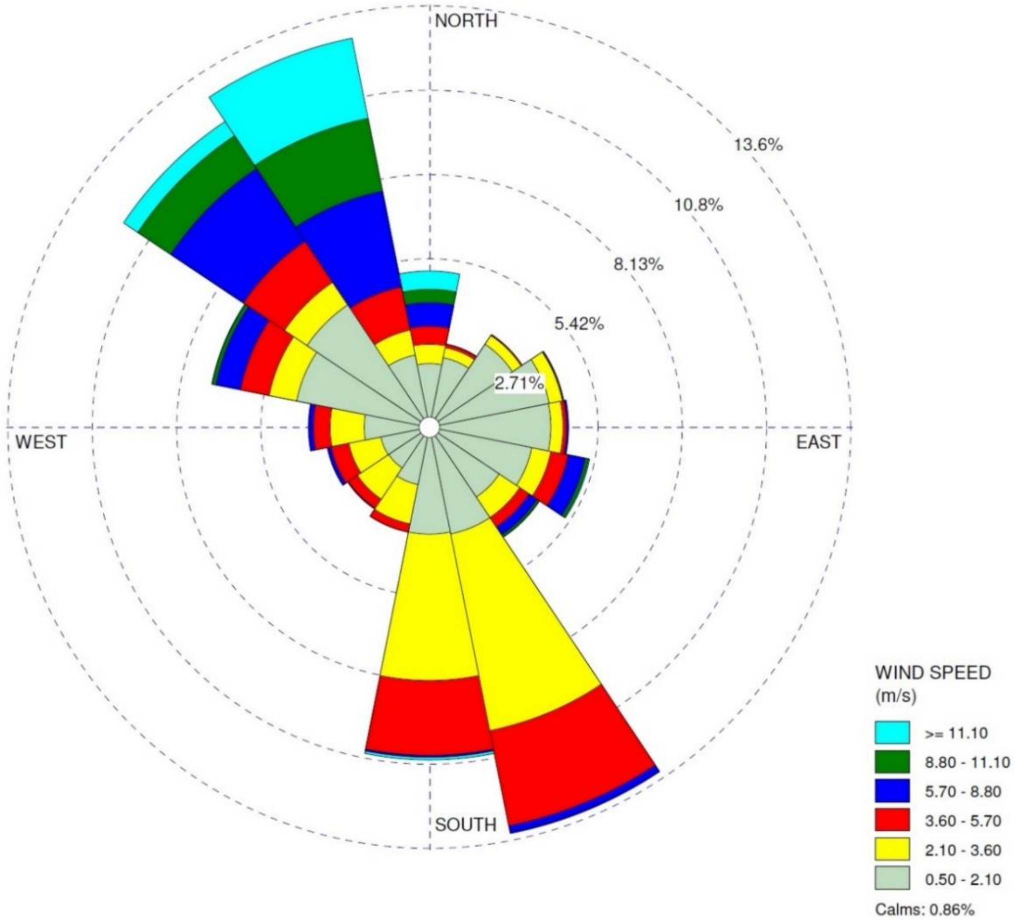
Tier 3: use either the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM). Both the PVMRM and OLM options in AERMOD account for ambient conversion of NO to NO_2 but are limited by the amount of available ozone. The conversion is based on ozone titration, which involves the interaction of NO with ambient ozone (O_3) to form NO_2 and molecular oxygen. OLM and PVMRM both assume that all O_3 measured at a representative ambient monitor will be available to oxidize NO to NO_2. The main distinction between PVMRM and OLM is the approach taken to estimate the ambient concentrations of NO and O_3 for which the ozone titration mechanism is applied. OLM applies the mechanism to the modeled ground-level concentration of NO and PVMRM applies the mechanism to the plume-average NO concentrations aloft.

The Tier 2 approach was used in this analysis with the EPA-default NO-to-NO_2 upper limit of 0.9 and lower limit of 0.5.

Figure 4-1
Las Flores Canyon Windrose

WIND ROSE PLOT:
TSL Landfill Expansion Project
5-Year (2012-2016) Wind Rose for Las Flores Canyon Site #4, Goleta, CA

DISPLAY:
Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD:	COMPANY NAME:	
	Start Date: 1/1/2012 - 00:00 **End Date: 12/31/2016 - 23:59**	**AECOM**	
		MODELER:	
	CALM WINDS: **0.86%**	TOTAL COUNT: **43844 hrs.**	
	AVG. WIND SPEED: **3.33 m/s**	DATE: **7/6/2023**	PROJECT NO.:

WRPLOT View - Lakes Environmental Software

4.3.2 Building Downwash

A Good Engineering Practice (GEP) stack height analysis was performed to determine the potential for building-induced aerodynamic downwash. The analysis procedures described in EPA's Guidelines for Determination of Good Engineering Practice Stack Height (USEPA 1985), Stack Height Regulations (40 CFR 51), and current Model Clearinghouse guidance were used. The GEP formula height is based on the observed phenomena of disturbed atmospheric flow in the immediate vicinity of a structure resulting in higher ground level concentrations at a closer proximity to the building than would otherwise occur. It identifies the minimum stack height at which significant aerodynamics (downwash) are avoided. The GEP formula stack height, as defined in the 1985 final regulations, is calculated from:

$H_{GEP} = H_{BLDG} + 1.5L$

where:

H_{GEP} is the maximum GEP stack height;

H_{BLDG} is the height of the nearby structure; and

L is the lesser dimension (height or projected width) of the nearby structure.

Both the height and width of the structure are determined from the frontal area of the structure projected onto a plane perpendicular to the direction of the wind. In all instances, the GEP stack height is based on the plane projections of any nearby building that results in the greatest justifiable height. For purposes of the GEP analysis, “nearby” refers to the “sphere of influence,” defined as five times the height or width of the building, whichever is less, downwind from the trailing edge of the structure. In the case where a stack is not influenced by nearby structures, the maximum GEP stack height is defined as 65 meters.

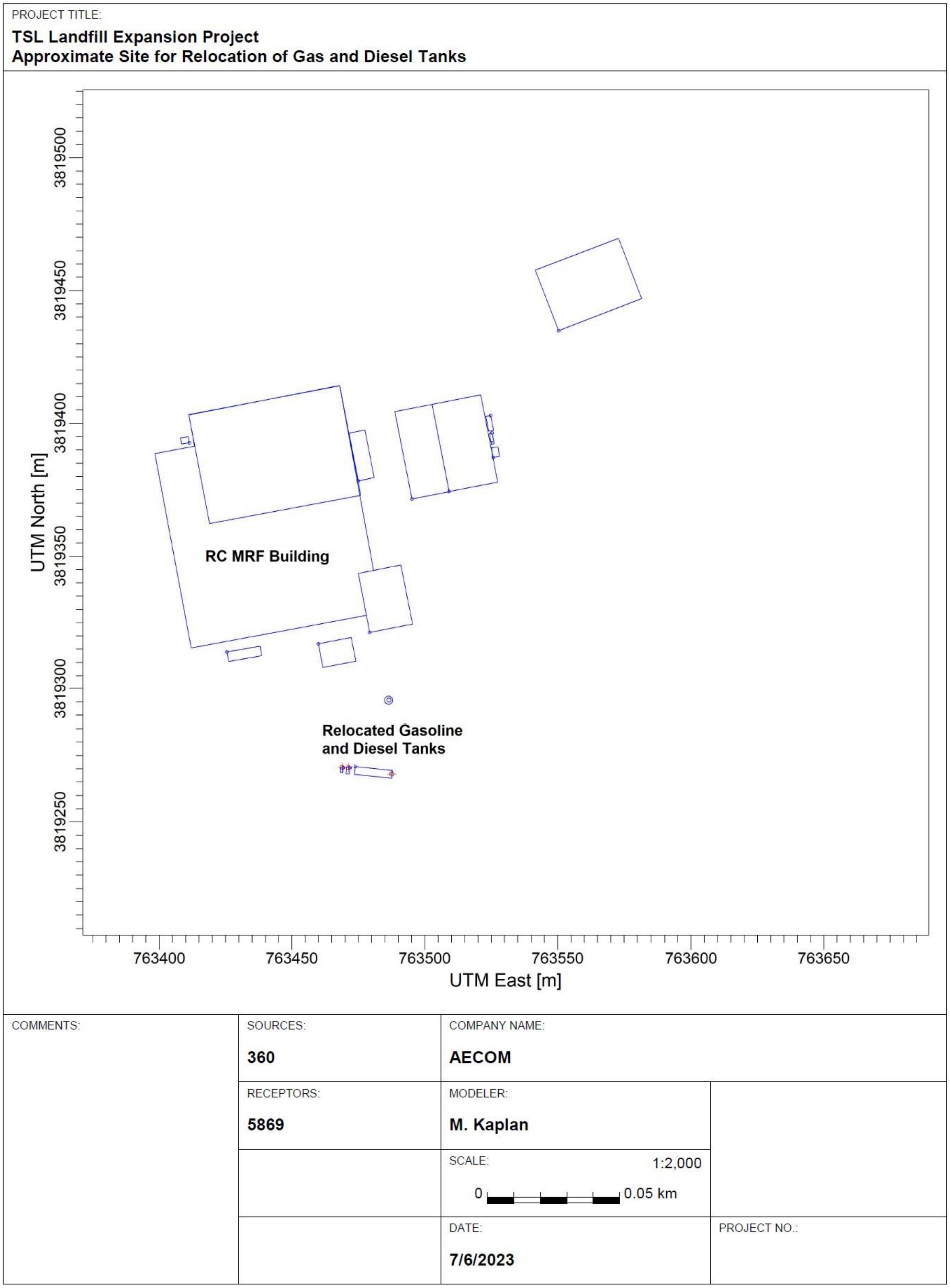
Equipment and structures that could potentially produce aerodynamic downwash of the source exhaust plumes were included in the GEP analysis and is consistent with the RC 14500 10 ATC application deemed complete in June 2023. A summary of the GEP stack height analyses for all TSL point emission sources is given in Table 4-3. All stacks are less than the GEP formula height and therefore potentially subject to building downwash. Wind direction-specific building dimensions for input to AERMOD were developed with the USEPA’s Building Profile Input Program (BPIP-PRIME Dated 04274). The BPIP input and output files are provided in the modeling archive (Appendix C). The buildings included in the BPIP analysis are shown in Figure 4-2.

Table 4-3
Summary of GEP Analysis for the Proposed TSL Capacity Increase Project

Emission Source[1]	Model Source Name	Stack Height (m)	Controlling Buildings/ Structures	GEP Formula Height (m)
Clear Diesel Tank	CLRDSL	1.60	MRF Office	39.05
Red Diesel Tank	REDDSL	3.81	MRF Office	39.05
Unleaded Gasoline Tank	UNLDGAS	1.200	MRF Office	39.05
Unleaded Gas Tank Loading	GASLOAD	3.66	MRF Office	39.05
Unleaded Gas Tank Breathing	GASBREAT	3.66	MRF Office	39.05

1 The diesel and gasoline storage tanks emit ROC and air toxics only and are, therefore, included in the ROC modeling and Health Risk Assessment but not the criteria pollutant modeling (CO, NOx, SO_2, PM_{10}, and $PM_{2.5}$).

Figure 4-2
Building Locations and Point Sources Subject to Downwash



AERMOD View - Lakes Environmental Software

4.3.3 Receptor Grid

A comprehensive Cartesian receptor grid was developed for use in the AERMOD modeling. The most recent version of USEPA's AERMAP terrain processor (version 18081) was used (USEPA 2018). The grid extends out 10 kilometers from the TSL. The receptors were spaced at the following intervals in accordance with the recommendations in Section 2.8 of the SBCAPCD modeling guidelines:

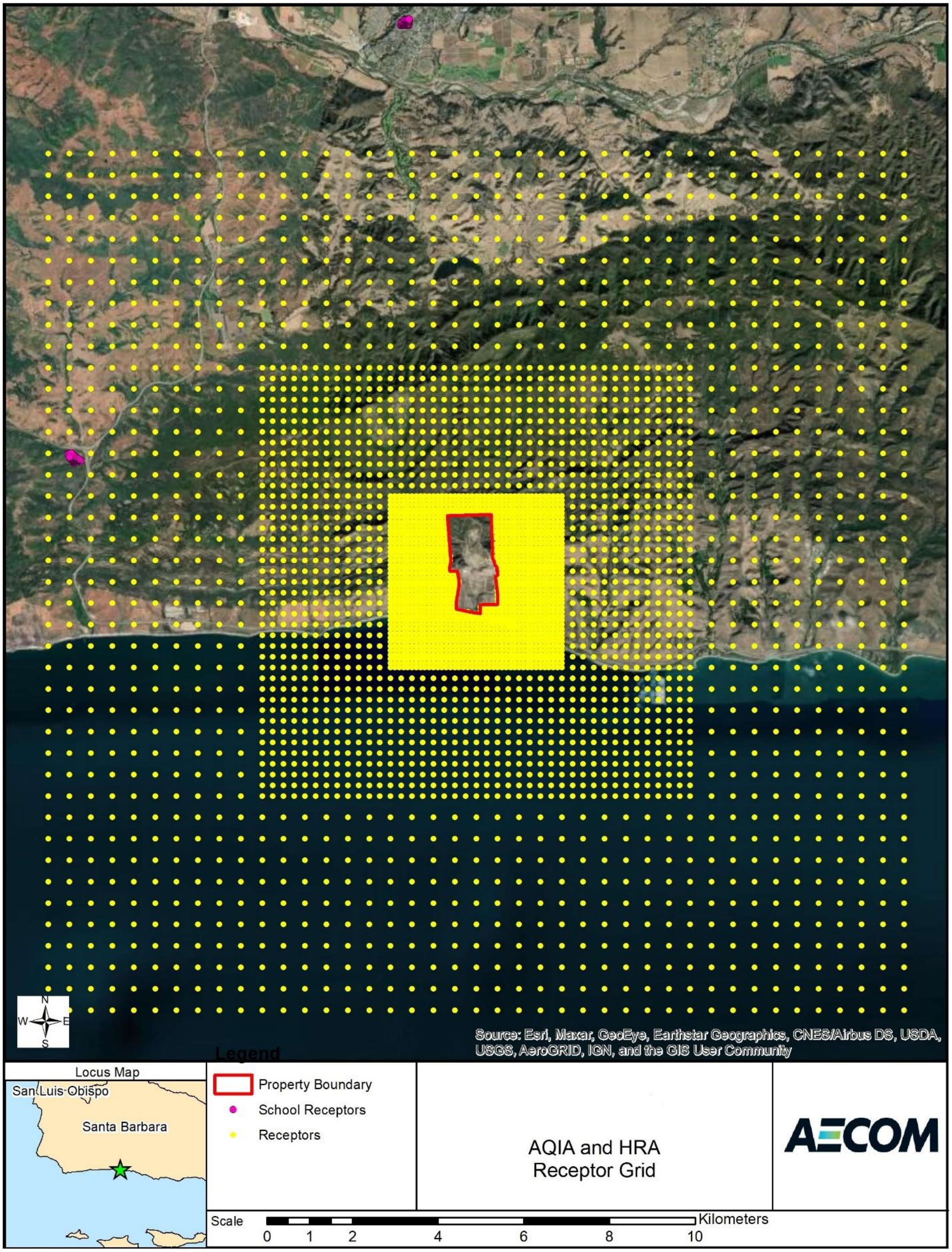
- 25-m increment along the property line;
- 100-m increment out to 2 kilometers;
- 250-m increment between 2 and 5 kilometers from the property line; and
- 500-m increment between 5 and 10 kilometers from the property line.

All receptor coordinates were in North American Datum 1983 (NAD83), Universal Transverse Mercator (UTM) Zone 10. A total of 5,869 receptors were used in the analysis and includes 30 additional receptors at the residential locations south of the facility as well as the schools listed in Table 4-4, below. The receptor grid used in the analysis is shown in Figure 4-3. For the Health Risk Assessment (HRA), all receptors were modeled with a flagpole height of 1.5 meters.

Table 4-4
School Receptor Locations

School Name	Address	Distance from TSL (km)
Vista de Las Cruces School	9467 San Julian Rd, Gaviota	9.7
Solvang School	565 Atterdag Rd, Solvang	12.5
Oak Valley Elementary School	595 2nd St, Buellton	16.7
Olive Grove Charter School	240 E Highway 246, Suite 100, Buellton	14.9
Zaca Center Preschool	27 Six Flags Circle, Buellton	15.5
Jonata Elementary/Middle School	301 2nd St, Buellton	16.1
Santa Ynez Valley Christian Academy	891 N Refugio Rd, Santa Ynez	13.6
Santa Ynez High School	2975 E Highway 246, Santa Ynez	13.8
Santa Ynez Elementary School	3325 Pine St, Santa Ynez	15.0
Santa Ynez Valley Charter School	1224 Tyndall Street, Santa Ynez	15.1
Ellwood School	7686 Hollister Avenue, Goleta	22.0
Brandon Elementary School	195 Brandon Drive, Goleta	22.0

Figure 4-3
Modeled Receptor Locations



4.3.4 Urban/Rural Dispersion Environment

One of the factors affecting input parameters to dispersion models is the assessment of the mode application and the meteorological site's land use as either rural or urban. USEPA guidance suggests that application of a model's dispersion environment as either rural or urban should be based upon the land use characteristics within 3 km of the project site(s) (USEPA Appendix W to 40 CFR Part 51). Factors that affect the rural/urban choice, include the extent of vegetated surface area, the water surface area, types of industry and commerce, density of residential areas, and building types and heights within this area.

According to Section 7.2.1.1 of USEPA's Appendix W, either a land use (Auer method) or a population density procedure should be used in determining if the model should be applied as if there is an urban vs. rural dispersion environment. For this analysis, the Auer method is used. This land-use approach classifies an area according to 12 land-use types. In this scheme, areas of industrial, commercial, and compact residential land use are designated urban. According to USEPA modeling guidelines, if more than 50 percent of an area within a 3-km radius of a site is classified as rural, and the AERMOD's urban source options would not be used. Based on visual inspection of recent satellite imagery (using Google Earth), more than 50 percent of the surrounding 3-km land use is rural. Therefore, AERMOD was run in default mode without the consideration of any urban source options.

4.3.5 Sources and Emission Data

Emission sources associated with the Proposed Project were included in the criteria pollutant modeling and the HRA. These Project sources include the 21 roundtrips per day (difference between the baseline 163 roundtrips and permitted 184 roundtrips) from the entrance to the facility to the MRF building and a subset of which (5 roundtrips per day) that would travel to the working face. The analysis also included the equipment that currently work in Area 2 (active working face) in two future locations – one representing the vertical capacity increase of the landfill (Scenario 1) and one representing the horizontal capacity increase of the landfill near the TSL's eastern property boundary (Scenario 2) as shown in Figure 4-4 and Figure 4-5. The gasoline tank and fueling as well as two diesel tanks were also included in the modeling as they are relocating from their current location near the eastern property boundary to a location near the MRF building. As this relocation will not occur until approximately 2034, the location is approximate. The following provides a description of the proposed sources. Appendix C contains the characteristics of the point, volume, and area sources. Short term and annual emissions for each source are provided in Appendix B.

4.3.5.1 Point Sources

A description of the point sources follows:

Source ID: UNLDGAS – Unleaded gasoline tank. This source emits ROC and TACs. The vent is modeled using the vent height, ambient temperature, negligible velocity, and two-inch exhaust diameter.

Source ID: CLRDSL – Clear diesel tank. This source emits ROC and TACs. The vent is modeled using the vent height, ambient temperature, negligible velocity, and two-inch exhaust diameter.

Source ID: REDDSL – Red diesel tank. This source emits ROC and TACs. The vent is modeled using the vent height, ambient temperature, negligible velocity, and two-inch exhaust diameter.

Source ID: GASLOAD – Loading of gasoline into the gasoline tank vent. This source emits ROC and TACs. The release parameters are consistent with those presented in SBCAPCD's Form 25-T.

Source ID: GASBREAT – Gasoline breathing from the gasoline tank vent. This source emits ROC and TACs. The release parameters are consistent with those presented in SBCAPCD's Form 25-T.

Figure 4-4
Scenario 1 Source Locations (Vertical Capacity Increase)

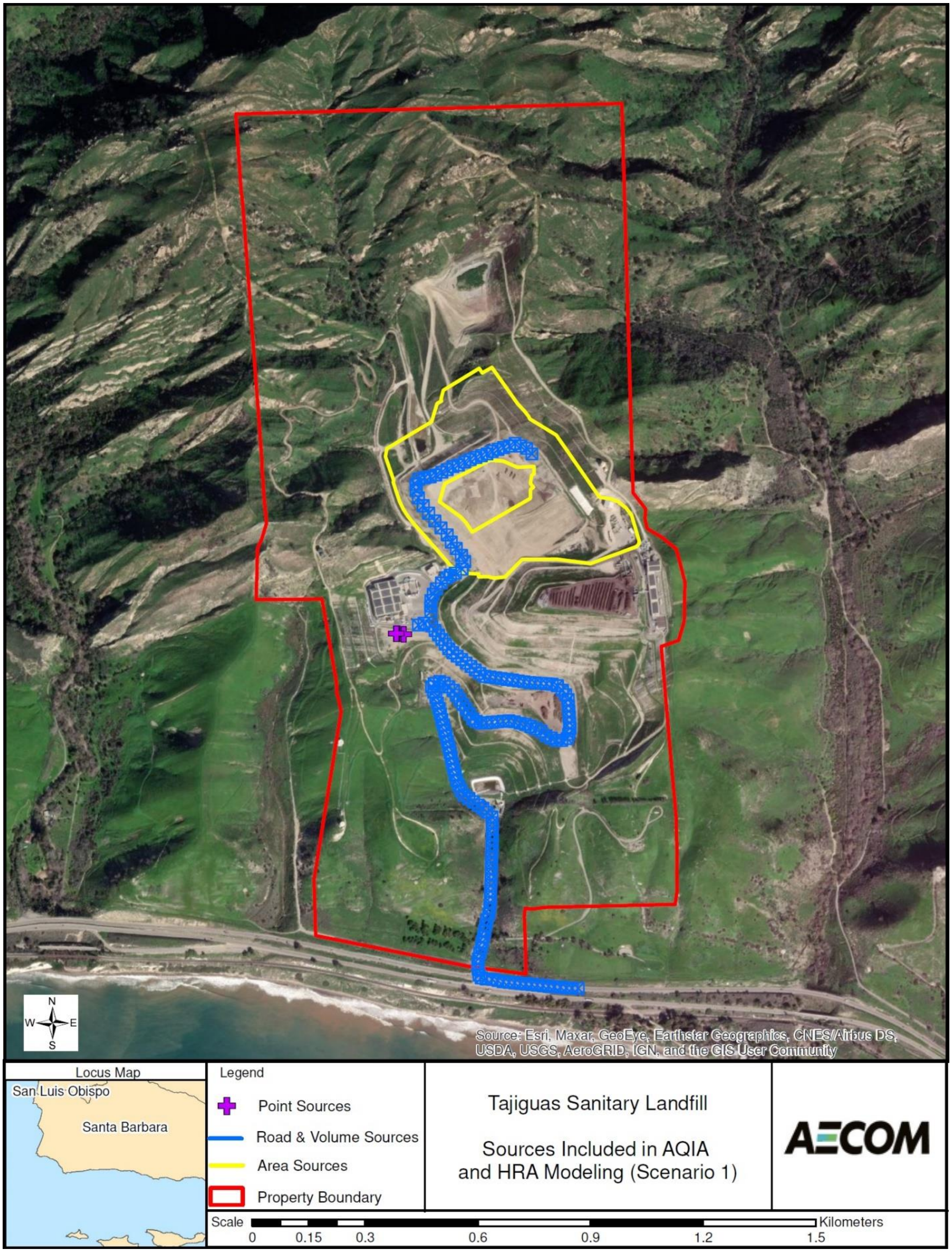
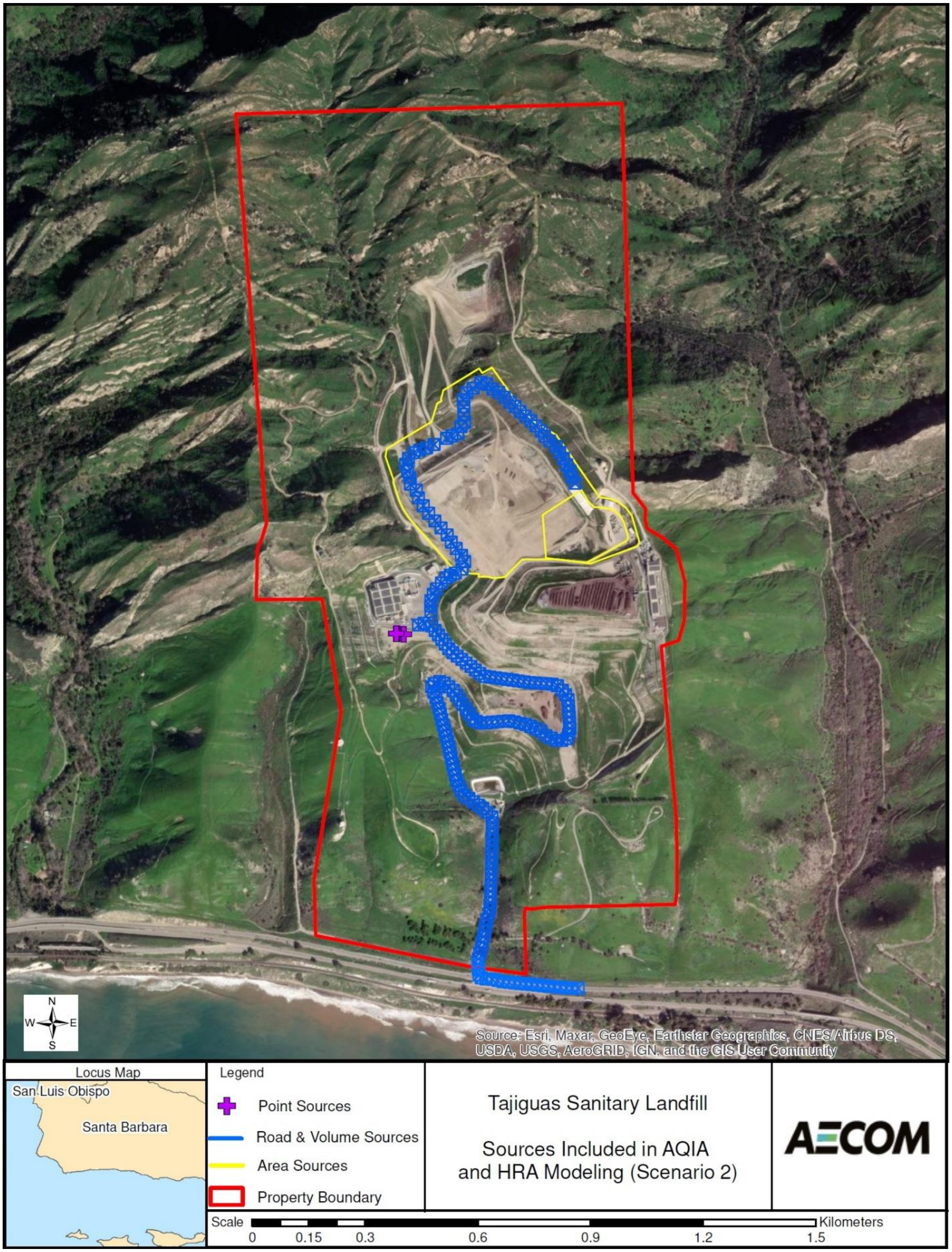


Figure 4-5
Scenario 2 Source Locations (Horizontal Capacity Increase)



4.3.5.2 Volume and Road Sources

Source ID: GASREFU – Gasoline refueling and hose permeation. This source emits ROC and TACs. The release parameters are consistent with those presented in SBCAPCD's Form 25-T.

Source ID: GASSPILL – Spillage of gasoline at the fueling site. This source emits ROC and TACs. The release parameters are consistent with those presented in SBCAPCD's Form 25-T.

Source IDs: ROAD0048-ROAD0166 (Source Group: MRFENTRY) – Paved roadway leading from the entrance at Route 101 to the MRF Building. This source emits all criteria pollutants, ROC and TACS due to vehicle exhaust and paved road dust. Release parameters are consistent with those presented in the RC ATC 14500 10 Permit. This source operates from 6AM to 5PM Monday through Saturday. Note that due to the operation of the sweeper vacuum truck that will reduce the silt loading value on this road segment, the increase in vehicle traffic will be more than offset by the reduction in fugitive road dust; however, the PM_{10} and $PM_{2.5}$ modeling files conservatively use zero emission rates.

Source IDs: HL005579-HL005625 (Scenario 1) or HL005639 (Scenario 2) (Source Group: HLROAD) – Roadway leading from the MRF Building to the working face. This source emits all criteria pollutants, ROC and TACS due to vehicle exhaust and paved road dust. Release parameters are consistent with those presented in the RC ATC 14500 10 Permit facility-wide HRA. This source operates from 7AM to 4PM Monday through Saturday.

Source IDs: HWY001-HWY021 (Source Group: HWY) – Highway 101 within 1,000 feet of the turn off to enter the TSL. This source operates from 6AM to 5PM Monday through Saturday.

4.3.5.3 Area Sources

Source ID: LFPROJ – footprint of additional landfill space for LFG collection. This source emits ROC and TACs. Release height is consistent with those presented for other area sources in the RC ATC 14500 10 Permit facility-wide HRA.

Source ID: TRSHFILL/TRSHFLL2 – future active working face locations, one at the center of the landfill (Scenario 1) and one on the east side close to the facility boundary (Scenario 2), representing the vertical and horizontal capacity increase of the landfill footprint. This source emits all criteria pollutants, ROC and TACs due to mobile equipment exhaust and fugitive dust. Release height is consistent with those presented for other area sources in the RC ATC 14500 10 application facility-wide HRA. This source operates from 7AM to 4PM Monday through Saturday.

Source ID: TRSHCVR/TRSHCVR2 - future active working face locations, one at the center of the landfill (Scenario 1) and one on the east side close to the facility boundary (Scenario 2), representing the vertical and horizontal capacity increase of the landfill footprint. This source emits PM_{10} and $PM_{2.5}$ due to soil being deposited at the working face at the end of each workday (3PM to 4PM) Monday through Saturday.

4.3.6 Representative Ambient Background Concentrations

For the Proposed Project analysis, the appropriate ambient background concentrations for each pollutant were added to the modeled impacts from the Project to account for impacts from non-Project sources. Since the mobile equipment and fugitive dust at the working face is already in operation at the TSL and would continue to do so, modeling this equipment and fugitive dust is conservative as it is already included in the ambient background concentrations. This also applies to the fugitive dust generated by daily soil cover and material movement activities. These emissions will move to new locations within the facility boundary. The background concentrations for the years 2017 through 2019 as provided by SBCAPCD were used in this analysis and are summarized in Table 4-5. While more recent data is available (2020-2022), every hour in EPA's raw data files were flagged as an exceptional event. CO, 1-hour NO_2 and SO_2 (CAAQS), 3-hour and 24-hour SO_2, annual NO_2 and SO_2, 24-hour and annual PM_{10} and annual $PM_{2.5}$ values are the maximum concentration over the three-year period. The 1-hour NO_2 and 24-hour $PM_{2.5}$ (NAAQS) values are the 98th percentile for each year averaged over the three-year period. The 1-hour SO_2 (NAAQS) values are the 99th percentile for each year averaged over the three-year period.

The LFC monitoring station data was used for all pollutants except $PM_{2.5}$, as the LFC station does not monitor $PM_{2.5}$. Goleta station data was used to determine the $PM_{2.5}$ background concentrations; the 98th percentile data was used for determining the 24-hour $PM_{2.5}$ concentration, consistent with the reporting form for the NAAQS. SBCAPCD recognizes that the background 24-hour PM_{10} concentration is above the CAAQS, and if the modeled 24-hour PM_{10} concentration is less than 10% of the CAAQS, the impact is considered less than significant.

Table 4-5
Ambient Background Concentrations

Pollutant	Averaging Period	Background Concentration (μg/m^3)
CO	1-hour	1,954.0
	8-hour	1,494.3
NO_2	1-hour (NAAQS)	15.0
	1-hour (CAAQS)	28.2
	Annual	3.3
SO_2	1-hour (NAAQS)	4.4
	1-hour (CAAQS)	5.2
	3-hour	4.2
	24-hour	1.8
	Annual	0.5
PM_{10}	24-hour	68.0
	Annual	17.0
$PM_{2.5}$	24-hour	14.9
	Annual	7.9

As the ambient background concentrations from 2017 through 2019 do not include the operations of Tajiguas ReSource Center, the sources modeled as part of the RC 14500 10 ATC modification approved in 2023 were included in the dispersion modeling for all pollutants as requested by the SBCAPCD. The ReSource Center modeling involved seven short-term operational scenarios. The modeling scenario that resulted in the maximum modeled concentration for each pollutant and averaging period was used in the two modeling scenarios for this AQIA and are listed below:

- One AD Engine Off: 3-hour SO_2 NAAQS;
- One AD Engine Start-Up: 1-hour NO_2 NAAQS, 24-hour $PM_{2.5}$ NAAQS;
- One MRF Engine Start-Up: 1-hour and 24-hour SO_2, 1-hour and 8-hour CO, 24-hour PM_{10} NAAQS; All pollutants and averaging periods for CAAQS.

4.3.7 Health Risk Assessment

The Proposed Project sources were analyzed in the HRA based on the two scenarios discussed in Section 4.3.5.

4.3.7.1 Toxic Air Contaminant (TAC) Emission Calculation Methodology

TACs would be emitted from the following on-site sources during the continued operation of the TSL:

Relocated red and clear diesel fuel tanks;

Relocated unleaded gasoline tank and fueling;

Addition of vehicle traffic during the 6AM to 7AM hour from the entrance to the MRF and potential increase in traffic to the MRF and working face.

Relocated mobile equipment (i.e., scrappers, bulldozers, and trash cats) in the expanded landfill area.

Relocated fugitive dust from bulldozing and mobile equipment movement in the expanded landfill area.

Relocated fugitive dust from daily soil cover at the working face in the expanded landfill area.

Additional LFG fugitive emissions in the expanded landfill area.

4.3.7.2 Methodology for TAC Emissions from Diesel and Gasoline Fuel Storage Tanks

TACs for diesel and gasoline storage tanks calculated using TANKS 4.09 as submitted with the RC 14500 10 ATC.

4.3.7.3 Methodology for TAC Emissions from Gasoline Fueling

TACs from gasoline fueling and dispensing are based on SBCAPCD gasoline station health risk assessment Application Form -25T and the associated spreadsheet "*Santa Barbara County Approved Emission factors for Gasoline Dispensing Facilities – April 2022*". Attachment A to Form -25T provides toxic weight percentages for calculating annual and maximum hourly emissions of seven TACs. These percentages are applied to the ROG emission factors to calculate individual toxic emissions.

4.3.7.4 Methodology for TAC Emissions from Vehicle Traffic

TACs from vehicle traffic were estimated by using emission factors for diesel stationary engines from SBCAPCD's list of approved emission factors, last published December 2023. These factors are provided in lb/1,000 gallons. There is no specific set of factors for non-stationary diesel engines, and the stationary factors were judged to be the closest fit. Fugitive dust caused by vehicle traffic is described in Section 4.3.7.6.

4.3.7.5 Methodology for TAC Emissions from Mobile Equipment

TACs from mobile diesel equipment were estimated by using emission factors for diesel stationary engines from SBCAPCD's list of approved emission factors, last published December 2023. These factors are provided in lb/1,000 gallons. There is no specific set of factors for non-stationary diesel engines, and the stationary factors were judged to be the closest fit.

4.3.7.6 Methodology for TAC Emissions from Fugitive Dust

TACs from fugitive dust caused by on-road and off-road travel, material handling, and earthmoving operations are estimated using emission factors of individual TAC pollutants. This list of factors for fugitive dust from landfill haul roads and other assorted landfill operations is from SBCAPCD's list of approved emission factors, last published December 2023. These factors are provided in units of lb of individual TAC per lb of PM (specifically not the small size fractions of PM_{10} or $PM_{2.5}$) and are applied to fugitive dust emissions calculated as PM from AP-42 methodologies.

4.3.7.6 Methodology for TAC Emissions from LFG Fugitives

TACs from landfill fugitives are calculated based on similar methodology provided for ROG emissions to determine total LFG generation and LFG fugitive emissions. TAC emissions are calculated based on the uncollected LFG fugitive emissions and concentration of individual TAC compounds. The facility has analyzed several samples of LFG which provide the composition of TAC compounds in the LFG. The most recent two rounds of sampling from 2021 and 2022 were added to previously collected data from 2009 and 2011-2013. The maximum individual component concentrations from these samples were selected. If a sample result was non-detect in all of the samples or that compound was not part of the sample analysis, the default concentration was used from AP-42.

4.3.7.7 Pollutant Concentrations

AERMOD was be run using unit emissions; specifically, each source will be modeled assuming emissions of 1 gram per second (g/s). The unitized AERMOD results for each source are output in micrograms per cubic meter per g/s [(µg/m^3)(g/s)$^{-1}$]. Maximum hourly and period average plot files generated by AERMOD, as described above, will be input to CARB's Hot Spots Analysis and Reporting Program (HARP2). With corresponding TAC emission rates for each phase of construction, the unitized AERMOD plot files will be used to calculate project concentration contributions. These concentrations will then be used to estimate the acute and long-term (chronic) effects on sensitive receptors.

4.3.7.8 Receptor Exposure and Health Risk Calculations

Exposure factors will be used to calculate doses associated with exposure to the estimated unit concentration results obtained using AERMOD. CARB created the HARP2 software (CARB 2022e) to assist in the development of emissions inventories, dispersion modeling, and risk assessment. For this project, HARP2 will be used solely to estimate acute, chronic non-cancer, and cancer risks via HARP2's Air Dispersion Modeling and Risk Tool (ADMRT Version 22118), which was developed to encapsulate the exposure factors and guidance of the 2015 OEHHA Air Toxics Hot Spots Program Guidance Manual (OEHHA 2015). HARP2 incorporates the most recent approved health data, which are contained in the Consolidated Table of OEHHA/CARB Approved HRA Health Values. The health.mdb file used by HARP2 was version 23118, dated April 28, 2023.

Cancer risk for sensitive receptors will be evaluated for an exposure duration of 30 years of project emissions, as recommended in OEHHA's 2015 guidance manual. Factors that affect the dose that a receptor would receive include, but are not limited to, age-specific daily breathing rates and exposure time, frequencies, and duration.

The general formula for calculating residential inhalation risk is as follows:

$$\mathbf{RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH}$$

Where:

$RISK_{inh\text{-}res}$	= Residential inhalation cancer risk
$DOSE_{air}$	= Daily inhalation dose (milligrams per kilogram per day [mg/kg-day])
CPF	= Inhalation cancer potency factor (mg/kg-day^{-1})
ASF	= Age sensitivity factor for a specified age group (unitless)
ED	= Exposure duration (in years) for a specified age group
AT	= Averaging time for lifetime cancer risk (years)
FAH	= Fraction of time spent at home (unitless)

The inhalation risk will be calculated in HARP2 using the OEHHA 2015–recommended default values for these parameters:

CPF	= Substance-specific
ASF	= 10 for third trimester of pregnancy to age 2; 3 for age 2 to 16; 1 for age 16 to 30
ED	= 0.25 year for third trimester; 2 years for age 0 to 2; 7 years for age 2 to 9; 14 years for age 2 to 16; 14 years for age 16 to 30
AT	= 30 years
FAH	= 1.0 (no adjustment)

The daily inhalation dose for residents is defined as:

$$\mathbf{DOSE_{air} = C_{air} \times \{BR/BW\} \times A \times EF \times 10^{-6}}$$

Where:

$DOSE_{air}$	= Dose through inhalation (mg/kg-day)
C_{air}	= Concentration in air (µg/m^3)
{BR/BW}	= Daily Breathing rate normalized to body weight (liters/kilogram body weight per day)
A	= Inhalation absorption factor (unitless)
EF	= Exposure frequency (unitless), days/365 days
10^{-6}	= Micrograms to milligrams conversion, liters to cubic meters conversion

The daily inhalation dose will be calculated in HARP2 using OEHHA 2015-recommended default values for these parameters:

C_{air}	= Concentration as calculated from AERMOD
{BR/BW}	= Risk Management Policy-derived method (i.e., 95th percentile) estimates (361 for third trimester of pregnancy; 1,090 for age 0 to 2; 745 for age 2 to 16; 335 for age 16 to 30)
A	= 1
EF	= 0.96 (350 days/365 days in a year for a resident)

The general formula for calculating worker inhalation risk is as follows:

$$\mathbf{RISK_{inh\text{-}work} = DOSE_{air} \times CPF \times ASF \times ED/AT}$$

Where:

$RISK_{inh\text{-}work}$	= Worker inhalation cancer risk
$DOSE_{air}$	= Daily inhalation dose (milligrams per kilogram per day [mg/kg-day])
CPF	= Inhalation cancer potency factor (mg/kg-day^{-1})
ASF	= 1 for working age 16 to 70 years (unitless)
ED	= 25 (years)
AT	= 70 (years)

The daily inhalation dose for worker is defined as:

$$\mathbf{DOSE_{air} = (C_{air} \times WAF) \times \{BR/BW\} \times A \times EF \times 10^{-6}}$$

Where:

$DOSE_{air}$	= Dose through inhalation (mg/kg-day)
C_{air}	= Concentration in air (µg/m^3)
WAF	= Worker air concentration adjustment factor (unitless)
{BR/BW}	= Daily Breathing rate normalized to body weight (liters/kilogram body weight per day)
A	= Inhalation absorption factor (unitless)
EF	= Exposure frequency (unitless), days/365 days
10^{-6}	= Micrograms to milligrams conversion, liters to cubic meters conversion

The daily inhalation dose will be calculated in HARP2 using OEHHA 2015-recommended default values for these parameters:

C_{air}	= Concentration as calculated from AERMOD
WAF	= 4.2 based on (24 hours/day, 8 hours/day) x (7 days/week, 5 days/week)
{BR/BW}	= OEHHA derived method (i.e., 95th percentile) estimates for age 16 to 41)
A	= 1
EF	= 0.68 (250 days/365 days in a year for a worker)

AERMOD and HARP2 programs represent the most advanced model/tool used to assess risk in the State of California, according to CARB and OEHHA. Table 4-6 summarizes the HARP2 options proposed for the HRA of the proposed project. Additional details on the health risk assessment options used in HARP2 are available in the *Modeling Protocol Tables* including in the modeling archive.

Table 4-6
Summary of HARP2 Options

Sensitive Receptor	Exposure Duration	Exposure Frequency (hours/day; days/year)	Starting Age[1]	Worker Adjustment Factor[1]	Method[2]
Residential	30 years	24; 350	Third trimester in utero	N/A	RMP using Derived Method
Worker	25 years	8; 250	16	4.2[2]	OEHHA Derived Method

Notes:

[1] Based on 8-hour workday for 5 days per week. WAF = 4.2 based on (24 hours/day, 8 hours/day) x (7 days/week, 5 days/week).
[3] OEHHA 2015.

RMP = Risk Management Policy

5. Impact Assessment Results

5.1 Criteria Pollutants

The following section is an analysis of criteria pollutant air quality impacts associated with construction and operation of the Proposed Project.

As described in Section 2.1.2, Santa Barbara County is designated as a nonattainment area under the NAAQS and CAAQS. Assessing air quality impacts for significance allows for consistency with local and regional plans, such as the Air Quality Attainment Plan (AQAP), and to improve/maintain regional air quality. Air quality thresholds of significance are intended to help determine whether a project will individually or cumulatively have a significant effect on air quality. The goal is to identify projects which may have a significant effect on air quality in Santa Barbara County, so that measures to reduce the impact can be incorporated into the project.

5.1.1 Emissions Estimates

5.1.1.1 Construction Emissions Estimates and Impacts

As described in Section 4, Santa Barbara County adopted its *Environmental Thresholds and Guidance Manual* (2021), which incorporated updated screening criteria and thresholds of significance for the purposes of evaluating impacts associated with the generation of criteria air emissions. Santa Barbara County has not established quantitative thresholds of significance for short-term construction emissions in this *Environmental Thresholds and Guidance Manual*, as the amount of NOx emissions from construction is considered to be insignificant in comparison to the overall NOx emission inventory for the County. However, the County recommends that short-term impacts of a project be discussed. SBCAPCD also recommends that construction-related NOx, ROC, PM_{10}, and $PM_{2.5}$ emissions from construction activities be quantified. Per SBCAPCD's Scope and Content of Air Quality Sections in Environmental Documents (2022), SBCAPCD uses 25 tons per year for ROC or NOx as a guideline for determining the significance of construction impacts. In addition, irrespective of the mass emission rates or size of the project, dust mitigation measures are required for all discretionary construction activities because Santa Barbara County is nonattainment for PM_{10} (SBCAPCD 2022). These standard dust control measures are to be implemented for the Proposed Project and are summarized below.

Standard Fugitive Dust Control Measures

Per SBCAPCD Scope and Content of Air Quality Sections in Environmental Documents (2022), the following measures should be required for all projects involving earthmoving activities, regardless of the project size or duration. Projects are expected to manage fugitive dust emissions such that emissions do not exceed SBCAPCD's visible emissions limit (SBCAPCD Rule 302), create a public nuisance (SBCAPCD Rule 303), and comply with the SBCAPCD's requirements and standards for particulate matter (SBCAPCD Rule 305) and visible dust (SBCAPCD Rule 345).

During construction, use water trucks, sprinkler systems, or dust suppressants in all areas of vehicle movement to prevent dust from leaving the site and from exceeding the APCD's limit of 20% opacity for greater than 3 minutes in any 60-minute period. When using water, this includes wetting down areas as needed but at least once in the late morning and after work is completed for the day. Increased watering frequency should be required when sustained wind speed exceeds 15 mph. Reclaimed water should be used whenever possible.

Onsite vehicle speeds shall be no greater than 15 miles per hour when traveling on unpaved surfaces.

Install and operate a track-out prevention device where vehicles enter and exit unpaved roads onto paved streets. The track-out prevention device can include any device or combination of devices that are effective at preventing track out of dirt such as gravel pads, pipe-grid track-out control devices, rumble strips, or wheel-washing systems.

If importation, exportation, and stockpiling of fill material is involved, soil stockpiled for more than one day shall be covered, kept moist, or treated with soil binders to prevent dust generation. Trucks transporting fill material to and from the site shall be tarped from the point of origin.

Minimize the amount of disturbed area. After clearing, grading, earthmoving, or excavation is completed, treat the disturbed area by watering, or using roll-compaction, or revegetating, or by spreading soil binders until the area is paved or otherwise developed so that dust generation will not occur. All roadways, driveways, sidewalks etc. to be paved should be completed as soon as possible.

Schedule clearing, grading, earthmoving, and excavation activities during periods of low wind speed to the extent feasible. During periods of high winds (>25 mph) clearing, grading, earthmoving, and excavation operations shall be minimized to prevent fugitive dust created by onsite operations from becoming a nuisance or hazard.

The contractor or builder shall designate a person or persons to monitor and document the dust control program requirements to ensure any fugitive dust emissions do not result in a nuisance and to enhance the implementation of the mitigation measures as necessary to prevent transport of dust offsite. Their duties shall include holiday and weekend periods when work may not be in progress. The name and telephone number of such persons shall be provided to the SBCAPCD prior to grading/building permit issuance and/or map clearance.

Table 5-1 below summarizes the criteria pollutant construction emissions from the Proposed Project and compares them to the SBCAPCD recommended guidelines. As shown in Table 5-1, construction emissions associated with implementation of the Project would be below the guidelines for evaluating construction impacts of ROC and NOx. Additional details are provided in Appendix A.

Table 5-1
Maximum Annual Construction Emissions

Description	ROC	NOx	CO	SOx	PM_{10}[2]	$PM_{2.5}$[2]
Maximum Annual Emissions (tons/year)[1]	0.63	7.93	10.16	0.18	2.14	0.53
Recommended Threshold	25	25	N/A	N/A	N/A	N/A
Significant Impact (Yes/No)	No	No	-	-	-	-

Notes: [1]Maximum annual emissions of ROC, NOx, CO, SOx, and PM2.5 would occur in 2024. Maximum annual emissions of PM10 would occur in 2033. Refer to Appendix A for additional modeling details and assumptions and a summary of annual emissions.
[2] Fugitive dust PM_{10} and $PM_{2.5}$ emissions include implementation of SBCAPCD's standard dust control measures.
SBCAPCD = Santa Barbara County Air Pollution Control District; ROC = Reactive Organic Compounds; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = particulate matter with a diameter of 10 microns or less; PM2.5 = particulate matter with a diameter of 2.5 microns or less.

5.1.1.2 Operational Emissions Estimates

The Santa Barbara County *Environmental Thresholds and Guidance Manual* (2021) considers that a project would not have a significant air quality effect on the environment for mass emissions, if operation of the project will:

- emit (from all project sources, mobile and stationary), less than the daily trigger for offsets set in the SBCAPCD New Source Review Rule, for any pollutant; and
- emit less than 25 pounds per day of NOx or ROC from motor vehicle trips only.

The daily thresholds for offsets are 240 pounds per day for NOx and ROC and 80 pounds per day for PM_{10}. These are based on the SBCAPCD's New Source Review Rule 802 for NOx and CO and County of Santa Barbara Planning and Development guidance for PM_{10}. There are no daily triggers for CO or SOx as the region is in attainment for these pollutants.

Table 5-2 shows the daily pollutant emissions generated during operation of the Proposed Project from all sources. As shown in Table 5-2, the daily emissions of ROC, NO_X, and PM_{10} from all sources and mobile sources would be below the County's thresholds of significance.

Table 5-2
Maximum Daily Operation Emissions

Source/Description	Maximum Daily Emissions (pounds/day)					
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
On-site Off-Road Diesel Equipment	0.01	1.30	6.24	0.01	0.05	0.05
Landfill Fugitives	8.00	N/A	N/A	N/A	N/A	N/A
Fugitive Dust (mobile equipment)	N/A	N/A	N/A	N/A	0.01	0.01
Fugitive Dust (daily cover)	N/A	N/A	N/A	N/A	4E-03	6E-04
On-Site and Off-site On-Road Vehicles (Motor Vehicle Trips)	0.07	6.35	23.13	0.05	-20.75[a]	-5.51[a]
Motor Vehicle Trips Emissions Proposed Project	0.07	6.35	23.13	0.05	-20.75	-5.51
Santa Barbara County CEQA Threshold for Mobile Vehicle Trips	25	25	N/A	N/A	N/A	N/A
Significant Impact (Yes/No)	No	No	-	-	-	-
Total Emissions (All Sources) Proposed Project	**8.08**	**7.65**	**29.38**	**0.06**	**-20.69**	**-5.46**
Santa Barbara County CEQA Threshold for All Sources	240	240	N/A	N/A	80	N/A
Significant Impact (Yes/No)	No	No	-	-	No	-

Notes: Refer to Appendix A for additional modeling details and assumptions and a summary of annual emissions.
ROC = Reactive Organic Compounds; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = particulate matter with a diameter of 10 microns or less; PM2.5 = particulate matter with a diameter of 2.5 microns or less; N/A or "-" = not applicable.
[a] Net PM emissions associated with on-site and off-site on-road vehicles result in an overall negative result due to the permit condition that will require daily road sweeping via a sweeper vacuum truck and silt sampling analysis (refer to Section 4.2.2 above).

5.2 Air Dispersion Modeling

AERMOD was applied with five years of meteorological data to determine maximum impacts during operation of the Project in order to evaluate compliance with the NAAQS and CAAQS. All modeling files are provided in Appendix C, the electronic modeling archive.

5.2.1 NAAQS Modeling Results

The results of the NAAQS analysis are shown in Table 5-3 for the Proposed Project. The modeled concentrations shown are the "design value" concentrations based on the form of the standard:

- For all annual modeling periods, the NAAQS concentration is the highest modeled annual average impact.
- For 1-hour NO_2 and SO_2, the NAAQS concentration is the highest 98th and 99th percentile, respectively, averaged over the five years modeled.
- For 24-hour $PM_{2.5}$, the form of the standard is the 3-year average of the 98th percentile impact. However, because EPA guidance[2] recommends adding the 5-year average of the highest modeled concentration at each receptor to the 98th percentile background, that value is what is reported here.

[2] https://www.epa.gov/sites/production/files/2020-09/documents/draft_guidance_for_o3_pm25_permit_modeling.pdf.

- For all other standards, the form of the standard is "not to be exceeded more than once per year;" therefore, the high-2nd-high impact is reported.

As shown in the tables, the modeled impacts from Project sources when combined with the appropriate ambient background, are below the NAAQS in all cases. These results are conservative as the modeling does not account for the reduction in emissions from the retirement of the existing engine and flare as part of the modeling or as part of the ambient background concentration since these sources would be part of the existing ambient background concentration.

5.2.2 CAAQS Modeling Results

The results of the CAAQS analysis for the Proposed Project are shown in Table 5-4. As seen in the table, all impacts are below the CAAQS with the exception of PM_{10}. As discussed in Section 4.3.6, SBCAPCD recognizes that the background 24-hour PM_{10} concentration is above the CAAQS, and if the modeled 24-hour PM_{10} concentration is less than 10% of the CAAQS, the impact is considered less than significant. The modeled 24-hour PM_{10} concentration is less than 10% of the CAAQS for all scenarios in publicly accessible areas. Locations where the PM_{10} concentration exceeds 10% of the CAAQS are not accessible by the general public due to rugged topography and dense vegetation. For this reason, the SBCAPCD has specified that any receptor within this area with a concentration exceeding 10% of the CAAQS can be excluded from the modeling, and the highest concentration outside of this area can be used as the maximum modeled project impact. This was detailed in an e-mail correspondence on May 8, 2023 between Charlotte Mountain of the SBCAPCD and Kevin Brown of Santa Barbara County Public Works. The e-mail is included in Appendix C. The impacts summarized in Table 5-4 follow this guidance and represent the maximum modeled concentrations from the receptors whose concentrations do not exceed 10% of the CAAQS (5 $\mu g/m^3$). These locations are shown in Figure 5-1 for Scenario 1 and Figure 5-2 for Scenario 2. As noted in Section 4.3.5.2, the operation of the sweeper vacuum truck will reduce the fugitive road dust on paved roads at the TSL. The PM_{10} and $PM_{2.5}$ modeling files do not include these reductions; therefore, the modeling results are likely conservative.

Table 5-3
AERMOD NAAQS Modeling Results (µg/m^3)

Pollutant	Avg. Period	Proposed Project Results				NAAQS
		NAAQS Conc.	Ambient Background	Total Conc.	Percent of NAAQS	
Proposed Project (Scenario 1) plus ReSource Center – Working Face in Center of Landfill						
SO_2	1-hour[2]	5.3	4.4	9.7	4.9%	196.5
	3-hour	6.7	4.2	10.9	0.8%	1300
	24-hour	1.8	1.8	3.6	1.0%	365
	Annual	0.35	0.5	0.8	1.1%	80
CO	1-hour	1,356.2	1,954.0	3,310.2	8.3%	40,000
	8-hour	194.0	1,494.3	1,688.3	16.9%	10,000
NO_2 [1]	1-hour[3]	60.1	15.0	75.1	40.0%	188
	Annual	1.4	3.3	4.7	4.7%	100
PM_{10}	24-hour	4.5	68.0	72.5	48.3%	150
$PM_{2.5}$	24-hour[3]	2.6	14.9	17.5	50.1%	35
	Annual	1.0	7.9	8.9	74.5%	12
Proposed Project (Scenario 2) plus ReSource Center – Working Face at Eastern Boundary of Landfill						
SO_2	1-hour[2]	5.3	4.4	9.7	4.9%	196.5
	3-hour	6.7	4.2	10.9	0.8%	1300
	24-hour	1.8	1.8	3.6	1.0%	365
	Annual	0.35	0.5	0.9	1.1%	80
CO	1-hour	1,801.2	1,954.0	3,755.2	9.4%	40,000
	8-hour	258.0	1,494.3	1,752.3	17.5%	10,000
NO_2 [1]	1-hour[3]	95.2	15.0	110.2	58.6%	188
	Annual	1.9	3.3	5.1	5.1%	100
PM_{10}	24-hour	4.9	68.0	72.9	48.6%	150
$PM_{2.5}$	24-hour[3]	2.7	14.9	17.6	50.2%	35
	Annual	1.1	7.9	9.0	74.7%	12

1 1-hour NO_2 impacts modeled with ARM2 Tier 2 NO_X/NO_2 conversion.
2 99th percentile averaged over five years modeled concentration. Proper form of standard is 3-year average of the 99th percentile of the daily maxima.
3 98th percentile averaged over five years modeled concentration. Proper form of standard is 3-year average of the 98th percentile of the daily maxima.

Table 5-4
AERMOD CAAQS Modeling Results (µg/m^3)

Pollutant	Avg. Period	Proposed Project Results				CAAQS
		CAAQS Conc.	Ambient Background	Total Conc.	Percent of CAAQS	
Proposed Project (Scenario 1) – Working Face in Center of Landfill						
SO_2	1-hour	12.2	5.2	17.4	2.7%	655
	24-hour	1.8	1.8	3.6	3.5%	105
CO	1-hour	1,522.2	1,954.0	3,476.2	15.1%	23,000
	8-hour	219.2	1,494.3	1,713.5	17.1%	10,000
NO_2	1-hour	159.0	28.2	187.2	55.2%	339
	Annual	1.4	3.3	4.7	8.2%	57
PM_{10}[2]	24-hour	4.98	68.0	73.0	146.0%	50
	Annual	1.1	17.0	18.1	90.3%	20
$PM_{2.5}$	Annual	1.0	7.9	8.9	74.5%	12
Proposed Project (Scenario 2) – Working Face at Eastern Boundary of Landfill						
SO_2	1-hour	12.2	5.2	17.4	2.7%	655
	24-hour	1.8	1.8	3.6	3.5%	105
CO	1-hour	1,888.6	1,954.0	3,842.6	16.7%	23,000
	8-hour	271.5	1,494.3	1,765.8	17.7%	10,000
NO_2	1-hour	202.2	28.2	230.4	68.0%	339
	Annual	1.9	3.3	5.1	9.0%	57
PM_{10}[2]	24-hour	4.92	68.0	73.4	145.8%	50
	Annual	1.09	17.0	18.1	90.4%	20
$PM_{2.5}$	Annual	1.06	7.9	9.0	74.7%	12

1 All short-term results are highest modeled value. Annual results are highest annual average.
2 Ambient background exceeds to the 24-hour CAAQS. Because the project contribution would not exceed 10% of the CAAQS and a significant PM_{10} impact was previously identified for the Tajiguas Landfill, the contribution would be considered less than significant.

Figure 5-1
Scenario 1 - Area Exceeding PM_{10} Significance Criteria

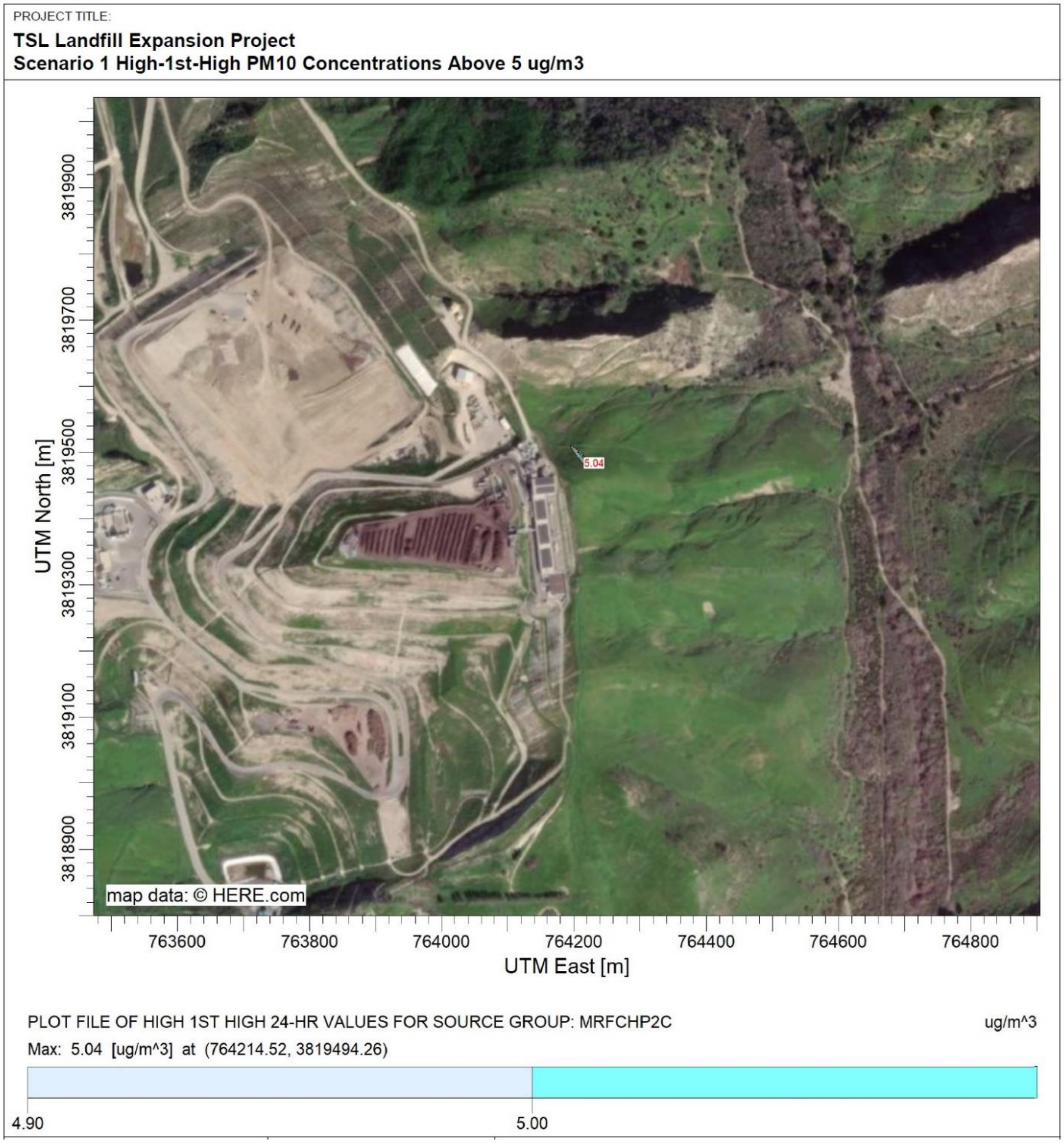
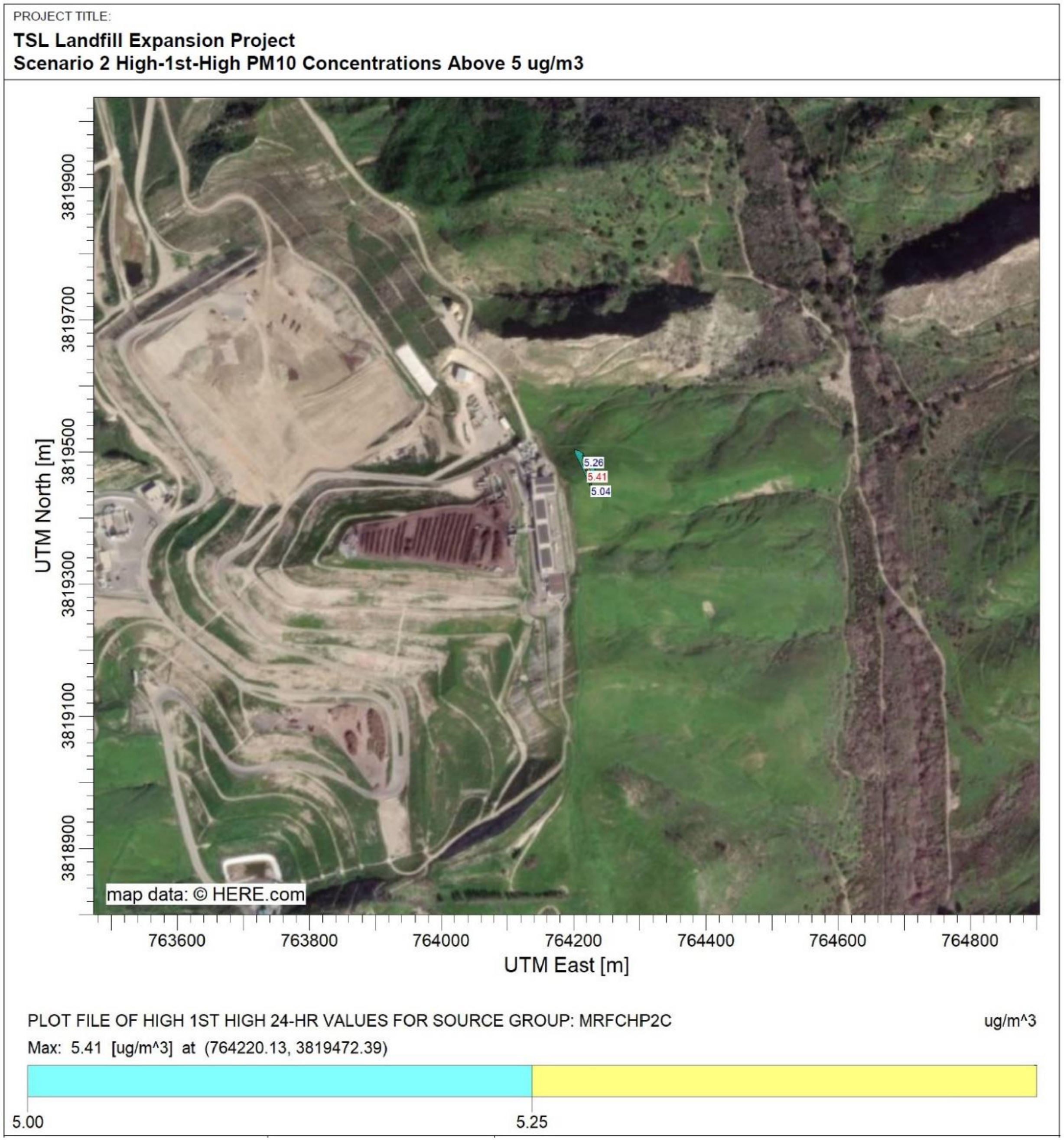


Figure 5-2
Scenario 2 - Area Exceeding PM_{10} Significance Criteria



5.2.3 ROC Ambient Air Quality Increment Analysis

The results of the ambient air quality ROC increment analysis[3] for both scenarios modeled for the Proposed Project are summarized in Table 5-5. As shown in Figure 5-3, the Maximum Increment would be exceeded southeast of the RC's ADF biofilter. The high impact is due to the ROC emitted primarily by the ADF biofilter and windrows. Less than three percent of the ROC concentration is due to the proposed Project. The locations where the increment is exceeded are not accessible by the general public due to rugged topography and dense vegetation.

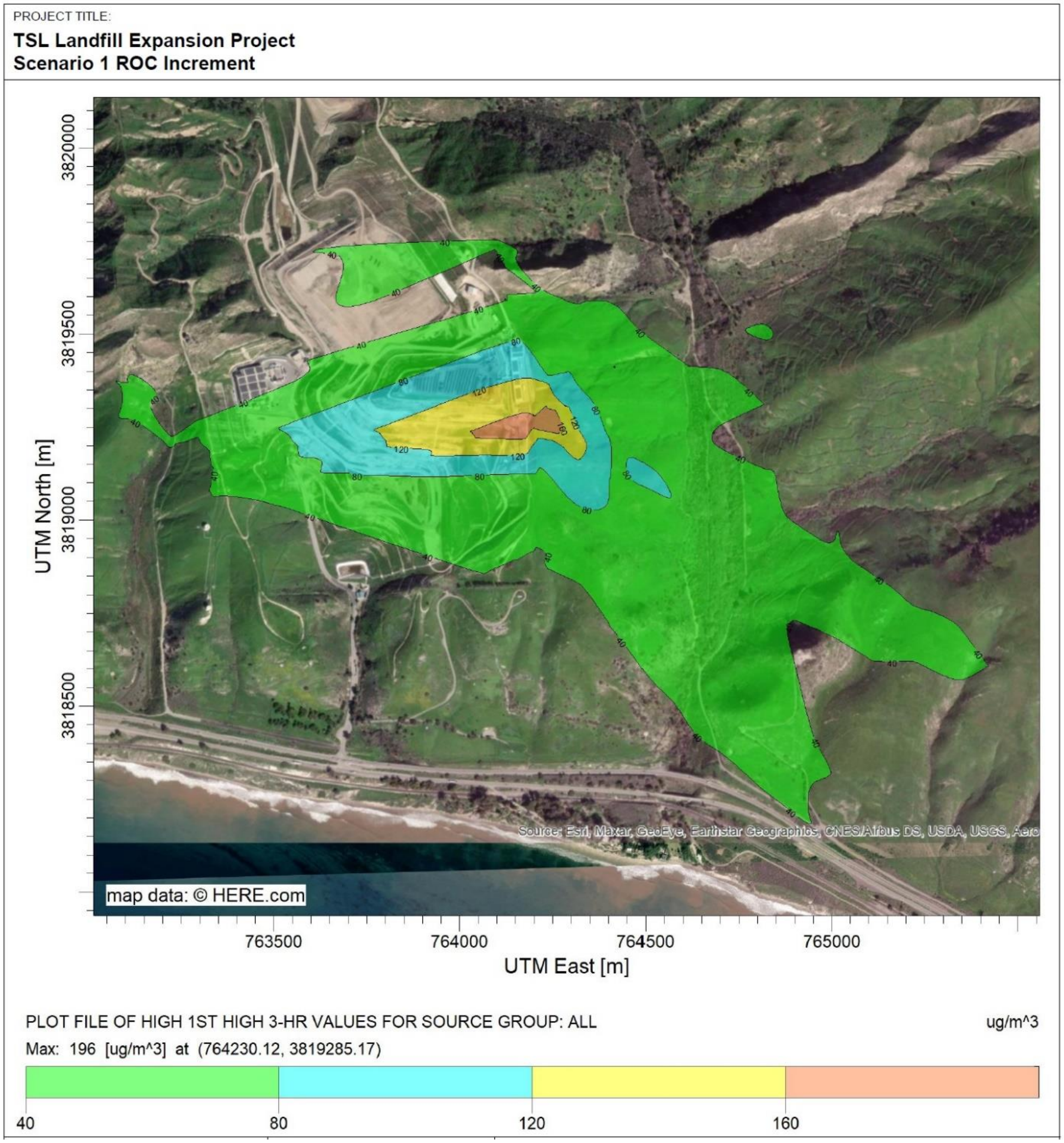
For this reason, the SBCAPCD has specified that any receptor with a concentration exceeding the maximum increment from the AQIA (160 $\mu g/m^3$) can be excluded from the modeling, and the highest concentration that is just below the increment can be used as the maximum modeled project impact. This was detailed in e-mail correspondence on May 8, 2023 between Charlotte Mountain of the SBCAPCD and Kevin Brown of Santa Barbara County Public Works. The e-mail is included in Appendix C. The impacts summarized in Table 5-5 follow this guidance and represent the maximum modeled concentrations from the receptors whose concentrations do not exceed the 160 $\mu g/m^3$ increment.

Table 5-5
AERMOD ROC Modeling Results ($\mu g/m^3$)

Scenario	Proposed Project Results Modeled Project Impact (3-hour)[1]	Minimum Increment (3-hour)[2]
Scenario 1**– Working Face at the Center of Landfill**	156.3	40
Scenario 2 **– Working Face at Eastern Boundary of Landfill**	156.3	40

[3] ROC Increment analyses are SBCAPCD requirements but are not NAAQS or CAAQS (ambient standards).

Figure 5-3
Area Exceeding ROC Minimum Increment



5.3 Health Risk Assessment

An HRA was performed accounting for the Proposed project's Scenario 1 and 2 as described in Section 4.3.5. The RC was also included in the HRA, as well as existing TSL sources that will still be in operation as part of the Project.

5.3.1 Impact Analysis

The HRA provides results for the point of maximum impact (PMI) for Acute HI (Hazard Index) impact, as well as the maximum exposed individual resident (MEIR) and maximum exposed individual worker (MEIW) for cancer, non-carcinogenic chronic health risk, and Acute HI impacts. The MEIR was identified based on the location of the maximum impact at a residence and the MEIW is located in the Arroyo Hondo Preserve west of the TSL or in the agricultural area east of the TSL. A summary of cancer risk and non-cancer health impacts values at the Acute HI PMI, MEIR and the MEIW are presented in Table 5-6. The cancer risks at the MEIR and MEIW are less than thresholds. Figure 5-4, Figure 5-5 and Figure 5-6 show the cancer risk, chronic non-cancer risk, and Acute HI, respectively, for Scenario 1. Table 5-5 summarizes the cancer risk drivers, with the highest contributors being cobalt from paved road fugitive dust, arsenic from the MRF Flare, ADF Flare, and paved road fugitive dust, and diesel PM from off-road equipment. The Acute HI driver is H_2S and arsenic.

The Acute HI, as noted the 14500 10 ATC application, is above the threshold. The RC and the TSL sources combined result in an Acute HI that exceeds the threshold using the simple acute risk methodology at 61 receptors for Scenario 1 and 79 receptors for Scenario 2. The PMI was determined to be 1.71 for Scenario 1 and 1.73 for Scenario 2 in the Central Nervous System (CNS) due to H_2S from the ADF biofilter and LFG fugitive emissions; as well as arsenic and mercury due to the paved road fugitive dust, MRF Flare, ADF Flare, and speciated diesel PM from older mobile equipment. Refined acute risk modeling was conducted for H_2S, arsenic and mercury for all receptors exceeding the threshold using the simple acute risk methodology. A summary of the receptors that exceed the threshold using the simple acute risk methodology and the resulting refined acute risk values are in Table 5-8. The detailed analysis is provided in Appendix C.

For Scenario 1 and 2, Receptors 4341, 4180, 4339 and 4340 still exceed the threshold with refined risk modeling; however, they are on the property boundary in complex/steep terrain with dense vegetation. These areas are not reasonably accessible by the public. Access into these areas is by landfill staff to conduct facility functions such as groundwater monitoring. As a result, the impacts at these receptors can be excluded from the analysis due to the location being inaccessible to the public, as confirmed by SBCAPCD inspection of the area. For this reason, the SBCAPCD has specified that any receptor with an Acute HI exceeding the threshold can be excluded from the modeling, and the highest Acute HI that is just below the threshold can be used as the maximum modeled project impact. This was detailed in e-mail correspondence on May 8, 2023 between Charlotte Mountain of the SBCAPCD and Kevin Brown of Santa Barbara County Public Works. The e-mail is included in Appendix C. The impacts summarized in Table 5-6 follow this guidance and represent the maximum Acute HI from the receptors that do not exceed the threshold. In addition for Scenario 2, Receptor 4178, in a publicly accessible area has an Acute HI of 1.002, which rounds down to 1 and does not exceed the threshold with refined risk modeling based on Appendix E of SBCAPCD's Modeling Guidance. Therefore, the Acute HI is below the threshold.

Table 5-6
Summary of Maximum Health Risk Impacts for the TSL and RC

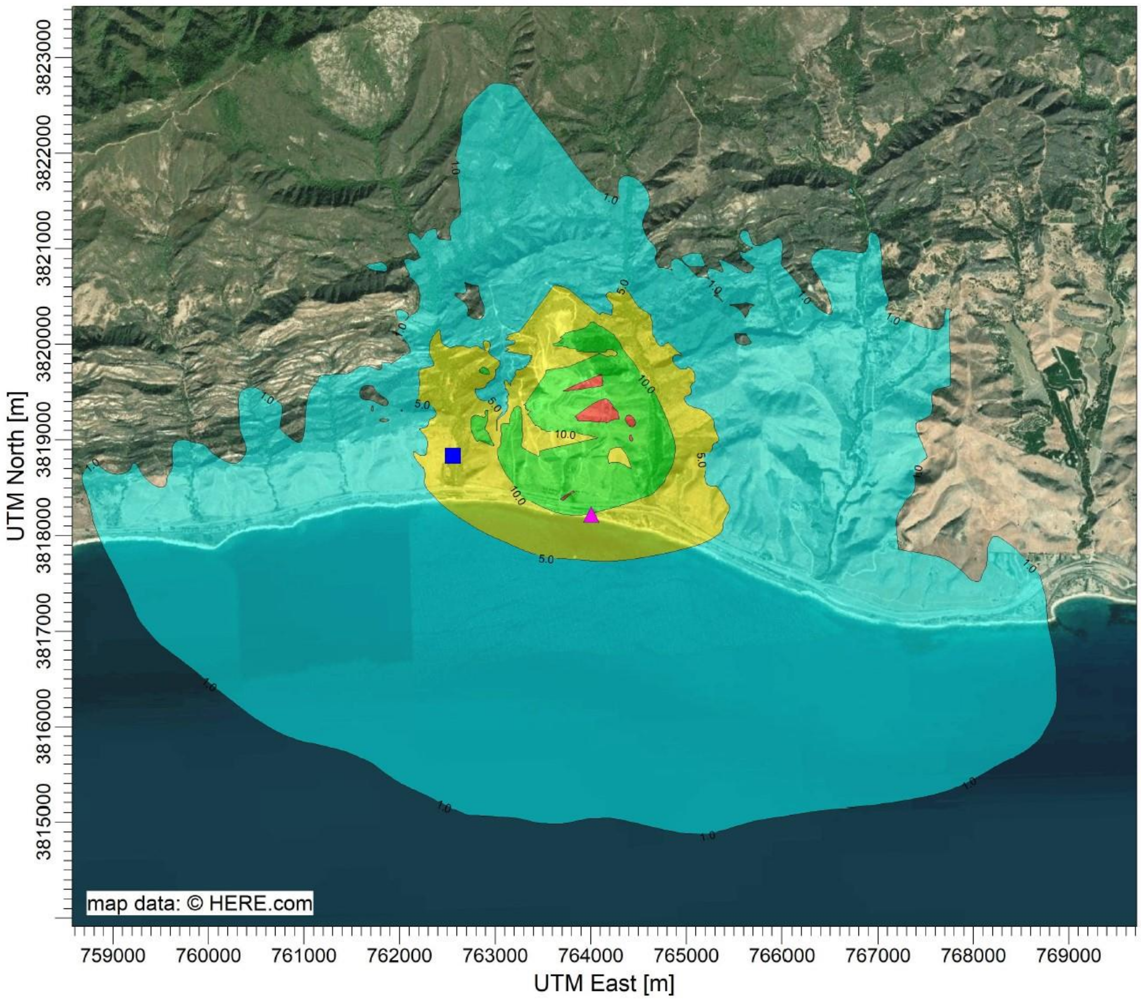
Receptor Type	Maximum Cancer Risk (per million)	Maximum Acute Hazard Index	Maximum Chronic 8-hour Risk	Maximum Chronic Hazard Index
Proposed Project (Scenario 1) – Working Face in Center of Landfill				
PMI[1]	30.67	1.0	0.10	0.61
Receptor ID	4189	4339	4294	4294
UTM X (m)	764098.79	764178.39	763706.90	763706.90
UTM Y (m)	3819643.56	3819187.22	3818379.65	3818379.65
Significance Threshold	N/A	1	N/A	N/A
MEIR[2,3]	9.76	0.90	0.04	0.25
Receptor ID	4117	4117	4117	4117
UTM X (m)	764003.76	764003.76	764003.76	764003.76
UTM Y (m)	3818221.71	3818221.71	3818221.71	3818221.71
MEIW[4]	1.90	0.68	0.02	0.09
Receptor ID	346	346	346	346
UTM X (m)	762516.94	762516.94	762516.94	762516.94
UTM Y (m)	3818810.75	3818810.75	3818810.75	3818810.75
Significance Threshold	10	1	1	1
Proposed Project (Scenario 2) – Working Face at Eastern Boundary of Landfill				
PMI[1]	34.33	1.0	0.12	0.61
Receptor ID	4189	4178	4294	4294
UTM X (m)	764098.79	764213.93	763706.90	763706.90
UTM Y (m)	3819643.56	38187481.44	3818379.65	3818379.65
Significance Threshold	N/A	1	N/A	N/A
MEIR[2]	9.69	0.91	0.04	0.25
Receptor ID	4117	4117	4117	4117
UTM X (m)	764003.74	764003.74	764003.74	764003.74
UTM Y (m)	3818221.71	3818221.71	3818221.71	3818221.71
MEIW[3]	1.88	0.68	0.02	0.09
Receptor ID	346	346	346	346
UTM X (m)	762516.94	762516.94	762516.94	762516.94
UTM Y (m)	3818810.75	3818810.75	3818810.75	3818810.75
Significance Threshold	10	1	1	1

1 PMI: Point of maximum impact at any off-site location.
2 MEIR: Maximum exposed individual at an existing residential receptor; 30-year adult exposure scenario for cancer risk.
3 MEIW: Maximum exposed individual at an existing occupational worker receptor; 25-year adult worker exposure scenario for cancer risk.

Figure 5-4
Scenario 1 Cancer Risk Due to RC and TSL Sources

PROJECT TITLE:

TSL Landfill Expansion Project
Scenario 1 Residential Cancer Risk



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Max: 30.7 at (764098.79, 3819643.56)

1.0 5.0 10.0 20.0

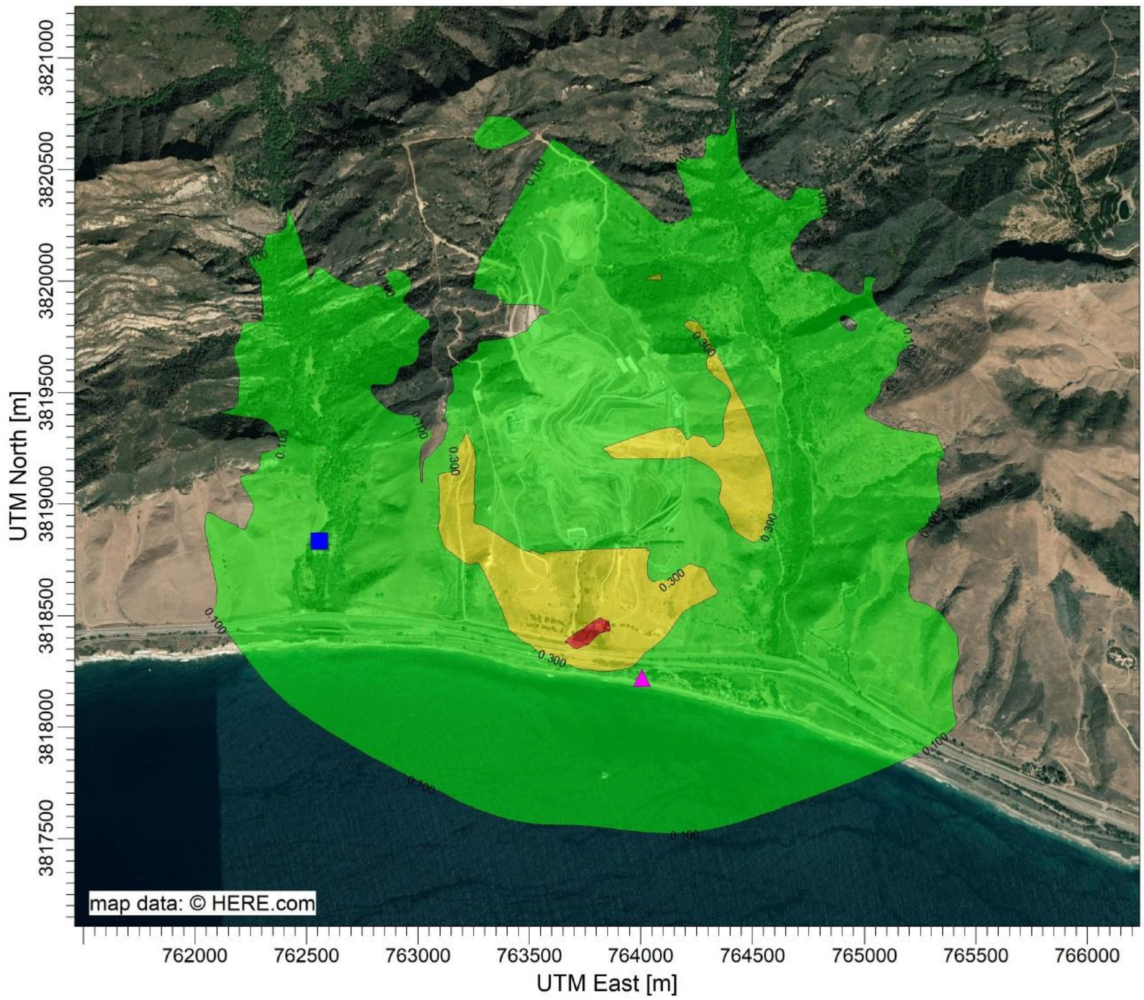
COMMENTS:	SOURCES:	COMPANY NAME:	
MEIW - Blue Square MEIR - Purple Triangle	**210**	**AECOM**	
	RECEPTORS: **5869**	MODELER: **M. Kaplan**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:70,000 0 2 km	
	MAX: **30.7**	DATE: **2/29/2024**	PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure 5-5
Chronic Non-Cancer Risk Due to RC and TSL Sources

PROJECT TITLE:

TSL Landfill Expansion Project
Scenario 1 Residential Chronic Risk



PLOT FILE OF PERIOD VALUES FOR SOURCE GROUP: ALL

Max: 0.609 at (763706.90, 3818379.65)

0.100 | 0.300 | 0.500

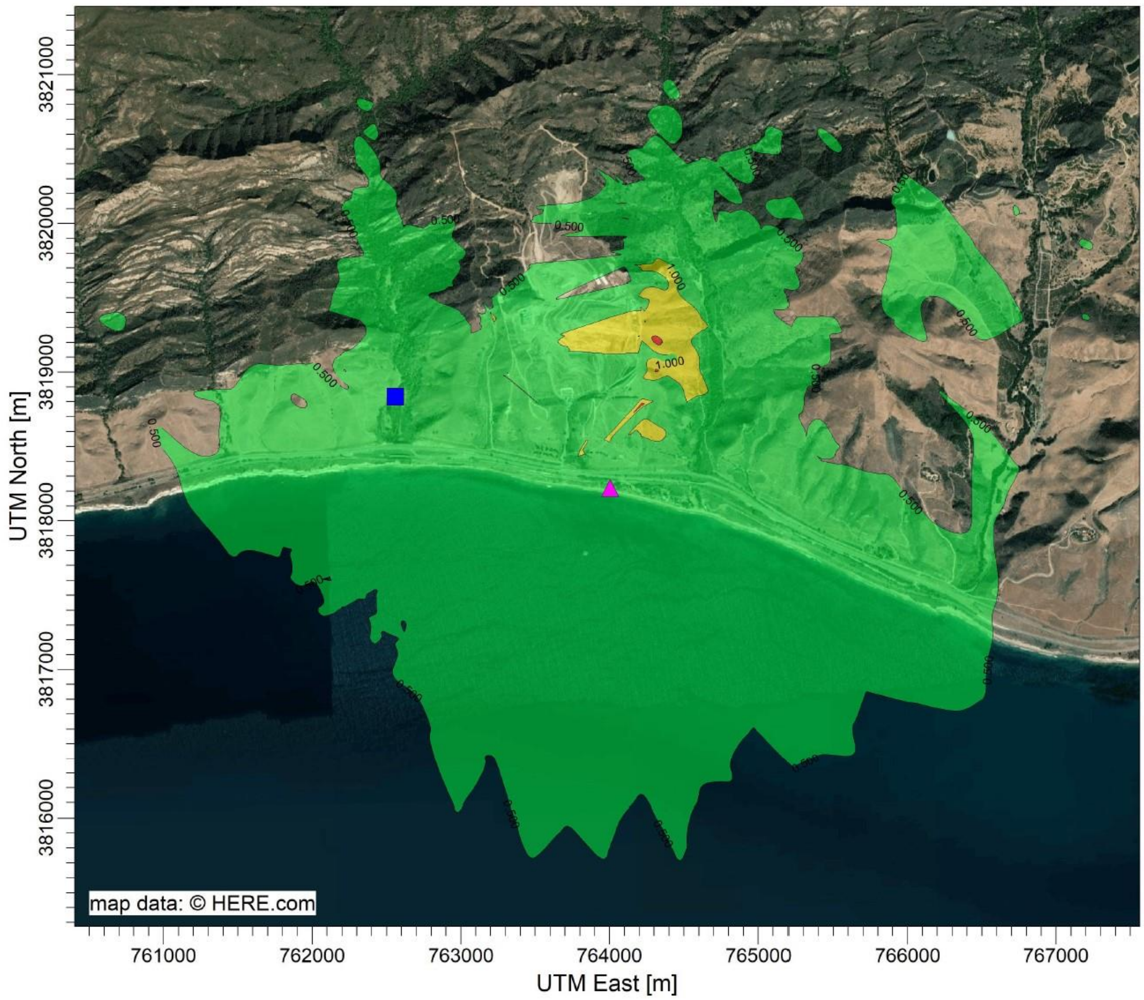
COMMENTS:	SOURCES:	COMPANY NAME:	
MEIW - Blue Square MEIR - Purple Triangle	**210**	**AECOM**	
	RECEPTORS: **5869**	MODELER: **M. Kaplan**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:30,000 0 — 1 km	
	MAX: **0.609**	DATE: **2/29/2024**	PROJECT NO.:

AERMOD View - Lakes Environmental Software

Figure 5-6
Acute Hazard Index Due to RC and TSL Sources

PROJECT TITLE:

TSL Landfill Expansion Project
Scenario 1 Acute Risk



PLOT FILE OF HIGH 1ST HIGH 1-HR VALUES FOR SOURCE GROUP: ALL

Max: 1.709 at (764213.93, 3818781.44)

0.500 1.000 1.500

COMMENTS:	SOURCES:	COMPANY NAME:	
MEIW - Blue Square MEIR - Purple Triangle	**210**	**AECOM**	
	RECEPTORS: **5869**	MODELER: **M. Kaplan**	
	OUTPUT TYPE: **Concentration**	SCALE: 1:45,000 0 — 1 km	
	MAX: **1.709**	DATE: **2/29/2024**	PROJECT NO.:

AERMOD View - Lakes Environmental Software

Table 5-7
Residential Cancer Risk Drivers for RC and TSL Sources – Scenario 1

CAS	TAC	Total Cancer Risk	Inhalation	Soil	Dermal	Mother's Milk	Home Grown Produce	Chickens	Eggs	1ST DRIVER	2ND DRIVER
7440484	Cobalt	2.99E-06	2.99E-06	--	--	--	--	--	--	INH	
7440382	Arsenic	2.21E-06	1.46E-07	1.08E-06	5.25E-08	--	9.34E-07	1.37E-11	2.92E-11	SOIL	HGP
9901	DieselExhPM	9.99E-07	9.99E-07	--	--	--	--	--	--	INH	
107131	Acrylonitrile	7.47E-07	7.47E-07	--	--	--	--	--	--	INH	
18540299	Cr(VI)	4.73E-07	2.70E-07	4.67E-09	1.79E-10	--	1.99E-07	--	--	INH	HGP
7440439	Cadmium	3.17E-07	3.17E-07	--	--	--	--	--	--	INH	
71432	Benzene	3.12E-07	3.12E-07	--	--	--	--	--	--	INH	
7439921	Lead	2.68E-07	1.60E-08	1.91E-07	4.65E-09	3.46E-09	5.28E-08	1.15E-11	2.95E-12	SOIL	HGP
106990	1,3-Butadiene	2.62E-07	2.62E-07	--	--	--	--	--	--	INH	
100414	Ethyl Benzene	2.28E-07	2.28E-07	--	--	--	--	--	--	INH	
91203	Naphthalene	1.81E-07	1.81E-07	--	--	--	--	--	--	INH	
106467	p-DiClBenzene	1.78E-07	1.78E-07	--	--	--	--	--	--	INH	
75014	Vinyl Chloride	1.05E-07	1.05E-07	--	--	--	--	--	--	INH	
79345	TetraClEthane	9.40E-08	9.40E-08	--	--	--	--	--	--	INH	
107062	EDC	6.70E-08	6.70E-08	--	--	--	--	--	--	INH	
50328	B[a]P	6.03E-08	1.55E-09	5.65E-09	1.41E-09	1.34E-08	3.82E-08	6.83E-14	2.46E-14	HGP	MMILK
7440020	Nickel	5.52E-08	5.52E-08	--	--	--	--	--	--	INH	
56235	CCl4	4.35E-08	4.35E-08	--	--	--	--	--	--	INH	
50000	Formaldehyde	2.94E-08	2.94E-08	--	--	--	--	--	--	INH	
127184	Perc	2.56E-08	2.56E-08	--	--	--	--	--	--	INH	
53703	D[a,h]anthracen	2.17E-08	1.63E-09	1.93E-09	4.81E-10	4.59E-09	1.31E-08	2.33E-14	8.41E-15	HGP	MMILK

CAS	TAC	Total Cancer Risk	Inhalation	Soil	Dermal	Mother's Milk	Home Grown Produce	Chickens	Eggs	1ST DRIVER	2ND DRIVER
79005	1,1,2TriClEthan	2.13E-08	2.13E-08	--	--	--	--	--	--	INH	
100447	Benzyl Chloride	1.82E-08	1.82E-08	--	--	--	--	--	--	INH	
106934	EDB	1.14E-08	1.14E-08	--	--	--	--	--	--	INH	

Table 5-8
Summary of Simple and Refined Acute Risk Impacts for the RC and TSL Sources

Receptor #	S1 Simple Acute Risk	S1 Refined Acute Risk	Receptor #	S2 Simple Acute Risk	S2 Refined Acute Risk
225	1.03	0.76	225	1.02	0.74
818	1.02	0.65	753	1.00	0.72
820	1.06	0.62	818	1.05	0.68
850	1.13	0.76	820	1.07	0.61
854	1.58	0.83	827	1.02	0.79
856	1.71	0.92	849	1.00	0.67
857	1.16	0.76	850	1.14	0.76
858	1.46	0.67	854	1.58	0.83
859	1.26	0.59	856	1.70	0.89
861	1.08	0.58	857	1.15	0.76
895	1.10	0.87	858	1.51	0.68
897	1.23	0.94	859	1.31	0.61
898	1.03	0.60	861	1.11	0.59
899	1.13	0.64	895	1.10	0.85
900	1.08	0.72	897	1.21	0.92
901	1.02	0.60	898	1.06	0.60
902	1.00	0.60	899	1.18	0.64
934	1.00	0.69	900	1.11	0.72
935	1.04	0.81	901	1.03	0.59
936	1.10	0.94	902	1.03	0.60
937	1.06	0.88	935	1.04	0.78
938	1.02	0.79	936	1.09	0.90
939	1.13	0.77	937	1.05	0.86
940	1.13	0.74	938	1.02	0.79
976	1.04	0.89	939	1.19	0.77
980	1.04	0.68	940	1.15	0.74
1187	1.01	0.69	976	1.04	0.85
4108	1.09	0.58	980	1.07	0.68
4113	1.24	0.62	1019	1.00	0.75
4174	1.01	0.65	1110	1.00	0.75
4175	1.03	0.66	1187	1.01	0.68
4176	1.19	0.81	4084	1.03	0.70
4178	1.71	0.98	4107	1.05	0.82
4180	1.39	1.19[1]	4108	1.13	0.57
4181	1.13	0.90	4113	1.26	0.64
4182	1.10	0.92	4116	1.01	0.71
4183	1.06	0.72	4167	1.00	0.71
4241	1.38	0.82	4168	1.01	0.71
4257	1.02	0.75	4169	1.01	0.71
4302	1.01	0.70	4170	1.00	0.71
4303	1.01	0.69	4171	1.02	0.70
4304	1.00	0.67	4172	1.03	0.71
4308	1.00	0.69	4173	1.01	0.66
4309	1.02	0.68	4174	1.04	0.67
4318	1.00	0.65	4175	1.06	0.69

4319	1.02	0.65	4176	1.22	0.83
4320	1.05	0.68	4178	1.73	1.00[2]
4324	1.18	0.59	4180	1.45	1.24[1]
4337	1.08	0.90	4181	1.20	0.96
4338	1.13	0.94	4182	1.16	0.97
4339	1.21	1.01[1]	4183	1.13	0.76
4340	1.32	1.12[1]	4241	1.36	0.77
4341	1.53	1.32[1]	4257	1.05	0.77
4342	1.15	0.92	4301	1.02	0.71
4343	1.17	0.95	4302	1.03	0.71
4344	1.10	0.89	4303	1.02	0.71
4346	1.09	0.78	4304	1.03	0.70
4347	1.10	0.76	4305	1.00	0.72
4351	1.01	0.52	4308	1.03	0.71
4372	1.01	0.62	4309	1.03	0.69
4376	1.03	0.68	4318	1.03	0.67
			4319	1.05	0.68
			4320	1.08	0.70
			4324	1.20	0.61
			4337	1.12	0.92
			4338	1.17	0.97
			4339	1.26	1.05[1]
			4340	1.38	1.17[1]
			4341	1.60	1.38[1]
			4342	1.22	0.98
			4343	1.23	1.00[1]
			4344	1.17	0.93
			4345	1.04	0.77
			4346	1.14	0.82
			4347	1.16	0.81
			4348	1.02	0.74
			4351	1.07	0.53
			4372	1.01	0.64
			4376	1.07	0.74
			4319	1.05	0.68

[1] Inaccessible area due to terrain and vegetation.
[2] Rounds down to 1.0 based on SBCAPCD guidance.

5.4 Odors

5.4.1 Construction

Sources that may emit odors during construction activities include exhaust from diesel off-road equipment and heavy-duty trucks and ROCs that may be generated as excavation occurs, which could be considered offensive to some individuals. Odors from these sources would be localized and generally confined to the immediate area surrounding the Project site. Because of the amount and types of equipment and the highly diffusive properties of diesel exhaust and ROCs, nearby receptors would not be affected by construction-related diesel exhaust odors or other construction activities.

5.4.2 Operation

Since implementation of the Project would allow for an increased capacity to reach a projected refuse disposal filling date of December 2038, and the project type is a typical land use that may generate odors, the Proposed Project would have the potential to result in other emissions, such as those leading to odors that would affect a nearby residents. However, as mentioned previously, the landfill waste disposal, as compared to operation of the ADF and CMU, has not been a source of odor complaints. The CMU has recently initiated a new covering system to address previous odor concerns. Nuisance controls currently implemented at the landfill including minimizing the area of the working face, burying odorous load quickly when received, applying a soil or ADC cover over the working face at the end of each day, collecting and managing LFG, etc. would continue to be implemented for landfilling operations under the Proposed Project. Therefore, the increased capacity associated with the Proposed Project would not result in other emissions, such as those leading to odors, affecting a considerable number of people.

5.5 Greenhouse Gas Emissions

In the *Environmental Thresholds and Guidance Manual* (2021), Santa Barbara County's Environmental Thresholds and Guidance Manual incorporated thresholds of significance for the purposes of evaluating impacts associated with the generation of GHG emissions. The threshold applicable to the proposed project is the County's Industrial Stationary Source Threshold, adopted by the County Board of Supervisors on May 19, 2015, and applicable to both industrial sources subject to discretionary approvals by the County, where the County is the CEQA lead agency. The County's Industrial Stationary Source Threshold is 1,000 MT CO_2e per year.

Table 5-9 presents the total GHG emissions associated with implementation of the Proposed Project. As shown in Table 5-9, implementation of the Proposed Project would exceed the applicable threshold of significance.

As shown in Table 5-9, the maximum annual construction related GHG emissions of 1,401 MT CO_2e would occur in 2024. However, it should be noted that these maximum annual emissions would not overlap with the peak operational years. Nevertheless, the following best management practices and SBCAPCD recommended measures are listed below to reduce construction-related exhaust emissions.

Table 5-9
Proposed Project GHG Emissions

Description/Year	CO2e (Metric Tons)
Construction	
2024	1,401
2025	685
2027	141
2029	271
2033	757
2036	153
2037	175
Maximum Annual Construction-Related Emissions	**1,401**
Operations	
Indirect Electricity-Related GHG Emissions	<1
Net On-Site and Off-site Mobile Source Emissions	641
Net Landfill Gas Fugitives (difference in peak years 2025 (existing landfill permitted space) and 2038 (Project))	3,456
Net Indirect GHG from combustion control of LFG (difference in peak years 2025 (existing landfill permitted space) and 2038 (Project))	536
Total Operational GHG Emissions	**3,992**
Stationary Source Threshold	1,000
Significant Impact (Yes/No)	Yes

Notes:

Refer to Appendix A for additional modeling details and assumptions and a summary of annual emissions.

GHG = greenhouse gases; CO_2e = carbon dioxide equivalents.

Recommended Construction Equipment Exhaust Reduction Measures

Improve fuel efficiency from construction equipment:

- Minimize idling time either by shutting equipment off when not in use or reducing the time of idling to no more than 3 minutes (5-minute limit is required by the state airborne toxics control measure [Title 13, sections 2449(d)(3) and 2485 of the California Code of Regulations]).
- Provide clear signage that posts this requirement for workers at the entrances to the site.
- Maintain all construction equipment in proper working condition according to manufacturer's specifications. The equipment must be checked by a certified mechanic and determined to be running in proper condition before it is operated.
- Train equipment operators in proper use of equipment.
- Use the proper size of equipment for the job.
- Use equipment with new technologies (repowered engines, electric drive trains).
- Diesel equipment meeting the CARB Tier 3 or higher emission standards for off-road heavy-duty diesel engines should be used to the maximum extent feasible.

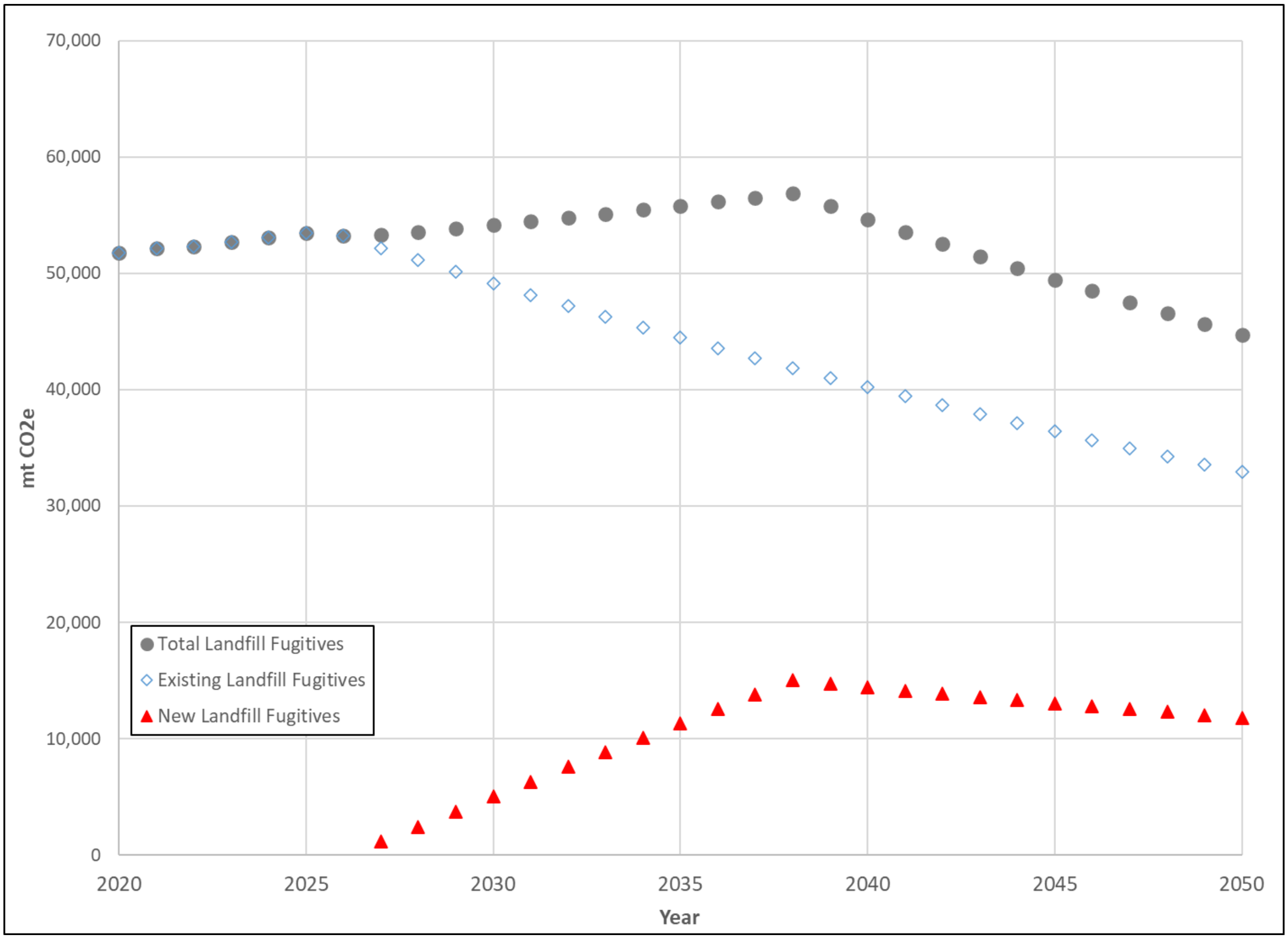
- On-road heavy-duty equipment with model year 2010 engines or newer should be used to the maximum extent feasible.
- Diesel powered equipment should be replaced by electric equipment whenever feasible.
- Electric auxiliary power units should be used to the maximum extent feasible.
- Equipment/vehicles using alternative fuels, such as compressed natural gas (CNG), liquefied natural gas (LNG), propane or biodiesel, should be used on-site where feasible.
- The number of construction equipment operating simultaneously shall be minimized through efficient management practices to ensure that the smallest practical number is operating at any one time.
- Construction worker trips should be minimized by requiring carpooling and by providing for lunch onsite.
- Construction truck trips should be scheduled during non-peak hours to reduce peak hour emissions whenever feasible.

As shown in Table 5-9, the majority of the maximum annual GHG emissions during operations is due to the increase in LFG fugitives and indirect combustion. Net emissions increases from LFG fugitives and indirect combustion are based on the peak years, as calculated using the 40 CFR Part 98 Subpart HH methodology also used to estimate ROC emissions as discussed in Section 4.2.4. Direct fugitive methane emissions are calculated based on the 68% LFG collection with a default oxidation factor of 25% used in reporting annual GHG emissions to EPA through Part 98 Subpart HH reporting. The oxidation factor accounts for the portion of methane which is oxidized to CO_2 as it migrates through the cover soil to the surface. Indirect GHG from combustion of the collected LFG are calculated by using CO_2 CH_4 and N_2O emission factors from Part 98 Subpart C. The net increase in emissions is calculated by subtracting the maximum from the existing facility (2025) from the peak total from the facility including the Project (2038). Figure 5-7 shows the changes in annual GHG emissions from fugitive methane. Indirect emissions from combustion follow a similar pattern. Peak emissions for the existing landfill portion and from the Project occur the last full year that waste is disposed.

RRWMD complies with all applicable GHG emission reduction requirements and minimizes GHG emissions via the following:

- Landfill gas combustion equipment complies with local (SBCAPCD), state (California Methane Regulation from Municipal Solid Waste Landfills), and federal (NSPS 40 CFR Part 60 Subparts WWW, Cf and XXX, 40 CFR Part 98) air quality and GHG regulations.
- Landfill gas combustion equipment is Best Available Control Technology (BACT) as defined by the SBCAPCD.
- On-road and off-road construction equipment will comply with applicable CARB and SBCAPCD regulations, such as:
  - All portable diesel-powered construction equipment greater than 50 brake horsepower shall be registered with the state's portable equipment registration program or shall obtain an SBCAPCD permit.
  - Diesel-powered mobile construction equipment greater than 25 hp are subject to the CARB In-Use Off-Road Diesel-Fueled Fleets Regulation (Title 13, California Code of Regulations (CCR), §2449).
  - Diesel-fueled heavy-duty trucks and buses are subject to CARB's On-Road Heavy-Duty Diesel Vehicles (In-Use) Regulation (Title 13, CCR, §2025).
- RRWMD complies with SB 1383 (including the operation of the ReSource Center to reduce landfilling of organics.

Figure 5-7
Fugitive LFG Methane By Year



6. Alternatives

This air quality and GHG emissions technical report also includes an evaluation of the alternatives for comparison to the Proposed Project to inform the CEQA Subsequent EIR analysis of alternatives subject to detailed analysis.

For purposes of the off-site disposal alternatives analysis, the assumption is that the alternative landfill would need to accommodate disposal of 180,030 tons/year (~586 tons/operating day) beginning in approximately April 2026 and up to 202,870 tons/year (~661 tons/operating day) in 2038 of residual and bypass waste. A summary of the characteristics of the on-site alternatives is provided as Table 6-1.

Table 6-1
Summary of the On-Site Alternatives Studied

Parameter	No Project Alternative	Reduced Project Alternative – Vertical Only	Reduced Project Alternative – Horizontal Only	Proposed Project
Maximum Landfill elevation (feet)	620	655	620	650
Disposal area (acres)	118	118	122.5	132.25
Total design capacity (million cubic yards)	1.68	3.83	4.39	7.78
Project site life (years, as of April 2022)	3.9	9.6	10.8	16.7
Anticipated closure date	March 2026	November 2031	March 2033	December 2038

The following sections provide an overview of each of the alternatives selected for further analysis and an evaluation of the air quality and GHG emissions impacts. In order to compare the alternatives and the Proposed Project, an analysis of the source of the waste and distance to the alternative landfills was conducted in order to compare each alternatives' emissions to the emissions if the waste were to continue to be disposed at TSL. As mentioned above, in 2038, the alternative landfills would need to accommodate disposal of up to 202,870 tons per year (or approximately 661 tons per operating day) in 2038, which would result in approximately 34 total daily trips, assuming a 20-ton truck capacity. The sources of the waste and estimated average vehicles per day is as follows:

Table 6-2
Maximum Daily Operation Emissions

Source of Waste	Percentage of Total Waste	Average Vehicles Per Day
Marborg Recycling Center	27%	10
Santa Barbara County Transfer Station	17%	6
Santa Ynez Valley Recycling and Transfer Station	8%	3
Tajiguas Landfill	48%	17

Notes: Average vehicles per day based on 2038 condition and assume all 20-ton vehicles will be loaded to capacity to minimize transportation costs and using County diesel tractor trailers. The sum of the average vehicles per day does not add to 34 due to rounding.

6.1 Alternative A - No Project

Under the No Project Alternative, continued disposal of MSW at the existing, permitted Tajiguas Landfill would continue until the current permitted disposal capacity is reached in approximately March 2026. Some residual post closure maintenance activities would continue at the TSL resulting in some additional criteria pollutant emissions but substantially less than during active waste filling. In addition, on-site fugitive methane direct GHG emissions and indirect GHG emissions from combustion of controlled LFG would continue but would decrease over time as a result of cessation of on-site active waste disposal. As the County is required to provide waste disposal services for the communities currently served by the Tajiguas Landfill, after approximately March 2026 the County would need to provide other disposal options. State CEQA Guidelines Section 15126.e.3.C states: “After defining the no project alternative…the lead agency should proceed to analyze the impacts of the no project alternative by projecting what would reasonably be expected to occur in the foreseeable future if the project was not approved, based on current plans and consistent with available infrastructure and community services”. Consistent with this direction, absent implementation of the proposed project, the County would need to export waste to another landfill/s (see Alternatives D and E) below.

6.1.1 No Project Alternative (Scenario 1) – Alternative D – Waste Export to the Chiquita Canyon Landfill

Under Scenario 1 of the No Project Alternative (Alternative D), the County waste will continue to be disposed of at the Tajiguas Landfill until the currently permitted capacity is reached (~March 2026) and then export of all solid waste requiring burial from the Tajiguas Landfill wasteshed will be directed to the Chiquita Canyon Landfill located in western Los Angeles County off Route 126. The Chiquita Canyon Landfill is a private landfill operated by Republic Services of California approximately 95 road miles east of the Tajiguas Landfill.

Under Alternative D, construction emissions under the Proposed Project would not occur; however, this evaluation does not consider if the Chiquita Canyon Landfill would need to excavate additional areas, which would result in construction emissions to accommodate the increased waste. Related to operations, Table 6-3 presents the comparison of the mobile source emissions associated with the Proposed Project and Alternative D. Proposed Project emissions based on the peak year of traffic conditions (2038) and distance from each of the sources of the waste to TSL. The following roundtrip distances are assumed for the Marborg Recycling Center, Santa Barbara County Transfer Station, and Santa Ynez Valley Recycling and Transfer Station: 55 miles, 45 miles, and 55.2 miles, respectively. This calculation does not subtract existing emissions in order to fully compare the Proposed Project’s emissions to the emissions under each Alternative. The emissions for Alternative D are based on the peak year of traffic conditions (2038) and distance from each of the sources of the waste to Chiquita Canyon Landfill. The following roundtrip distances are assumed for the Marborg Recycling Center, Santa Barbara County Transfer Station, Santa Ynez Valley Recycling and Transfer Station, and TSL: 136 miles, 148 miles, 210 miles, and 189 miles, respectively.

For conservative purposes, both the Proposed Project and Alternative D emission estimates assume a 2026 average fleet mix, minimal turnover in fleet vehicles between 2026 and 2038, and a weighted average of the following diesel-fueled vehicle categories in EMFAC2021: T7 public class 8, T7 single dump class 8, T7 single other class 8, T7 solid waste collection vehicle class 8, and T7 tractor class 8.

For the purposes of annual GHG emissions, this analysis assumes 311 days of operation per year.

Table 6-3
Proposed Project and Alternative D Mobile Emissions

Description	Maximum Daily Emissions (pounds/day)						Total Annual Emissions ($MT\ CO_2e$/year)
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Proposed Project	0.06	5.75	0.26	0.04	4.09	1.08	564
Alternative D	0.37	35.45	1.57	0.22	25.21	6.65	3,479

Notes: Refer to Appendix A for additional modeling details and assumptions.
ROC = Reactive Organic Compounds; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = particulate matter with a diameter of 10 microns or less; PM2.5 = particulate matter with a diameter of 2.5 microns or less; GHG = greenhouse gas emissions; MT CO_2e = metric tons carbon dioxide equivalents

As shown in Table 6-3, Alternative D would result in substantially higher maximum daily emissions of criteria pollutants and higher annual GHG emissions associated with mobile source emissions. Furthermore, the increase in the disposal of waste at the Chiquita Canyon Landfill would result in increased LFG fugitive GHG and ROC emissions, off-road construction equipment, additional fugitive PM from working face activities, and additional electricity consumption. However, since these emissions would either cease or be significantly reduced with closure of the Tajiguas Landfill at the TSL, and it would be speculative to estimate these emissions at the Chiquita Canyon Landfill, this comparison does not consider these emissions. In addition, the GHG and ROC emissions from Chiquita Canyon Landfill would be comparable to the projected GHG and ROC emissions from the disposal of the same quantity of waste at TSL but may vary based on differing processes and collection efficiencies. The Chiquita Canyon Landfill has an active LFG collections system and combust collected LFG in flares and/or engines. Therefore, under Alternative D, ROC, PM and GHG emissions that would not result from Proposed Project implementation would still occur at Chiquita Canyon Landfill.

6.1.2 No Project Alternative (Scenario 2) – Alternative E – Waste Export to the Chiquita Canyon Landfill and the Santa Maria Regional Landfill OR the Santa Maria Integrated Waste Management Facility

Under Scenario 2 of the No Project Alternative, the County waste will continue to be disposed of at the Tajiguas Landfill until the currently permitted capacity is reached (~March 2026) and then export of non-recyclable waste generated in the Santa Barbara area to the Chiquita Canyon Landfill and export of non-recyclable waste from the SYVRTS and bypass and residual waste from the ReSource Center to the Santa Maria Regional Landfill until the City of Santa Maria's planned Integrated Waste Management Facility (IWMF) is operational (anticipated to be 2026-2028, but currently undergoing revised environmental review and permitting). The Santa Maria Regional Landfill is approximately 52 road miles north of the Tajiguas Landfill via U.S. Highway 101, and the IWMF will be approximately 39 road miles via U.S Highway 101.

Under Alternative E, construction emissions under the Proposed Project would not occur; however, this evaluation does not consider if the Chiquita Canyon Landfill or the Santa Maria Regional Landfill would need to excavate additional areas, which would result in construction emissions, to accommodate the increased waste. Related to operations, Table 6-4 presents the comparison of the mobile source emissions associated with the Proposed Project and Alternative E. Proposed Project emissions based on the peak year of traffic conditions (2038) and distance from each of the sources of the waste to TSL. The following roundtrip distances are assumed for the Marborg Recycling Center, Santa Barbara County Transfer Station, and Santa Ynez Valley Recycling and Transfer Station: 55 miles, 45 miles, and 55.2 miles, respectively. This calculation does not subtract existing emissions in order to fully compare the Proposed Project's emissions to the emissions under each Alternative. The emissions for Alternative E are based on the peak year of traffic conditions (2038) and distance from each of the sources of the waste to Chiquita Canyon Landfill or Santa Maria Regional Landfill with the assumption that 44 percent of the waste is exported to the Chiquita Canyon Landfill and 56 percent of the waste is exported to the Santa Maria Regional Landfill. The following roundtrip distances are assumed for the Marborg Recycling Center, Santa Barbara County Transfer Station, Santa Ynez Valley Recycling and Transfer Station, and Tajiguas Landfill: 136 miles, 148 miles, 64 miles, and 105 miles, respectively.

For conservative purposes, both the Proposed Project and Alternative D emission estimates assume a 2026 average fleet mix, minimal turnover in fleet vehicles between 2026 and 2038, and a weighted average of the following diesel-fueled vehicle categories in EMFAC2021: T7 public class 8, T7 single dump class 8, T7 single other class 8, T7 solid waste collection vehicle class 8, and T7 tractor class 8.

For the purposes of annual GHG emissions, this analysis assumes 311 days of operation per year.

Table 6-4
Proposed Project and Alternative E Mobile Emissions

Description	Maximum Daily Emissions (pounds/day)						Total Annual Emissions ($MT\ CO_2e$/year)
	ROC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$	GHG
Proposed Project	0.06	5.75	0.26	0.04	4.09	1.08	564
Alternative E	0.25	24.59	1.09	0.16	17.49	4.61	2,413

Notes: Refer to Appendix A for additional modeling details and assumptions.
ROC = Reactive Organic Compounds; NOx = oxides of nitrogen; CO = carbon monoxide; SOx = sulfur oxides; PM10 = particulate matter with a diameter of 10 microns or less; PM2.5 = particulate matter with a diameter of 2.5 microns or less; GHG = greenhouse gas emissions; MT CO_2e = metric tons carbon dioxide equivalents

As shown in Table 6-4, Alternative E would result in substantially higher maximum daily emissions of criteria pollutants and higher annual GHG emissions associated with mobile source emissions. Furthermore, the increase in the disposal of waste at the Chiquita Canyon Landfill, Santa Maria Regional Landfill, or the Santa Maria Integrated Waste Facility may also result in increased fugitive ROG emissions from landfill gas, off-road construction equipment, additional fugitive PM from working face activities, and additional electricity consumption at these alternative locations. However, since these emissions would either cease or be significantly reduced with closure of the Tajiguas Landfill at the TSL, and it would be speculative to estimate these emissions at these alternative locations, this comparison does not consider these emissions. In addition, the GHG and ROC emissions from either the Santa Maria Regional Landfill or the Chiquita Canyon Landfill would be comparable to the projected GHG and ROC emissions from the disposal of the same quantity waste at TSL but may vary based on differing processes and collection efficiencies. Both facilities have active LFG collections systems and combust collected LFG in flares and engines. Therefore, under Alternative E, ROC, PM and GHG emissions that would not result from Proposed Project implementation would still occur at Chiquita Canyon Landfill or Santa Maria Regional Landfill.

6.2 Alternative B - Reduced Project Alternative – Vertical Only Capacity Increase

Under Alternative B, the Reduced Project Alternative, Vertical Only Capacity Increase, the maximum elevation of the permitted waste disposal area would be increased to 655 feet above mean sea level to provide additional airspace for waste disposal, with no change in lateral footprint. This Alternative would provide approximately 2,153,920 cubic yards of additional airspace, a projected site life of approximately 5.5 years from a start date of April 2026 accounting for the existing remaining airspace, and an approximate closure date of November 2031.

Related to construction activities, emissions associated with Alternative B would be lower than under the Proposed Project as Alternative B would not require the grading of the new excavation area or the need for blasting activities. Related to operations, the smaller capacity increase associated with Alternative B would limit the extension of Landfill life to about 5.5 years as compared to about 12.5 years for the Proposed Project. Therefore, while in the short-term emissions associated with Alternative B would be comparable to the Proposed Project, in the long-term, after the TSL reaches capacity, the non-processable and residual waste would still need to be disposed in alternative locations, as identified under Alternatives D and E above. However, under Alternative B, this would simply occur in 2031 as compared to 2026. Therefore, mobile-source emissions under Alternative B would be similar to either scenario 1 or 2 under the No Project Alternative. In addition, under Alternative B, fewer waste would be disposed of at TSL; thus, peak total fugitive GHG and ROC emissions at TSL would be lower; however, these emissions would occur at one of the other alternative disposal locations. Therefore, under Alternative B, the total GHG and ROC emissions from LFG is likely to be similar regardless of which landfill it is placed, as the total mass of waste and the decomposition would be similar at TSL or another nearby landfill.

6.3 Alternative C - Reduced Project Alternative – Horizontal Only Capacity Increase

Under Alternative C, the Reduced Project Alternative, Horizontal Only Capacity Increase, there would be an approximate 4.5-acre horizontal increase in the disposal area to provide additional airspace for waste disposal, with no change in maximum disposal area elevation. The Alternative would provide approximately 2,664,000 cubic yards of additional airspace, a projected site life of approximately 7 years from a start date of April 2026 accounting for the existing remaining airspace, and an approximate closure date of March 2033.

Related to construction activities, emissions associated with Alternative C would be lower than under the Proposed Project as Alternative C would not require less grading because the excavation area would be smaller and there would also not be a need for blasting activities. Related to operations, the smaller capacity increase associated with Alternative C would limit the extension of Landfill life to about seven years as compared to about 12.5 years for the Proposed Project. Therefore, while in the short-term emissions associated with Alternative C would be comparable to the Proposed Project, in the long-term, after the TSL reaches capacity, the non-processable and residual waste would still need to be disposed in alternative locations, as identified under Alternatives D and E above. However, under Alternative C, this would simply occur in 2033 as opposed to 2026. Therefore, emissions under Alternative C would be similar to either scenario 1 or 2 under the No Project Alternative. In addition, under Alternative C, fewer waste would be disposed of at TSL; thus, peak total fugitive GHG and ROC emissions at TSL would be lower; however, these emissions would occur at one of the other alternative disposal locations. Therefore, under Alternative C, the total GHG and ROC emissions from LFG is likely to be similar regardless of which landfill it is placed, as the total mass of waste and the decomposition would be similar at TSL or another nearby landfill.

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Appendix A Construction Emissions

Construction Emissions By Phase and Source (with dust control measures)

Phase	Year	Type	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
Grading - 1. Phase IV-A Part 1	2024	Onsite	0.73907953	0.621032109	6.451873823	4.360830367	0.01326764	0.234890471		0.234890471	0.216099232		0.216099232		1303.35709	1303.35709	0.052869865	0.010574		1307.82988
Grading - 1. Phase IV-A Part 1	2024	Dust From Material Movement							0.592560741	0.592560741		0.232750105	0.232750105							
Grading - 1. Phase IV-A Part 1	2024	Onsite truck	0.00182741	0.001525819	0.036228784	0.018321737	0.000297624	0.000297624	0.660858657	0.661156281	0.000297624	0.067395393	0.067693017		33.9399469	33.9399469	0.0002736	0.004057	0.045174	35.2010077
Grading - 1. Phase IV-A Part 1	2024	Blasting	0	0	1.42959375	5.63428125	0.1681875	0	0	0.0020475	0	0	0.0020475							30.90
Grading - 1. Phase IV-A Part 1	2024	Worker	0.0111113	0.010000168	0.014841519	0.144804022	0	0	0.027522498	0.027522498	0	0.006444109	0.006444109		25.1975821	25.1975821	0.001224001	0.000936	0.052891	25.5600011
Grading - 1. Phase IV-A Part 1	2024	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Grading - 1. Phase IV-A Part 1	2024	Hauling	0.00012506	2.71731E-05	0.002215424	0.000724506	1.8661E-05	2.75005E-05	0.000371488	0.000398988	1.83336E-05	0.00010433	0.000122664		1.4054719	1.4054719	7.95961E-05	0.000219	0.001169	1.47403679
Grading - 1. Phase IV-A Part 2	2025	Onsite	0.2901411	0.243799122	2.239578472	1.895401607	0.005710295	0.085128479		0.085128479	0.078318201		0.078318201		560.898244	560.898244	0.022752486	0.00455		562.823104
Grading - 1. Phase IV-A Part 2	2025	Dust From Material Movement							0.160589596	0.160589596		0.05630444	0.05630444							
Grading - 1. Phase IV-A Part 2	2025	Onsite truck	0.00254303	0.002043685	0.054914945	0.025526223	0.00049604	0.00049604	1.101431095	1.101927135	0.00049604	0.112325655	0.112821695		55.6162527	55.6162527	0.000456001	0.006762	0.07529	57.7180207
Grading - 1. Phase IV-A Part 2	2025	Blasting	0	0	1.42959375	5.63428125	0.1681875	0	0	0.0020475	0	0	0.0020475							30.90
Grading - 1. Phase IV-A Part 2	2025	Worker	0.00674615	0.006051689	0.008110255	0.084178003	0	0	0.017201561	0.017201561	0	0.004027568	0.004027568		15.4511503	15.4511503	0.000742501	0.000585	0.030721	15.6747638
Grading - 1. Phase IV-A Part 2	2025	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Grading - 1. Phase IV-A Part 2	2025	Hauling	0.00138623	0.00032594	0.025450784	0.008246666	0.000223838	0.000329867	0.004455975	0.004785842	0.000219911	0.001251438	0.001471349		16.5637566	16.5637566	0.000954751	0.002633	0.013879	17.3860463
Site Preparation - 3. Phase IV-B	2027	Onsite	0.05999996	0.050416633	0.439054374	0.441032774	0.001184198	0.016871488	0	0.016871488	0.015521769	0	0.015521769		116.318432	116.318432	0.004718384	0.000944	0	116.717608
Site Preparation - 3. Phase IV-B	2027	Dust From Material Movement	0	0	0	0	0	0	0.032384269	0.032384269		0.013215122	0.013215122		0	0	0	0	0	0
Site Preparation - 3. Phase IV-B	2027	Onsite truck	0.00061211	0.000462309	0.013789914	0.005549697	0.000148812	0.000148812	0.330280516	0.330429328	0.000148812	0.033697697	0.033846509		16.0493321	16.0493321	0.0001368	0.002029	0.019305	16.6765806
Site Preparation - 3. Phase IV-B	2027	Worker	0.00231155	0.002043685	0.002767904	0.028671117	0	0	0.006880624	0.006880624	0	0.001611027	0.001611027		5.94154596	5.94154596	9.00001E-05	0.000234	0.010448	6.02397593
Site Preparation - 3. Phase IV-B	2027	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Site Preparation - 3. Phase IV-B	2027	Hauling	0.00011411	2.92316E-05	0.002090239	0.000670919	1.02135E-05	1.97226E-05	0.000399631	0.000419353	1.97226E-05	0.000112234	0.000131957		1.42569062	1.42569062	7.60411E-05	0.000227	0.001075	1.49636134
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Onsite	0.12020689	0.10100718	0.868702915	0.859130846	0.002424786	0.031625986		0.031625986	0.029095907		0.029095907		238.170428	238.170428	0.009661234	0.001932		238.987769
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Dust From Material Movement							0.086672787	0.086672787		0.035311941	0.035311941							
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Onsite truck	0.00061509	0.000414028	0.014997607	0.005187918	0.000198416	0.000198416	0.440374022	0.440572438	0.000198416	0.044930262	0.045128678		20.2181826	20.2181826	2.4E-06	0.002525	0.02121	20.9918437
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Worker	0.00261909	0.002566181	0.003068835	0.033426488	0	0	0.009174166	0.009174166	0	0.002148036	0.002148036		7.64426108	7.64426108	0.000108	0.000312	0.011665	7.75160258
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Site Preparation - 4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	2029	Hauling	0.0001988	6.20315E-05	0.004065677	0.001298924	2.16736E-05	4.18526E-05	0.000848042	0.000889895	4.18526E-05	0.000238168	0.000280021		2.86801185	2.86801185	0.000122718	0.000463	0.001887	3.01096274
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Onsite	0.30447312	0.255841994	1.897593814	2.185596293	0.006701136	0.068772146		0.068772146	0.063270374		0.063270374		658.150761	658.150761	0.026697474	0.005339		660.409367
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Dust From Material Movement							0.279614152	0.279614152		0.114563635	0.114563635							
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Onsite truck	0.00164553	0.000841284	0.041614457	0.011857342	0.000793664	0	1.761496087	1.761496087	0	0.178927384	0.178927384		68.5887179	68.5887179	9.60001E-06	0.008654	0.054157	71.2221292
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Worker	0.00674615	0.005714382	0.00630963	0.077025105	0	0	0.027522498	0.027522498	0	0.006444109	0.006444109		21.5267287	21.5267287	0.000252	0.0009	0.023218	21.8244465
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Site Preparation - 5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	2033	Hauling	0.00018434	4.87442E-05	0.004070584	0.00129571	2.57015E-05	4.96305E-05	0.001005643	0.001055274	4.96305E-05	0.00028243	0.00033206		3.01906217	3.01906217	9.80881E-05	0.000481	0.001407	3.16619736
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Onsite	0.05705551	0.04794248	0.256405461	0.4326727	0.001374025	0.009829312		0.009829312	0.009042967		0.009042967		134.93855	134.93855	0.005473698	0.001095		135.401625
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Dust From Material Movement							0.033131115	0.033131115		0.013308455	0.013308455							
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Onsite truck	0.00014021	0.000139332	0.005202028	0.001300727	0.000132277	0	0.293582681	0.293582681	0	0.029821231	0.029821231		9.89206784	9.89206784	8.00E-07	0.001322	0.006212	10.2923754
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Worker	0.0011905	0.001172859	0.000987671	0.014250681	0	0	0.006116111	0.006116111	0	0.001432024	0.001432024		4.60498145	4.60498145	4.80001E-05	2.4E-05	0.003549	4.61688215
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Site Preparation - 6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	2036	Hauling	0.00013417	4.12264E-05	0.003112971	0.000972944	2.17376E-05	4.1976E-05	0.000850544	0.00089252	4.1976E-05	0.000238871	0.000280847		2.3596272	2.3596272	6.32401E-05	0.000369	0.000795	2.47183425
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Onsite	0.06028677	0.050657636	0.300518347	0.517334675	0.001459698	0.01095314		0.01095314	0.010076889		0.010076889		143.351595	143.351595	0.005814968	0.001163		143.843541
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Dust From Material Movement							0.043614	0.043614		0.017678403	0.017678403							
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Onsite truck	0.00035053	0.000346126	0.011999761	0.002912306	0.000330693	0	0.733956703	0.733956703	0	0.074553077	0.074553077		23.6097455	23.6097455	2E-06	0.003006	0.013599	24.5191839
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Worker	0.00141096	0.001388912	0.001234589	0.016909455	0	0	0.007645138	0.007645138	0	0.00179003	0.00179003		5.69449686	5.69449686	6.00001E-05	3E-05	0.00387	5.70880646
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Vendor	0	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0
Site Preparation - 7. Phase IV-D Maintenance Pad Liner Install	2037	Hauling	4.9604E-05	1.81881E-05	0.001334348	0.000411383	9.59011E-06	1.85188E-05	0.00037524	0.000393759	1.85188E-05	0.000105384	0.000123903		1.01810015	1.01810015	2.79E-05	0.000163	0.000306	1.06755881

		tons/year											metric tons/year						
Annual Emissions Summary	Year	TOG	ROG	NOx	CO	SO_2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO_2	$NBCO_2$	CO_2T	CH_4	N_2O	R	CO_2e
	2024	0.75214331	0.63258527	7.9347533	10.15896188	0.181771425	0.235215596	1.281313384	1.518576479	0.21641519	0.306693937	0.525156627	0	1363.90009	1363.90009	0.054447062	0.015787	0.099233	1401
	2025	0.30081651	0.252220436	3.757648206	7.64763375	0.174617673	0.085954386	1.283678227	1.371680113	0.079034152	0.173909102	0.254990754	0	648.529404	648.529404	0.024905739	0.01453	0.119889	685
	2027	0.06303773	0.05295186	0.457702431	0.475924506	0.001343224	0.017040022	0.36994504	0.386985062	0.015690303	0.04863608	0.064326383	0	139.735001	139.735001	0.005021226	0.003433	0.030827	141
	2029	0.12363987	0.10404942	0.890835033	0.899044176	0.002644876	0.031866255	0.537069017	0.568935272	0.029336176	0.082628408	0.111964583	0	268.900884	268.900884	0.009894353	0.005232	0.034762	271
	2033	0.31304913	0.262446404	1.949588485	2.27577445	0.007520502	0.068821776	2.06963838	2.138460156	0.063320004	0.300217558	0.363537563	0	751.28527	751.28527	0.027057162	0.015375	0.078781	757
	2036	0.0585204	0.049295897	0.265708131	0.449197052	0.001528039	0.009871288	0.333680451	0.343551738	0.009084943	0.044800581	0.053885524	0	151.795226	151.795226	0.005585738	0.00281	0.010556	153
	2037	0.06209787	0.052410862	0.315087045	0.537567819	0.001799981	0.010971659	0.785591081	0.79656274	0.010095408	0.094126894	0.104222301	0	173.673937	173.673937	0.005904868	0.004362	0.017775	175
	Maximum Annual Emissions	**0.75**	**0.63**	**7.93**	**10.16**	**0.18**	**0.24**	**2.07**	**2.14**	**0.22**	**0.31**	**0.53**							

Notes:

yellow highlight indicates updated 05Jan2024 to reflect updated construction worker and haul truck trip lengths per SBCAPCD Comments

Blasting Emissions

Daily Emissions From Single Blast (lbs)				
NOx (from explosives)	CO (from explosives)	PM10 (from rock)	PM2.5 (from rock)	SOx (from explosives)
4.8875	19.2625	0.007	0.007	0.575

Max Annual Emissions From Blasting (tons)					Total GHG Emissions from Blasting
NOx (from explosives)	CO (from explosives)	PM10 (from rock)	PM2.5 (from rock)	SOx (from explosives)	MT CO_2e
1.4296	5.6343	0.0020	0.0020	0.1682	30.90

Approximate number of blasts per day	1
Number of Days Blasting to Occur/Year	6
Explosive (lbs) per blast	575

Info from Applicant - Pounds of Explosives per Year
3450

Phase	Total Cubic Yards	Number of Holes	Total Pounds of Explosive Charges
Phase IV-A Part 1	475,000.00	585.00	336,375.00
Phase IV-A Part 2	50,000.00	65.00	37,375.00

Source: 2022Nov14_Data Needs_AECOM_120122 Combined Responses 041223 and 15Dec2022 Email RE: Tajiguas Landfill Expansion - AECOM Data Needs List

Emissions Per Blast (lbs)				
NOx (from explosives)	CO (from explosives)	PM10 (from rock)	PM2.5 (from rock)	SOx (from explosives)
4.8875	19.2625	0.007	0.007	0.575

Rock material:

Assumed pounds/cubic yard:* 999
Pounds per ton 2000

**Source: EPA 2016. Volume to Weight Conversion Factors. https://www.epa.gov/sites/production/files/2016-04/documents/volume_to_weight_conversion_factors_memorandum_04192016_508fnl.pdf*

2. AP-42, Section 13.3, Table 13.3-1 for ANFO.

Pollutant	Emission Factor	Units
ROG	-	
NOX	17	lb/ton explosives
CO	67	lb/ton explosives
SOX	2	lb/ton explosives
PM10		

PM10 EF Per Blast 0.007

2/80 (Reformatted 1/95) Miscellaneous Sources

Table 13.3-1 (cont.).

Explosive	Composition	Uses	Carbon Monoxide[a] kg/Mg	Carbon Monoxide[a] lb/ton	Nitrogen Oxides[a] kg/Mg	Nitrogen Oxides[a] lb/ton	Methane[b] kg/Mg	Methane[b] lb/ton	Other: Pollutant	Other: kg/Mg	Other: lb/ton
ANFO[4,5]	Ammonium nitrate with 5.8-8% fuel oil	Construction work, blasting in mines	34	67	8	17	ND	ND	SO_2	1 (0-2)	2 (1-3)
TNT[2]	Trinitrotoluene	Main charge in artillery projectiles, mortar rounds, etc.	398 (324-472)	796 (647-944)	ND	ND	7.2 (6.6-7.7)	14.3 (13.2-15.4)	NH_3 HCN C_2H_2 C_2H_6	14 (14-15) 13 (11-16) 61 0.5	29 (27-30) 27 (22-32) 121 1.1
RDX[3]	$(CH_2)_3N_3(NO_2)_3$ Cyclotri-methylene-trinitroamine	Booster	98[d] (2.8-277)	196[d] (5.6-554)	ND	ND	ND	ND	NH_3	22[d] (12-61)	44[d] (24-122)
PETN[2]	$C(CH_2ONO_2)_4$ Pentaerythritol tetranitrate	Booster	149 (138-160)	297 (276-319)	ND	ND	ND	ND	NH_3	1.3 (0-25)	2.5 (0-5)

[a] Based on experiments carried out prior to 1930 except in the case of ANFO, TNT, and PETN. ND = no data.
[b] The factors apply to the chemical species, methane. They do not represent total volatile organic compounds (VOC) expressed as methane. Studies were carried out more than 40 years ago.
[c] Greater than 6 mg per 158 grain projectile (0.6 kg/Mg, 1.2 lb/ton).
[d] These factors are derived from theoretical calculations, not from experimental data.

San Diego County Drilling and Blasting Operations Blast Area PM Emissions:

Blast Area	Typical Dimensions	Blasted Material	lbs TSP/Blast	lbs PM10/Blast
100 ft2	20' x 5' x 50'd	370 tons	0.014 lbs	0.007 lbs
1,000 ft2	50' x 20' x 50'd	3,700 tons	0.44 lbs	0.23 lbs
10,000 ft2	200' x 50' x 50'd	37,000 tons	14 lbs	7.3 lbs
100,000 ft2	1,000' x 100' x 50'd	370,000 tons	442.7 lbs	230.2 lbs

GHG Emissions Calculation Comparison:

Pollutant	Source	Emission Factor	Units
CO_2	1	10.21	kg/gallon

Source/Reference:

1. The Climate Registry. 2021 Emission Factors. Table 1.1 U.S. Default Factors for Calculating CO2 Emissions from Combustion of Fossil Fuel and Biomass

Conversion Values:

7.41	lbs/gallon fuel oil
6.00%	composition of fuel oil #2 in ANFO
10.35	kg CO2/gallon fuel oil #2
2000	lbs/ton
1000	kg/MT
1.102	tons/MT

Notes:

MT = metric tons
kg = kilograms
lb = pounds

Tajiguas Landfill Expansion Detailed Report

Table of Contents

1. Basic Project Information

1.1. Basic Project Information

Data Field	Value
Project Name	Tajiguas Landfill Expansion
Construction Start Date	3/19/2024
Lead Agency	—
Land Use Scale	Project/site
Analysis Level for Defaults	County
Windspeed (m/s)	2.40
Precipitation (days)	25.4
Location	14470 Calle Real, Goleta, CA 93117, USA
County	Santa Barbara
City	Unincorporated
Air District	Santa Barbara County APCD
Air Basin	South Central Coast
TAZ	3363
EDFZ	8
Electric Utility	Southern California Edison
Gas Utility	Southern California Gas
App Version	2022.1.1.21

1.2. Land Use Types

Land Use Subtype	Size	Unit	Lot Acreage	Building Area (sq ft)	Landscape Area (sq ft)	Special Landscape Area (sq ft)	Population	Description
User Defined Industrial	1.00	User Defined Unit	56.4	0.00	0.00	0.00	—	—

1.3. User-Selected Emission Reduction Measures by Emissions Sector

Sector	#	Measure Title
Construction	C-10-A	Water Exposed Surfaces
Construction	C-10-B	Water Active Demolition Sites
Construction	C-10-C	Water Unpaved Construction Roads
Construction	C-11	Limit Vehicle Speeds on Unpaved Roads
Construction	C-12	Sweep Paved Roads

2. Emissions Summary

2.1. Construction Emissions Compared Against Thresholds

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Un/Mit.	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.7	14.1	144	101	0.30	5.23	136	138	4.81	19.6	24.4	—	33,423	33,423	1.33	0.43	8.13	33,577
Mit.	16.7	14.1	144	101	0.30	5.23	36.7	38.7	4.81	6.93	11.7	—	33,423	33,423	1.33	0.43	8.13	33,577
% Reduced	—	—	—	—	—	—	73%	72%	—	65%	52%	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	16.7	14.1	145	101	0.30	5.23	136	138	4.81	19.6	24.4	—	33,409	33,409	1.33	0.43	0.21	33,558
Mit.	16.7	14.1	145	101	0.30	5.23	36.7	38.7	4.81	6.93	11.7	—	33,409	33,409	1.33	0.43	0.21	33,558
% Reduced	—	—	—	—	—	—	73%	72%	—	65%	52%	—	—	—	—	—	—	—

Average Daily (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	4.12	3.47	35.6	24.8	0.07	1.29	42.0	42.4	1.19	5.45	5.92	—	8,238	8,238	0.33	0.10	0.72	8,275
Mit.	4.12	3.47	35.6	24.8	0.07	1.29	11.3	11.7	1.19	1.68	2.87	—	8,238	8,238	0.33	0.10	0.72	8,275
% Reduced	—	—	—	—	—	—	73%	72%	—	69%	52%	—	—	—	—	—	—	—
Annual (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Unmit.	0.75	0.63	6.51	4.52	0.01	0.24	7.67	7.74	0.22	0.99	1.08	—	1,364	1,364	0.05	0.02	0.12	1,370
Mit.	0.75	0.63	6.51	4.52	0.01	0.24	2.07	2.14	0.22	0.31	0.52	—	1,364	1,364	0.05	0.02	0.12	1,370
% Reduced	—	—	—	—	—	—	73%	72%	—	69%	52%	—	—	—	—	—	—	—

2.2. Construction Emissions by Year, Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	16.7	14.1	144	101	0.30	5.23	96.4	102	4.81	19.6	24.4	—	33,423	33,423	1.33	0.39	5.64	33,577
2025	8.02	6.73	62.0	53.8	0.17	2.29	136	138	2.11	16.4	18.5	—	19,073	19,073	0.73	0.43	8.13	19,227
2027	2.80	2.35	20.3	21.2	0.06	0.76	66.0	66.8	0.70	7.81	8.51	—	6,852	6,852	0.25	0.17	3.50	6,912
2029	4.12	3.47	29.7	30.0	0.09	1.06	69.8	70.8	0.98	9.32	10.3	—	9,886	9,886	0.36	0.19	2.96	9,955
2033	5.22	4.37	32.4	38.0	0.13	1.15	136	138	1.06	17.4	18.5	—	13,811	13,811	0.50	0.27	3.35	13,906
2036	2.93	2.46	13.3	22.5	0.08	0.49	66.6	67.1	0.45	8.01	8.46	—	8,371	8,371	0.31	0.15	1.35	8,427
2037	2.48	2.10	12.6	21.5	0.07	0.44	129	129	0.40	14.3	14.7	—	7,663	7,663	0.26	0.19	1.82	7,728
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

2024	16.7	14.1	145	101	0.30	5.23	96.4	102	4.81	19.6	24.4	—	33,409	33,409	1.33	0.39	0.15	33,558
2025	8.02	6.71	62.1	53.7	0.17	2.29	136	138	2.11	16.4	18.5	—	19,063	19,063	0.73	0.43	0.21	19,209
2027	2.80	2.35	20.3	21.2	0.06	0.76	66.0	66.8	0.70	7.81	8.51	—	6,846	6,846	0.25	0.17	0.09	6,902
2029	4.12	3.47	29.7	30.0	0.09	1.06	69.8	70.8	0.98	9.32	10.3	—	9,880	9,880	0.36	0.19	0.08	9,947
2033	5.22	4.38	32.5	38.0	0.13	1.15	136	138	1.06	17.4	18.5	—	13,802	13,802	0.50	0.28	0.09	13,899
2036	2.93	2.46	13.3	22.5	0.08	0.49	66.6	67.1	0.45	8.01	8.46	—	8,366	8,366	0.31	0.15	0.03	8,420
2037	2.48	2.10	12.6	21.5	0.07	0.44	129	129	0.40	14.3	14.7	—	7,657	7,657	0.26	0.19	0.05	7,721
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.12	3.47	35.6	24.8	0.07	1.29	22.7	24.0	1.19	4.73	5.92	—	8,238	8,238	0.33	0.10	0.60	8,275
2025	1.65	1.38	12.8	11.0	0.04	0.47	26.1	26.6	0.43	3.20	3.63	—	3,917	3,917	0.15	0.09	0.72	3,948
2027	0.35	0.29	2.51	2.61	0.01	0.09	7.61	7.70	0.09	0.91	1.00	—	844	844	0.03	0.02	0.19	851
2029	0.68	0.57	4.88	4.93	0.01	0.17	10.8	10.9	0.16	1.46	1.62	—	1,624	1,624	0.06	0.03	0.21	1,635
2033	1.72	1.44	10.7	12.5	0.04	0.38	42.0	42.4	0.35	5.45	5.80	—	4,538	4,538	0.16	0.09	0.48	4,570
2036	0.32	0.27	1.46	2.46	0.01	0.05	6.83	6.88	0.05	0.83	0.88	—	917	917	0.03	0.02	0.06	923
2037	0.34	0.29	1.73	2.95	0.01	0.06	16.5	16.5	0.06	1.84	1.90	—	1,049	1,049	0.04	0.03	0.11	1,058
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.75	0.63	6.51	4.52	0.01	0.24	4.14	4.38	0.22	0.86	1.08	—	1,364	1,364	0.05	0.02	0.10	1,370
2025	0.30	0.25	2.33	2.01	0.01	0.09	4.76	4.85	0.08	0.58	0.66	—	649	649	0.02	0.01	0.12	654
2027	0.06	0.05	0.46	0.48	< 0.005	0.02	1.39	1.41	0.02	0.17	0.18	—	140	140	0.01	< 0.005	0.03	141
2029	0.12	0.10	0.89	0.90	< 0.005	0.03	1.96	2.00	0.03	0.27	0.30	—	269	269	0.01	0.01	0.03	271
2033	0.31	0.26	1.95	2.28	0.01	0.07	7.67	7.74	0.06	0.99	1.06	—	751	751	0.03	0.02	0.08	757
2036	0.06	0.05	0.27	0.45	< 0.005	0.01	1.25	1.26	0.01	0.15	0.16	—	152	152	0.01	< 0.005	0.01	153
2037	0.06	0.05	0.32	0.54	< 0.005	0.01	3.01	3.02	0.01	0.34	0.35	—	174	174	0.01	< 0.005	0.02	175

2.3. Construction Emissions by Year, Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Year	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily - Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	16.7	14.1	144	101	0.30	5.23	29.6	34.8	4.81	6.93	11.7	—	33,423	33,423	1.33	0.39	5.64	33,577
2025	8.02	6.73	62.0	53.8	0.17	2.29	36.4	38.7	2.11	4.86	6.97	—	19,073	19,073	0.73	0.43	8.13	19,227
2027	2.80	2.35	20.3	21.2	0.06	0.76	17.5	18.3	0.70	2.27	2.97	—	6,852	6,852	0.25	0.17	3.50	6,912
2029	4.12	3.47	29.7	30.0	0.09	1.06	19.0	20.1	0.98	2.86	3.84	—	9,886	9,886	0.36	0.19	2.96	9,955
2033	5.22	4.37	32.4	38.0	0.13	1.15	36.7	37.8	1.06	5.22	6.28	—	13,811	13,811	0.50	0.27	3.35	13,906
2036	2.93	2.46	13.3	22.5	0.08	0.49	17.8	18.3	0.45	2.35	2.80	—	8,371	8,371	0.31	0.15	1.35	8,427
2037	2.48	2.10	12.6	21.5	0.07	0.44	33.6	34.0	0.40	3.98	4.39	—	7,663	7,663	0.26	0.19	1.82	7,728
Daily - Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	16.7	14.1	145	101	0.30	5.23	29.6	34.8	4.81	6.93	11.7	—	33,409	33,409	1.33	0.39	0.15	33,558
2025	8.02	6.71	62.1	53.7	0.17	2.29	36.4	38.7	2.11	4.86	6.97	—	19,063	19,063	0.73	0.43	0.21	19,209
2027	2.80	2.35	20.3	21.2	0.06	0.76	17.5	18.3	0.70	2.27	2.97	—	6,846	6,846	0.25	0.17	0.09	6,902
2029	4.12	3.47	29.7	30.0	0.09	1.06	19.0	20.1	0.98	2.86	3.84	—	9,880	9,880	0.36	0.19	0.08	9,947
2033	5.22	4.38	32.5	38.0	0.13	1.15	36.7	37.8	1.06	5.22	6.28	—	13,802	13,802	0.50	0.28	0.09	13,899
2036	2.93	2.46	13.3	22.5	0.08	0.49	17.8	18.3	0.45	2.35	2.80	—	8,366	8,366	0.31	0.15	0.03	8,420
2037	2.48	2.10	12.6	21.5	0.07	0.44	33.6	34.0	0.40	3.98	4.39	—	7,657	7,657	0.26	0.19	0.05	7,721
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	4.12	3.47	35.6	24.8	0.07	1.29	7.02	8.31	1.19	1.68	2.87	—	8,238	8,238	0.33	0.10	0.60	8,275
2025	1.65	1.38	12.8	11.0	0.04	0.47	7.03	7.50	0.43	0.95	1.39	—	3,917	3,917	0.15	0.09	0.72	3,948
2027	0.35	0.29	2.51	2.61	0.01	0.09	2.03	2.12	0.09	0.27	0.35	—	844	844	0.03	0.02	0.19	851
2029	0.68	0.57	4.88	4.93	0.01	0.17	2.94	3.12	0.16	0.45	0.61	—	1,624	1,624	0.06	0.03	0.21	1,635
2033	1.72	1.44	10.7	12.5	0.04	0.38	11.3	11.7	0.35	1.65	1.99	—	4,538	4,538	0.16	0.09	0.48	4,570
2036	0.32	0.27	1.46	2.46	0.01	0.05	1.83	1.88	0.05	0.25	0.30	—	917	917	0.03	0.02	0.06	923

2037	0.34	0.29	1.73	2.95	0.01	0.06	4.30	4.36	0.06	0.52	0.57	—	1,049	1,049	0.04	0.03	0.11	1,058
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
2024	0.75	0.63	6.51	4.52	0.01	0.24	1.28	1.52	0.22	0.31	0.52	—	1,364	1,364	0.05	0.02	0.10	1,370
2025	0.30	0.25	2.33	2.01	0.01	0.09	1.28	1.37	0.08	0.17	0.25	—	649	649	0.02	0.01	0.12	654
2027	0.06	0.05	0.46	0.48	< 0.005	0.02	0.37	0.39	0.02	0.05	0.06	—	140	140	0.01	< 0.005	0.03	141
2029	0.12	0.10	0.89	0.90	< 0.005	0.03	0.54	0.57	0.03	0.08	0.11	—	269	269	0.01	0.01	0.03	271
2033	0.31	0.26	1.95	2.28	0.01	0.07	2.07	2.14	0.06	0.30	0.36	—	751	751	0.03	0.02	0.08	757
2036	0.06	0.05	0.27	0.45	< 0.005	0.01	0.33	0.34	0.01	0.04	0.05	—	152	152	0.01	< 0.005	0.01	153
2037	0.06	0.05	0.32	0.54	< 0.005	0.01	0.79	0.80	0.01	0.09	0.10	—	174	174	0.01	< 0.005	0.02	175

3. Construction Emissions Details

3.1. 3. Phase IV-B (2027) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.67	2.24	19.5	19.6	0.05	0.75	—	0.75	0.69	—	0.69	—	5,699	5,699	0.23	0.05	—	5,718
Dust From Material Movement	—	—	—	—	—	—	3.69	3.69	—	1.51	1.51	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.59	0.25	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	786	786	0.01	0.10	2.19	818
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	2.67	2.24	19.5	19.6	0.05	0.75	—	0.75	0.69	—	0.69	—	5,699	5,699	0.23	0.05	—	5,718
Dust From Material Movement	—	—	—	—	—	—	3.69	3.69	—	1.51	1.51	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.61	0.25	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	786	786	0.01	0.10	0.06	816
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.41	2.42	0.01	0.09	—	0.09	0.09	—	0.09	—	703	703	0.03	0.01	—	705
Dust From Material Movement	—	—	—	—	—	—	0.45	0.45	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	7.12	7.12	< 0.005	0.71	0.72	—	96.9	96.9	< 0.005	0.01	0.12	101
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.44	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	116	116	< 0.005	< 0.005	—	117
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	1.30	1.30	< 0.005	0.13	0.13	—	16.0	16.0	< 0.005	< 0.005	0.02	16.7
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.33	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	297	297	< 0.005	0.01	1.19	302
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.8	69.8	< 0.005	0.01	0.12	73.4

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.12	1.30	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	291	291	< 0.005	0.01	0.03	294
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.9	69.9	< 0.005	0.01	< 0.005	73.3
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.9	35.9	< 0.005	< 0.005	0.06	36.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.61	8.61	< 0.005	< 0.005	0.01	9.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.94	5.94	< 0.005	< 0.005	0.01	6.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50

3.2. 3. Phase IV-B (2027) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.67	2.24	19.5	19.6	0.05	0.75	—	0.75	0.69	—	0.69	—	5,699	5,699	0.23	0.05	—	5,718
Dust From Material Movement	—	—	—	—	—	—	1.44	1.44	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.59	0.25	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	786	786	0.01	0.10	2.19	818

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.67	2.24	19.5	19.6	0.05	0.75	—	0.75	0.69	—	0.69	—	5,699	5,699	0.23	0.05	—	5,718
Dust From Material Movement	—	—	—	—	—	—	1.44	1.44	—	0.59	0.59	—	—	—	—	—	—	—
Onsite truck	0.03	0.02	0.61	0.25	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	786	786	0.01	0.10	0.06	816
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	2.41	2.42	0.01	0.09	—	0.09	0.09	—	0.09	—	703	703	0.03	0.01	—	705
Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	1.81	1.81	< 0.005	0.18	0.19	—	96.9	96.9	< 0.005	0.01	0.12	101
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.44	0.44	< 0.005	0.02	—	0.02	0.02	—	0.02	—	116	116	< 0.005	< 0.005	—	117
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.33	0.33	< 0.005	0.03	0.03	—	16.0	16.0	< 0.005	< 0.005	0.02	16.7
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.11	1.33	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	297	297	< 0.005	0.01	1.19	302

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.8	69.8	< 0.005	0.01	0.12	73.4
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.10	0.09	0.12	1.30	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	291	291	< 0.005	0.01	0.03	294
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.09	0.03	< 0.005	< 0.005	0.02	0.02	< 0.005	0.01	0.01	—	69.9	69.9	< 0.005	0.01	< 0.005	73.3
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.16	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	35.9	35.9	< 0.005	< 0.005	0.06	36.4
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.61	8.61	< 0.005	< 0.005	0.01	9.04
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.94	5.94	< 0.005	< 0.005	0.01	6.02
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.43	1.43	< 0.005	< 0.005	< 0.005	1.50

3.3. 4. ReSource Center - Phase IV-C (2029) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.01	3.37	29.0	28.6	0.08	1.05	—	1.05	0.97	—	0.97	—	8,751	8,751	0.35	0.07	—	8,781

Dust From Material Movement	—	—	—	—	—	—	7.41	7.41	—	3.02	3.02	—	—	—	—	—	—	—
Onsite truck	0.02	0.01	0.48	0.18	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	743	743	< 0.005	0.09	1.81	772
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.01	3.37	29.0	28.6	0.08	1.05	—	1.05	0.97	—	0.97	—	8,751	8,751	0.35	0.07	—	8,781
Dust From Material Movement	—	—	—	—	—	—	7.41	7.41	—	3.02	3.02	—	—	—	—	—	—	—
Onsite truck	0.02	0.01	0.49	0.17	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	743	743	< 0.005	0.09	0.05	771
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	4.76	4.71	0.01	0.17	—	0.17	0.16	—	0.16	—	1,439	1,439	0.06	0.01	—	1,443
Dust From Material Movement	—	—	—	—	—	—	1.22	1.22	—	0.50	0.50	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	9.49	9.49	< 0.005	0.95	0.95	—	122	122	< 0.005	0.02	0.13	127
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.87	0.86	< 0.005	0.03	—	0.03	0.03	—	0.03	—	238	238	0.01	< 0.005	—	239
Dust From Material Movement	—	—	—	—	—	—	0.22	0.22	—	0.09	0.09	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	1.73	1.73	< 0.005	0.17	0.17	—	20.2	20.2	< 0.005	< 0.005	0.02	21.0

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.17	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	287	287	< 0.005	0.01	0.99	291
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	105	105	< 0.005	0.02	0.16	111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.10	1.13	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.03	284
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	105	105	< 0.005	0.02	< 0.005	111
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.2	46.2	< 0.005	< 0.005	0.07	46.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.01	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.64	7.64	< 0.005	< 0.005	0.01	7.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01

3.4. 4. ReSource Center - Phase IV-C (2029) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	4.01	3.37	29.0	28.6	0.08	1.05	—	1.05	0.97	—	0.97	—	8,751	8,751	0.35	0.07	—	8,781
Dust From Material Movement	—	—	—	—	—	—	2.89	2.89	—	1.18	1.18	—	—	—	—	—	—	—
Onsite truck	0.02	0.01	0.48	0.18	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	743	743	< 0.005	0.09	1.81	772
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.01	3.37	29.0	28.6	0.08	1.05	—	1.05	0.97	—	0.97	—	8,751	8,751	0.35	0.07	—	8,781
Dust From Material Movement	—	—	—	—	—	—	2.89	2.89	—	1.18	1.18	—	—	—	—	—	—	—
Onsite truck	0.02	0.01	0.49	0.17	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	743	743	< 0.005	0.09	0.05	771
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.66	0.55	4.76	4.71	0.01	0.17	—	0.17	0.16	—	0.16	—	1,439	1,439	0.06	0.01	—	1,443
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.08	0.03	< 0.005	< 0.005	2.41	2.41	< 0.005	0.25	0.25	—	122	122	< 0.005	0.02	0.13	127
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.12	0.10	0.87	0.86	< 0.005	0.03	—	0.03	0.03	—	0.03	—	238	238	0.01	< 0.005	—	239
Dust From Material Movement	—	—	—	—	—	—	0.09	0.09	—	0.04	0.04	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	0.44	0.44	< 0.005	0.04	0.05	—	20.2	20.2	< 0.005	< 0.005	0.02	21.0
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.09	1.17	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	287	287	< 0.005	0.01	0.99	291
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	105	105	< 0.005	0.02	0.16	111
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.09	0.09	0.10	1.13	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	281	281	< 0.005	0.01	0.03	284
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.13	0.04	< 0.005	< 0.005	0.03	0.03	< 0.005	0.01	0.01	—	105	105	< 0.005	0.02	< 0.005	111
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.02	0.18	0.00	0.00	0.05	0.05	0.00	0.01	0.01	—	46.2	46.2	< 0.005	< 0.005	0.07	46.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	17.3	17.3	< 0.005	< 0.005	0.01	18.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.03	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	7.64	7.64	< 0.005	< 0.005	0.01	7.75
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.87	2.87	< 0.005	< 0.005	< 0.005	3.01

3.5. 5. Subtitle D Over Liner Install - Access Road (2033) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.07	4.26	31.6	36.4	0.11	1.15	—	1.15	1.05	—	1.05	—	12,091	12,091	0.49	0.10	—	12,133
Dust From Material Movement	—	—	—	—	—	—	11.9	11.9	—	4.90	4.90	—	—	—	—	—	—	—
Onsite truck	0.03	0.01	0.67	0.20	0.01	0.00	124	124	0.00	12.4	12.4	—	1,260	1,260	< 0.005	0.16	2.31	1,310
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.07	4.26	31.6	36.4	0.11	1.15	—	1.15	1.05	—	1.05	—	12,091	12,091	0.49	0.10	—	12,133
Dust From Material Movement	—	—	—	—	—	—	11.9	11.9	—	4.90	4.90	—	—	—	—	—	—	—
Onsite truck	0.03	0.01	0.68	0.20	0.01	0.00	124	124	0.00	12.4	12.4	—	1,260	1,260	< 0.005	0.16	0.06	1,308
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	10.4	12.0	0.04	0.38	—	0.38	0.35	—	0.35	—	3,975	3,975	0.16	0.03	—	3,989
Dust From Material Movement	—	—	—	—	—	—	3.93	3.93	—	1.61	1.61	—	—	—	—	—	—	—
Onsite truck	0.01	< 0.005	0.23	0.06	< 0.005	0.00	37.9	37.9	0.00	3.81	3.81	—	414	414	< 0.005	0.05	0.33	430
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.90	2.19	0.01	0.07	—	0.07	0.06	—	0.06	—	658	658	0.03	0.01	—	660

Dust From Material Movement	—	—	—	—	—	—	0.72	0.72	—	0.29	0.29	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.04	0.01	< 0.005	0.00	6.93	6.93	0.00	0.69	0.69	—	68.6	68.6	< 0.005	0.01	0.05	71.2
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.34	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	404	404	< 0.005	< 0.005	0.99	405
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	55.5	55.5	< 0.005	0.01	0.06	58.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.30	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	395	395	< 0.005	0.02	0.03	400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	55.5	55.5	< 0.005	0.01	< 0.005	58.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.42	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	130	130	< 0.005	0.01	0.14	132
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	21.5	21.5	< 0.005	< 0.005	0.02	21.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	< 0.005	3.17

3.6. 5. Subtitle D Over Liner Install - Access Road (2033) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.07	4.26	31.6	36.4	0.11	1.15	—	1.15	1.05	—	1.05	—	12,091	12,091	0.49	0.10	—	12,133
Dust From Material Movement	—	—	—	—	—	—	4.66	4.66	—	1.91	1.91	—	—	—	—	—	—	—
Onsite truck	0.03	0.01	0.67	0.20	0.01	0.00	31.5	31.5	0.00	3.20	3.20	—	1,260	1,260	< 0.005	0.16	2.31	1,310
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	5.07	4.26	31.6	36.4	0.11	1.15	—	1.15	1.05	—	1.05	—	12,091	12,091	0.49	0.10	—	12,133
Dust From Material Movement	—	—	—	—	—	—	4.66	4.66	—	1.91	1.91	—	—	—	—	—	—	—
Onsite truck	0.03	0.01	0.68	0.20	0.01	0.00	31.5	31.5	0.00	3.20	3.20	—	1,260	1,260	< 0.005	0.16	0.06	1,308
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.67	1.40	10.4	12.0	0.04	0.38	—	0.38	0.35	—	0.35	—	3,975	3,975	0.16	0.03	—	3,989
Dust From Material Movement	—	—	—	—	—	—	1.53	1.53	—	0.63	0.63	—	—	—	—	—	—	—
Onsite truck	0.01	< 0.005	0.23	0.06	< 0.005	0.00	9.65	9.65	0.00	0.98	0.98	—	414	414	< 0.005	0.05	0.33	430

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.30	0.26	1.90	2.19	0.01	0.07	—	0.07	0.06	—	0.06	—	658	658	0.03	0.01	—	660
Dust From Material Movement	—	—	—	—	—	—	0.28	0.28	—	0.11	0.11	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.04	0.01	< 0.005	0.00	1.76	1.76	0.00	0.18	0.18	—	68.6	68.6	< 0.005	0.01	0.05	71.2
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.09	1.34	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	404	404	< 0.005	< 0.005	0.99	405
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	55.5	55.5	< 0.005	0.01	0.06	58.2
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.11	0.10	0.11	1.30	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	395	395	< 0.005	0.02	0.03	400
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.07	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	55.5	55.5	< 0.005	0.01	< 0.005	58.2
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.03	0.42	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	130	130	< 0.005	0.01	0.14	132
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	18.2	18.2	< 0.005	< 0.005	0.01	19.1
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	21.5	21.5	< 0.005	< 0.005	0.02	21.8
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	3.02	3.02	< 0.005	< 0.005	< 0.005	3.17

3.7. 6. Landfill Maintenance Shop and Infrastructure Remova (2036) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.40	12.8	21.6	0.07	0.49	—	0.49	0.45	—	0.45	—	7,437	7,437	0.30	0.06	—	7,463
Dust From Material Movement	—	—	—	—	—	—	4.25	4.25	—	1.71	1.71	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.25	0.06	0.01	0.00	62.0	62.0	0.00	6.22	6.22	—	545	545	< 0.005	0.07	0.79	568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.40	12.8	21.6	0.07	0.49	—	0.49	0.45	—	0.45	—	7,437	7,437	0.30	0.06	—	7,463
Dust From Material Movement	—	—	—	—	—	—	4.25	4.25	—	1.71	1.71	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.26	0.07	0.01	0.00	62.0	62.0	0.00	6.22	6.22	—	545	545	< 0.005	0.07	0.02	567
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.40	2.37	0.01	0.05	—	0.05	0.05	—	0.05	—	815	815	0.03	0.01	—	818
Dust From Material Movement	—	—	—	—	—	—	0.47	0.47	—	0.19	0.19	—	—	—	—	—	—	—

Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	0.00	6.32	6.32	0.00	0.63	0.63	—	59.7	59.7	< 0.005	0.01	0.04	62.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.26	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.08	0.08	—	0.03	0.03	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.00	1.15	1.15	0.00	0.12	0.12	—	9.89	9.89	< 0.005	< 0.005	0.01	10.3
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.74	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	259	259	< 0.005	< 0.005	0.45	260
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.10	136
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.71	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	254	254	< 0.005	< 0.005	0.01	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	< 0.005	136
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.02	27.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	< 0.005	14.9
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	< 0.005	4.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.47

3.8. 6. Landfill Maintenance Shop and Infrastructure Remova (2036) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.40	12.8	21.6	0.07	0.49	—	0.49	0.45	—	0.45	—	7,437	7,437	0.30	0.06	—	7,463
Dust From Material Movement	—	—	—	—	—	—	1.66	1.66	—	0.67	0.67	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.25	0.06	0.01	0.00	15.8	15.8	0.00	1.60	1.60	—	545	545	< 0.005	0.07	0.79	568
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.85	2.40	12.8	21.6	0.07	0.49	—	0.49	0.45	—	0.45	—	7,437	7,437	0.30	0.06	—	7,463
Dust From Material Movement	—	—	—	—	—	—	1.66	1.66	—	0.67	0.67	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.26	0.07	0.01	0.00	15.8	15.8	0.00	1.60	1.60	—	545	545	< 0.005	0.07	0.02	567
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.31	0.26	1.40	2.37	0.01	0.05	—	0.05	0.05	—	0.05	—	815	815	0.03	0.01	—	818

Dust From Material Movement	—	—	—	—	—	—	0.18	0.18	—	0.07	0.07	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.03	0.01	< 0.005	0.00	1.61	1.61	0.00	0.16	0.16	—	59.7	59.7	< 0.005	0.01	0.04	62.2
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.26	0.43	< 0.005	0.01	—	0.01	0.01	—	0.01	—	135	135	0.01	< 0.005	—	135
Dust From Material Movement	—	—	—	—	—	—	0.03	0.03	—	0.01	0.01	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.00	0.29	0.29	0.00	0.03	0.03	—	9.89	9.89	< 0.005	< 0.005	0.01	10.3
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.74	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	259	259	< 0.005	< 0.005	0.45	260
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	0.10	136
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.71	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	254	254	< 0.005	< 0.005	0.01	254
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.15	0.05	< 0.005	< 0.005	0.04	0.05	< 0.005	0.01	0.01	—	130	130	< 0.005	0.02	< 0.005	136
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	27.8	27.8	< 0.005	< 0.005	0.02	27.9
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.02	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	14.3	14.3	< 0.005	< 0.005	< 0.005	14.9

Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.01	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	4.60	4.60	< 0.005	< 0.005	< 0.005	4.62
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	2.36	2.36	< 0.005	< 0.005	< 0.005	2.47

3.9. 7. Phase IV-D (2037) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.41	2.03	12.0	20.7	0.06	0.44	—	0.44	0.40	—	0.40	—	6,321	6,321	0.26	0.05	—	6,342
Dust From Material Movement	—	—	—	—	—	—	4.47	4.47	—	1.81	1.81	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.47	0.12	0.01	0.00	124	124	0.00	12.4	12.4	—	1,041	1,041	< 0.005	0.13	1.39	1,082
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.41	2.03	12.0	20.7	0.06	0.44	—	0.44	0.40	—	0.40	—	6,321	6,321	0.26	0.05	—	6,342
Dust From Material Movement	—	—	—	—	—	—	4.47	4.47	—	1.81	1.81	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.47	0.12	0.01	0.00	124	124	0.00	12.4	12.4	—	1,041	1,041	< 0.005	0.13	0.04	1,081
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	0.33	0.28	1.65	2.83	0.01	0.06	—	0.06	0.06	—	0.06	—	866	866	0.04	0.01	—	869
Dust From Material Movement	—	—	—	—	—	—	0.61	0.61	—	0.25	0.25	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.07	0.02	< 0.005	0.00	15.8	15.8	0.00	1.59	1.59	—	143	143	< 0.005	0.02	0.08	148
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.30	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	143	143	0.01	< 0.005	—	144
Dust From Material Movement	—	—	—	—	—	—	0.11	0.11	—	0.05	0.05	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.00	2.89	2.89	0.00	0.29	0.29	—	23.6	23.6	< 0.005	< 0.005	0.01	24.5
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.71	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	256	256	< 0.005	< 0.005	0.40	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	44.9	44.9	< 0.005	0.01	0.03	47.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.68	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	251	251	< 0.005	< 0.005	0.01	251
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	44.9	44.9	< 0.005	0.01	< 0.005	47.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	34.4	34.4	< 0.005	< 0.005	0.02	34.5

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.15	6.15	< 0.005	< 0.005	< 0.005	6.45
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	< 0.005	5.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.07

3.10. 7. Phase IV-D (2037) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.41	2.03	12.0	20.7	0.06	0.44	—	0.44	0.40	—	0.40	—	6,321	6,321	0.26	0.05	—	6,342
Dust From Material Movement	—	—	—	—	—	—	1.74	1.74	—	0.71	0.71	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.47	0.12	0.01	0.00	31.5	31.5	0.00	3.20	3.20	—	1,041	1,041	< 0.005	0.13	1.39	1,082
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	2.41	2.03	12.0	20.7	0.06	0.44	—	0.44	0.40	—	0.40	—	6,321	6,321	0.26	0.05	—	6,342
Dust From Material Movement	—	—	—	—	—	—	1.74	1.74	—	0.71	0.71	—	—	—	—	—	—	—

Onsite truck	0.01	0.01	0.47	0.12	0.01	0.00	31.5	31.5	0.00	3.20	3.20	—	1,041	1,041	< 0.005	0.13	0.04	1,081
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.33	0.28	1.65	2.83	0.01	0.06	—	0.06	0.06	—	0.06	—	866	866	0.04	0.01	—	869
Dust From Material Movement	—	—	—	—	—	—	0.24	0.24	—	0.10	0.10	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.07	0.02	< 0.005	0.00	4.02	4.02	0.00	0.41	0.41	—	143	143	< 0.005	0.02	0.08	148
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.06	0.05	0.30	0.52	< 0.005	0.01	—	0.01	0.01	—	0.01	—	143	143	0.01	< 0.005	—	144
Dust From Material Movement	—	—	—	—	—	—	0.04	0.04	—	0.02	0.02	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.01	< 0.005	< 0.005	0.00	0.73	0.73	0.00	0.07	0.07	—	23.6	23.6	< 0.005	< 0.005	0.01	24.5
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.04	0.71	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	256	256	< 0.005	< 0.005	0.40	257
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	44.9	44.9	< 0.005	0.01	0.03	47.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.06	0.05	0.68	0.00	0.00	0.31	0.31	0.00	0.07	0.07	—	251	251	< 0.005	< 0.005	0.01	251
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00

Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.02	0.02	< 0.005	< 0.005	0.01	—	44.9	44.9	< 0.005	0.01	< 0.005	47.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.09	0.00	0.00	0.04	0.04	0.00	0.01	0.01	—	34.4	34.4	< 0.005	< 0.005	0.02	34.5
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	6.15	6.15	< 0.005	< 0.005	< 0.005	6.45
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	< 0.005	< 0.005	< 0.005	0.02	0.00	0.00	0.01	0.01	0.00	< 0.005	< 0.005	—	5.69	5.69	< 0.005	< 0.005	< 0.005	5.71
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.02	1.02	< 0.005	< 0.005	< 0.005	1.07

3.11. 1. Phase IV-A Part 1 (2024) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.4	13.8	143	96.9	0.29	5.22	—	5.22	4.80	—	4.80	—	31,927	31,927	1.30	0.26	—	32,036
Dust From Material Movement	—	—	—	—	—	—	33.8	33.8	—	13.3	13.3	—	—	—	—	—	—	—
Onsite truck	0.04	0.03	0.77	0.41	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	831	831	0.01	0.10	2.57	864
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.4	13.8	143	96.9	0.29	5.22	—	5.22	4.80	—	4.80	—	31,927	31,927	1.30	0.26	—	32,036

Dust From Material Movement	—	—	—	—	—	—	33.8	33.8	—	13.3	13.3	—	—	—	—	—	—	—
Onsite truck	0.04	0.03	0.79	0.40	0.01	0.01	62.0	62.0	0.01	6.22	6.23	—	831	831	0.01	0.10	0.07	861
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.05	3.40	35.4	23.9	0.07	1.29	—	1.29	1.18	—	1.18	—	7,872	7,872	0.32	0.06	—	7,899
Dust From Material Movement	—	—	—	—	—	—	8.33	8.33	—	3.27	3.27	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.20	0.10	< 0.005	< 0.005	14.2	14.2	< 0.005	1.43	1.43	—	205	205	< 0.005	0.02	0.27	213
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	6.45	4.36	0.01	0.23	—	0.23	0.22	—	0.22	—	1,303	1,303	0.05	0.01	—	1,308
Dust From Material Movement	—	—	—	—	—	—	1.52	1.52	—	0.60	0.60	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	2.60	2.60	< 0.005	0.26	0.26	—	33.9	33.9	< 0.005	< 0.005	0.05	35.2
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.29	3.35	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	630	630	0.03	0.02	3.00	641
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	0.07	36.1
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Worker	0.25	0.22	0.33	3.25	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	617	617	0.03	0.02	0.08	624
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	< 0.005	36.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	0.79	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	152	152	0.01	0.01	0.32	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.49	8.49	< 0.005	< 0.005	0.01	8.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.05	25.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.41	1.41	< 0.005	< 0.005	< 0.005	1.47

3.12. 1. Phase IV-A Part 1 (2024) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	16.4	13.8	143	96.9	0.29	5.22	—	5.22	4.80	—	4.80	—	31,927	31,927	1.30	0.26	—	32,036
Dust From Material Movement	—	—	—	—	—	—	13.2	13.2	—	5.17	5.17	—	—	—	—	—	—	—
Onsite truck	0.04	0.03	0.77	0.41	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	831	831	0.01	0.10	2.57	864
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Off-Road Equipment	16.4	13.8	143	96.9	0.29	5.22	—	5.22	4.80	—	4.80	—	31,927	31,927	1.30	0.26	—	32,036
Dust From Material Movement	—	—	—	—	—	—	13.2	13.2	—	5.17	5.17	—	—	—	—	—	—	—
Onsite truck	0.04	0.03	0.79	0.40	0.01	0.01	15.8	15.8	0.01	1.61	1.61	—	831	831	0.01	0.10	0.07	861
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	4.05	3.40	35.4	23.9	0.07	1.29	—	1.29	1.18	—	1.18	—	7,872	7,872	0.32	0.06	—	7,899
Dust From Material Movement	—	—	—	—	—	—	3.25	3.25	—	1.28	1.28	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.20	0.10	< 0.005	< 0.005	3.62	3.62	< 0.005	0.37	0.37	—	205	205	< 0.005	0.02	0.27	213
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.74	0.62	6.45	4.36	0.01	0.23	—	0.23	0.22	—	0.22	—	1,303	1,303	0.05	0.01	—	1,308
Dust From Material Movement	—	—	—	—	—	—	0.59	0.59	—	0.23	0.23	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.04	0.02	< 0.005	< 0.005	0.66	0.66	< 0.005	0.07	0.07	—	33.9	33.9	< 0.005	< 0.005	0.05	35.2
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.29	3.35	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	630	630	0.03	0.02	3.00	641
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	0.07	36.1

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.25	0.22	0.33	3.25	0.00	0.00	0.62	0.62	0.00	0.15	0.15	—	617	617	0.03	0.02	0.08	624
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.05	0.02	< 0.005	< 0.005	0.01	0.01	< 0.005	< 0.005	< 0.005	—	34.4	34.4	< 0.005	0.01	< 0.005	36.1
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.06	0.05	0.08	0.79	0.00	0.00	0.15	0.15	0.00	0.04	0.04	—	152	152	0.01	0.01	0.32	154
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	8.49	8.49	< 0.005	< 0.005	0.01	8.90
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.14	0.00	0.00	0.03	0.03	0.00	0.01	0.01	—	25.2	25.2	< 0.005	< 0.005	0.05	25.6
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	1.41	1.41	< 0.005	< 0.005	< 0.005	1.47

3.13. 2. Phase IV-A Part 2 (2025) - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.74	6.50	59.7	50.5	0.15	2.27	—	2.27	2.09	—	2.09	—	16,488	16,488	0.67	0.13	—	16,544
Dust From Material Movement	—	—	—	—	—	—	11.0	11.0	—	3.85	3.85	—	—	—	—	—	—	—
Onsite truck	0.07	0.05	1.41	0.71	0.01	0.01	124	124	0.01	12.4	12.5	—	1,635	1,635	0.01	0.20	5.11	1,700

Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.74	6.50	59.7	50.5	0.15	2.27	—	2.27	2.09	—	2.09	—	16,488	16,488	0.67	0.13	—	16,544
Dust From Material Movement	—	—	—	—	—	—	11.0	11.0	—	3.85	3.85	—	—	—	—	—	—	—
Onsite truck	0.07	0.05	1.45	0.68	0.01	0.01	124	124	0.01	12.4	12.5	—	1,635	1,635	0.01	0.20	0.13	1,695
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.34	12.3	10.4	0.03	0.47	—	0.47	0.43	—	0.43	—	3,388	3,388	0.14	0.03	—	3,399
Dust From Material Movement	—	—	—	—	—	—	2.26	2.26	—	0.79	0.79	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.30	0.14	< 0.005	< 0.005	23.7	23.7	< 0.005	2.38	2.38	—	336	336	< 0.005	0.04	0.45	349
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.24	1.90	0.01	0.09	—	0.09	0.08	—	0.08	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	—	0.41	0.41	—	0.14	0.14	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	4.33	4.33	< 0.005	0.43	0.44	—	55.6	55.6	< 0.005	0.01	0.08	57.7
Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.20	2.35	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	464	464	0.02	0.02	2.08	471

Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.65	0.22	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	487	487	0.03	0.08	0.94	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.15	0.23	2.27	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	454	454	0.02	0.02	0.05	459
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.67	0.22	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	487	487	0.03	0.08	0.02	511
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.46	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	93.3	93.3	< 0.005	< 0.005	0.19	94.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	100	100	0.01	0.02	0.08	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.5	15.5	< 0.005	< 0.005	0.03	15.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.01	17.4

3.14. 2. Phase IV-A Part 2 (2025) - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Location	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Onsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.74	6.50	59.7	50.5	0.15	2.27	—	2.27	2.09	—	2.09	—	16,488	16,488	0.67	0.13	—	16,544

Dust From Material Movement	—	—	—	—	—	—	4.28	4.28	—	1.50	1.50	—	—	—	—	—	—	—
Onsite truck	0.07	0.05	1.41	0.71	0.01	0.01	31.5	31.6	0.01	3.21	3.23	—	1,635	1,635	0.01	0.20	5.11	1,700
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	7.74	6.50	59.7	50.5	0.15	2.27	—	2.27	2.09	—	2.09	—	16,488	16,488	0.67	0.13	—	16,544
Dust From Material Movement	—	—	—	—	—	—	4.28	4.28	—	1.50	1.50	—	—	—	—	—	—	—
Onsite truck	0.07	0.05	1.45	0.68	0.01	0.01	31.5	31.6	0.01	3.21	3.23	—	1,635	1,635	0.01	0.20	0.13	1,695
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	1.59	1.34	12.3	10.4	0.03	0.47	—	0.47	0.43	—	0.43	—	3,388	3,388	0.14	0.03	—	3,399
Dust From Material Movement	—	—	—	—	—	—	0.88	0.88	—	0.31	0.31	—	—	—	—	—	—	—
Onsite truck	0.01	0.01	0.30	0.14	< 0.005	< 0.005	6.04	6.04	< 0.005	0.62	0.62	—	336	336	< 0.005	0.04	0.45	349
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Off-Road Equipment	0.29	0.24	2.24	1.90	0.01	0.09	—	0.09	0.08	—	0.08	—	561	561	0.02	< 0.005	—	563
Dust From Material Movement	—	—	—	—	—	—	0.16	0.16	—	0.06	0.06	—	—	—	—	—	—	—
Onsite truck	< 0.005	< 0.005	0.05	0.03	< 0.005	< 0.005	1.10	1.10	< 0.005	0.11	0.11	—	55.6	55.6	< 0.005	0.01	0.08	57.7

Offsite	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.16	0.20	2.35	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	464	464	0.02	0.02	2.08	471
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.65	0.22	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	487	487	0.03	0.08	0.94	512
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.18	0.15	0.23	2.27	0.00	0.00	0.47	0.47	0.00	0.11	0.11	—	454	454	0.02	0.02	0.05	459
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.04	0.01	0.67	0.22	0.01	0.01	0.12	0.13	0.01	0.03	0.04	—	487	487	0.03	0.08	0.02	511
Average Daily	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.04	0.03	0.04	0.46	0.00	0.00	0.09	0.09	0.00	0.02	0.02	—	93.3	93.3	< 0.005	< 0.005	0.19	94.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	0.01	< 0.005	0.14	0.05	< 0.005	< 0.005	0.02	0.03	< 0.005	0.01	0.01	—	100	100	0.01	0.02	0.08	105
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Worker	0.01	0.01	0.01	0.08	0.00	0.00	0.02	0.02	0.00	< 0.005	< 0.005	—	15.5	15.5	< 0.005	< 0.005	0.03	15.7
Vendor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—	0.00	0.00	0.00	0.00	0.00	0.00
Hauling	< 0.005	< 0.005	0.03	0.01	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	—	16.6	16.6	< 0.005	< 0.005	0.01	17.4

4. Operations Emissions Details

4.10. Soil Carbon Accumulation By Vegetation Type

4.10.1. Soil Carbon Accumulation By Vegetation Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetatio	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.2. Above and Belowground Carbon Accumulation by Land Use Type - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.3. Avoided and Sequestered Emissions by Species - Unmitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e

Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.4. Soil Carbon Accumulation By Vegetation Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Vegetation	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.5. Above and Belowground Carbon Accumulation by Land Use Type - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Land Use	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

4.10.6. Avoided and Sequestered Emissions by Species - Mitigated

Criteria Pollutants (lb/day for daily, ton/yr for annual) and GHGs (lb/day for daily, MT/yr for annual)

Species	TOG	ROG	NOx	CO	SO2	PM10E	PM10D	PM10T	PM2.5E	PM2.5D	PM2.5T	BCO2	NBCO2	CO2T	CH4	N2O	R	CO2e
Daily, Summer (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Daily, Winter (Max)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Annual	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Avoided	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Sequestered	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Removed	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Subtotal	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

5. Activity Data

5.1. Construction Schedule

Phase Name	Phase Type	Start Date	End Date	Days Per Week	Work Days per Phase	Phase Description
3. Phase IV-B	Site Preparation	3/22/2027	5/21/2027	5.00	45.0	—
4. ReSource Center - Phase IV-C	Site Preparation	3/20/2029	6/11/2029	5.00	60.0	—
5. Subtitle D Over Liner Install - Access Road	Site Preparation	3/21/2033	9/2/2033	5.00	120	—
6. Landfill Maintenance Shop and Infrastructure Remova	Site Preparation	3/19/2036	5/13/2036	5.00	40.0	—
7. Phase IV-D	Site Preparation	3/2/2037	5/10/2037	5.00	50.0	—
1. Phase IV-A Part 1	Grading	3/19/2024	7/22/2024	5.00	90.0	—
2. Phase IV-A Part 2	Grading	3/20/2025	7/2/2025	5.00	75.0	—

5.2. Off-Road Equipment

5.2.1. Unmitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
3. Phase IV-B	Rubber Tired Dozers	Diesel	Average	1.00	3.33	602	0.40
3. Phase IV-B	Scrapers	Diesel	Average	2.00	3.33	473	0.48
3. Phase IV-B	Excavators	Diesel	Average	1.00	3.33	36.0	0.38
3. Phase IV-B	Rollers	Diesel	Average	1.00	1.11	36.0	0.38
3. Phase IV-B	Other Material Handling Equipment	Diesel	Average	1.00	6.67	93.0	0.40
3. Phase IV-B	Graders	Diesel	Average	1.00	1.11	148	0.41
3. Phase IV-B	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
3. Phase IV-B	Other Construction Equipment	Diesel	Average	1.00	2.22	82.0	0.42
3. Phase IV-B	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
4. ReSource Center - Phase IV-C	Rubber Tired Dozers	Diesel	Average	1.00	6.67	602	0.40
4. ReSource Center - Phase IV-C	Excavators	Diesel	Average	1.00	1.67	36.0	0.38
4. ReSource Center - Phase IV-C	Rollers	Diesel	Average	1.00	2.50	36.0	0.38
4. ReSource Center - Phase IV-C	Other Material Handling Equipment	Diesel	Average	1.00	10.0	93.0	0.40
4. ReSource Center - Phase IV-C	Graders	Diesel	Average	1.00	2.50	148	0.41
4. ReSource Center - Phase IV-C	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
4. ReSource Center - Phase IV-C	Other Construction Equipment	Diesel	Average	1.00	5.00	82.0	0.42
4. ReSource Center - Phase IV-C	Scrapers	Diesel	Average	2.00	6.67	473	0.48

4. ReSource Center - Phase IV-C	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
5. Subtitle D Over Liner Install - Access Road	Rubber Tired Dozers	Diesel	Average	2.00	5.42	602	0.40
5. Subtitle D Over Liner Install - Access Road	Scrapers	Diesel	Average	4.00	5.42	473	0.48
5. Subtitle D Over Liner Install - Access Road	Excavators	Diesel	Average	1.00	2.08	36.0	0.38
5. Subtitle D Over Liner Install - Access Road	Rollers	Diesel	Average	1.00	2.50	36.0	0.38
5. Subtitle D Over Liner Install - Access Road	Other Material Handling Equipment	Diesel	Average	1.00	7.50	93.0	0.40
5. Subtitle D Over Liner Install - Access Road	Graders	Diesel	Average	1.00	2.50	148	0.41
5. Subtitle D Over Liner Install - Access Road	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
5. Subtitle D Over Liner Install - Access Road	Other Construction Equipment	Diesel	Average	2.00	3.33	82.0	0.42
5. Subtitle D Over Liner Install - Access Road	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
6. Landfill Maintenance Shop and Infrastructure Remova	Rubber Tired Dozers	Diesel	Average	1.00	3.75	602	0.40
6. Landfill Maintenance Shop and Infrastructure Remova	Scrapers	Diesel	Average	2.00	3.75	473	0.48
6. Landfill Maintenance Shop and Infrastructure Remova	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Off-Highway Trucks	Diesel	Average	4.00	2.50	376	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Graders	Diesel	Average	1.00	2.50	148	0.41

6. Landfill Maintenance Shop and Infrastructure Remova	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
7. Phase IV-D	Rubber Tired Dozers	Diesel	Average	1.00	4.00	602	0.40
7. Phase IV-D	Scrapers	Diesel	Average	2.00	4.00	473	0.48
7. Phase IV-D	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
7. Phase IV-D	Rollers	Diesel	Average	1.00	1.00	36.0	0.38
7. Phase IV-D	Other Material Handling Equipment	Diesel	Average	1.00	6.00	93.0	0.40
7. Phase IV-D	Graders	Diesel	Average	1.00	2.00	148	0.41
7. Phase IV-D	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
7. Phase IV-D	Other Construction Equipment	Diesel	Average	2.00	2.00	82.0	0.42
7. Phase IV-D	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
1. Phase IV-A Part 1	Rubber Tired Dozers	Diesel	Average	4.00	7.22	602	0.40
1. Phase IV-A Part 1	Excavators	Diesel	Average	2.00	3.33	36.0	0.38
1. Phase IV-A Part 1	Graders	Diesel	Average	1.00	3.33	148	0.41
1. Phase IV-A Part 1	Scrapers	Diesel	Average	10.0	7.22	473	0.48
1. Phase IV-A Part 1	Bore/Drill Rigs	Diesel	Average	2.00	5.00	83.0	0.50
1. Phase IV-A Part 1	Rollers	Diesel	Average	1.00	7.22	36.0	0.38
1. Phase IV-A Part 1	Off-Highway Trucks	Diesel	Average	2.00	8.89	376	0.38
1. Phase IV-A Part 1	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
2. Phase IV-A Part 2	Excavators	Diesel	Average	2.00	2.00	36.0	0.38
2. Phase IV-A Part 2	Graders	Diesel	Average	1.00	1.33	148	0.41
2. Phase IV-A Part 2	Rubber Tired Dozers	Diesel	Average	2.00	4.00	602	0.40

2. Phase IV-A Part 2	Scrapers	Diesel	Average	8.00	4.00	473	0.48
2. Phase IV-A Part 2	Bore/Drill Rigs	Diesel	Average	1.00	2.67	83.0	0.50
2. Phase IV-A Part 2	Rollers	Diesel	Average	1.00	2.00	36.0	0.38
2. Phase IV-A Part 2	Off-Highway Trucks	Diesel	Average	2.00	2.00	376	0.38
2. Phase IV-A Part 2	Other Material Handling Equipment	Diesel	Average	1.00	10.0	93.0	0.40
2. Phase IV-A Part 2	Off-Highway Trucks	Diesel	Average	2.00	10.0	376	0.38
2. Phase IV-A Part 2	Other Construction Equipment	Diesel	Average	2.00	2.67	82.0	0.42
2. Phase IV-A Part 2	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42

5.2.2. Mitigated

Phase Name	Equipment Type	Fuel Type	Engine Tier	Number per Day	Hours Per Day	Horsepower	Load Factor
3. Phase IV-B	Rubber Tired Dozers	Diesel	Average	1.00	3.33	602	0.40
3. Phase IV-B	Scrapers	Diesel	Average	2.00	3.33	473	0.48
3. Phase IV-B	Excavators	Diesel	Average	1.00	3.33	36.0	0.38
3. Phase IV-B	Rollers	Diesel	Average	1.00	1.11	36.0	0.38
3. Phase IV-B	Other Material Handling Equipment	Diesel	Average	1.00	6.67	93.0	0.40
3. Phase IV-B	Graders	Diesel	Average	1.00	1.11	148	0.41
3. Phase IV-B	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
3. Phase IV-B	Other Construction Equipment	Diesel	Average	1.00	2.22	82.0	0.42
3. Phase IV-B	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
4. ReSource Center - Phase IV-C	Rubber Tired Dozers	Diesel	Average	1.00	6.67	602	0.40
4. ReSource Center - Phase IV-C	Excavators	Diesel	Average	1.00	1.67	36.0	0.38

4. ReSource Center - Phase IV-C	Rollers	Diesel	Average	1.00	2.50	36.0	0.38
4. ReSource Center - Phase IV-C	Other Material Handling Equipment	Diesel	Average	1.00	10.0	93.0	0.40
4. ReSource Center - Phase IV-C	Graders	Diesel	Average	1.00	2.50	148	0.41
4. ReSource Center - Phase IV-C	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
4. ReSource Center - Phase IV-C	Other Construction Equipment	Diesel	Average	1.00	5.00	82.0	0.42
4. ReSource Center - Phase IV-C	Scrapers	Diesel	Average	2.00	6.67	473	0.48
4. ReSource Center - Phase IV-C	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
5. Subtitle D Over Liner Install - Access Road	Rubber Tired Dozers	Diesel	Average	2.00	5.42	602	0.40
5. Subtitle D Over Liner Install - Access Road	Scrapers	Diesel	Average	4.00	5.42	473	0.48
5. Subtitle D Over Liner Install - Access Road	Excavators	Diesel	Average	1.00	2.08	36.0	0.38
5. Subtitle D Over Liner Install - Access Road	Rollers	Diesel	Average	1.00	2.50	36.0	0.38
5. Subtitle D Over Liner Install - Access Road	Other Material Handling Equipment	Diesel	Average	1.00	7.50	93.0	0.40
5. Subtitle D Over Liner Install - Access Road	Graders	Diesel	Average	1.00	2.50	148	0.41
5. Subtitle D Over Liner Install - Access Road	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
5. Subtitle D Over Liner Install - Access Road	Other Construction Equipment	Diesel	Average	2.00	3.33	82.0	0.42
5. Subtitle D Over Liner Install - Access Road	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42

6. Landfill Maintenance Shop and Infrastructure Remova	Rubber Tired Dozers	Diesel	Average	1.00	3.75	602	0.40
6. Landfill Maintenance Shop and Infrastructure Remova	Scrapers	Diesel	Average	2.00	3.75	473	0.48
6. Landfill Maintenance Shop and Infrastructure Remova	Excavators	Diesel	Average	1.00	5.00	36.0	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Off-Highway Trucks	Diesel	Average	4.00	2.50	376	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Graders	Diesel	Average	1.00	2.50	148	0.41
6. Landfill Maintenance Shop and Infrastructure Remova	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
6. Landfill Maintenance Shop and Infrastructure Remova	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
7. Phase IV-D	Rubber Tired Dozers	Diesel	Average	1.00	4.00	602	0.40
7. Phase IV-D	Scrapers	Diesel	Average	2.00	4.00	473	0.48
7. Phase IV-D	Excavators	Diesel	Average	1.00	2.00	36.0	0.38
7. Phase IV-D	Rollers	Diesel	Average	1.00	1.00	36.0	0.38
7. Phase IV-D	Other Material Handling Equipment	Diesel	Average	1.00	6.00	93.0	0.40
7. Phase IV-D	Graders	Diesel	Average	1.00	2.00	148	0.41
7. Phase IV-D	Off-Highway Trucks	Diesel	Average	1.00	10.0	376	0.38
7. Phase IV-D	Other Construction Equipment	Diesel	Average	2.00	2.00	82.0	0.42
7. Phase IV-D	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
1. Phase IV-A Part 1	Rubber Tired Dozers	Diesel	Average	4.00	7.22	602	0.40

1. Phase IV-A Part 1	Excavators	Diesel	Average	2.00	3.33	36.0	0.38
1. Phase IV-A Part 1	Graders	Diesel	Average	1.00	3.33	148	0.41
1. Phase IV-A Part 1	Scrapers	Diesel	Average	10.0	7.22	473	0.48
1. Phase IV-A Part 1	Bore/Drill Rigs	Diesel	Average	2.00	5.00	83.0	0.50
1. Phase IV-A Part 1	Rollers	Diesel	Average	1.00	7.22	36.0	0.38
1. Phase IV-A Part 1	Off-Highway Trucks	Diesel	Average	2.00	8.89	376	0.38
1. Phase IV-A Part 1	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42
2. Phase IV-A Part 2	Excavators	Diesel	Average	2.00	2.00	36.0	0.38
2. Phase IV-A Part 2	Graders	Diesel	Average	1.00	1.33	148	0.41
2. Phase IV-A Part 2	Rubber Tired Dozers	Diesel	Average	2.00	4.00	602	0.40
2. Phase IV-A Part 2	Scrapers	Diesel	Average	8.00	4.00	473	0.48
2. Phase IV-A Part 2	Bore/Drill Rigs	Diesel	Average	1.00	2.67	83.0	0.50
2. Phase IV-A Part 2	Rollers	Diesel	Average	1.00	2.00	36.0	0.38
2. Phase IV-A Part 2	Off-Highway Trucks	Diesel	Average	2.00	2.00	376	0.38
2. Phase IV-A Part 2	Other Material Handling Equipment	Diesel	Average	1.00	10.0	93.0	0.40
2. Phase IV-A Part 2	Off-Highway Trucks	Diesel	Average	2.00	10.0	376	0.38
2. Phase IV-A Part 2	Other Construction Equipment	Diesel	Average	2.00	2.67	82.0	0.42
2. Phase IV-A Part 2	Other Construction Equipment	Diesel	Average	2.00	10.0	82.0	0.42

5.3. Construction Vehicles

5.3.1. Unmitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
1. Phase IV-A Part 1	—	—	—	—
1. Phase IV-A Part 1	Worker	40.0	22.0	LDA,LDT1,LDT2

1. Phase IV-A Part 1	Vendor	0.00	28.0	HHDT,MHDT
1. Phase IV-A Part 1	Hauling	0.33	28.0	HHDT
1. Phase IV-A Part 1	Onsite truck	2.00	150	MHDT
2. Phase IV-A Part 2	—	—	—	—
2. Phase IV-A Part 2	Worker	30.0	22.0	LDA,LDT1,LDT2
2. Phase IV-A Part 2	Vendor	0.00	28.0	HHDT,MHDT
2. Phase IV-A Part 2	Hauling	4.75	28.0	HHDT
2. Phase IV-A Part 2	Onsite truck	4.00	150	MHDT
3. Phase IV-B	—	—	—	—
3. Phase IV-B	Worker	20.0	22.0	LDA,LDT1,LDT2
3. Phase IV-B	Vendor	0.00	28.0	HHDT,MHDT
3. Phase IV-B	Hauling	0.71	28.0	HHDT
3. Phase IV-B	Onsite truck	2.00	150	MHDT
4. ReSource Center - Phase IV-C	—	—	—	—
4. ReSource Center - Phase IV-C	Worker	20.0	22.0	LDA,LDT1,LDT2
4. ReSource Center - Phase IV-C	Vendor	0.00	28.0	HHDT,MHDT
4. ReSource Center - Phase IV-C	Hauling	1.13	28.0	HHDT
4. ReSource Center - Phase IV-C	Onsite truck	2.00	150	MHDT
5. Subtitle D Over Liner Install - Access Road	—	—	—	—
5. Subtitle D Over Liner Install - Access Road	Worker	30.0	22.0	LDA,LDT1,LDT2
5. Subtitle D Over Liner Install - Access Road	Vendor	0.00	28.0	HHDT,MHDT
5. Subtitle D Over Liner Install - Access Road	Hauling	0.67	28.0	HHDT
5. Subtitle D Over Liner Install - Access Road	Onsite truck	4.00	150	MHDT
6. Landfill Maintenance Shop and Infrastructure Remova	—	—	—	—

6. Landfill Maintenance Shop and Infrastructure Remova	Worker	20.0	22.0	LDA,LDT1,LDT2
6. Landfill Maintenance Shop and Infrastructure Remova	Vendor	0.00	28.0	HHDT,MHDT
6. Landfill Maintenance Shop and Infrastructure Remova	Hauling	1.70	28.0	HHDT
6. Landfill Maintenance Shop and Infrastructure Remova	Onsite truck	2.00	150	MHDT
7. Phase IV-D	—	—	—	—
7. Phase IV-D	Worker	20.0	22.0	LDA,LDT1,LDT2
7. Phase IV-D	Vendor	0.00	28.0	HHDT,MHDT
7. Phase IV-D	Hauling	0.60	28.0	HHDT
7. Phase IV-D	Onsite truck	4.00	150	MHDT

5.3.2. Mitigated

Phase Name	Trip Type	One-Way Trips per Day	Miles per Trip	Vehicle Mix
1. Phase IV-A Part 1	—	—	—	—
1. Phase IV-A Part 1	Worker	40.0	22.0	LDA,LDT1,LDT2
1. Phase IV-A Part 1	Vendor	0.00	28.0	HHDT,MHDT
1. Phase IV-A Part 1	Hauling	0.33	28.0	HHDT
1. Phase IV-A Part 1	Onsite truck	2.00	150	MHDT
2. Phase IV-A Part 2	—	—	—	—
2. Phase IV-A Part 2	Worker	30.0	22.0	LDA,LDT1,LDT2
2. Phase IV-A Part 2	Vendor	0.00	28.0	HHDT,MHDT
2. Phase IV-A Part 2	Hauling	4.75	28.0	HHDT
2. Phase IV-A Part 2	Onsite truck	4.00	150	MHDT
3. Phase IV-B	—	—	—	—
3. Phase IV-B	Worker	20.0	22.0	LDA,LDT1,LDT2
3. Phase IV-B	Vendor	0.00	28.0	HHDT,MHDT

3. Phase IV-B	Hauling	0.71	28.0	HHDT
3. Phase IV-B	Onsite truck	2.00	150	MHDT
4. ReSource Center - Phase IV-C	—	—	—	—
4. ReSource Center - Phase IV-C	Worker	20.0	22.0	LDA,LDT1,LDT2
4. ReSource Center - Phase IV-C	Vendor	0.00	28.0	HHDT,MHDT
4. ReSource Center - Phase IV-C	Hauling	1.13	28.0	HHDT
4. ReSource Center - Phase IV-C	Onsite truck	2.00	150	MHDT
5. Subtitle D Over Liner Install - Access Road	—	—	—	—
5. Subtitle D Over Liner Install - Access Road	Worker	30.0	22.0	LDA,LDT1,LDT2
5. Subtitle D Over Liner Install - Access Road	Vendor	0.00	28.0	HHDT,MHDT
5. Subtitle D Over Liner Install - Access Road	Hauling	0.67	28.0	HHDT
5. Subtitle D Over Liner Install - Access Road	Onsite truck	4.00	150	MHDT
6. Landfill Maintenance Shop and Infrastructure Remova	—	—	—	—
6. Landfill Maintenance Shop and Infrastructure Remova	Worker	20.0	22.0	LDA,LDT1,LDT2
6. Landfill Maintenance Shop and Infrastructure Remova	Vendor	0.00	28.0	HHDT,MHDT
6. Landfill Maintenance Shop and Infrastructure Remova	Hauling	1.70	28.0	HHDT
6. Landfill Maintenance Shop and Infrastructure Remova	Onsite truck	2.00	150	MHDT
7. Phase IV-D	—	—	—	—
7. Phase IV-D	Worker	20.0	22.0	LDA,LDT1,LDT2
7. Phase IV-D	Vendor	0.00	28.0	HHDT,MHDT
7. Phase IV-D	Hauling	0.60	28.0	HHDT

7. Phase IV-D	Onsite truck	4.00	150	MHDT

5.4. Vehicles

5.4.1. Construction Vehicle Control Strategies

Non-applicable. No control strategies activated by user.

5.5. Architectural Coatings

Phase Name	Residential Interior Area Coated (sq ft)	Residential Exterior Area Coated (sq ft)	Non-Residential Interior Area Coated (sq ft)	Non-Residential Exterior Area Coated (sq ft)	Parking Area Coated (sq ft)

5.6. Dust Mitigation

5.6.1. Construction Earthmoving Activities

Phase Name	Material Imported (Cubic Yards)	Material Exported (Cubic Yards)	Acres Graded (acres)	Material Demolished (sq. ft.)	Acres Paved (acres)
3. Phase IV-B	6,000	0.00	50.0	0.00	—
4. ReSource Center - Phase IV-C	13,000	0.00	134	0.00	—
5. Subtitle D Over Liner Install - Access Road	75,000	0.00	425	0.00	—
6. Landfill Maintenance Shop and Infrastructure Remova	10,000	3,000	53.1	0.00	—
7. Phase IV-D	4,000	0.00	68.8	0.00	—
1. Phase IV-A Part 1	77,000	496,300	993	0.00	—
2. Phase IV-A Part 2	47,000	100,000	344	0.00	—

5.6.2. Construction Earthmoving Control Strategies

Non-applicable. No control strategies activated by user.

5.7. Construction Paving

Land Use	Area Paved (acres)	% Asphalt
User Defined Industrial	0.00	0%

5.8. Construction Electricity Consumption and Emissions Factors

kWh per Year and Emission Factor (lb/MWh)

Year	kWh per Year	CO2	CH4	N2O
2024	0.00	532	0.03	< 0.005
2025	0.00	532	0.03	< 0.005
2027	0.00	532	0.03	< 0.005
2029	0.00	532	0.03	< 0.005
2033	0.00	532	0.03	< 0.005
2036	0.00	532	0.03	< 0.005
2037	0.00	532	0.03	< 0.005

5.18. Vegetation

5.18.1. Land Use Change

5.18.1.1. Unmitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Vegetation Land Use Type	Vegetation Soil Type	Initial Acres	Final Acres

5.18.1. Biomass Cover Type

5.18.1.1. Unmitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.1.2. Mitigated

Biomass Cover Type	Initial Acres	Final Acres

5.18.2. Sequestration

5.18.2.1. Unmitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

5.18.2.2. Mitigated

Tree Type	Number	Electricity Saved (kWh/year)	Natural Gas Saved (btu/year)

6. Climate Risk Detailed Report

6.1. Climate Risk Summary

Cal-Adapt midcentury 2040–2059 average projections for four hazards are reported below for your project location. These are under Representation Concentration Pathway (RCP) 8.5 which assumes GHG emissions will continue to rise strongly through 2050 and then plateau around 2100.

Climate Hazard	Result for Project Location	Unit
Temperature and Extreme Heat	15.7	annual days of extreme heat
Extreme Precipitation	7.75	annual days with precipitation above 20 mm
Sea Level Rise	0.00	meters of inundation depth
Wildfire	26.3	annual hectares burned

Temperature and Extreme Heat data are for grid cell in which your project are located. The projection is based on the 98th historical percentile of daily maximum/minimum temperatures from observed historical data (32 climate model ensemble from Cal-Adapt, 2040–2059 average under RCP 8.5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.
Extreme Precipitation data are for the grid cell in which your project are located. The threshold of 20 mm is equivalent to about ¾ an inch of rain, which would be light to moderate rainfall if received over a full day or heavy rain if received over a period of 2 to 4 hours. Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

Sea Level Rise data are for the grid cell in which your project are located. The projections are from Radke et al. (2017), as reported in Cal-Adapt (Radke et al., 2017, CEC-500-2017-008), and consider inundation location and depth for the San Francisco Bay, the Sacramento-San Joaquin River Delta and California coast resulting different increments of sea level rise coupled with extreme storm events. Users may select from four scenarios to view the range in potential inundation depth for the grid cell. The four scenarios are: No rise, 0.5 meter, 1.0 meter, 1.41 meters

Wildfire data are for the grid cell in which your project are located. The projections are from UC Davis, as reported in Cal-Adapt (2040–2059 average under RCP 8.5), and consider historical data of climate, vegetation, population density, and large (> 400 ha) fire history. Users may select from four model simulations to view the range in potential wildfire probabilities for the grid cell. The four simulations make different assumptions about expected rainfall and temperature are: Warmer/drier (HadGEM2-ES), Cooler/wetter (CNRM-CM5), Average conditions (CanESM2), Range of different rainfall and temperature possibilities (MIROC5). Each grid cell is 6 kilometers (km) by 6 km, or 3.7 miles (mi) by 3.7 mi.

6.2. Initial Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A
Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.

The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.

The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores do not include implementation of climate risk reduction measures.

6.3. Adjusted Climate Risk Scores

Climate Hazard	Exposure Score	Sensitivity Score	Adaptive Capacity Score	Vulnerability Score
Temperature and Extreme Heat	N/A	N/A	N/A	N/A
Extreme Precipitation	N/A	N/A	N/A	N/A
Sea Level Rise	N/A	N/A	N/A	N/A
Wildfire	N/A	N/A	N/A	N/A
Flooding	N/A	N/A	N/A	N/A
Drought	N/A	N/A	N/A	N/A

Snowpack Reduction	N/A	N/A	N/A	N/A
Air Quality Degradation	N/A	N/A	N/A	N/A

The sensitivity score reflects the extent to which a project would be adversely affected by exposure to a climate hazard. Exposure is rated on a scale of 1 to 5, with a score of 5 representing the greatest exposure.
The adaptive capacity of a project refers to its ability to manage and reduce vulnerabilities from projected climate hazards. Adaptive capacity is rated on a scale of 1 to 5, with a score of 5 representing the greatest ability to adapt.
The overall vulnerability scores are calculated based on the potential impacts and adaptive capacity assessments for each hazard. Scores include implementation of climate risk reduction measures.

6.4. Climate Risk Reduction Measures

7. Health and Equity Details

7.1. CalEnviroScreen 4.0 Scores

The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Exposure Indicators	—
AQ-Ozone	17.7
AQ-PM	5.92
AQ-DPM	4.60
Drinking Water	50.7
Lead Risk Housing	31.8
Pesticides	50.4
Toxic Releases	9.54
Traffic	59.6
Effect Indicators	—
CleanUp Sites	84.8
Groundwater	90.6
Haz Waste Facilities/Generators	88.9
Impaired Water Bodies	43.8

Solid Waste	86.5
Sensitive Population	—
Asthma	24.9
Cardio-vascular	39.0
Low Birth Weights	3.96
Socioeconomic Factor Indicators	—
Education	54.6
Housing	12.3
Linguistic	52.5
Poverty	35.6
Unemployment	5.57

7.2. Healthy Places Index Scores

The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

Indicator	Result for Project Census Tract
Economic	—
Above Poverty	58.74502759
Employed	84.92236623
Median HI	90.24765815
Education	—
Bachelor's or higher	75.3111767
High school enrollment	14.67984088
Preschool enrollment	19.18388297
Transportation	—
Auto Access	81.29090209
Active commuting	42.60233543
Social	—

2-parent households	79.31476967
Voting	96.35570384
Neighborhood	—
Alcohol availability	75.93994611
Park access	26.3826511
Retail density	2.887206467
Supermarket access	5.286795842
Tree canopy	85.97459258
Housing	—
Homeownership	52.86795842
Housing habitability	84.96086231
Low-inc homeowner severe housing cost burden	88.78480688
Low-inc renter severe housing cost burden	97.15128962
Uncrowded housing	52.91928654
Health Outcomes	—
Insured adults	58.50121904
Arthritis	0.0
Asthma ER Admissions	69.6
High Blood Pressure	0.0
Cancer (excluding skin)	0.0
Asthma	0.0
Coronary Heart Disease	0.0
Chronic Obstructive Pulmonary Disease	0.0
Diagnosed Diabetes	0.0
Life Expectancy at Birth	77.2
Cognitively Disabled	87.2
Physically Disabled	94.6

Heart Attack ER Admissions	82.1
Mental Health Not Good	0.0
Chronic Kidney Disease	0.0
Obesity	0.0
Pedestrian Injuries	72.5
Physical Health Not Good	0.0
Stroke	0.0
Health Risk Behaviors	—
Binge Drinking	0.0
Current Smoker	0.0
No Leisure Time for Physical Activity	0.0
Climate Change Exposures	—
Wildfire Risk	32.1
SLR Inundation Area	83.4
Children	90.2
Elderly	40.3
English Speaking	66.0
Foreign-born	40.5
Outdoor Workers	54.5
Climate Change Adaptive Capacity	—
Impervious Surface Cover	90.6
Traffic Density	20.6
Traffic Access	0.0
Other Indices	—
Hardship	24.5
Other Decision Support	—
2016 Voting	90.9

7.3. Overall Health & Equity Scores

Metric	Result for Project Census Tract
CalEnviroScreen 4.0 Score for Project Location (a)	27.0
Healthy Places Index Score for Project Location (b)	79.0
Project Located in a Designated Disadvantaged Community (Senate Bill 535)	No
Project Located in a Low-Income Community (Assembly Bill 1550)	No
Project Located in a Community Air Protection Program Community (Assembly Bill 617)	No

a: The maximum CalEnviroScreen score is 100. A high score (i.e., greater than 50) reflects a higher pollution burden compared to other census tracts in the state.
b: The maximum Health Places Index score is 100. A high score (i.e., greater than 50) reflects healthier community conditions compared to other census tracts in the state.

7.4. Health & Equity Measures

No Health & Equity Measures selected.

7.5. Evaluation Scorecard

Health & Equity Evaluation Scorecard not completed.

7.6. Health & Equity Custom Measures

No Health & Equity Custom Measures created.

8. User Changes to Default Data

Screen	Justification
Land Use	Total disturbance footprint from Technical PD
Construction: Construction Phases	Project specific construction schedule.
Construction: Off-Road Equipment	Project specific equipment, usage hours scaled based on total usage hours per phase.
Construction: Trips and VMT	Project specific worker vehicles and material truck trips. Pick up trucks modeled as onsite truck based on assumption of 15 mph onsite.
Construction: On-Road Fugitive Dust	Based on percentage of 86% paved/14% unpaved roads for on-site trucks.

CalEEMod Inputs

Tajiguas Landfill Expansion

Santa Barbara County
14470 Calle Real, Goleta, CA 93117

Land Use	CalEEMod Land Use	Size	Unit	Source/Notes
Industrial	User Defined	56.4	acres	*Total disturbance footprint from Technical PD*

Project Acreage:

Start of Construction: 3/19/2024
Construction Schedule: 5 days/week

15 mph

Phase	CalEEMod Phase	Timing	Max Duration	Start Date	End Date	Equipment	Equipment Type	Equipment HP	Equipment Quantity	Hours Per Day	Number of Days	Usage Factor (Hrs x Days)	Hrs for CalEEMod	
1. Phase IV-A Part 1 Grading/Blasting, Lower Basin Improvements, Pila Creek Modifications, and ReSource Center Power Realignment	Grading	Spring/Summer/Fall 2024	90	3/19/2024	7/23/2024	Scrapers CAT 657	Scrapers	473	10	10	65	650	7.22	
						Dozers D10 and/o	Rubber Tired Dozers	602	4	10	65	650	7.22	
						Loaders/Excavato	Excavators	36	2	10	30	300	3.33	
						Drill Rig for Blastin	Bore/Drill Rigs	83	2	10	45	450	5.00	
						Compactors / Slop	Rollers	36	1	10	65	650	7.22	
						Dump Trucks	Off-Highway Trucks	376	0	0	0	0	0.00	
						Soil Screening Equ	Other Material Handli	93	0	0	0	0	0.00	
						Motor Grader	Graders	148	1	10	30	300	3.33	
						Water Truck	Off-Highway Trucks	376	2	10	80	800	8.89	
						Liner Roll Stinger	Other Construction Ec	82	0	0	0	0	0.00	
						Pick-up Trucks	Off-Highway Trucks	376	2	10	90	900	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	90	900	10.00	
2. Phase IV-A Part 2 Remaining Grading, Liner Install, reduction of North Sedimentation Basin	Grading	Spring/Summer/Fall 2025	75	3/20/2025	7/3/2025	Scrapers CAT 657	Scrapers	473	8	10	30	300	4.00	
						Dozers D10 and/o	Rubber Tired Dozers	602	2	10	30	300	4.00	
						Loaders/Excavato	Excavators	36	2	10	15	150	2.00	
						Drill Rig for Blastin	Bore/Drill Rigs	83	1	10	20	200	2.67	
						Compactors / Slop	Rollers	36	1	10	15	150	2.00	
						Dump Trucks	Off-Highway Trucks	376	2	10	15	150	2.00	
						Soil Screening Equ	Other Material Handli	93	1	10	75	750	10.00	
						Motor Grader	Graders	148	1	10	10	100	1.33	
						Water Truck	Off-Highway Trucks	376	2	10	75	750	10.00	
						Liner Roll Stinger	Other Construction Ec	82	2	10	20	200	2.67	
						Pick-up Trucks	Off-Highway Trucks	376	4	10	75	750	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	75	750	10.00	
3. Phase IV-B Slope Liner Install	Site Prep	Spring/Summer/Fall 2027	45	3/22/2027	5/24/2027	Scrapers CAT 657	Scrapers	473	2	10	15	150	3.33	
						Dozers D10 and/o	Rubber Tired Dozers	602	1	10	15	150	3.33	
						Loaders/Excavato	Excavators	36	1	10	15	150	3.33	
						Drill Rig for Blastin	Bore/Drill Rigs	83	0	0	0	0	0.00	
						Compactors / Slop	Rollers	36	1	10	5	50	1.11	
						Dump Trucks	Off-Highway Trucks	376	0	0	0	0	0.00	
						Soil Screening Equ	Other Material Handli	93	1	10	30	300	6.67	
						Motor Grader	Graders	148	1	10	5	50	1.11	
						Water Truck	Off-Highway Trucks	376	1	10	45	450	10.00	
						Liner Roll Stinger	Other Construction Ec	82	1	10	10	100	2.22	
						Pick-up Trucks	Off-Highway Trucks	376	2	10	45	450	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	45	450	10.00	
4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	Site Prep	Spring/Summer/Fall 2029	60	3/20/2029	6/12/2029	Scrapers CAT 657	Scrapers	473	2	10	40	400	6.67	
						Dozers D10 and/o	Rubber Tired Dozers	602	1	10	40	400	6.67	
						Loaders/Excavato	Excavators	36	1	10	10	100	1.67	
						Drill Rig for Blastin	Bore/Drill Rigs	83	0	0	0	0	0.00	
						Compactors / Slop	Rollers	36	1	10	15	150	2.50	
						Dump Trucks	Off-Highway Trucks	376	0	0	0	0	0.00	
						Soil Screening Equ	Other Material Handli	93	1	10	60	600	10.00	
						Motor Grader	Graders	148	1	10	15	150	2.50	
						Water Truck	Off-Highway Trucks	376	1	10	60	600	10.00	
						Liner Roll Stinger	Other Construction Ec	82	1	10	30	300	5.00	
						Pick-up Trucks	Off-Highway Trucks	376	2	10	60	600	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	60	600	10.00	
5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	Site Prep	Spring/Summer/Fall 2033	120	3/21/2033	9/5/2033	Scrapers CAT 657	Scrapers	473	4	10	65	650	5.42	
						Dozers D10 and/o	Rubber Tired Dozers	602	2	10	65	650	5.42	
						Loaders/Excavato	Excavators	36	1	10	25	250	2.08	
						Drill Rig for Blastin	Bore/Drill Rigs	83	0	0	0	0	0.00	
						Compactors / Slop	Rollers	36	1	10	30	300	2.50	
						Dump Trucks	Off-Highway Trucks	376	0	0	0	0	0.00	
						Soil Screening Equ	Other Material Handli	93	1	10	90	900	7.50	
						Motor Grader	Graders	148	1	10	30	300	2.50	
						Water Truck	Off-Highway Trucks	376	1	10	120	1200	10.00	
						Liner Roll Stinger	Other Construction Ec	82	2	10	40	400	3.33	
						Pick-up Trucks	Off-Highway Trucks	376	4	10	120	1200	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	120	1200	10.00	
6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	Site Prep	Spring/Summer/Fall 2036	40	3/19/2036	5/14/2036	Scrapers CAT 657	Scrapers	473	2	10	15	150	3.75	
						Dozers D10 and/o	Rubber Tired Dozers	602	1	10	15	150	3.75	
						Loaders/Excavato	Excavators	36	1	10	20	200	5.00	
						Drill Rig for Blastin	Bore/Drill Rigs	83	0	0	0	0	0.00	
						Compactors / Slop	Rollers	36	0	0	0	0	0.00	
						Dump Trucks	Off-Highway Trucks	376	4	10	10	100	2.50	
						Soil Screening Equ	Other Material Handli	93	0	0	0	0	0.00	
						Motor Grader	Graders	148	1	10	10	100	2.50	
						Water Truck	Off-Highway Trucks	376	1	10	40	400	10.00	
						Liner Roll Stinger	Other Construction Ec	82	0	0	0	0	0.00	
						Pick-up Trucks	Off-Highway Trucks	376	2	10	40	400	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	40	400	10.00	
7. Phase IV-D Maintenance Pad Liner Install	Site Prep	Spring/Summer/Fall 2037	50	3/2/2037	5/11/2037	Scrapers CAT 657	Scrapers	473	2	10	20	200	4.00	
						Dozers D10 and/o	Rubber Tired Dozers	602	1	10	20	200	4.00	
						Loaders/Excavato	Excavators	36	1	10	10	100	2.00	
						Drill Rig for Blastin	Bore/Drill Rigs	83	0	0	0	0	0.00	
						Compactors / Slop	Rollers	36	1	10	5	50	1.00	
						Dump Trucks	Off-Highway Trucks	376	0	0	0	0	0.00	
						Soil Screening Equ	Other Material Handli	93	1	10	30	300	6.00	
						Motor Grader	Graders	148	1	10	10	100	2.00	
						Water Truck	Off-Highway Trucks	376	1	10	50	500	10.00	
						Liner Roll Stinger	Other Construction Ec	82	2	10	10	100	2.00	
						Pick-up Trucks	Off-Highway Trucks	376	4	10	50	500	10.00	150 miles
						Low-Pressure ATV	Other Construction Ec	82	2	10	50	500	10.00	

Source/Notes
2022Nov14_Data Needs_AECOM_120122 Combined Responses 041223. Total phase duration based on maximum days of equipment usage; other equipment daily usage hours scaled to occur over entire phase for annual emission estimates
Pick ip trucks modeled as onsite trucks in Trips and VMT screen.
Equipment HP based on equipment models provided. If not model not provided, HP based on CalEEMod defaults.

Phase	CalEEMod Phase	Timing	Worker Trips/day	one way Trip Length (mi)
1. Phase IV-A Part 1 Grading/Blasting, Lower	Grading	Spring/Summer/Fall 2024	40	*22*
2. Phase IV-A Part 2 Remaining Grading, Liner	Grading	Spring/Summer/Fall 2025	30	*22*
3. Phase IV-B Slope Liner Install	Site Prep	Spring/Summer/Fall 2027	20	*22*
4. ReSource Center (ADF) Drainage	Site Prep	Spring/Summer/Fall 2029	20	*22*
5. Subtitle D Over Liner Install for Valley Fill,	Site Prep	Spring/Summer/Fall 2033	30	*22*
6. Landfill Maintenance Shop and	Site Prep	Spring/Summer/Fall 2036	20	*22*
7. Phase IV-D Maintenance Pad Liner Install	Site Prep	Spring/Summer/Fall 2037	20	*22*

Source/Notes
2022Nov14_Data Needs_AECOM_120122 Combined Responses 041223 multiplied by two to account for daily trips

Phase	Type/Location	Material Cut (CY)	Material Fill (CY)	Material Cut (CY)	Material Fill (CY)
1. Phase IV-A Part 1 Grading/Blasting, Lower Basin Improvements, Pila Creek Modifications, and ReSource Center Power Realignment	Cell Development	487,300	2,000	496,300	77,000
	Basin Development	9,000	15,000		
	Stability/Closure Development	-	60,000		
2. Phase IV-A Part 2 Remaining Grading, Liner Install, reduction of North Sedimentation Basin	Cell Development	100,000	9,000	100,000	47,000
	Liner Soils	-	38,000		
3. Phase IV-B Slope Liner Install	Cell Development	-	-	-	6,000
	Liner Soils	-	6,000		
4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	Cell Development	-	-	-	13,000
	Liner Soils	-	13,000		
5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and	Cell Development	-	45,000	-	75,000
	Liner Soils	-	30,000		
6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	As Needed	3,000	10,000	3,000	10,000
7. Phase IV-D Maintenance Pad Liner Install	Cell Development	-	-	-	4,000
	Liner Soils	-	4,000.00		

Source/Notes
2022Nov14_Data Needs_AECOM_120122 Combined Responses 041223

Phase	Max Duration	Material	Haul Trips (Loaded)	Haul Trips (One-Way)	Haul Trips/Day	SUM of Daily Haul Trips	one way Trip Length (mi)
1. Phase IV-A Part 1 Grading/Blasting, Lower Basin Improvements, Pila Creek Modifications, and ReSource Center Power Realignment	90	Concrete	10	20	0.22	*0.33*	*28*
		Stormwater Piping	2	4	0.04		
		Electrical Materials	1	2	0.02		
		Erosion Control Materials	1	2	0.02		
		Misc	1	2	0.02		
2. Phase IV-A Part 2 Remaining Grading, Liner Install, reduction of North Sedimentation Basin	75	GCL	9	18	0.24	*4.75*	*28*
		40 Mil Geomembrane	3	6	0.08		
		60 Mil Geomembrane	3	6	0.08		
		8 oz/sy Geotextile	1	2	0.03		
		12 oz/sy Geotextile	1	2	0.03		
		16 oz/sy Geotextile	2	4	0.05		
		LCRS Rock - Floor	140	280	3.73		
		LCRS Rock - Bench	6	12	0.16		
		LCRS Piping	1	2	0.03		
		Concrete	10	20	0.27		
		Stormwater Piping	1	2	0.03		
		Erosion Control Materials	1	2	0.03		
3. Phase IV-B Slope Liner Install	45	GCL	2	4	0.09	*0.71*	*28*
		40 Mil Geomembrane	1	2	0.04		
		60 Mil Geomembrane	1	2	0.04		
		16 oz/sy Geotextile	1	2	0.04		
		LCRS Rock - Floor	0	0	0.00		
		LCRS Rock - Bench	3	6	0.13		
		LCRS Piping	1	2	0.04		
		Concrete	5	10	0.22		
		Stormwater Piping	1	2	0.04		
		Erosion Control Materials	1	2	0.04		
4. ReSource Center (ADF) Drainage Improvements + Phase IV-C Slope Liner Install	60	GCL	5	10	0.17	*1.13*	*28*
		40 Mil Geomembrane	2	4	0.07		
		60 Mil Geomembrane	2	4	0.07		
		16 oz/sy Geotextile	2	4	0.07		
		LCRS Rock - Floor	0	0	0.00		
		LCRS Rock - Bench	7	14	0.23		
		LCRS Piping	1	2	0.03		
		Concrete	13	26	0.43		
		Stormwater Piping	1	2	0.03		
		Erosion Control Materials	1	2	0.03		
5. Subtitle D Over Liner Install for Valley Fill, with ADF Landfill Gas Improvements and Access Road Adjustments	120	GCL	11	22	0.18	*0.67*	*28*
		40 Mil Geomembrane	0	0	0.00		
		60 Mil Geomembrane	3	6	0.05		
		Drainage Geocomposite	4	8	0.07		
		LCRS Rock - Floor	0	0	0.00		
		LCRS Rock - Bench	0	0	0.00		
		LCRS Piping	1	2	0.02		
		Concrete	20	40	0.33		
		Stormwater Piping	1	2	0.02		
6. Landfill Maintenance Shop and Infrastructure removal and/or replacement, Drainage improvements as needed	40	Concrete	32	64	1.6	*1.7*	*28*
		Stormwater Piping	1	2	0.05		
		Misc	1	2	0.05		

CalEEMod Inputs

Tajiguas Landfill Expansion

Santa Barbara County

14470 Calle Real, Goleta, CA 93117

7. Phase IV-D Maintenance Pad Liner Install	50	GCL	2	4	0.08	*0.6*	*28*
		40 Mil Geomembrane	1	2	0.04		
		60 Mil Geomembrane	1	2	0.04		
		16 oz/sy Geotextile	1	2	0.04		
		LCRS Rock - Floor	0	0	0		
		LCRS Rock - Bench	3	6	0.12		
		LCRS Piping	1	2	0.04		
		Concrete	5	10	0.2		
		Stormwater Piping	1	2	0.04		

Source/Notes

2022Nov14_Data Needs_AECOM_120122 Combined Responses 041223, mutliplied by two to account for one-way trips and divded by phase durations to calculate daily haul truck trips.

CalEEMod
Equipment HP and Load Factors

OFFROAD Equipment Type	Horsepower	Load Factor
Aerial Lifts	46	0.31
Air Compressors	37	0.48
Bore/Drill Rigs	83	0.50
Cement and Mortar Mixers	10	0.56
Concrete/Industrial Saws	33	0.73
Cranes	367	0.29
Crawler Tractors	87	0.43
Crushing/Proc. Equipment	85	0.78
Dumpers/Tenders	16	0.38
Excavators	36	0.38
Forklifts	82	0.2
Generator Sets	84	0.74
Graders	148	0.41
Off-Highway Tractors	38	0.44
Off-Highway Trucks	376	0.38
Other Construction Equipment	82	0.42
Other General Industrial Equipment	35	0.34
Other Material Handling Equipment	93	0.40
Pavers	81	0.42
Paving Equipment	89	0.36
Plate Compactors	8	0.43
Pressure Washers	14	0.3
Pumps	11	0.74
Rollers	36	0.38
Rough Terrain Forklifts	96	0.40
Rubber Tired Dozers	367	0.4
Rubber Tired Loaders	150	0.36
Scrapers	423	0.48
Signal Boards	6	0.82
Skid Steer Loaders	71	0.37
Surfacing Equipment	399	0.30
Sweepers/Scrubbers	36	0.46
Tractors/Loaders/Backhoes	84	0.37
Trenchers	40	0.50
Welders	46	0.45

Appendix B Operation Emissions

Summary
Project Related Emissions Increases

	Emissions (lb/day)					
Description	ROG	NOx	CO	SOx	PM10	PM2.5
Diesel equipment (only Working Area 2)	0.01	1.30	6.24	0.01	0.05	0.05
Mobile equipment fugitive dust	-	-	-	-	0.01	0.01
Working face daily cover	-	-	-	-	4.0E-03	6.0E-04
Landfill fugitives	8.00	-	-	-	-	-
Net emissions on-site and off-site vehicles	0.07	6.35	23.13	0.05	(20.75)	(5.51)
Total	**8.08**	**7.65**	**29.38**	**0.06**	**-20.69**	**-5.46**

Table 1
Landfill Mobile Equipment Emissions

TYPE	FACILITY CODE	MFG. YEAR	MANUFACTURER	TOTAL GALLONS (FY20-21)	TOTAL HOURS / MILEAGE (FY20-21)	MILEAGE / HOURS	gal/hr	MAX HORSEPOWER (HP)	DESCRIPTION OF EQUIPMENT	FUEL TYPE	WORKING LOCATION (SEE MAP)	Engine Tier	Load Factor
MOTORGRADER	163H	1999	CATERPILLAR	62	8	HOURS	7.75	220	MOTORGRADER	Diesel (Red)	5	1	0.41
MOTORGRADER	160M	2013	CATERPILLAR	2208	628	HOURS	3.52	212	MOTORGRADER	Diesel (Red)	5	4	0.41
BACKHOE	430F	2012	CATERPILLAR	163	82	HOURS	1.99	117	BACKHOE	Diesel (Red)	5	4	0.37
SCRAPER#1	6371	***2025***	CATERPILLAR	5645	436	HOURS	12.95	515	SCRAPER	Diesel (Red)	3	4	0.48
SCRAPER#9	6379	***2025***	CATERPILLAR	10169	651	HOURS	15.62	515	SCRAPER	Diesel (Red)	3	4	0.48
SCRAPER#2	6372	***2025***	CATERPILLAR	12845	1025	HOURS	12.53	515	SCRAPER	Diesel (Red)	3	4	0.48
COMPACTOR	8361	2010	CATERPILLAR	3009	226	HOURS	13.31	555	COMPACTOR	Diesel (Red)	2	3	0.36
COMPACTOR#K	836K	2014	CATERPILLAR	13084	937	HOURS	13.96	562	COMPACTOR	Diesel (Red)	2	4	0.36
COMPACTOR#K	8363	2020	CATERPILLAR	11239	1018	HOURS	11.04	562	COMPACTOR	Diesel (Red)	2	4	0.36
TRASH CAT	D9T8	2016	CATERPILLAR			HOURS		436	BULLDOZER	Diesel (Red)	2	4	0.43
TRASH CAT	D9T10	***2026***	CATERPILLAR	7044	860	HOURS	8.19	436	BULLDOZER	Diesel (Red)	2	4	0.43
TRASH CAT	D9T9	2020	CATERPILLAR	12268	1655	HOURS	7.41	436	BULLDOZER	Diesel (Red)	2	4	0.43
CONSTR CAT	D6N1	2009	CATERPILLAR			HOURS		145	BULLDOZER	Diesel (Red)	2	3	0.43
CONSTR CAT	D6N2	***2024***	CATERPILLAR	1349	395	HOURS	3.42	228	BULLDOZER	Diesel (Red)	2	4	0.43
CONSTR CAT	D6T1	2013	CATERPILLAR	2590	578	HOURS	4.48	228	BULLDOZER	Diesel (Red)	2	4i	0.43
CONSTR CAT	D10T	2008	CATERPILLAR	3096	171	HOURS	18.11	800	BULLDOZER	Diesel (Red)	6 & 7	2	0.43
EXCAVATOR	330D	2006	CATERPILLAR	329	37	HOURS	8.89	268	EXCAVATOR	Diesel (Red)	5	3	0.38
MOWER	MOW1	2013	CATERPILLAR	88	31	HOURS	2.84	130	MOWER	Diesel (Red)	5	4i	0.38
966H	LD51	2008	CATERPILLAR	1305	272	HOURS	4.80	286	WHEEL LOADER	Diesel (Red)	5	4i	0.36
930K	930K	2013	CATERPILLAR	331	144	HOURS	2.30	156	WHEEL LOADER	Diesel (Red)	5	4i	0.36
Tarp Machine	TOM1			*23.0*	*19*	HOURS	1.21	*49*	TARP MACHINE	Diesel (Red)	2	2	0.42
Tarp Machine	TOM3	2007		*23.0*	19	HOURS	1.21	*49*	TARP MACHINE	Diesel (Red)	2	2	0.42
Tarp Machine	TOM4	2016		*64.1*	53	HOURS	1.21	*49*	TARP MACHINE	Diesel (Red)	2	4	0.42
GENERATOR	GEN6	2007		106.7	218	HOURS	0.49	72	GENERATOR	Diesel (Red)	7	2	0.74
GRINDER	HOG2	2016		23761	736	HOURS	32.28	1125	GREEN WASTE	Diesel (Red)	4/Portable	4	0.36
GATOR	GAT2	2011	JOHN DEERE	6	37	HOURS	0.16	19	4WD UTILITY	Diesel (Red)	5	4	0.38
938H	LD52	2008	CATERPILLAR	1227.8	360	HOURS	3.41	180	WHEEL LOADER	Diesel (Red)	4	3	0.36
950M	LD57	2016	CATERPILLAR	3437	935	HOURS	3.68	253	WHEEL LOADER	Diesel (Red)	5	4	0.36
950M	LD61	2022	CATERPILLAR	*3437*	*935*	HOURS	3.68	253	WHEEL LOADER	Diesel (Red)	5	4	0.36
LIGHT TOWER	LP03	2007	MULTI-EQUIP	14.5	30	HOURS	0.48	8.85	LIGHT PLANT	Diesel (Red)	5	3	0.36

TYPE	CODE	YEAR	MANUFACTURER	TOTAL GALLONS (FY20-21)	TOTAL HOURS / MILEAGE (FY20-21)	MILEAGE / HOURS	gal/hr	MAX HORSEPOWER (HP)	DESCRIPTION OF EQUIPMENT	FUEL TYPE		Load Factor
HYDROSEEDER	HYD1	2015	LSC	*45.4*	50	HOURS	0.91	20	HYDROSEEDER	Gas	5	0.69

TYPE	CODE	YEAR	MANUFACTURER	TOTAL GALLONS (FY20-21)	TOTAL HOURS / MILEAGE (FY20-21)	MILEAGE / HOURS	gal/hr	MAX HORSEPOWER (HP)	DESCRIPTION OF EQUIPMENT	FUEL TYPE	
MULE	KAW1	2016	KAWASAKI	61.1	107	HOURS	0.57	17.5	4WD UTILITY	Gas	5
PIONEER	HON1	2020	HONDA	70.8	144.7	HOURS	0.49	72	4WD UTILITY	Gas	5

Table 1
Landfill Mobile Equipment Emissions

TYPE	CODE	YEAR	MANUFACTURER	TOTAL GALLONS (FY20-21)	TOTAL HOURS / MILEAGE (FY20-21)	MILEAGE / HOURS	gal/hr	MAX HORSEPOWER (HP)	DESCRIPTION OF EQUIPMENT	FUEL TYPE		Veh. Class
WATER TRUCK	WT-13	2018	KENWORTH	400.3	126	HOURS	3.18	NA	WATER TRUCK	Diesel (Clear)	5	Class 8
WATER TRUCK	WT-14	2019	KENWORTH	1307.6	373	HOURS	3.51	NA	WATER TRUCK	Diesel (Clear)	5	Class 8
TRUCK LIST	TJF2	2010	FREIGHTLINER	259	263	HOURS	0.98	NA	FUEL TRUCK	Diesel (Clear)	5	Class 8
TRUCK LIST	5996	2017	FORD F150	*421.4*	7586	MILEAGE	0.83	NA	CREW CAB	Gas	5	MDV
TRUCK LIST	5755	2015	FORD F350	100	*1800*	MILEAGE	0.83	NA	TRUCK	Gas	5	LHD1
TRUCK LIST	6050	2017	FORD F350	403.9	2584	MILEAGE	2.34	NA	UTILITY TRUCK	Gas	5	LHD2
TRUCK LIST	4989	2008	DODGE 1500	508.4	2187	MILEAGE	3.49	NA	CREW CAB	Gas	5	MDV
TRUCK LIST	4886	2005	FORD F750	423	1323	HOURS	0.32	NA	MECHANIC'S TRK	Diesel (Clear)	5	T6 Public
TRUCK LIST	5453	2013	FORD F350XL	498.1	3239	MILEAGE	2.31	NA	MECHANIC'S TRK	Gas	5	LHD2
TRUCK LIST	5397	2012	FORD F250	863.3	4894	MILEAGE	2.65	NA	TRUCK	Gas	5	LHD2
TRUCK LIST	4579	2005	DODGE 2500	253.3	1115	MILEAGE	3.41	NA	CREW CAB	Gas	5	MDV
TRUCK LIST	4992	2007	FORD F250	256.8	1051	MILEAGE	3.67	NA	CREW CAB	Gas	5	LHD1
TRUCK LIST	5995	2017	CHEVROLET	*169.8*	*3057*	MILEAGE	0.83	NA	TRUCK	Gas	5	LHD1

GHG for all non-road engines based on Part 98 Subpart C, Tables C-1 and C-2
Non-road diesel engine tier emission factors and fuel correction factors for NMHC, NOx, PM based on
https://ww2.arb.ca.gov/sites/default/files/classic/msei/ordiesel/ordas_ef_fcf_2017.pdf
Load factors taken from
or, if not avaailable from there, https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10081RV.pdf
Median Life, Annual Activity, and Load Factor Values for Nonroad EngineEmissions Modeling
EPA-420-R-10-016 NR-005d July 2010
Diesel non-road engine PM2.5 speciation based on 97% of PM10 from Section 11 of EPA-420-R-21-021
Bold and italic years indicate future equipment replacements. When equipment is slated to be replaced as a one for one replacement, hours and fuel use of the replaced equipment is assigned to the newer equipment.
2024 - replace oldest Cat D6 with new one
2025 - replace/rebuild 637 scraper engines
2026 - replace oldest Cat D9 with new one
Tarp machine fuel use estimated based on brake specific fuel consumption (BSFC) of 0.408 lb/hp-hr from Table A4 from Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES3.0.2
EPA-420-R-21-021 September 2021
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P1013KWQ.pdf
Hydroseeder pump engine fuel use estimatd based on brake specific fuel consumption (BSFC) of 0.740 lb/hp-hr and engine emission factors are from Table 5 (G4N23a) from Exhaust Emission Factors for Nonroad Engine Modeling Spark-Ignition
EPA-420-R-10-019 NR-010f July 2010
https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P10081YF.pdf

Gasoline ATVs are based on emission standards from 40 CFR §1051.107(a)(1) for HC+NOx and CO. Used 90% of combined emission standard as NOx, 10% as HC.
Nonroad Gasoline engine particulate emissions based on AP-42 Table 3.3-1
Nonroad Gasoline engine SO2 emissions based on 10 ppmv sulfur and a nominal desnity of 6.2 lb/gal and
Water trucks and Freightliner fuel truck emission calculations are based on an average vehile speed of 15 miles/hr, based on facility speed limit
Truck fuel consumption assumed to be 18 mpg where data not provided
Motor vehicles based on EMFAC2021 v1.0.2 emission inventory tool for specific model years and vehicle classes, average emission factor for 5-15 mph (see separate spreadsheet)
On road vehicle emission factors are from specific vehicle class and model year from EMFAC 2021, averaged from 5-15 mi/hr (10-15 for Class 8 diesel trucks). 15 mph based on facility speed limit

Table 1
Landfill Mobile Equipment Emissio

TYPE	FACILITY CODE	NMHC / ROG g/hp	NMHC fuel correction factor	NOx g/hp	fuel correction factor	CO g/hp	PM g/hp	PM fuel correction factor	hr/day	lbs NMHC / ROG/yr	lbs NOx/yr	lbs CO/yr	lbs SO2/yr	lbs DPM PM10/yr	lbs DPM PM2.5/yr
MOTORGRADER	163H	1	0.9	6.9	0.93	8.5	0.4	0.71		1.43	10.21	13.52	0.01	0.45	0.44
MOTORGRADER	160M	0.14	0.9	0.3	0.95	2.2	0.015	0.9		15.16	34.30	264.75	0.46	1.62	1.58
BACKHOE	430F	0.14	0.9	0.3	0.95	3.7	0.015	0.9		0.99	2.23	28.96	0.03	0.11	0.10
SCRAPER#1	6371	0.14	0.9	0.3	0.95	2.2	0.015	0.9		29.94	67.72	522.75	1.18	3.21	3.11
SCRAPER#9	6379	0.14	0.9	0.3	0.95	2.2	0.015	0.9		44.70	101.11	780.53	2.12	4.79	4.65
SCRAPER#2	6372	0.14	0.9	0.3	0.95	2.2	0.015	0.9		70.38	159.20	1228.94	2.68	7.54	7.32
COMPACTOR	8361	0.14	0.9	0.3	0.95	2.2	0.015	0.9	0.73	12.54	28.37	219.01	0.63	1.34	1.30
COMPACTOR#K	836K	0.14	0.9	0.3	0.95	2.2	0.015	0.9	3.01	52.66	119.11	919.47	2.73	5.64	5.47
COMPACTOR#K	8363	0.14	0.9	0.3	0.95	2.2	0.015	0.9	3.27	57.21	129.41	998.95	2.34	6.13	5.95
TRASH CAT	D9T8	0.14	0.9	0.3	0.95	2.2	0.015	0.9		0.00	0.00	0.00	0.00	0.00	0.00
TRASH CAT	D9T10	0.14	0.9	0.3	0.95	2.2	0.015	0.9	2.77	44.79	101.31	782.01	1.47	4.80	4.65
TRASH CAT	D9T9	0.14	0.9	0.3	0.95	2.2	0.015	0.9	5.32	86.19	194.95	1504.92	2.56	9.23	8.96
CONSTR CAT	D6N1	0.14	0.9	2.5	0.95	3.7	0.015	0.86		0.00	0.00	0.00	0.00	0.00	0.00
CONSTR CAT	D6N2	0.14	0.9	0.3	0.95	2.2	0.015	0.9	1.27	10.76	24.33	187.83	0.28	1.15	1.12
CONSTR CAT	D6T1	0.14	0.9	0.3	0.95	2.2	0.015	0.9	1.86	15.74	35.61	274.85	0.54	1.69	1.64
CONSTR CAT	D10T	0.48	0.9	4.32	0.95	2.6	0.15	0.86		56.02	532.23	337.18	0.64	16.73	16.23
EXCAVATOR	330D	0.14	0.9	1.5	0.93	2.6	0.015	0.71		1.05	11.59	21.60	0.07	0.09	0.09
MOWER	MOW1	0.14	0.9	0.3	0.95	3.7	0.015	0.9		0.43	0.96	12.49	0.02	0.05	0.04
966H	LD51	0.14	0.9	0.3	0.95	2.2	0.015	0.86		7.78	17.60	135.83	0.27	0.80	0.77
930K	930K	0.14	0.9	0.3	0.95	3.7	0.015	0.9		2.25	5.08	65.97	0.07	0.24	0.23
Tarp Machine	TOM1	0.56	0.9	5.04	0.93	4.1	0.3	0.71	0.06	0.43	4.04	3.53	0.00	0.18	0.18
Tarp Machine	TOM3	0.56	0.9	5.04	0.93	4.1	0.3	0.71	0.06	0.43	4.04	3.53	0.00	0.18	0.18
Tarp Machine	TOM4	0.35	0.9	3.15	0.93	3.7	0.02	0.71	0.17	0.76	7.04	8.90	0.01	0.03	0.03
GENERATOR	GEN6	0.56	0.9	5.04	0.95	3.7	0.3	0.9		12.91	122.61	94.75	0.02	6.91	6.71
GRINDER	HOG2	0.14	0.9	2.6	0.95	2.6	0.03	0.9		82.80	1623.18	1708.61	4.95	17.74	17.21
GATOR	GAT2	0.28	0.9	5.32	0.95	4.9	0.3	0.9		0.15	2.98	2.89	0.00	0.16	0.15
938H	LD52	0.14	0.9	1.5	0.95	2.6	0.015	0.9		6.48	73.29	133.72	0.26	0.69	0.67
950M	LD57	0.14	0.9	0.3	0.95	2.2	0.015	0.9		23.66	53.51	413.04	0.72	2.53	2.46
950M	LD61	0.14	0.9	0.3	0.95	2.2	0.015	0.9		23.66	53.51	413.04	0.72	2.53	2.46
LIGHT TOWER	LP03	0.28	0.9	5.32	0.95	6	0.3	0.86		0.05	1.06	1.26	0.00	0.05	0.05

TYPE	CODE	NMHC g/hp	NOx g/hp	CO g/hp	PM g/hp	lbs NMHC/yr	lbs NOx/yr	lbs CO/yr	lbs SO2/yr	lbs PM10/yr	lbs PM2.5/yr
HYDROSEEDER	HYD1	3.17	1.01	321.94	0.06	4.82	1.54	489.73	0.01	0.09	0.09

TYPE	CODE	HC g/km	NOx g/km	CO g/km	PM10 lb/MMBtu	PM2.5 lb/MMBtu	lbs NMHC/yr	lbs NOx/yr	lbs CO/yr	lbs SO2/yr	lbs PM10/yr	lbs PM2.5/yr
MULE	KAW1	0.15	1.35	35	0.1	0.1	0.85	7.69	199.30	0.01	0.76	0.76
PIONEER	HON1	0.15	1.35	35	0.1	0.1	1.16	10.40	269.53	0.01	0.89	0.89

Table 1
Landfill Mobile Equipment Emissio

TYPE	CODE	NOx g/mile	PM2.5 g/mile	PM10 g/mile	CO2 g/mile	CH4 g/mile	N2O g/mile	ROG g/mile	CO g/mile	SO2 g/mile	PM10_P MBW g/mile	PM2.5_P MBW g/mile		lbs ROG/yr	lbs NOx/yr	lbs CO/yr	lbs SO2/yr	lbs Exh PM10/yr	lbs Exh PM2.5/yr	lbs total PM10/yr	lbs total PM2.5/yr
WATER TRUCK	WT-13	4.9	0.0	0.0	2570.0	0.0	0.4	0.0	0.3	0.0	0.1	0.0		0.14	20.37	1.43	0.10	0.02	0.02	0.58	0.21
WATER TRUCK	WT-14	4.7	0.0	0.0	2570.0	0.0	0.4	0.0	0.3	0.0	0.1	0.0		0.42	58.16	4.15	0.30	0.06	0.06	1.73	0.64
TRUCK LIST	TJF2	12.6	0.0	0.0	3049.5	0.1	0.5	1.1	3.1	0.0	0.1	0.1		9.49	109.99	27.08	0.25	0.36	0.35	1.65	0.80
TRUCK LIST	5996	0.0	0.0	0.0	809.9	0.0	0.0	0.0	1.1	0.0	0.0	0.0		0.50	0.78	18.74	0.13	0.16	0.15	0.34	0.21
TRUCK LIST	5755	0.0	0.0	0.0	1292.3	0.0	0.0	0.0	1.1	0.0	0.1	0.0		0.05	0.10	4.52	0.05	0.01	0.01	0.32	0.11
TRUCK LIST	6050	0.0	0.0	0.0	1419.7	0.0	0.0	0.0	1.1	0.0	0.1	0.0		0.07	0.21	6.24	0.08	0.01	0.01	0.53	0.19
TRUCK LIST	4989	0.1	0.0	0.0	1022.6	0.0	0.0	0.0	1.6	0.0	0.0	0.0		0.17	0.30	7.70	0.05	0.01	0.00	0.06	0.03
TRUCK LIST	4886	15.4	0.0	0.0	2137.4	0.0	0.3	0.4	0.7	0.0	0.1	0.0		1.22	44.92	1.98	0.06	2.02	1.93	4.71	2.87
TRUCK LIST	5453	0.0	0.0	0.0	1510.3	0.0	0.0	0.0	1.2	0.0	0.1	0.0		0.10	0.30	8.37	0.11	0.01	0.01	0.66	0.23
TRUCK LIST	5397	0.0	0.0	0.0	1510.3	0.0	0.0	0.0	1.2	0.0	0.1	0.0		0.15	0.46	12.75	0.16	0.01	0.01	0.99	0.35
TRUCK LIST	4579	0.1	0.0	0.0	1039.5	0.0	0.0	0.1	2.7	0.0	0.0	0.0		0.18	0.34	6.54	0.03	0.00	0.00	0.03	0.01
TRUCK LIST	4992	0.4	0.0	0.0	1643.3	0.0	0.0	0.0	0.4	0.0	0.1	0.0		0.10	0.90	0.93	0.04	0.00	0.00	0.18	0.06
TRUCK LIST	5995	0.0	0.0	0.0	1311.7	0.0	0.0	0.0	1.1	0.0	0.1	0.0		0.08	0.15	7.38	0.09	0.01	0.01	0.54	0.20
													lbs/yr	**680.84**	**3777.18**	**12149.23**	**26.24**	**101.06**	**98.03**	**110.69**	**101.41**

Table 1
Landfill Mobile Equipment Emissio

TYPE	FACILITY CODE	lbs NMHC / ROG /day	lbs NOx/day	lbs CO/day	lbs SO2 /day	lbs DPM PM10 /day	lbs DPM PM2.5 /day	lbs NMHC / ROG/hr	lbs NOx/hr	lbs CO/hr	lbs SO2/hr	lbs DPM PM10/hr	lbs DPM PM2.5/hr
MOTORGRADER	163H	0.00	0.03	0.04	0.00	0.00	0.00	0.18	1.28	1.69	1.61E-03	5.65E-02	5.48E-02
MOTORGRADER	160M	0.05	0.11	0.85	0.00	0.01	0.01	0.02	0.05	0.42	7.32E-04	2.59E-03	2.51E-03
BACKHOE	430F	0.00	0.01	0.09	0.00	0.00	0.00	0.01	0.03	0.35	4.14E-04	1.29E-03	1.25E-03
SCRAPER#1	6371	0.10	0.22	1.68	0.00	0.01	0.01	0.07	0.16	1.20	2.70E-03	7.36E-03	7.14E-03
SCRAPER#9	6379	0.14	0.33	2.51	0.01	0.02	0.01	0.07	0.16	1.20	3.25E-03	7.36E-03	7.14E-03
SCRAPER#2	6372	0.23	0.51	3.95	0.01	0.02	0.02	0.07	0.16	1.20	2.61E-03	7.36E-03	7.14E-03
COMPACTOR	8361	0.04	0.09	0.70	0.00	0.00	0.00	0.06	0.13	0.97	2.77E-03	5.95E-03	5.77E-03
COMPACTOR#K	836K	0.17	0.38	2.96	0.01	0.02	0.02	0.06	0.13	0.98	2.91E-03	6.02E-03	5.84E-03
COMPACTOR#K	8363	0.18	0.42	3.21	0.01	0.02	0.02	0.06	0.13	0.98	2.30E-03	6.02E-03	5.84E-03
TRASH CAT	D9T8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00E+00
TRASH CAT	D9T10	0.14	0.33	2.51	0.00	0.02	0.01	0.05	0.12	0.91	1.71E-03	5.58E-03	5.41E-03
TRASH CAT	D9T9	0.28	0.63	4.84	0.01	0.03	0.03	0.05	0.12	0.91	1.54E-03	5.58E-03	5.41E-03
CONSTR CAT	D6N1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00E+00	0.00E+00	0.00E+00
CONSTR CAT	D6N2	0.03	0.08	0.60	0.00	0.00	0.00	0.03	0.06	0.48	7.11E-04	2.92E-03	2.83E-03
CONSTR CAT	D6T1	0.05	0.11	0.88	0.00	0.01	0.01	0.03	0.06	0.48	9.33E-04	2.92E-03	2.83E-03
CONSTR CAT	D10T	0.18	1.71	1.08	0.00	0.05	0.05	0.33	3.11	1.97	3.77E-03	9.78E-02	9.49E-02
EXCAVATOR	330D	0.00	0.04	0.07	0.00	0.00	0.00	0.03	0.31	0.58	1.85E-03	2.39E-03	2.32E-03
MOWER	MOW1	0.00	0.00	0.04	0.00	0.00	0.00	0.01	0.03	0.40	5.91E-04	1.47E-03	1.43E-03
966H	LD51	0.03	0.06	0.44	0.00	0.00	0.00	0.03	0.06	0.50	9.99E-04	2.93E-03	2.84E-03
930K	930K	0.01	0.02	0.21	0.00	0.00	0.00	0.02	0.04	0.46	4.79E-04	1.67E-03	1.62E-03
Tarp Machine	TOM1	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.21	0.19	2.52E-04	9.66E-03	9.37E-03
Tarp Machine	TOM3	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.21	0.19	2.52E-04	9.66E-03	9.37E-03
Tarp Machine	TOM4	0.00	0.02	0.03	0.00	0.00	0.00	0.01	0.13	0.17	2.52E-04	6.44E-04	6.25E-04
GENERATOR	GEN6	0.04	0.39	0.30	0.00	0.02	0.02	0.06	0.56	0.43	1.02E-04	3.17E-02	3.08E-02
GRINDER	HOG2	0.27	5.22	5.49	0.02	0.06	0.06	0.11	2.21	2.32	6.72E-03	2.41E-02	2.34E-02
GATOR	GAT2	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.08	0.08	3.38E-05	4.30E-03	4.17E-03
938H	LD52	0.02	0.24	0.43	0.00	0.00	0.00	0.02	0.20	0.37	7.10E-04	1.93E-03	1.87E-03
950M	LD57	0.08	0.17	1.33	0.00	0.01	0.01	0.03	0.06	0.44	7.66E-04	2.71E-03	2.63E-03
950M	LD61	0.08	0.17	1.33	0.00	0.01	0.01	0.03	0.06	0.44	7.66E-04	2.71E-03	2.63E-03
LIGHT TOWER	LP03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.04	1.01E-04	1.81E-03	1.76E-03

TYPE	CODE	lbs NMHC / ROG /day	lbs NOx/day	lbs CO/day	lbs SO2 /day	lbs PM10 /day	lbs PM2.5 /day	lbs NMHC/hr	lbs NOx/hr	lbs CO/hr	lbs SO2/hr	lbs PM10/hr	lbs PM2.5/hr
HYDROSEEDER	HYD1	0.02	0.00	1.57	0.00	0.00	0.00	0.10	0.03	9.79	1.13E-04	1.83E-03	1.83E-03
		0.00	0.00	0.00	0.00	0.00	0.00						

TYPE	CODE	lbs NMHC / ROG /day	lbs NOx/day	lbs CO/day	lbs SO2 /day	lbs PM10 /day	lbs PM2.5 /day	lbs NMHC/hr	lbs NOx/hr	lbs CO/hr	lbs SO2/hr	lbs PM10/hr	lbs PM2.5/hr
MULE	KAW1	0.00	0.02	0.64	0.00	0.00	0.00	0.01	0.07	1.86	7.08E-05	7.14E-03	7.14E-03
PIONEER	HON1	0.00	0.03	0.87	0.00	0.00	0.00	0.01	0.07	1.86	6.07E-05	6.12E-03	6.12E-03

Table 1
Landfill Mobile Equipment Emissio

TYPE	CODE	lbs NMHC / ROG /day	lbs NOx/day	lbs CO/day	lbs SO2 /day	lbs Exh PM10/yr	lbs Exh PM2.5/yr	lbs total PM10/yr	lbs total PM2.5/yr		lbs NMHC/hr	lbs NOx/hr	lbs CO/hr	lbs SO2/hr	lbs Exh PM10/yr	lbs Exh PM2.5/yr	lbs total PM10/hr	lbs total PM2.5/hr
WATER TRUCK	WT-13	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00		1.14E-03	1.62E-01	1.13E-02	8.05E-04	1.69E-04	1.62E-04	4.58E-03	1.70E-03
WATER TRUCK	WT-14	0.00	0.19	0.01	0.00	0.00	0.00	0.01	0.00		1.12E-03	1.56E-01	1.11E-02	8.05E-04	1.62E-04	1.55E-04	4.63E-03	1.72E-03
TRUCK LIST	TJF2	0.03	0.35	0.09	0.00	0.00	0.00	0.01	0.00		3.61E-02	4.18E-01	1.03E-01	9.55E-04	1.38E-03	1.32E-03	6.28E-03	3.04E-03
TRUCK LIST	5996	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00		9.94E-04	1.55E-03	3.71E-02	2.65E-04	3.21E-04	2.95E-04	6.80E-04	4.21E-04
TRUCK LIST	5755	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00		4.15E-04	8.21E-04	3.77E-02	4.22E-04	4.77E-05	4.39E-05	2.63E-03	9.47E-04
TRUCK LIST	6050	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00		4.06E-04	1.23E-03	3.62E-02	4.64E-04	5.92E-05	5.44E-05	3.07E-03	1.11E-03
TRUCK LIST	4989	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00		1.18E-03	2.07E-03	5.28E-02	3.34E-04	3.63E-05	3.33E-05	4.35E-04	1.73E-04
TRUCK LIST	4886	0.00	0.14	0.01	0.00	0.01	0.01	0.02	0.01		9.19E-04	3.40E-02	1.50E-03	4.46E-05	1.52E-03	1.46E-03	3.56E-03	2.17E-03
TRUCK LIST	5453	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00		4.47E-04	1.40E-03	3.88E-02	4.94E-04	2.72E-05	2.50E-05	3.04E-03	1.08E-03
TRUCK LIST	5397	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00		4.45E-04	1.41E-03	3.91E-02	4.94E-04	1.82E-05	1.67E-05	3.03E-03	1.07E-03
TRUCK LIST	4579	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00		2.42E-03	4.54E-03	8.80E-02	3.40E-04	3.18E-05	2.92E-05	4.37E-04	1.71E-04
TRUCK LIST	4992	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		1.42E-03	1.28E-02	1.33E-02	5.37E-04	1.63E-05	1.50E-05	2.60E-03	9.18E-04
TRUCK LIST	5995	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00		3.78E-04	7.21E-04	3.62E-02	4.29E-04	5.92E-05	5.44E-05	2.64E-03	9.57E-04
		2.19	**12.15**	**39.07**	**0.08**	**0.32**	**0.32**	**0.36**	**0.33**	lbs/hr	**1.63**	**10.85**	**34.38**	**0.05**	**0.33**	**0.32**	**0.04**	**0.02**

Table 1
Landfill Mobile Equipment Emissio

TYPE	FACILITY CODE	MMBtu/gal	CO2 kg/MMBtu	CH4 kg/MMBtu	N2O kg/MMBtu	CO2 mt/yr	CH4 mt/yr	N2O mt/yr	CO2 mt/day	CH4 mt/day	N2O mt/day
MOTORGRADER	163H	0.138	73.96	0.003	0.0006	0.63	2.57E-05	5.13E-06	0.00203	8.3E-08	1.7E-08
MOTORGRADER	160M	0.138	73.96	0.003	0.0006	22.54	9.14E-04	1.83E-04	0.07246	2.9E-06	5.9E-07
BACKHOE	430F	0.138	73.96	0.003	0.0006	1.66	6.75E-05	1.35E-05	0.00535	2.2E-07	4.3E-08
SCRAPER#1	6371	0.138	73.96	0.003	0.0006	57.62	2.34E-03	4.67E-04	0.18526	7.5E-06	1.5E-06
SCRAPER#9	6379	0.138	73.96	0.003	0.0006	103.79	4.21E-03	8.42E-04	0.33373	1.4E-05	2.7E-06
SCRAPER#2	6372	0.138	73.96	0.003	0.0006	131.10	5.32E-03	1.06E-03	0.42155	1.7E-05	3.4E-06
COMPACTOR	8361	0.138	73.96	0.003	0.0006	30.71	1.25E-03	2.49E-04	0.09875	4E-06	8E-07
COMPACTOR#K	836K	0.138	73.96	0.003	0.0006	133.54	5.42E-03	1.08E-03	0.42939	1.7E-05	3.5E-06
COMPACTOR#K	8363	0.138	73.96	0.003	0.0006	114.71	4.65E-03	9.31E-04	0.36884	1.5E-05	3E-06
TRASH CAT	D9T8	0.138	73.96	0.003	0.0006	0.00	0.00E+00	0.00E+00	0	0	0
TRASH CAT	D9T10	0.138	73.96	0.003	0.0006	71.89	2.92E-03	5.83E-04	0.23117	9.4E-06	1.9E-06
TRASH CAT	D9T9	0.138	73.96	0.003	0.0006	125.21	5.08E-03	1.02E-03	0.40261	1.6E-05	3.3E-06
CONSTR CAT	D6N1	0.138	73.96	0.003	0.0006	0.00	0.00E+00	0.00E+00	0	0	0
CONSTR CAT	D6N2	0.138	73.96	0.003	0.0006	13.77	5.58E-04	1.12E-04	0.04427	1.8E-06	3.6E-07
CONSTR CAT	D6T1	0.138	73.96	0.003	0.0006	26.43	1.07E-03	2.14E-04	0.085	3.4E-06	6.9E-07
CONSTR CAT	D10T	0.138	73.96	0.003	0.0006	31.60	1.28E-03	2.56E-04	0.10161	4.1E-06	8.2E-07
EXCAVATOR	330D	0.138	73.96	0.003	0.0006	3.36	1.36E-04	2.72E-05	0.0108	4.4E-07	8.8E-08
MOWER	MOW1	0.138	73.96	0.003	0.0006	0.90	3.64E-05	7.29E-06	0.00289	1.2E-07	2.3E-08
966H	LD51	0.138	73.96	0.003	0.0006	13.32	5.40E-04	1.08E-04	0.04283	1.7E-06	3.5E-07
930K	930K	0.138	73.96	0.003	0.0006	3.38	1.37E-04	2.74E-05	0.01086	4.4E-07	8.8E-08
Tarp Machine	TOM1	0.138	73.96	0.003	0.0006	0.23	9.51E-06	1.90E-06	0.00075	3.1E-08	6.1E-09
Tarp Machine	TOM3	0.138	73.96	0.003	0.0006	0.23	9.51E-06	1.90E-06	0.00075	3.1E-08	6.1E-09
Tarp Machine	TOM4	0.138	73.96	0.003	0.0006	0.65	2.65E-05	5.31E-06	0.0021	8.5E-08	1.7E-08
GENERATOR	GEN6	0.138	73.96	0.003	0.0006	1.09	4.42E-05	8.83E-06	0.0035	1.4E-07	2.8E-08
GRINDER	HOG2	0.138	73.96	0.003	0.0006	242.52	9.84E-03	1.97E-03	0.77979	3.2E-05	6.3E-06
GATOR	GAT2	0.138	73.96	0.003	0.0006	0.06	2.48E-06	4.97E-07	0.0002	8E-09	1.6E-09
938H	LD52	0.138	73.96	0.003	0.0006	12.53	5.08E-04	1.02E-04	0.04029	1.6E-06	3.3E-07
950M	LD57	0.138	73.96	0.003	0.0006	35.08	1.42E-03	2.85E-04	0.1128	4.6E-06	9.2E-07
950M	LD61	0.138	73.96	0.003	0.0006	35.08	1.42E-03	2.85E-04	0.1128	4.6E-06	9.2E-07
LIGHT TOWER	LP03	0.138	73.96	0.003	0.0006	0.15	6.00E-06	1.20E-06	0.00048	1.9E-08	3.9E-09

TYPE	CODE	MMBtu/gal	CO2 kg/MMBtu	CH4 kg/MMBtu	N2O kg/MMBtu	CO2 mt/yr	CH4 mt/yr	N2O mt/yr	CO2 mt/day	CH4 mt/day	N2O mt/day
HYDROSEEDER	HYD1	0.125	70.22	0.003	0.0006	0.40	1.70E-05	3.41E-06	0.00128	5.5E-08	1.1E-08

TYPE	CODE	MMBtu/gal	CO2 kg/MMBtu	CH4 kg/MMBtu	N2O kg/MMBtu	CO2 mt/yr	CH4 mt/yr	N2O mt/yr	CO2 mt/day	CH4 mt/day	N2O mt/day
MULE	KAW1	0.125	70.22	0.003	0.0006	0.54	2.29E-05	4.58E-06	0.00172	7.4E-08	1.5E-08
PIONEER	HON1	0.125	70.22	0.003	0.0006	0.62	2.66E-05	5.31E-06	0.002	8.5E-08	1.7E-08

Table 1
Landfill Mobile Equipment Emissio

TYPE	CODE		CO2 mt/yr	CH4 mt/yr	N2O mt/yr	CO2 mt/day	CH4 mt/day	N2O mt/day
WATER TRUCK	WT-13		4.86	2.22E-07	5.62E-05	0.01562	7.13E-10	1.81E-07
WATER TRUCK	WT-14		14.38	6.45E-07	1.66E-04	0.04624	2.07E-09	5.35E-07
TRUCK LIST	TJF2		12.03	1.47E-05	1.39E-04	0.03868	4.72E-08	4.48E-07
TRUCK LIST	5996		6.14	7.64E-05	5.63E-05	0.01975	2.46E-07	1.81E-07
TRUCK LIST	5755		2.33	7.02E-06	4.43E-06	0.00748	2.26E-08	1.42E-08
TRUCK LIST	6050		3.67	1.01E-05	9.89E-06	0.0118	3.25E-08	3.18E-08
TRUCK LIST	4989		2.24	2.48E-05	1.98E-05	0.00719	7.96E-08	6.36E-08
TRUCK LIST	4886		42.42	2.82E-05	4.91E-04	0.13639	9.08E-08	1.58E-06
TRUCK LIST	5453		4.89	1.34E-05	1.31E-05	0.01573	4.31E-08	4.2E-08
TRUCK LIST	5397		7.39	2.01E-05	1.97E-05	0.02377	6.47E-08	6.33E-08
TRUCK LIST	4579		1.16	2.48E-05	1.94E-05	0.00373	7.96E-08	6.23E-08
TRUCK LIST	4992		1.73	1.32E-05	2.77E-05	0.00555	4.24E-08	8.92E-08
TRUCK LIST	5995		4.01	1.12E-05	7.01E-06	0.01289	3.59E-08	2.25E-08
		tons/yr	**1215.69**	**0.04930174**	**0.0098635**	**3.91**	**0.000159**	**3.17E-05**

Table 2
Landfill Mobile Equipment DPM Emissions by Area

Area	Hourly DPM Emissions (lb/hr)	Annual DPM Emissions (lb/yr)			
2	0.0550	29.48	**TRSHFILL**		
3	0.0221	15.07	**SCRAPPER**		
4	0.0260	18.42	**GRNWASTE**		
5	0.0402	10.65	**LFMAINOP**		
6	0.0978	16.73		2.34E+01	**AREA6N7**
7	0.0317	6.71			

Landfill Green Waste Grinder DPM Emissions
(Area 4)

Hourly Emissions (lb/hr)	0.0241	
Annual Emissions (lb/yr)	17.74	**GWGRIND**

Table 3
Diesel Equipment Exhaust Emissions of TACs with Acute Effects

Area 2 (7:00 a.m. - 4:00 p.m.)

Compound	CAS Number	Emission Factor (lb/1,000 gal)[a]	Emissions (lb/hour)	
Benzene	71432	0.1863	4.51E-04	**TRSHFILL/TRSHFLL2**
Formaldehyde	50000	1.7261	4.17E-03	**Project Affected**
Acetaldehyde	75070	0.7833	1.89E-03	
Acrolein	107028	0.0339	8.20E-05	
1,3-Butadiene	106990	0.2174	5.26E-04	
Toluene	108883	0.1054	2.55E-04	
Xylenes	1330207	0.0424	1.03E-04	
Hydrogen chloride	7647010	0.1863	4.51E-04	
Arsenic	7440382	0.0016	3.87E-06	
Copper	7440508	0.0041	9.92E-06	
Mercury	7436976	0.0020	4.84E-06	
Nickel	7440020	0.0039	9.43E-06	

Hourly fuel use = 2.42 gal/hr

Area 5 (7:00 a.m. - 5:00 p.m.)

Compound	CAS Number	Emission Factor (lb/1,000 gal)[a]	Emissions (lb/hour)	
Benzene	71432	0.1863	1.44E-03	**LFMAINOP**
Formaldehyde	50000	1.7261	1.34E-02	
Acetaldehyde	75070	0.7833	6.07E-03	
Acrolein	107028	0.0339	2.63E-04	
1,3-Butadiene	106990	0.2174	1.68E-03	
Toluene	108883	0.1054	8.17E-04	
Xylenes	1330207	0.0424	3.29E-04	
Hydrogen chloride	7647010	0.1863	1.44E-03	
Arsenic	7440382	0.0016	1.24E-05	
Copper	7440508	0.0041	3.18E-05	
Mercury	7436976	0.0020	1.55E-05	
Nickel	7440020	0.0039	3.02E-05	

Hourly fuel use = 7.75 gal/hr

Area 6&7 (7:00 a.m. - 5:00 p.m.)

Compound	CAS Number	Emission Factor (lb/1,000 gal)[a]	Emissions (lb/hour)	
Benzene	71432	0.1863	3.46E-03	**AREA6N7**
Formaldehyde	50000	1.7261	3.21E-02	
Acetaldehyde	75070	0.7833	1.46E-02	
Acrolein	107028	0.0339	6.30E-04	
1,3-Butadiene	106990	0.2174	4.04E-03	
Toluene	108883	0.1054	1.96E-03	
Xylenes	1330207	0.0424	7.88E-04	
Hydrogen chloride	7647010	0.1863	3.46E-03	
Arsenic	7440382	0.0016	2.98E-05	
Copper	7440508	0.0041	7.62E-05	
Mercury	7436976	0.0020	3.72E-05	
Nickel	7440020	0.0039	7.25E-05	

Hourly fuel use = 18.59 gal/hr

[a] From Ventura County Air Pollution Control District AB 2588 Emission Factors for Diesel Fuel Internal Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

Table 4

Gasoline **Not Project Affected (Full Facility HRA Only)**

Area 5 (7:00 a.m. - 4:00 p.m.)

Hourly Fuel Usage	22.33	**gal/hr**

Compound	**CAS Number**	**lb/1000 gal**	**Emissions (lb/year)**	**Emissions (lb/hour)**
1,2,4-Trimethylbenzene	95636	1.3941	3.11E+00	3.11E-02
1,3-Butadiene	106990	0.9183	2.05E+00	2.05E-02
Acetaldehyde	75070	0.8298	1.85E+00	1.85E-02
Acrolein	107028	0.1992	4.45E-01	4.45E-03
Benzene	71432	3.8061	8.50E+00	8.50E-02
Chlorine	7782505	0.4550	1.02E+00	1.02E-02
Copper	7440508	0.0033	7.37E-03	7.37E-05
Ethyl Benzene	100414	1.6596	3.71E+00	3.71E-02
Formaldehyde	50000	3.4520	7.71E+00	7.71E-02
Manganese	7439965	0.0033	7.37E-03	7.37E-05
Methanol	67561	0.7745	1.73E+00	1.73E-02
Methyl Ethyl Ketone	78933	0.0664	1.48E-01	1.48E-03
Methyl tert-Butyl Ether	1634044	2.0579	4.59E+00	4.59E-02
m-Xylene	108383	4.9235	1.10E+01	1.10E-01
Naphthalene	91203	0.1438	3.21E-01	3.21E-03
n-Hexane	110543	1.4494	3.24E+00	3.24E-02
Nickel	7440020	0.0033	7.37E-03	7.37E-05
o-Xylene	95476	1.7149	3.83E+00	3.83E-02
Styrene	100425	0.1438	3.21E-01	3.21E-03
Toluene	108883	7.5125	1.68E+01	1.68E-01

Table 5
Gasoline Dispensing Emissions
https://www.ourair.org/wp-content/uploads/apcd-25T.pdf
https://www.ourair.org/wp-content/uploads/GDF-Emissions-ver-3.0.xls

SBCAPCD Approved Emission Factors
Based on U2 System type and H3 Hose type

Phase	lb/1000 gal	ROG lb/yr	ROGlb/hr
Loading	0.15	0.556	3.450E-02
Breathing	0.25	0.926	1.250E-02
Refueling	0.42	1.556	2.100E-02
Spillage	0.42	1.556	2.100E-02
Hose Permeation	1 hose	3.740	4.269E-04
Total	1.24	8.333	9.513E-04

Annual Throughput:	3704	gal/yr
Max Hour Throughput:	50	gal/hr
Loading Throughput:	230	gal/hr

Toxic Substance	Ann. Vapor	Short. Vap
wt% Benzene	0.00457	0.00549
wt% Ethyl Benzene	0.00107	
wt% n-Hexane	0.0182	
wt% Naphthalene	0.00000445	
wt% Propylene	0.00003594	
wt% Toluene	0.0111	0.0135
wt% Xylenes	0.00409	0.00509

Modeling Parameters

Process	Release Height (m)	Stack Temp (deg K)	Stack Vel (m/s)	Stack Dia (m)	σZint (m)	σYint (m)	Source ID
Loading	3.658	291.483	0.001	0.05	--	--	GASLOAD
Breathing	3.658	288.706	0.001	0.05	--	--	GASBREAT
Refueling	1.500	--	--	--	3.020	1.860	GASREFU
Spillage	1.000	--	--	--	3.020	1.860	GASSPILL

Loading Emissions for Modeling

Toxic Substance	lb/yr	lb/hr
Benzene	2.539E-03	1.894E-04
Ethyl Benzene	5.945E-04	3.692E-05
n-Hexane	1.011E-02	6.279E-04
Naphthalene	2.472E-06	1.535E-07
Propylene	1.997E-05	1.240E-06
Toluene	6.167E-03	4.658E-04
Xylenes	2.272E-03	1.756E-04

Breathing Emissions for Modeling

Toxic Substance	lb/yr	lb/hr
Benzene	4.232E-03	6.863E-05
Ethyl Benzene	9.908E-04	1.338E-05
n-Hexane	1.685E-02	2.275E-04
Naphthalene	4.121E-06	5.563E-08
Propylene	3.328E-05	4.493E-07
Toluene	1.028E-02	1.688E-04
Xylenes	3.787E-03	6.363E-05

Refueling Emissions for Modeling

Toxic Substance	lb/yr	lb/hr
Benzene	2.420E-02	1.176E-04
Ethyl Benzene	5.666E-03	2.293E-05
n-Hexane	9.638E-02	3.900E-04
Naphthalene	2.357E-05	9.535E-08
Propylene	1.903E-04	7.701E-07
Toluene	5.878E-02	2.893E-04
Xylenes	2.166E-02	1.091E-04

Spillage Emissions for Modeling

Toxic Substance	lb/yr	lb/hr
Benzene	7.109E-03	1.153E-04
Ethyl Benzene	1.665E-03	2.247E-05
n-Hexane	2.831E-02	3.822E-04
Naphthalene	6.923E-06	9.345E-08
Propylene	5.591E-05	7.547E-07
Toluene	1.727E-02	2.835E-04
Xylenes	6.363E-03	1.069E-04

Table 6 **Fuel Tanks**[a]

Compound	CAS Number	Clear Diesel Hourly Emission Rate (lb/hr)	Clear Diesel Annual Emission Rate (lb/yr)	Red Diesel Hourly Emission Rate (lb/hr)	Red Diesel Annual Emission Rate (lb/yr)	Gasoline Tank Hourly Emission Rate (lb/hr)	Gasoline Tank Annual Emission Rate (lb/yr)
Benzene	71432	1.14E-06	0.01	2.28E-06	0.02	5.82E-05	0.51
Ethylbenzene	100414	1.14E-06	0.01	3.42E-06	0.03	4.57E-06	0.04
n-Hexane	110543	1.14E-06	0.01	1.14E-06	0.01	5.25E-05	0.46
Toluene	108883	1.14E-06	0.01	2.51E-05	0.22	6.39E-05	0.56
1,2,4-Trimethylbenzene	95636	1.14E-06	0.01	4.91E-05	0.43	1.14E-06	0.01
m-Xylene	108383	1.14E-06	0.01	6.28E-05	0.55	1.71E-05	0.15
ROC		4.34E-05	0.38	1.08E-03	9.50	9.51E-04	8.33

[a]Consistent with emissions submitted as part of ATC 14500-10 for Tajiguas ReSource Center.

Table 7a
Post-Project Traffic

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
1000' Roundtrip Distance outside TSL Boundary (miles)	0.38	
Roundtrips per Day	184	

		Ratio (1000' RT / Waste Truck RT)
Shortest Total RT Waste Truck Distance (mi)	50	7.58E-03

	PM30 (lb/day)
Off-Site Mobile Emissions Summary	1.396

Off-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Paved Road Dust Toxics Calculations
Road Segment: Highway to Entrance (HWY)

Compound	CAS #	lb/lb-PM[(1)]	lb/hr	lb/yr
PM30 Paved Road Dust			0.1269086	434.15427
Aluminum	7429905	0.106709	1.35E-02	4.63E+01
Antimony	7440360	6.80E-05	8.63E-06	2.95E-02
Arsenic	7440382	1.30E-05	1.65E-06	5.64E-03
Barium	7440393	1.04E-03	1.32E-04	4.52E-01
Cadmium	7440439	3.00E-06	3.81E-07	1.30E-03
Chromium (total)	7440473	1.70E-05	2.16E-06	7.38E-03
Cobalt	7440484	2.30E-05	2.92E-06	9.99E-03
Copper	7440508	1.48E-04	1.88E-05	6.43E-02
Lead	7439921	1.24E-04	1.57E-05	5.38E-02
Manganese	7439965	8.00E-04	1.02E-04	3.47E-01
Mercury	7439976	9.00E-06	1.14E-06	3.91E-03
Nickel	7440020	1.20E-05	1.52E-06	5.21E-03
Phosphorus	7723140	0.002723	3.46E-04	1.18E+00
Selenium	7782492	2.00E-06	2.54E-07	8.68E-04
Silica, crystalline	1175	0.00795	1.01E-03	3.45E+00
Sulfates	9960	0.002692	3.42E-04	1.17E+00
Vanadium	7440622	7.10E-05	9.01E-06	3.08E-02
Zinc	7440666	9.91E-04	1.26E-04	4.30E-01

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Entrance to MRF (MRFENTRY)

Compound	CAS Number	Factor (lb/1,000 gal)[a]	Emissions (lb/hour)
1,3-Butadiene	106990	0.2174	2.30E-04
Acetaldehyde	75070	0.7833	8.27E-04
Acrolein	107028	0.0339	3.58E-05
Arsenic	7440382	0.0016	1.69E-06
Benzene	71432	0.1863	1.97E-04
Copper	7440508	0.0041	4.33E-06
Formaldehyde	50000	1.7261	1.82E-03
Hydrogen chloride	7647010	0.1863	1.97E-04
Mercury	7439976	0.0020	2.11E-06
Nickel	7440020	0.0039	4.12E-06
Toluene	108883	0.1054	1.11E-04
Xylenes	1330207	0.0424	4.48E-05

Hourly fuel use = 1.06

[a] From Ventura County Air Pollution Control District AB 2588 Emission Factors for Diesel Fuel Internal Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

Off-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Road Segment: Highway to Entrance (HWY)

Compound	CAS #	lb/yr	lb/hr
Diesel PM	9901	7.39E-01	0
Aluminum	7429905	4.63E+01	1.35E-02
Antimony	7440360	2.95E-02	8.63E-06
Arsenic	7440382	5.64E-03	3.34E-06
Barium	7440393	4.52E-01	1.32E-04
Cadmium	7440439	1.30E-03	3.81E-07
Chromium (total)	7440473	7.38E-03	2.16E-06
Cobalt	7440484	9.99E-03	2.92E-06
Copper	7440508	6.43E-02	2.31E-05
Lead	7439921	5.38E-02	1.57E-05
Manganese	7439965	3.47E-01	1.02E-04
Mercury	7439976	3.91E-03	3.25E-06
Nickel	7440020	5.21E-03	5.64E-06
Phosphorus	7723140	1.18E+00	3.46E-04
Selenium	7782492	8.68E-04	2.54E-07
Silica, crystalline	1175	3.45E+00	1.01E-03
Sulfates	9960	1.17E+00	3.42E-04
Vanadium	7440622	3.08E-02	9.01E-06
Zinc	7440666	4.30E-01	1.26E-04
1,3-Butadiene	106990	0	2.30E-04
Acetaldehyde	75070	0	8.27E-04
Acrolein	107028	0	3.58E-05
Benzene	71432	0	1.97E-04
Formaldehyde	50000	0	1.82E-03
Hydrogen chloride	7647010	0	1.97E-04
Toluene	108883	0	1.11E-04
Xylenes	1330207	0	4.48E-05

Table 7b
Post-Project Traffic

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.62	
Roundtrips per Day	184	

	PM30 (lb/day)
On-Site Mobile Emissions Summary	67.47

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Paved Road Dust Toxics Calculations
Road Segment: GW Area to MRF (GWTOMRF)

Compound	CAS #	lb/lb-PM[(1)]	lb/hr	lb/yr
PM30 Paved Road Dust			6.4412436	22035.4944
Aluminum	7429905	0.0724	4.66E-01	1.60E+03
Antimony	7440360	1.00E-05	6.44E-05	2.20E-01
Arsenic	7440382	1.70E-05	1.10E-04	3.75E-01
Barium	7440393	8.62E-04	5.55E-03	1.90E+01
Cadmium	7440439	2.10E-05	1.35E-04	4.63E-01
Chromium (total)	7440473	2.24E-04	1.44E-03	4.94E+00
Cobalt	7440484	1.15E-04	7.41E-04	2.53E+00
Copper	7440508	1.02E-04	6.57E-04	2.25E+00
Lead	7439921	5.57E-04	3.59E-03	1.23E+01
Manganese	7439965	9.45E-04	6.09E-03	2.08E+01
Mercury	7439976	1.50E-05	9.66E-05	3.31E-01
Nickel	7440020	5.90E-05	3.80E-04	1.30E+00
Phosphorus	7723140	0.00150	9.66E-03	3.31E+01
Selenium	7782492	2.00E-06	1.29E-05	4.41E-02
Silica, crystalline	1175	0.100	6.44E-01	2.20E+03
Sulfates	9960	0.00429	2.76E-02	9.45E+01
Vanadium	7440622	2.76E-04	1.78E-03	6.08E+00
Zinc	7440666	5.18E-04	3.34E-03	1.14E+01

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Entrance to MRF (MRFENTRY)

Compound	CAS Number	Emission Factor (lb/1,000 gal)[a]	Emissions (lb/hour)
1,3-Butadiene	106990	0.2174	3.76E-04
Acetaldehyde	75070	0.7833	1.35E-03
Acrolein	107028	0.0339	5.86E-05
Arsenic	7440382	0.0016	2.77E-06
Benzene	71432	0.1863	3.22E-04
Copper	7440508	0.0041	7.09E-06
Formaldehyde	50000	1.7261	2.98E-03
Hydrogen chloride	7647010	0.1863	3.22E-04
Mercury	7439976	0.0020	3.46E-06
Nickel	7440020	0.0039	6.74E-06
Toluene	108883	0.1054	1.82E-04
Xylenes	1330207	0.0424	7.33E-05

Hourly fuel use = 1.73 gal/hr

[a] From Ventura County Air Pollution Control District
AB 2588 Emission Factors for Diesel Fuel Internal
Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Road Segment: GW Area to MRF (GWTOMRF)

Compound	CAS #	lb/yr	lb/hr
Diesel PM	9901	5.08E+00	0
Aluminum	7429905	1.60E+03	4.66E-01
Antimony	7440360	2.20E-01	6.44E-05
Arsenic	7440382	3.75E-01	1.12E-04
Barium	7440393	1.90E+01	5.55E-03
Cadmium	7440439	4.63E-01	1.35E-04
Chromium (total)	7440473	4.94E+00	1.44E-03
Cobalt	7440484	2.53E+00	7.41E-04
Copper	7440508	2.25E+00	6.64E-04
Lead	7439921	1.23E+01	3.59E-03
Manganese	7439965	2.08E+01	6.09E-03
Mercury	7439976	3.31E-01	1.00E-04
Nickel	7440020	1.30E+00	3.87E-04
Phosphorus	7723140	3.31E+01	9.66E-03
Selenium	7782492	4.41E-02	1.29E-05
Silica, crystalline	1175	2.20E+03	6.44E-01
Sulfates	9960	9.45E+01	2.76E-02
Vanadium	7440622	6.08E+00	1.78E-03
Zinc	7440666	1.14E+01	3.34E-03
1,3-Butadiene	106990	0	3.76E-04
Acetaldehyde	75070	0	1.35E-03
Acrolein	107028	0	5.86E-05
Benzene	71432	0	3.22E-04
Formaldehyde	50000	0	2.98E-03
Hydrogen chloride	7647010	0	3.22E-04
Toluene	108883	0	1.82E-04
Xylenes	1330207	0	7.33E-05

Table 7c
Post-Project Traffic

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	1.14	
Roundtrips per Day	184	

	PM30 (lb/day)
On-Site Mobile Emissions Summary	34.44

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Paved Road Dust Toxics Calculations
Road Segment: GATE to GW AREA (GATETOGW)

Compound	CAS #	lb/lb-PM[(1)]	lb/hr	lb/yr
PM30 Paved Road Dust			3.735494019	12779.12504
Aluminum	7429905	0.0724	2.70E-01	9.25E+02
Antimony	7440360	1.00E-05	3.74E-05	1.28E-01
Arsenic	7440382	1.70E-05	6.35E-05	2.17E-01
Barium	7440393	8.62E-04	3.22E-03	1.10E+01
Cadmium	7440439	2.10E-05	7.84E-05	2.68E-01
Chromium (total)	7440473	2.24E-04	8.37E-04	2.86E+00
Cobalt	7440484	1.15E-04	4.30E-04	1.47E+00
Copper	7440508	1.02E-04	3.81E-04	1.30E+00
Lead	7439921	5.57E-04	2.08E-03	7.12E+00
Manganese	7439965	9.45E-04	3.53E-03	1.21E+01
Mercury	7439976	1.50E-05	5.60E-05	1.92E-01
Nickel	7440020	5.90E-05	2.20E-04	7.54E-01
Phosphorus	7723140	0.00150	5.60E-03	1.92E+01
Selenium	7782492	2.00E-06	7.47E-06	2.56E-02
Silica, crystalline	1175	0.100	3.74E-01	1.28E+03
Sulfates	9960	0.00429	1.60E-02	5.48E+01
Vanadium	7440622	2.76E-04	1.03E-03	3.53E+00
Zinc	7440666	5.18E-04	1.93E-03	6.62E+00

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Entrance to MRF (MRFENTRY)

Compound	CAS Number	Factor (lb/1,000 gal)[a]	Emissions (lb/hour)
1,3-Butadiene	106990	0.2174	6.91E-04
Acetaldehyde	75070	0.7833	2.49E-03
Acrolein	107028	0.0339	1.08E-04
Arsenic	7440382	0.0016	5.09E-06
Benzene	71432	0.1863	5.92E-04
Copper	7440508	0.0041	1.30E-05
Formaldehyde	50000	1.7261	5.49E-03
Hydrogen chloride	7647010	0.1863	5.92E-04
Mercury	7439976	0.0020	6.36E-06
Nickel	7440020	0.0039	1.24E-05
Toluene	108883	0.1054	3.35E-04
Xylenes	1330207	0.0424	1.35E-04

Hourly fuel use = 3.18 gal/hr

[a] From Ventura County Air Pollution Control District
AB 2588 Emission Factors for Diesel Fuel Internal Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Road Segment GATE to GW AREA (GATETOGW)

Compound	CAS #	lb/yr	lb/hr
Diesel PM	9901	2.90E+00	0
Aluminum	7429905	9.25E+02	2.70E-01
Antimony	7440360	1.28E-01	3.74E-05
Arsenic	7440382	2.17E-01	6.86E-05
Barium	7440393	1.10E+01	3.22E-03
Cadmium	7440439	2.68E-01	7.84E-05
Chromium (to	7440473	2.86E+00	8.37E-04
Cobalt	7440484	1.47E+00	4.30E-04
Copper	7440508	1.30E+00	3.94E-04
Lead	7439921	7.12E+00	2.08E-03
Manganese	7439965	1.21E+01	3.53E-03
Mercury	7439976	1.92E-01	6.24E-05
Nickel	7440020	7.54E-01	2.33E-04
Phosphorus	7723140	1.92E+01	5.60E-03
Selenium	7782492	2.56E-02	7.47E-06
Silica, crystalli	1175	1.28E+03	3.74E-01
Sulfates	9960	5.48E+01	1.60E-02
Vanadium	7440622	3.53E+00	1.03E-03
Zinc	7440666	6.62E+00	1.93E-03
1,3-Butadiene	106990	0	6.91E-04
Acetaldehyde	75070	0	2.49E-03
Acrolein	107028	0	1.08E-04
Benzene	71432	0	5.92E-04
Formaldehyde	50000	0	5.49E-03
Hydrogen chlo	7647010	0	5.92E-04
Toluene	108883	0	3.35E-04
Xylenes	1330207	0	1.35E-04

Table 7d
Post-Project Traffic

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.28	
Roundtrips per Day	184	

	PM30 (lb/day)
On-Site Mobile Emissions Summary	4.56

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Paved Road Dust Toxics Calculations
Road Segment: Entrance to GATE (ENTRGATE)

Compound	CAS #	lb/lb-PM[1]	lb/hr	lb/yr
PM30 Paved Road Dust			0.565438682	1934.365732
Aluminum	7429905	0.0724	4.09E-02	1.40E+02
Antimony	7440360	1.00E-05	5.65E-06	1.93E-02
Arsenic	7440382	1.70E-05	9.61E-06	3.29E-02
Barium	7440393	8.62E-04	4.87E-04	1.67E+00
Cadmium	7440439	2.10E-05	1.19E-05	4.06E-02
Chromium (total)	7440473	2.24E-04	1.27E-04	4.33E-01
Cobalt	7440484	1.15E-04	6.50E-05	2.22E-01
Copper	7440508	1.02E-04	5.77E-05	1.97E-01
Lead	7439921	5.57E-04	3.15E-04	1.08E+00
Manganese	7439965	9.45E-04	5.34E-04	1.83E+00
Mercury	7439976	1.50E-05	8.48E-06	2.90E-02
Nickel	7440020	5.90E-05	3.34E-05	1.14E-01
Phosphorus	7723140	0.00150	8.48E-04	2.90E+00
Selenium	7782492	2.00E-06	1.13E-06	3.87E-03
Silica, crystalline	1175	0.100	5.65E-02	1.93E+02
Sulfates	9960	0.00429	2.43E-03	8.30E+00
Vanadium	7440622	2.76E-04	1.56E-04	5.34E-01
Zinc	7440666	5.18E-04	2.93E-04	1.00E+00

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Entrance to MRF (MRFENTRY)

Compound	CAS Number	Factor (lb/1,000 gal)[a]	Emissions (lb/hour)
1,3-Butadiene	106990	0.2174	1.72E-04
Acetaldehyde	75070	0.7833	6.18E-04
Acrolein	107028	0.0339	2.68E-05
Arsenic	7440382	0.0016	1.26E-06
Benzene	71432	0.1863	1.47E-04
Copper	7440508	0.0041	3.24E-06
Formaldehyde	50000	1.7261	1.36E-03
Hydrogen chloride	7647010	0.1863	1.47E-04
Mercury	7439976	0.0020	1.58E-06
Nickel	7440020	0.0039	3.08E-06
Toluene	108883	0.1054	8.32E-05
Xylenes	1330207	0.0424	3.35E-05

Hourly fuel use = 0.79 gal/hr

[a] From Ventura County Air Pollution Control District
AB 2588 Emission Factors for Diesel Fuel Internal
Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
Road Segment Entrance to GATE (ENTRGATE)

Compound	CAS #	lb/yr	lb/hr
Diesel PM	9901	7.21E-01	0
Aluminum	7429905	1.40E+02	4.09E-02
Antimony	7440360	1.93E-02	5.65E-06
Arsenic	7440382	3.29E-02	1.09E-05
Barium	7440393	1.67E+00	4.87E-04
Cadmium	7440439	4.06E-02	1.19E-05
Chromium (to	7440473	4.33E-01	1.27E-04
Cobalt	7440484	2.22E-01	6.50E-05
Copper	7440508	1.97E-01	6.09E-05
Lead	7439921	1.08E+00	3.15E-04
Manganese	7439965	1.83E+00	5.34E-04
Mercury	7439976	2.90E-02	1.01E-05
Nickel	7440020	1.14E-01	3.64E-05
Phosphorus	7723140	2.90E+00	8.48E-04
Selenium	7782492	3.87E-03	1.13E-06
Silica, crystalli	1175	1.93E+02	5.65E-02
Sulfates	9960	8.30E+00	2.43E-03
Vanadium	7440622	5.34E-01	1.56E-04
Zinc	7440666	1.00E+00	2.93E-04
1,3-Butadiene	106990	0	1.72E-04
Acetaldehyde	75070	0	6.18E-04
Acrolein	107028	0	2.68E-05
Benzene	71432	0	1.47E-04
Formaldehyde	50000	0	1.36E-03
Hydrogen chlo	7647010	0	1.47E-04
Toluene	108883	0	8.32E-05
Xylenes	1330207	0	3.35E-05

Table 7e
Post-Project Traffic

Hours/Day	9	7AM - 4PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.85	
Roundtrips per Day	103	

	PM30 (lb/day)
On-Site Mobile Emissions Summary	158.40

On-Site Motor Vehicles (7:00 a.m. - 4:00 p.m.)
Paved Road Dust Toxics Calculations
Road Segment: MRF to Workface (HLROAD)

Compound	CAS #	lb/lb-PM[1]	lb/hr	lb/yr
PM30 Paved Road Dust			17.5996884	49261.5279
Aluminum	7429905	0.0724	1.27E+00	3.57E+03
Antimony	7440360	1.00E-05	1.76E-04	4.93E-01
Arsenic	7440382	1.70E-05	2.99E-04	8.37E-01
Barium	7440393	8.62E-04	1.52E-02	4.25E+01
Cadmium	7440439	2.10E-05	3.70E-04	1.03E+00
Chromium (total)	7440473	2.24E-04	3.94E-03	1.10E+01
Cobalt	7440484	1.15E-04	2.02E-03	5.67E+00
Copper	7440508	1.02E-04	1.80E-03	5.02E+00
Lead	7439921	5.57E-04	9.80E-03	2.74E+01
Manganese	7439965	9.45E-04	1.66E-02	4.66E+01
Mercury	7439976	1.50E-05	2.64E-04	7.39E-01
Nickel	7440020	5.90E-05	1.04E-03	2.91E+00
Phosphorus	7723140	0.00150	2.64E-02	7.39E+01
Selenium	7782492	2.00E-06	3.52E-05	9.85E-02
Silica, crystalline	1175	0.100	1.76E+00	4.93E+03
Sulfates	9960	0.00429	7.55E-02	2.11E+02
Vanadium	7440622	2.76E-04	4.86E-03	1.36E+01
Zinc	7440666	5.18E-04	9.12E-03	2.55E+01

On-Site Motor Vehicles (6:00 a.m. - 5:00 p.m.)
MRF to Workface (HLROAD)

Compound	CAS Number	Emission Factor (lb/1,000 gal)[a]	Emissions (lb/hour)
1,3-Butadiene	106990	0.2174	3.52E-04
Acetaldehyde	75070	0.7833	1.27E-03
Acrolein	107028	0.0339	5.49E-05
Arsenic	7440382	0.0016	2.59E-06
Benzene	71432	0.1863	3.02E-04
Copper	7440508	0.0041	6.64E-06
Formaldehyde	50000	1.7261	2.80E-03
Hydrogen chloride	7647010	0.1863	3.02E-04
Mercury	7439976	0.0020	3.24E-06
Nickel	7440020	0.0039	6.32E-06
Toluene	108883	0.1054	1.71E-04
Xylenes	1330207	0.0424	6.87E-05

Hourly fuel use = 1.62 gal/hr

[a] From Ventura County Air Pollution Control District AB 2588 Emission Factors for Diesel Fuel Internal Combustion.
http://www.vcapcd.org/pubs/Engineering/AirToxics/combem.pdf
Only includes TACs with acute reference exposure levels.

On-Site Motor Vehicles (7:00 a.m. - 4:00 p.m.)
Road Segment: MRF to Workface (HLROAD)

Compound	CAS #	lb/yr	lb/hr
Diesel PM	9901	2.14E+00	0
Aluminum	7429905	3.6E+03	1.3E+00
Antimony	7440360	4.9E-01	1.8E-04
Arsenic	7440382	8.4E-01	3.0E-04
Barium	7440393	4.2E+01	1.5E-02
Cadmium	7440439	1.0E+00	3.7E-04
Chromium (total)	7440473	1.1E+01	3.9E-03
Cobalt	7440484	5.7E+00	2.0E-03
Copper	7440508	5.0E+00	1.8E-03
Lead	7439921	2.7E+01	9.8E-03
Manganese	7439965	4.7E+01	1.7E-02
Mercury	7439976	7.4E-01	2.7E-04
Nickel	7440020	2.9E+00	1.0E-03
Phosphorus	7723140	7.4E+01	2.6E-02
Selenium	7782492	9.9E-02	3.5E-05
Silica, crystalline	1175	4.9E+03	1.8E+00
Sulfates	9960	2.1E+02	7.6E-02
Vanadium	7440622	1.4E+01	4.9E-03
Zinc	7440666	2.6E+01	9.1E-03
1,3-Butadiene	106990	0.0E+00	3.5E-04
Acetaldehyde	75070	0.0E+00	1.3E-03
Acrolein	107028	0.0E+00	5.5E-05
Benzene	71432	0.0E+00	3.0E-04
Formaldehyde	50000	0.0E+00	2.8E-03
Hydrogen chloride	7647010	0.0E+00	3.0E-04
Toluene	108883	0.0E+00	1.7E-04
Xylenes	1330207	0.0E+00	6.9E-05

Table 7a
Traffic Increase Highway to Turnoff (HWY)

	Daily Emissions (lb/day)					
Highway to Turnoff (HWY)	ROG	NOx	CO	SOx	PM10	PM2.5
Off-Site Mobile Daily Emissions Summary	0.060	3.604	11.387	0.028	4.389	0.765

	Annual Emissions (tons/year)					
Highway to Turnoff (HWY)	ROG	NOx	CO	SOx	PM10	PM2.5
Off-Site Mobile Annual Emissions Summary	0.009	0.560	1.771	0.004	0.683	0.119

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
1000' Roundtrip Distance (miles)	0.38	
Roundtrips per Day	21	

		Ratio
Shortest Total Waste Truck RT Distance (mi)	50	0.00757576

Table 7b
Traffic Increase Gate to MRF (ROAD0048-150,ROAD0165-166)

	Daily Emissions (lb/day)					
Gate to MRF (ROAD0048-150,ROAD0165-166)	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Daily Emissions Summary	3.65E-03	0.22	0.69	1.71E-03	-21.72	-5.43

	Annual Emissions (tons/year)					
Gate to MRF (ROAD0048-150,ROAD0165-166)	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Annual Emissions Summary	5.67E-04	0.03	0.11	0.00	-3.38	-0.84

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.82	
Roundtrips per Day	21	

Table 7c
Traffic Increase Entrance to Gate (ROAD00151-164)

	Daily Emissions (lb/day)					
Entrance to Gate (ROAD00151-164)	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Daily Emissions Summary	2.98E-04	0.1178	0.05	1.47E-04	-8.21	-2.05

	Annual Emissions (tons/year)					
Entrance to Gate (ROAD00151-164)	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Annual Emissions Summary	4.63E-05	0.02	0.01	0.00	-1.28	-0.32

Hours/Day	11	6AM - 5PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.28	
Roundtrips per Day	21	

Table 7d
Traffic Increase MRF to Working Face (HLROAD)

	Daily Emissions (lb/day)					
MRF to Working Face (HLROAD)	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Daily Emissions Summary	2.51E-03	1.54E-01	4.57E-01	1.22E-03	7.57E+00	1.89E+00

	Annual Emissions (tons/year)					
	ROG	NOx	CO	SOx	PM10	PM2.5
On-Site Mobile Annual Emissions Summary	3.90E-04	2.40E-02	7.10E-02	1.90E-04	1.18	0.29

Hours/Day	9	7AM - 4PM
Miles/Gallon (Tajiguas RC ATC 14500 10 Value)	6	
Roundtrip Distance (miles)	0.85	
Roundtrips per Day	5	

Table 8
Daily Cover and Activity at Working Face
From Table 13.2.4-1, MSW cover

s =	9	%, silt content, cover, AP-42 Table 13.2.4-1
M =	50	%, moisture content, cover, Appendix E.8 of the Draft EIR for the Tajiguas Landfill Expansion Project, Santa Barbara County No. 01-EIR-5 based on sufficient watering to achieve wet native soil

Daily Activity (Source ID: TRSHFILL/TRSHFLL2)

9 hours/day (7AM - 4PM), operational window
19.59 Maximum hours/day equipment activity for 7 equipment
22.12 Increase in truck trips, converted to hours/day 7 equipment activity
0.36 hours/day, daily per equipment activity increase

Table 11.9-1, bulldozing overburden
Equation from AP-42 Section 11.9
lb PM10/hr = 1.0 * 0.75 * (s^1.5) / (M^1.4)
(based on <15 um equation)

0.085 lb/hr PM10/equipment
0.5929 lb/hr PM10 for 7 equipment
0.0238 daily average lb/hr PM10 for 7 equipment
0.0086 lbs/day PM10

lb PM2.5/hr = 5.7 * 0.105 * (s^1.2) / (M^1.3)
(based on TSP equation)

0.052 lb/hr PM2.5/equipment
0.3619 lb/hr PM2.5 for 7 equipment
0.0145 daily average lb/hr PM2.5 for 7 equipment
0.0052 lbs/day PM2.5

Daily Cover Soil Dumping (Source ID: TRSHCVR)
AP-42 Section 13.2.4
PM10 lb/ton = 0.35*0.0032*(U/5)^1.3 / (M/2)^1.4 — 1.389E-05 lb PM10/ton

PM2.5 lb/ton = 0.053*0.0032*(U/5)^1.3 / (M/2)^1.4 — 2.104E-06 lb PM2.5/ton

U = 5.47 mph, from Table 9, Appendix E.8 of the Draft EIR for the Tajiguas Landfill Expansion Project, Santa Barbara County No. 01-EIR-5

Year	Daily cover (cy/yr)	Daily cover (ton/yr)	Daily cover (ton/day)	Daily PM10 (lb/day)	Daily PM2.5 (lb/day)	Daily PM10 (lb/hr)	Daily PM2.5 (lb/hr)
2026	61,235	79,361	255.2	3.55E-03	5.37E-04	3.55E-03	5.37E-04
2027	61,847	80,154	257.7	3.58E-03	5.42E-04	3.58E-03	5.42E-04
2028	62,466	80,956	260.3	3.62E-03	5.48E-04	3.62E-03	5.48E-04
2029	63,092	81,767	262.9	3.65E-03	5.53E-04	3.65E-03	5.53E-04
2030	63,721	82,582	265.5	3.69E-03	5.59E-04	3.69E-03	5.59E-04
2031	64,357	83,407	268.2	3.73E-03	5.64E-04	3.73E-03	5.64E-04
2032	65,003	84,244	270.9	3.76E-03	5.70E-04	3.76E-03	5.70E-04
2033	65,653	85,086	273.6	3.80E-03	5.76E-04	3.80E-03	5.76E-04
2034	66,310	85,938	276.3	3.84E-03	5.81E-04	3.84E-03	5.81E-04
2035	66,973	86,797	279.1	3.88E-03	5.87E-04	3.88E-03	5.87E-04
2036	67,643	87,665	281.9	3.92E-03	5.93E-04	3.92E-03	5.93E-04
2037	68,320	88,543	284.7	3.96E-03	5.99E-04	3.96E-03	5.99E-04
2038	69,003	89,428	287.5	4.00E-03	6.05E-04	4.00E-03	6.05E-04
			Max	4.00E-03	6.05E-04	4.00E-03	6.05E-04

96 lb/cf, moist packed soil, Table 2-118 from 7th edition Perry's Chemical Engineers Handbook
27 cy/cf

Table 11.9-1, bulldozing overburden
Equation from AP-42 Section 11.9
lb PM30/hr = 5.7 * (s^1.2) / (M^1.3)

0.492385 lb/hr PM30/equipment
3.446695 lb/hr PM30 for 7 equipment
0.138113 daily average lb/hr PM30 for 7 equipment, activity increase
386.5797 annual lb/year for 7 equipment

PM30 lb/ton = 0.74*0.0032*(U/5)^1.3 / (M/2)^1.4
PM30 lb/ton = 2.938E-05
PM30 lb/yr = 2.627E+00
PM30 lb/hr = 8.447E-03

Daily Activity (Source ID: TRSHFILL/TRSHFLL2)

Pollutant	CAS	lb/lb-PM	lb/yr	lb/hr
Aluminum	7429905	0.0724	2.799E+01	2.495E-01
Antimony	7440360	1.00E-05	3.866E-03	3.447E-05
Arsenic	7440382	1.70E-05	6.572E-03	5.859E-05
Cadmium	7440439	2.10E-05	8.118E-03	7.238E-05
Chromium (total)	7440473	2.24E-04	8.659E-02	7.721E-04
Cobalt	7440484	1.15E-04	4.446E-02	3.964E-04
Copper	7440508	1.02E-04	3.943E-02	3.516E-04
Lead	7439921	5.57E-04	2.153E-01	1.920E-03
Manganese	7439965	9.45E-04	3.653E-01	3.257E-03
Mercury	7439976	1.50E-05	5.799E-03	5.170E-05
Nickel	7440020	5.90E-05	2.281E-02	2.034E-04
Phosphorus	7723140	0.00150	5.795E-01	5.167E-03
Selenium	7782492	2.00E-06	7.732E-04	6.893E-06
Silica, crystalline[2]	1175	0.100	3.866E+01	3.447E-01
Sulfates	9960	0.00429	1.660E+00	1.480E-02
Vanadium	7440622	2.76E-04	1.067E-01	9.513E-04
Zinc	7440666	5.18E-04	2.002E-01	1.785E-03

Daily Cover Soil Dumping (Source ID: TRSHCVR)

Pollutant	CAS	lb/lb-PM	lb/yr	lb/hr
Aluminum	7429905	0.0724	1.902E-01	6.115E-04
Antimony	7440360	1.00E-05	2.627E-05	8.447E-08
Arsenic	7440382	1.70E-05	4.466E-05	1.436E-07
Cadmium	7440439	2.10E-05	5.517E-05	1.774E-07
Chromium (total)	7440473	2.24E-04	5.884E-04	1.892E-06
Cobalt	7440484	1.15E-04	3.021E-04	9.714E-07
Copper	7440508	1.02E-04	2.680E-04	8.616E-07
Lead	7439921	5.57E-04	1.463E-03	4.705E-06
Manganese	7439965	9.45E-04	2.483E-03	7.982E-06
Mercury	7439976	1.50E-05	3.941E-05	1.267E-07
Nickel	7440020	5.90E-05	1.550E-04	4.984E-07
Phosphorus	7723140	0.00150	3.938E-03	1.266E-05
Selenium	7782492	2.00E-06	5.254E-06	1.689E-08
Silica, crystalline[2]	1175	0.100	2.627E-01	8.447E-04
Sulfates	9960	0.00429	1.128E-02	3.627E-05
Vanadium	7440622	2.76E-04	7.251E-04	2.331E-06
Zinc	7440666	5.18E-04	1.361E-03	4.376E-06

Table 9
Modeling Summary

TRSHFILL Location 1 Project Short-term Normal Emissions (g/s) or (g/s/m²)

Model ID	# of Sources or Area (m²)	ROC	NOx	CO	PM10	PM2.5	SOx	EMISFACT HROFDY	Chi/Q	EMISFACT HROFDY	Notes
CLRDSL	1	5.46566E-06	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASLOAD	1	4.34693E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASBREAT	1	1.57497E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASREFU	1	2.69975E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASSPILL	1	2.64596E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
REDDSL	1	1.36598E-04	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
UNLDGAS	1	1.19856E-04	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
ROAD0048-ROAD0083,ROAD0165-166	38	1.09977E-06	2.42388E-05	2.08284E-04	-6.54582E-03	-1.63552E-03	5.16569E-07	6*0 11*1 7*0	2.63158E-02	6*0 11*1 7*0	Negative due to silt loading decrease
ROAD0084-ROAD0150	66							6*0 11*1 7*0	1.51515E-02	6*0 11*1 7*0	Negative due to silt loading decrease
ROAD0151-ROAD0164	14	2.43487E-07	9.63532E-05	4.35158E-05	-6.71403E-03	-1.67829E-03	1.20632E-07	6*0 11*1 7*0	7.14286E-02	6*0 11*1 7*0	Negative due to silt loading decrease
HL005579-HL005625	43	8.16330E-07	5.02888E-05	1.48700E-04	2.46521E-03	6.15732E-04	3.97673E-07	7*0 9*1 8*0	2.32558E-02	7*0 9*1 8*0	
HWY001-HWY021	21	2.47458E-07	1.48933E-05	4.70538E-05	1.81367E-05	3.15906E-06	1.15780E-07	6*0 11*1 7*0	4.76190E-02	6*0 11*1 7*0	
LFPROJ	217393.5	1.93127E-07	N/A	N/A	N/A	N/A	N/A	N/A	4.59995E-06	N/A	
TRSHFILL	29484.6	1.65189E-06	5.54177E-06	2.66709E-05	3.36377E-07	2.89780E-07	5.82528E-08	7*0 9*1 8*0	3.39160E-05	7*0 9*1 8*0	
TRSHCVR	29484.6	N/A	N/A	N/A	1.70728E-08	2.58531E-09	N/A	15*0 1*1 8*0	3.39160E-05	15*0 1*1 8*0	

	ROC	NOx	CO	PM10	PM2.5	SOx
Mod 10 ROAD0048-ROAD0164	7.03E-06	1.68E-05	2.12E-05	2.25140E-04	5.56581E-05	1.82E-07
Total ROAD0048-ROAD150,ROAD0165-166	8.12691E-06	4.10455E-05	2.29534E-04	-6.32068E-03	-1.57986E-03	6.99064E-07
Total ROAD0151-ROAD0164	7.27063E-06	1.13160E-04	6.47655E-05	-6.48889E-03	-1.62264E-03	3.03127E-07

TRSHFILL Location 1 Project Annual Normal Emissions (g/s) or (g/s/m²)

Model ID	# of Sources or Area (m²)		NOx		PM10	PM2.5	SOx	EMISFACT HROFDY	Chi/Q	EMISFACT HROFDY	Notes
ROAD0048-ROAD150,ROAD0165-166	104		2.42388E-05		-6.54582E-03	-1.63552E-03	5.16569E-07	6*0 11*1 7*0	9.61538E-03	6*0 11*2.545 7*0	Negative due to silt loading decrease
ROAD0151-ROAD0164	14		9.63532E-05		-6.71403E-03	-1.67829E-03	1.20632E-07	6*0 11*1 7*0	7.14286E-02	6*0 11*2.545 7*0	Negative due to silt loading decrease
HL005579-HL005625	43		4.28488E-05		2.10049E-03	5.24637E-04	3.38840E-07	7*0 9*1 8*0	2.32558E-02	7*0 9*3.111 8*0	3.111
HWY001-HWY021	21		1.26899E-05		1.54535E-05	2.69169E-06	9.86509E-08	6*0 11*1 7*0	4.76190E-02	6*0 11*2.545 7*0	
TRSHFILL	29484.6		5.54177E-06		3.36377E-07	2.89780E-07	5.82528E-08	7*0 9*1 8*0	3.39160E-05	7*0 9*3.111 8*0	3.111
TRSHCVR	29484.6		N/A		1.70728E-08	2.58531E-09	N/A	15*0 1*1 8*0	3.39160E-05	15*0 1*24 8*0	

	NOx	PM10	PM2.5	SOx
Mod 10 ROAD0048-ROAD0164	1.43E-05	1.91832E-04	4.74238E-05	1.55E-07
Total ROAD0048-ROAD150,ROAD0165-166	3.85590E-05	-6.35398E-03	-1.58809E-03	6.72065E-07
Total ROAD0151-ROAD0164	1.10673E-04	-6.52220E-03	-1.63087E-03	2.76128E-07

TRSHFILL Location 2 Project Short-term Normal Emissions (g/s) or (g/s/m²)

Model ID	# of Sources or Area (m²)	ROC	NOx	CO	PM10	PM2.5	SOx	EMISFACT HROFDY	HRA Chi/Q	HRA EMISFACT HROFDY	Notes
CLRDSL	1	5.46566E-06	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASLOAD	1	4.34693E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASBREAT	1	1.57497E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASREFU	1	2.69975E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
GASSPILL	1	2.64596E-03	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
REDDSL	1	1.36598E-04	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
UNLDGAS	1	1.19856E-04	N/A	N/A	N/A	N/A	N/A	N/A	1	N/A	
ROAD0048-ROAD0083,ROAD0165-166	38	1.09977E-06	2.42388E-05	0.000208284	-6.54582E-03	-0.001635516	5.16569E-07	6*0 11*1 7*0	2.63158E-02	6*0 11*1 7*0	Negative due to silt loading decrease
ROAD0151-ROAD0164	14	2.43487E-07	9.63532E-05	4.35158E-05	-0.006714028	-0.001678293	1.20632E-07	6*0 11*1 7*0	0.071428571	6*0 11*1 7*0	Negative due to silt loading decrease
HL005579-HL005639	61	2.92821E-06	3.54495E-05	1.04821E-04	1.73777E-03	4.34041E-04	2.80327E-07	7*0 9*1 8*0	1.63934E-02	7*0 9*1 8*0	
HWY001-HWY021	21	2.47458E-07	1.48933E-05	4.70538E-05	1.81367E-05	3.15906E-06	1.15780E-07	6*0 11*1 7*0	4.76190E-02	6*0 11*1 7*0	
LFPROJ	217393.5	1.93127E-07	N/A	N/A	N/A	N/A	N/A	N/A	4.59995E-06	N/A	
TRSHFLL2	29496.4	1.65123E-06	5.53956E-06	2.66602E-05	3.36242E-07	2.89664E-07	5.82295E-08	7*0 9*1 8*0	3.39024E-05	7*0 9*1 8*0	
TRSHCVR	29496.4	N/A	N/A	N/A	1.70660E-08	2.58428E-09	N/A	15*0 1*1 8*0	3.39024E-05	15*0 1*1 8*0	

TRSHFILL Location 2 Project Annual Normal Emissions (g/s) or (g/s/m²)

Model ID	# of Sources or Area (m²)		NOx		PM10	PM2.5	SOx	EMISFACT HROFDY	Chi/Q	EMISFACT HROFDY	Notes
ROAD0048-ROAD0166	118		2.42388E-05		-6.54582E-03	-1.63552E-03	5.16569E-07	6*0 11*1 7*0	8.47458E-03	6*0 11*2.545 7*0	Negative due to silt loading decrease
ROAD0151-ROAD0164	14		9.63532E-05		-6.71403E-03	-1.67829E-03	1.20632E-07	6*0 11*1 7*0	7.14286E-02	6*0 11*2.545 7*0	Negative due to silt loading decrease
HL005579-HL005639	61		3.02049E-05		1.48067E-03	3.69826E-04	2.38854E-07	7*0 9*1 8*0	1.63934E-02	7*0 9*3.111 8*0	3.111
HWY001-HWY021	21		1.26899E-05		1.54535E-05	2.69169E-06	9.86509E-08	6*0 11*1 7*0	4.76190E-02	6*0 11*2.545 7*0	
TRSHFLL2	29496.4		5.53956E-06		3.36242E-07	2.89664E-07	5.82295E-08	7*0 9*1 8*0	3.39024E-05	7*0 9*3.111 8*0	3.111
TRSHCVR2	29496.4		N/A		1.70660E-08	2.58428E-09	N/A	15*0 1*1 8*0	3.39024E-05	15*0 1*24 8*0	

Table 10
HARP Modeling Inputs

GWTOMRF	1	1	9901	Diesel PM	1	5.08E+00	0.00E+00	1
GWTOMRF	1	1	7429905	Aluminum	1	1.60E+03	4.66E-01	1
GWTOMRF	1	1	7440360	Antimony	1	2.20E-01	6.44E-05	1
GWTOMRF	1	1	7440382	Arsenic	1	3.75E-01	1.12E-04	1
GWTOMRF	1	1	7440393	Barium	1	1.90E+01	5.55E-03	1
GWTOMRF	1	1	7440439	Cadmium	1	4.63E-01	1.35E-04	1
GWTOMRF	1	1	7440473	Chromium (total)	1	4.94E+00	1.44E-03	1
GWTOMRF	1	1	7440484	Cobalt	1	2.53E+00	7.41E-04	1
GWTOMRF	1	1	7440508	Copper	1	2.25E+00	6.64E-04	1
GWTOMRF	1	1	7439921	Lead	1	1.23E+01	3.59E-03	1
GWTOMRF	1	1	7439965	Manganese	1	2.08E+01	6.09E-03	1
GWTOMRF	1	1	7439976	Mercury	1	3.31E-01	1.00E-04	1
GWTOMRF	1	1	7440020	Nickel	1	1.30E+00	3.87E-04	1
GWTOMRF	1	1	7723140	Phosphorus	1	3.31E+01	9.66E-03	1
GWTOMRF	1	1	7782492	Selenium	1	4.41E-02	1.29E-05	1
GWTOMRF	1	1	1175	Silica, crystalline	1	2.20E+03	6.44E-01	1
GWTOMRF	1	1	9960	Sulfates	1	9.45E+01	2.76E-02	1
GWTOMRF	1	1	7440622	Vanadium	1	6.08E+00	1.78E-03	1
GWTOMRF	1	1	7440666	Zinc	1	1.14E+01	3.34E-03	1
GWTOMRF	1	1	106990	1,3-Butadiene	1	0.00E+00	3.76E-04	1
GWTOMRF	1	1	75070	Acetaldehyde	1	0.00E+00	1.35E-03	1
GWTOMRF	1	1	107028	Acrolein	1	0.00E+00	5.86E-05	1
GWTOMRF	1	1	71432	Benzene	1	0.00E+00	3.22E-04	1
GWTOMRF	1	1	50000	Formaldehyde	1	0.00E+00	2.98E-03	1
GWTOMRF	1	1	7647010	Hydrogen chloride	1	0.00E+00	3.22E-04	1
GWTOMRF	1	1	108883	Toluene	1	0.00E+00	1.82E-04	1
GWTOMRF	1	1	1330207	Xylenes	1	0.00E+00	7.33E-05	1
CLRDSL	2	1	71432	Benzene	1	0.01	1.14E-06	1
CLRDSL	2	1	100414	Ethyl Benzene	1	0.01	1.14E-06	1
CLRDSL	2	1	110543	Hexane	1	0.01	1.14E-06	1
CLRDSL	2	1	108883	Toluene	1	0.01	1.14E-06	1
CLRDSL	2	1	95636	1,2,4TriMeBenze	1	0.01	1.14E-06	1
CLRDSL	2	1	108383	m-Xylene	1	0.01	1.14E-06	1
REDDSL	3	1	71432	Benzene	1	0.02	2.28E-06	1
REDDSL	3	1	100414	Ethyl Benzene	1	0.03	3.42E-06	1
REDDSL	3	1	110543	Hexane	1	0.01	1.14E-06	1
REDDSL	3	1	108883	Toluene	1	0.22	2.51E-05	1
REDDSL	3	1	95636	1,2,4TriMeBenze	1	0.43	4.91E-05	1
REDDSL	3	1	108383	m-Xylene	1	0.55	6.28E-05	1
UNLDGAS	4	1	71432	Benzene	1	0.51	5.82E-05	1
UNLDGAS	4	1	100414	Ethyl Benzene	1	0.04	4.57E-06	1
UNLDGAS	4	1	110543	Hexane	1	0.46	5.25E-05	1
UNLDGAS	4	1	108883	Toluene	1	0.56	6.39E-05	1
UNLDGAS	4	1	95636	1,2,4TriMeBenze	1	0.01	1.14E-06	1
UNLDGAS	4	1	108383	m-Xylene	1	0.15	1.71E-05	1

Table 10
HARP Modeling Inputs

GASLOAD	5	1	71432	Benzene	1	0.002539	0.0001894	1
GASLOAD	5	1	100414	Ethyl Benzene	1	0.000594	3.692E-05	1
GASLOAD	5	1	110543	Hexane	1	0.010112	0.0006279	1
GASLOAD	5	1	91203	Naphthalene	1	2.47E-06	1.535E-07	1
GASLOAD	5	1	57556	Propylene	1	2E-05	1.24E-06	1
GASLOAD	5	1	108883	Toluene	1	0.006167	0.0004658	1
GASLOAD	5	1	108383	m-Xylene	1	0.002272	0.0001756	1
GASBREAT	6	1	71432	Benzene	1	0.004232	6.863E-05	1
GASBREAT	6	1	100414	Ethyl Benzene	1	0.000991	1.338E-05	1
GASBREAT	6	1	110543	Hexane	1	0.016853	0.0002275	1
GASBREAT	6	1	91203	Naphthalene	1	4.12E-06	5.563E-08	1
GASBREAT	6	1	57556	Propylene	1	3.33E-05	4.493E-07	1
GASBREAT	6	1	108883	Toluene	1	0.010279	0.0001688	1
GASBREAT	6	1	108383	m-Xylene	1	0.003787	6.363E-05	1
GASREFU	7	1	71432	Benzene	1	0.024201	0.0001176	1
GASREFU	7	1	100414	Ethyl Benzene	1	0.005666	2.293E-05	1
GASREFU	7	1	110543	Hexane	1	0.096381	0.00039	1
GASREFU	7	1	91203	Naphthalene	1	2.36E-05	9.535E-08	1
GASREFU	7	1	57556	Propylene	1	0.00019	7.701E-07	1
GASREFU	7	1	108883	Toluene	1	0.058782	0.0002893	1
GASREFU	7	1	108383	m-Xylene	1	0.021659	0.0001091	1
GASSPILL	8	1	71432	Benzene	1	0.007109	0.0001153	1
GASSPILL	8	1	100414	Ethyl Benzene	1	0.001665	2.247E-05	1
GASSPILL	8	1	110543	Hexane	1	0.028313	0.0003822	1
GASSPILL	8	1	91203	Naphthalene	1	6.92E-06	9.345E-08	1
GASSPILL	8	1	57556	Propylene	1	5.59E-05	7.547E-07	1
GASSPILL	8	1	108883	Toluene	1	0.017268	0.0002835	1
GASSPILL	8	1	108383	m-Xylene	1	0.006363	0.0001069	1
TRSHFILL	9	1	9901	Diesel PM	1	29.48	0	1
TRSHFILL	9	1	71432	Benzene	1	0	4.51E-04	1
TRSHFILL	9	1	50000	Formaldehyde	1	0	4.17E-03	1
TRSHFILL	9	1	75070	Acetaldehyde	1	0	1.89E-03	1
TRSHFILL	9	1	107028	Acrolein	1	0	8.20E-05	1
TRSHFILL	9	1	106990	1,3-Butadiene	1	0	5.26E-04	1
TRSHFILL	9	1	108883	Toluene	1	0	2.55E-04	1
TRSHFILL	9	1	1330207	Xylenes	1	0	1.03E-04	1
TRSHFILL	9	1	7647010	Hydrogen chloride	1	0	4.51E-04	1
TRSHFILL	9	1	7440382	Arsenic	1	0.006572	6.25E-05	1
TRSHFILL	9	1	7440508	Copper	1	0.039431	3.61E-04	1
TRSHFILL	9	1	7429905	Aluminum	1	27.98682	0.249527	1
TRSHFILL	9	1	7440360	Antimony	1	0.003866	3.447E-05	1
TRSHFILL	9	1	7440439	Cadmium	1	0.008118	7.238E-05	1
TRSHFILL	9	1	7440473	Chromium (total)	1	0.086594	0.0007721	1
TRSHFILL	9	1	7440484	Cobalt	1	0.044457	0.0003964	1
TRSHFILL	9	1	7439921	Lead	1	0.215325	0.0019198	1

Table 10
HARP Modeling Inputs

TRSHFILL	9	1	7439965	Manganese	1	0.365318	0.0032571	1
TRSHFILL	9	1	7439976	Mercury	1	0.005799	5.17E-05	1
TRSHFILL	9	1	7440020	Nickel	1	0.022808	0.0002034	1
TRSHFILL	9	1	7723140	Phosphorus	1	0.579483	0.0051666	1
TRSHFILL	9	1	7782492	Selenium	1	0.000773	6.893E-06	1
TRSHFILL	9	1	1175	Silica, crystalline2	1	38.65797	0.3446695	1
TRSHFILL	9	1	9960	Sulfates	1	1.659973	0.0148001	1
TRSHFILL	9	1	7440622	Vanadium	1	0.106696	0.0009513	1
TRSHFILL	9	1	7440666	Zinc	1	0.200248	0.0017854	1
TRSHCVR	10	1	7429905	Aluminum	1	0.190185	0.0006115	1
TRSHCVR	10	1	7440360	Antimony	1	2.63E-05	8.447E-08	1
TRSHCVR	10	1	7440382	Arsenic	1	4.47E-05	1.436E-07	1
TRSHCVR	10	1	7440439	Cadmium	1	5.52E-05	1.774E-07	1
TRSHCVR	10	1	7440473	Chromium (total)	1	0.000588	1.892E-06	1
TRSHCVR	10	1	7440484	Cobalt	1	0.000302	9.714E-07	1
TRSHCVR	10	1	7440508	Copper	1	0.000268	8.616E-07	1
TRSHCVR	10	1	7439921	Lead	1	0.001463	4.705E-06	1
TRSHCVR	10	1	7439965	Manganese	1	0.002483	7.982E-06	1
TRSHCVR	10	1	7439976	Mercury	1	3.94E-05	1.267E-07	1
TRSHCVR	10	1	7440020	Nickel	1	0.000155	4.984E-07	1
TRSHCVR	10	1	7723140	Phosphorus	1	0.003938	1.266E-05	1
TRSHCVR	10	1	7782492	Selenium	1	5.25E-06	1.689E-08	1
TRSHCVR	10	1	1175	Silica, crystalline2	1	0.262701	0.0008447	1
TRSHCVR	10	1	9960	Sulfates	1	0.01128	3.627E-05	1
TRSHCVR	10	1	7440622	Vanadium	1	0.000725	2.331E-06	1
TRSHCVR	10	1	7440666	Zinc	1	0.001361	4.376E-06	1
LFPROJ	11	1	71556	1,1,1-Trichloroethane	1	1.14E+00	1.30E-04	1
LFPROJ	11	1	79345	1,1,2,2-Tetrachloroeth	1	2.15E+00	2.45E-04	1
LFPROJ	11	1	79005	1,1,2-Trichloroethane	1	1.71E+00	1.95E-04	1
LFPROJ	11	1	75343	1,1-Dichloroethane	1	1.27E+00	1.44E-04	1
LFPROJ	11	1	75354	1,1-Dichloroethene (1,	1	1.24E+00	1.42E-04	1
LFPROJ	11	1	106934	1,2-Dibromoethane (Et	1	1.92E-01	2.19E-05	1
LFPROJ	11	1	107062	1,2-Dichloroethane (Et	1	4.22E+00	4.82E-04	1
LFPROJ	11	1	106990	1,3-Butadiene (Vinyl et	1	1.91E+00	2.18E-04	1
LFPROJ	11	1	123911	1,4-Dioxane (1,4-Dieth	1	1.56E-01	1.78E-05	1
LFPROJ	11	1	78933	2-Butanone (Methyl et	1	2.14E+02	2.44E-02	1
LFPROJ	11	1	67630	2-Propanol (Isopropyl a	1	5.73E+01	6.54E-03	1
LFPROJ	11	1	75070	Acetaldehyde	1	7.27E-01	8.30E-05	1
LFPROJ	11	1	107131	Acrylonitrile	1	3.39E+00	3.87E-04	1
LFPROJ	11	1	71432	Benzene	1	1.35E+01	1.55E-03	1
LFPROJ	11	1	100447	Benzyl chloride	1	4.88E-01	5.57E-05	1
LFPROJ	11	1	74839	Bromomethane (Meth	1	4.25E-01	4.85E-05	1
LFPROJ	11	1	75150	Carbon disulfide	1	3.24E+00	3.70E-04	1
LFPROJ	11	1	56235	Carbon tetrachloride	1	1.31E+00	1.50E-04	1
LFPROJ	11	1	463581	Carbonyl Sulfide	1	1.56E+00	1.78E-04	1

Table 10
HARP Modeling Inputs

LFPROJ	11	1	108907	Chlorobenzene	1	1.73E+00	1.97E-04	1
LFPROJ	11	1	75003	Chloroethane (Ethyl ch	1	1.88E+00	2.14E-04	1
LFPROJ	11	1	106467	1,4-Dichlorobenzene	1	2.03E+01	2.31E-03	1
LFPROJ	11	1	75092	Dichloromethane (Met	1	1.09E+00	1.24E-04	1
LFPROJ	11	1	100414	Ethylbenzene	1	1.19E+02	1.36E-02	1
LFPROJ	11	1	50000	Formaldehyde	1	7.49E-02	8.55E-06	1
LFPROJ	11	1	110543	n-Hexane	1	1.15E+01	1.31E-03	1
LFPROJ	11	1	7783064	Hydrogen sulfide	1	6.83E+02	7.79E-02	1
LFPROJ	11	1	1634044	Methyl tert-butyl ether	1	2.22E+00	2.53E-04	1
LFPROJ	11	1	91203	Naphthalene	1	2.92E+00	3.34E-04	1
LFPROJ	11	1	115071	Propene (Propylene)	1	2.34E+00	2.68E-04	1
LFPROJ	11	1	100425	Styrene (Vinylbenzene)	1	6.77E+00	7.73E-04	1
LFPROJ	11	1	127184	Tetrachloroethylene (F	1	5.55E+00	6.33E-04	1
LFPROJ	11	1	108883	Toluene (Methyl benze	1	8.86E+01	1.01E-02	1
LFPROJ	11	1	79016	Trichloroethylene (Tric	1	2.38E+00	2.72E-04	1
LFPROJ	11	1	67663	Trichloromethane (Chl	1	1.02E+00	1.16E-04	1
LFPROJ	11	1	108054	Vinyl acetate	1	4.55E+00	5.19E-04	1
LFPROJ	11	1	75014	Vinyl chloride (Chloroe	1	1.77E+00	2.02E-04	1
LFPROJ	11	1	1330207	Xylenes (o-, m-, p-, mix	1	3.33E+02	3.80E-02	1
HLROAD	12	1	9901	Diesel PM	1	2.14E+00	0.00E+00	1
HLROAD	12	1	7429905	Aluminum	1	3.57E+03	1.27E+00	1
HLROAD	12	1	7440360	Antimony	1	4.93E-01	1.76E-04	1
HLROAD	12	1	7440382	Arsenic	1	8.37E-01	3.02E-04	1
HLROAD	12	1	7440393	Barium	1	4.25E+01	1.52E-02	1
HLROAD	12	1	7440439	Cadmium	1	1.03E+00	3.70E-04	1
HLROAD	12	1	7440473	Chromium (total)	1	1.10E+01	3.94E-03	1
HLROAD	12	1	7440484	Cobalt	1	5.67E+00	2.02E-03	1
HLROAD	12	1	7440508	Copper	1	5.02E+00	1.80E-03	1
HLROAD	12	1	7439921	Lead	1	2.74E+01	9.80E-03	1
HLROAD	12	1	7439965	Manganese	1	4.66E+01	1.66E-02	1
HLROAD	12	1	7439976	Mercury	1	7.39E-01	2.67E-04	1
HLROAD	12	1	7440020	Nickel	1	2.91E+00	1.04E-03	1
HLROAD	12	1	7723140	Phosphorus	1	7.39E+01	2.64E-02	1
HLROAD	12	1	7782492	Selenium	1	9.85E-02	3.52E-05	1
HLROAD	12	1	1175	Silica, crystalline	1	4.93E+03	1.76E+00	1
HLROAD	12	1	9960	Sulfates	1	2.11E+02	7.55E-02	1
HLROAD	12	1	7440622	Vanadium	1	1.36E+01	4.86E-03	1
HLROAD	12	1	7440666	Zinc	1	2.55E+01	9.12E-03	1
HLROAD	12	1	106990	1,3-Butadiene	1	0.00E+00	3.52E-04	1
HLROAD	12	1	75070	Acetaldehyde	1	0.00E+00	1.27E-03	1
HLROAD	12	1	107028	Acrolein	1	0.00E+00	5.49E-05	1
HLROAD	12	1	71432	Benzene	1	0.00E+00	3.02E-04	1
HLROAD	12	1	50000	Formaldehyde	1	0.00E+00	2.80E-03	1
HLROAD	12	1	7647010	Hydrogen chloride	1	0.00E+00	3.02E-04	1
HLROAD	12	1	108883	Toluene	1	0.00E+00	1.71E-04	1

Table 10

HARP Modeling Inputs

HLROAD	12	1	1330207	Xylenes	1	0.00E+00	6.87E-05	1
HWY	13	1	9901	Diesel PM	1	7.39E-01	0.00E+00	1
HWY	13	1	7429905	Aluminum	1	4.63E+01	1.35E-02	1
HWY	13	1	7440360	Antimony	1	2.95E-02	8.63E-06	1
HWY	13	1	7440382	Arsenic	1	5.64E-03	3.34E-06	1
HWY	13	1	7440393	Barium	1	4.52E-01	1.32E-04	1
HWY	13	1	7440439	Cadmium	1	1.30E-03	3.81E-07	1
HWY	13	1	7440473	Chromium (total)	1	7.38E-03	2.16E-06	1
HWY	13	1	7440484	Cobalt	1	9.99E-03	2.92E-06	1
HWY	13	1	7440508	Copper	1	6.43E-02	2.31E-05	1
HWY	13	1	7439921	Lead	1	5.38E-02	1.57E-05	1
HWY	13	1	7439965	Manganese	1	3.47E-01	1.02E-04	1
HWY	13	1	7439976	Mercury	1	3.91E-03	3.25E-06	1
HWY	13	1	7440020	Nickel	1	5.21E-03	5.64E-06	1
HWY	13	1	7723140	Phosphorus	1	1.18E+00	3.46E-04	1
HWY	13	1	7782492	Selenium	1	8.68E-04	2.54E-07	1
HWY	13	1	1175	Silica, crystalline	1	3.45E+00	1.01E-03	1
HWY	13	1	9960	Sulfates	1	1.17E+00	3.42E-04	1
HWY	13	1	7440622	Vanadium	1	3.08E-02	9.01E-06	1
HWY	13	1	7440666	Zinc	1	4.30E-01	1.26E-04	1
HWY	13	1	106990	1,3-Butadiene	1	0.00E+00	2.30E-04	1
HWY	13	1	75070	Acetaldehyde	1	0.00E+00	8.27E-04	1
HWY	13	1	107028	Acrolein	1	0.00E+00	3.58E-05	1
HWY	13	1	71432	Benzene	1	0.00E+00	1.97E-04	1
HWY	13	1	50000	Formaldehyde	1	0.00E+00	1.82E-03	1
HWY	13	1	7647010	Hydrogen chloride	1	0.00E+00	1.97E-04	1
HWY	13	1	108883	Toluene	1	0.00E+00	1.11E-04	1
HWY	13	1	1330207	Xylenes	1	0.00E+00	4.48E-05	1
ENTRGATE		1	9901	Diesel PM	1	7.21E-01	0.00E+00	1
ENTRGATE		1	7429905	Aluminum	1	1.40E+02	4.09E-02	1
ENTRGATE		1	7440360	Antimony	1	1.93E-02	5.65E-06	1
ENTRGATE		1	7440382	Arsenic	1	3.29E-02	1.09E-05	1
ENTRGATE		1	7440393	Barium	1	1.67E+00	4.87E-04	1
ENTRGATE		1	7440439	Cadmium	1	4.06E-02	1.19E-05	1
ENTRGATE		1	7440473	Chromium (total)	1	4.33E-01	1.27E-04	1
ENTRGATE		1	7440484	Cobalt	1	2.22E-01	6.50E-05	1
ENTRGATE		1	7440508	Copper	1	1.97E-01	6.09E-05	1
ENTRGATE		1	7439921	Lead	1	1.08E+00	3.15E-04	1
ENTRGATE		1	7439965	Manganese	1	1.83E+00	5.34E-04	1
ENTRGATE		1	7439976	Mercury	1	2.90E-02	1.01E-05	1
ENTRGATE		1	7440020	Nickel	1	1.14E-01	3.64E-05	1
ENTRGATE		1	7723140	Phosphorus	1	2.90E+00	8.48E-04	1
ENTRGATE		1	7782492	Selenium	1	3.87E-03	1.13E-06	1
ENTRGATE		1	1175	Silica, crystalline	1	1.93E+02	5.65E-02	1
ENTRGATE		1	9960	Sulfates	1	8.30E+00	2.43E-03	1

Table 10

HARP Modeling Inputs

ENTRGATE	1	7440622	Vanadium	1	5.34E-01	1.56E-04	1
ENTRGATE	1	7440666	Zinc	1	1.00E+00	2.93E-04	1
ENTRGATE	1	106990	1,3-Butadiene	1	0.00E+00	1.72E-04	1
ENTRGATE	1	75070	Acetaldehyde	1	0.00E+00	6.18E-04	1
ENTRGATE	1	107028	Acrolein	1	0.00E+00	2.68E-05	1
ENTRGATE	1	71432	Benzene	1	0.00E+00	1.47E-04	1
ENTRGATE	1	50000	Formaldehyde	1	0.00E+00	1.36E-03	1
ENTRGATE	1	7647010	Hydrogen chloride	1	0.00E+00	1.47E-04	1
ENTRGATE	1	108883	Toluene	1	0.00E+00	8.32E-05	1
ENTRGATE	1	1330207	Xylenes	1	0.00E+00	3.35E-05	1
GATETOGW	1	9901	Diesel PM	1	2.90E+00	0.00E+00	1
GATETOGW	1	7429905	Aluminum	1	9.25E+02	2.70E-01	1
GATETOGW	1	7440360	Antimony	1	1.28E-01	3.74E-05	1
GATETOGW	1	7440382	Arsenic	1	2.17E-01	6.86E-05	1
GATETOGW	1	7440393	Barium	1	1.10E+01	3.22E-03	1
GATETOGW	1	7440439	Cadmium	1	2.68E-01	7.84E-05	1
GATETOGW	1	7440473	Chromium (total)	1	2.86E+00	8.37E-04	1
GATETOGW	1	7440484	Cobalt	1	1.47E+00	4.30E-04	1
GATETOGW	1	7440508	Copper	1	1.30E+00	3.94E-04	1
GATETOGW	1	7439921	Lead	1	7.12E+00	2.08E-03	1
GATETOGW	1	7439965	Manganese	1	1.21E+01	3.53E-03	1
GATETOGW	1	7439976	Mercury	1	1.92E-01	6.24E-05	1
GATETOGW	1	7440020	Nickel	1	7.54E-01	2.33E-04	1
GATETOGW	1	7723140	Phosphorus	1	1.92E+01	5.60E-03	1
GATETOGW	1	7782492	Selenium	1	2.56E-02	7.47E-06	1
GATETOGW	1	1175	Silica, crystalline	1	1.28E+03	3.74E-01	1
GATETOGW	1	9960	Sulfates	1	5.48E+01	1.60E-02	1
GATETOGW	1	7440622	Vanadium	1	3.53E+00	1.03E-03	1
GATETOGW	1	7440666	Zinc	1	6.62E+00	1.93E-03	1
GATETOGW	1	106990	1,3-Butadiene	1	0.00E+00	6.91E-04	1
GATETOGW	1	75070	Acetaldehyde	1	0.00E+00	2.49E-03	1
GATETOGW	1	107028	Acrolein	1	0.00E+00	1.08E-04	1
GATETOGW	1	71432	Benzene	1	0.00E+00	5.92E-04	1
GATETOGW	1	50000	Formaldehyde	1	0.00E+00	5.49E-03	1
GATETOGW	1	7647010	Hydrogen chloride	1	0.00E+00	5.92E-04	1
GATETOGW	1	108883	Toluene	1	0.00E+00	3.35E-04	1
GATETOGW	1	1330207	Xylenes	1	0.00E+00	1.35E-04	1

Tajiguas Landfill Expansion Project

On-Road Mobile Source Daily Emissions Summary

	Emissions (lb/day)					
Description	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Project: Onsite Emissions	0.04	4.74	17.77	0.03	86.18	21.58
Project: Offsite Emissions	0.52	31.58	99.77	0.25	38.46	9.68
Existing: Onsite Emissions	*0.03*	*1.99*	*6.02*	*0.02*	*111.32*	*27.86*
Existing: Offsite Emissions	*0.46*	*27.98*	*88.39*	*0.22*	*34.07*	*8.91*
Net Project Emissions	**0.07**	**6.35**	**23.13**	**0.05**	**-20.75**	**-5.51**

Alternatives: On-Road Mobile Source Daily Offsite Emissions Summary

	Emissions (lb/day)					
Description	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Preferred Alternative	0.06	5.75	0.26	0.04	4.10	1.08
No Project Alternative - Scenario 1	0.37	35.45	1.57	0.22	25.32	6.68
No Project Alternative - Scenario 2	0.25	24.59	1.09	0.16	17.56	4.63

On-Road Mobile Source Annual GHG Emissions Summary

	MT/day			MT/year			
Description	**CO2**	**CH4**	**N2O**	**CO2**	**CH4**	**N2O**	**CO2e**
Project: Onsite Emissions	1.17	0.00	0.00	363.94	0.18	0.06	384.47
Project: Offsite Emissions	15.19	0.01	0.00	4725.49	2.53	0.79	4999.03
Existing: Onsite Emissions	*0.96*	*0.00*	*0.00*	297.32	0.15	0.05	314.33
Existing: Offsite Emissions	*13.46*	*0.01*	*0.00*	4186.17	2.24	0.70	4428.49
Net Project Emissions	**1.95**	**0.00**	**0.00**	**605.94**	**0.31**	**0.10**	**640.68**

Alternatives: On-Road Mobile Source GHG Emissions Summary

	MT/day			MT/year			
Description	**CO2**	**CH4**	**N2O**	**CO2**	**CH4**	**N2O**	**CO2e**
Preferred Alternative	2	0	0	541	0	0	564
No Project Alternative - Scenario 1	11	0	0	3339	0	1	3479
No Project Alternative - Scenario 2	7	0	0	2316	0	0	2413

Annual Operational Days 311 *Mon-Sat operations.

GWP	
CH4	25
N20	265
Source: IPCC AR5	

Net Mobile Source Emissions (On-Site) [Trips Through Entrance Only] and to Working Face

	Daily Emissions (lb/day)										
	ROG	**NOx**	**CO**	**SOx**	**PM10 Exhaust**	**PM10 BW TW**	**PM30 Paved Rd**	**PM10 Paved RD**	**PM2.5 Exhaust**	**PM2.5 BW TW**	**PM2.5 Paved RD**
Total On-Site Emissions Through Entrance (w Project)	0.03	2.44	5.25	0.01	0.01	0.15	220.13	42.01	0.01	0.05	10.50
Existing Total On-Site Emissions Through Entrance	0.02	2.10	4.51	0.01	0.01	0.12	377.05	71.96	0.01	0.04	17.99
Net New Emissions Through Entrance	0.0039	0.3378	0.7442	0.0019	0.0024	0.0224	-156.9214	-29.9468	0.0023	0.0073	-7.4867

	Annual Emissions (tons/year)										
	ROG	**NOx**	**CO**	**SOx**	**PM10 Exhaust**	**PM10 BW TW**	**PM30 Paved Rd**	**PM10 Paved RD**	**PM2.5 Exhaust**	**PM2.5 BW TW**	**PM2.5 Paved RD**
NET On-Site Mobile Annual Emissions Summary through Entrance	0.0006136	0.0525347	0.1157189	0.0002894	0.0003698	0.0034876	-24.4012733	-4.6567316	0.0003536	0.0011349	-1.1641829

	Daily Emissions (lb/day)										
	ROG	**NOx**	**CO**	**SOx**	**PM10 Exhaust**	**PM10 BW TW**	**PM30 Paved Rd**	**PM10 Paved RD**	**PM2.5 Exhaust**	**PM2.5 BW TW**	**PM2.5 Paved RD**
On-Site Emissions Entrance to Working Face (w Project)	0.01	0.74	2.57	0.01	0.01	0.07	126.84	24.21	0.01	0.02	6.05
Existing Total On-Site Emissions to Working Face	0.01	0.59	2.11	0.00	0.01	0.06	173.12	33.04	0.01	0.02	8.26
Net New Emissions to Working Face	0.0025	0.1545	0.4567	0.0012	0.0016	0.0143	-46.2742	-8.8310	0.0015	0.0047	-2.2077

Calculation is total emissions through entrance minus emissions from entrance to MRF to calculate difference between MRF to working face.

	Annual Emissions (tons/year)										
	ROG	**NOx**	**CO**	**SOx**	**PM10 Exhaust**	**PM10 BW TW**	**PM30 Paved Rd**	**PM10 Paved RD**	**PM2.5 Exhaust**	**PM2.5 BW TW**	**PM2.5 Paved RD**
NET On-Site Mobile Annual Emissions Summary to Working Face	0.0003899	0.0240187	0.0710212	0.0001899	0.0002425	0.0022310	-7.1956384	-1.3732134	0.0002319	0.0007254	-0.3433034

Annual Operational Days 311 *Mon-Sat operations.

Existing Mobile Source Emissions (On-Site)

	Daily Emissions (lb/day)						MT/day		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Daily Emissions Summary (Scalehouse to MRF)	0.03	1.80	5.27	0.01	100.81	25.23	0.87	0.00	0.00

	Annual Emissions (tons/year)						MT/year		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Annual Emissions Summary (Scalehouse to MRF)	0.00	0.28	0.82	0.00	15.68	3.92	269.31	0.13	0.05

	Emissions (lb/day)						MT/day		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Emissions Summary (Entry to Scalehouse)	3.40E-03	0.19	0.75	1.34E-03	10.51	2.63	0.09	0.00	0.00

	Annual Emissions (tons/year)						MT/year		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Annual Emissions Summary (Entry to Scalehouse)	0.00	0.03	0.12	0.00	1.63	0.41	28.01	0.02	0.00
Annual Operational Days	311	*Mon-Sat operations.							

Road Sections from North of Gate using default g/mi Silt Loading

CNG-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	Avg CNG Trips Per Day	Avg CNG One-Way Trips Per Day	ROG	NOx	CO	SOx	PM10 Ex	PM 10 BW TW	PM2.5 Ex	PM2.5 BW TW	PM30 Fug Dust	PM 10 Fug Dust	PM 2.5 Fug Dust	CO2	CH4	N2O
1	MSW	Entrance to MRF	Paved	0.88	25.00	50	0.01	0.14	2.04	0.00	0.00	0.02	0.00	0.01	44.38	8.47	2.12	0.07	0.00	0.00
2	Commmingled Recyclables	Entrance to MRF	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Entrance to Working Face	Paved	1.43	10.00	20	0.00	0.09	1.32	0.00	0.00	0.02	0.00	0.01	28.82	5.50	1.38	0.05	0.00	0.00
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.57	6.00	12	0.00	0.02	0.31	0.00	0.00	0.00	0.00	0.00	6.87	1.31	0.33	0.01	0.00	0.00
5a	Mulch	Greenwaste Pad to Exit	Paved	0.71	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5b	Mulch	Greenwaste Pad to CMU	Paved	0.65	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Residual	MRF to Working Face	Paved	0.46	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Organics	MRF to ADF	Paved	0.96	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8a	Residual Compost	CMU to Working Face	Paved	1.42	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Commodities	MRF to Exit	Paved	0.98	12.00	24	0.00	0.07	1.08	0.00	0.00	0.01	0.00	0.00	23.65	4.51	1.13	0.04	0.00	0.00
12	Wood, Metals, Heavies	MRF to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	CMU to Exit	Paved	1.15	2.00	4	0.00	0.01	0.21	0.00	0.00	0.00	0.00	0.00	4.62	0.88	0.22	0.01	0.00	0.00
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	1.15	2.00	4	0.00	0.01	0.21	0.00	0.00	0.00	0.00	0.00	4.62	0.88	0.22	0.01	0.00	0.00
Through Entrance Only					*43.00*	*86.00*	*0.01*	*0.26*	*3.88*	*0.00*	*0.00*	*0.05*	*0.00*	*0.02*	*84.68*	*16.16*	*4.04*	*0.00*	*0.00*	*0.00*

Diesel-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	Avg Diesel Trips Per Day	Avg Dsl One-Way Trips Per Day	ROG	NOx	CO	SOx	PM10 Ex	PM 10 BW TW	PM2.5 Ex	PM2.5 BW TW	PM30 Fug Dust	PM 10 Fug Dust	PM 2.5 Fug Dust	CO2	CH4	N2O
1	MSW	Entrance to MRF	Paved	0.88	74.00	148	0.00	0.46	0.03	0.00	0.01	0.03	0.01	0.01	131.36	25.07	6.27	0.22	0.00	0.00
2	Commmingled Recyclables	Entrance to MRF	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Entrance to Working Face	Paved	1.43	29.00	58	0.00	0.29	0.02	0.00	0.00	0.02	0.00	0.01	83.59	15.95	3.99	0.14	0.00	0.00
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.57	16.00	32	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00	18.31	3.49	0.87	0.03	0.00	0.00
5a	Mulch	Greenwaste Pad to Exit	Paved	0.57	12.00	24	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	13.73	2.62	0.66	0.02	0.00	0.00
5b	Mulch	Greenwaste Pad to CMU	Paved	0.65	6.00	12	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	7.79	1.49	0.37	0.01	0.00	0.00
6	Residual	MRF to Working Face	Paved	0.46	29.00	58	0.00	0.10	0.01	0.00	0.00	0.01	0.00	0.00	27.13	5.18	1.29	0.04	0.00	0.00
7	Organics	MRF to ADF	Paved	0.96	27.00	54	0.00	0.18	0.01	0.00	0.00	0.01	0.00	0.00	52.26	9.97	2.49	0.09	0.00	0.00
8a	Residual Compost	CMU to Working Face	Paved	1.42	24.00	48	0.00	0.24	0.02	0.00	0.00	0.02	0.00	0.01	68.60	13.09	3.27	0.11	0.00	0.00
9	Commodities	MRF to Exit	Paved	0.98	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Wood, Metals, Heavies	MRF to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	CMU to Exit	Paved	1.15	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	1.15	5.00	10	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	11.54	2.20	0.55	0.02	0.00	0.00
Through Entrance Only					*124.00*	*248.00*	*0.01*	*0.86*	*0.05*	*0.01*	*0.01*	*0.06*	*0.01*	*0.02*	*244.80*	*46.72*	*11.68*	*0.40*	*0.00*	*0.00*

Road Sections from Entrance to Gate using default g/mi Silt Loading

CNG-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	Avg CNG Trips Per Day	Avg CNG One-Way Trips Per Day	ROG	NOx	CO	SOx	PM10 Ex	PM 10 BW TW	PM2.5 Ex	PM2.5 BW TW	PM30 Fug Dust	PM 10 Fug Dust	PM 2.5 Fug Dust	CO2	CH4	N2O
1	Material / Route	Entrance to SH	Paved	0.14	25.00	50	0.00	0.02	0.33	0.00	0.00	0.00	0.00	0.00	7.12	1.36	0.34	0.01	0.00	0.00
2	MSW	Entrance to SH	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Commmingled Recyclables	Entrance to SH	Paved	0.14	10.00	20	0.00	0.01	0.13	0.00	0.00	0.00	0.00	0.00	2.85	0.54	0.14	0.00	0.00	0.00
4	Bypass MSW	Entrance to SH	Paved	0.14	6.00	12	0.00	0.01	0.08	0.00	0.00	0.00	0.00	0.00	1.71	0.33	0.08	0.00	0.00	0.00
5a	Greenwaste	SH to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Residual Compost	SH to Exit	Paved	0.14	12.00	24	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	3.42	0.65	0.16	0.01	0.00	0.00
12	Commodities	SH to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Wood, Metals, Heavies	SH to Exit	Paved	0.14	2.00	4	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.57	0.11	0.03	0.00	0.00	0.00
11	Finished Compost	Entrance to SH	Paved	0.14	2.00	4	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.57	0.11	0.03	0.00	0.00	0.00
Through Entrance Only					*43.00*	*86.00*	*0.00*	*0.0376*	*0.56*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*12.25*	*2.34*	*0.58*	*0.02*	*0.00*	*0.00*

Diesel-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day			Starting Exhaust Emissions (lbs/day)
Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	Avg Diesel Trips Per Day	Avg Dsl One-Way Trips Per Day	ROG	NOx	CO	SOx	PM10 Ex	PM 10 BW TW	PM2.5 Ex	PM2.5 BW TW	PM30 Fug Dust	PM 10 Fug Dust	PM 2.5 Fug Dust	CO2	CH4	N2O	NOx
1	Material / Route	Entrance to SH	Paved	0.14	74.00	148	0.00	0.07	0.00	0.00	0.00	0.01	0.00	0.00	21.08	4.02	1.01	0.03	0.00	0.00	0.489644384
2	MSW	Entrance to SH	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3	Commmingled Recyclables	Entrance to SH	Paved	0.14	29.00	58	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	8.26	1.58	0.39	0.01	0.00	0.00	0.191887664
4	Bypass MSW	Entrance to SH	Paved	0.14	16.00	32	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	4.56	0.87	0.22	0.01	0.00	0.00	0.105869056
5a	Greenwaste	SH to Exit	Paved	0.14	12.00	24	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	3.42	0.65	0.16	0.01	0.00	0.00	0.079401792
9	Residual Compost	SH to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
12	Commodities	SH to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
10	Wood, Metals, Heavies	SH to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
11	Finished Compost	Entrance to SH	Paved	0.14	5.00	10	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1.42	0.27	0.07	0.00	0.00	0.00	0.03308408
Through Entrance Only					*124.00*	*248.00*	*0.00*	*0.1241*	*0.01*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*35.32*	*6.74*	*1.69*	*0.06*	*0.00*	*0.00*	*0.8205*

		Running Exhaust Emission Factors and PM BW and TW (g/mi)									
Emission Factors	**EMFAC Vehicle Class**	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_BW_TW	PM2.5_RUNEX	PM2.5_BW_TW	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
CNG	T7 SWCV Class 8	0.054473548	1.402597197	20.92852007	0	0.000799764	0.246000071	0.000735353	0.082500024	1613.536534	3.812531203	0.328929978
Diesel	T7 Single Dump Class 8	0.017259633	1.603485589	0.099810161	0.015747868	0.019883053	0.1169341	0.01902292	0.037326934	1663.026619	0.000801665	0.262010521

Emission Factors (g/mi)	PM10	PM2.5
Paved Road Dust	87.09738293	21.77434573
Unpaved Road Dust	526.2931187	52.62931187

		Starting Exhaust (g/trip)								
Emission Factors	**EMFAC Vehicle Class**	**ROG_STREX**	**NOx_STREX**	**CO_STREX**	**SOx_STREX**	**PM10_STREX**	**PM2.5_STREX**	**CO2_STREX**	**CH4_STREX**	**N2O_STREX**
CNG (9 ton)	T7 SWCV Class 8	0	0	0	0	0	0	0	0	0
Diesel (10 ton)	T7 Single Dump Class 8	0	3.001337253	0	0	0	0	0	0	0

Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	% CNG	% Diesel	Average Trips per Day
1	MSW	Entrance to MRF	Paved	1.023674242	25%	75%	98
2	Commmingled Recyclables	Entrance to MRF	Paved		25%	75%	0
3	Bypass MSW	Entrance to Working Face	Paved	1.573863636	25%	75%	38
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.710227273	25%	75%	21
5a	Mulch	Greenwaste Pad to Exit	Paved	0.710227273	0%	100%	12
5b	Mulch	Greenwaste Pad to CMU	Paved	0.645075758	0%	100%	6
6	Residual	MRF to Working Face	Paved	0.464962121	0%	100%	29
7	Organics	MRF to ADF	Paved	0.961931818	0%	100%	27
8a	Residual Compost	CMU to Working Face	Paved	1.420454545	0%	100%	23
9	Commodities	MRF to Exit	Paved	1.121022727	100%	0%	12
12	Wood, Metals, Heavies	MRF to Exit	Paved		100%	0%	0
10	Finished Compost	CMU to Exit	Paved	1.288825758	100%	0%	2
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	1.288825758	25%	75%	6

Source: 2023.05.12 Truck Data Summary for AECOM Data Needs (2026)

2022 Front Gate Vehicle Data

Vehicle type	Vehicles Per Day	% by type
Diesel (20 ton)	25293	75.68%
CNG (9 ton)	7733	23.14%
Other diesel (10 ton)	395	1.18%
Total	33421	100.00%

Source: From Diesel CNG and Other Percentage Report by John Viggianelli
Alternatives Trip Analysis 5.4.23

Project Mobile Source Emissions (On-Site)

	Emissions (lb/day)						MT/day		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Emissions Summary (North of Gate)	0.04	4.53	16.94	0.03	85.15	21.32	1.07	0.00	0.00

	Annual Emissions (tons/year)						MT/yr		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Annual Emissions Summary (North of Gate)	0.01	0.70	2.63	0.00	13.24	3.32	332.73	0.16	0.06

	Emissions (lb/day)						MT/day		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Emissions Summary (Entry to Gate)	3.78E-03	0.21	0.83	1.49E-03	1.03	0.26	0.10	0.00	0.00

	Annual Emissions (tons/year)						MT/yr		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
On-Site Mobile Annual Emissions Summary (Entry to Gate)	0.00	0.03	0.13	0.00	0.16	0.04	31.21	0.02	0.01
Annual Operational Days	311	*Mon-Sat operations.							

Road Sections from GW Area and North using 7.4 g/mi Silt Loading

CNG-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg CNG Trips Per Day**	**Avg CNG One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**
1	MSW	Entrance to MRF	Paved	0.31	28.00	56	0.00	0.05	0.81	0.00	0.00	0.01	0.00	0.00	17.66	3.37	0.84	0.03	0.00	0.00
2	Commmingled Recyclables	Entrance to MRF	Paved	1.02	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Entrance to Working Face	Paved	1.16	11.00	22	0.00	0.08	1.18	0.00	0.00	0.01	0.00	0.00	25.74	4.91	1.23	0.04	0.00	0.00
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.00	6.00	12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5a	Mulch	Greenwaste Pad to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5b	Mulch	Greenwaste Pad to CMU	Paved	0.65	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Residual	MRF to Working Face	Paved	0.76	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Organics	MRF to ADF	Paved	0.96	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8a	Residual Compost	CMU to Working Face	Paved	1.72	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Commodities	MRF to Exit	Paved	0.41	13.00	26	0.00	0.03	0.49	0.00	0.00	0.01	0.00	0.00	10.75	2.05	0.51	0.02	0.00	0.00
12	Wood, Metals, Heavies	MRF to Exit	Paved	1.12	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	CMU to Exit	Paved	0.58	3.00	6	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	3.49	0.67	0.17	0.01	0.00	0.00
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	0.58	2.00	4	0.00	0.01	0.11	0.00	0.00	0.00	0.00	0.00	2.33	0.44	0.11	0.00	0.00	0.00
Through Entrance Only					*47.00*	*94.00*	*0.01*	*0.14*	*2.10*	*0.00*	*0.00*	*0.02*	*0.00*	*0.01*	*45.73*	*8.73*	*2.18*	*0.07*	*0.00*	*0.00*

Diesel-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg Diesel Trips Per Day**	**Avg Dsl One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**
1	MSW	Entrance to MRF	Paved	0.31	83.00	166	0.00	0.18	0.01	0.00	0.00	0.01	0.00	0.00	52.35	9.99	2.50	0.09	0.00	0.00
2	Commmingled Recyclables	Entrance to MRF	Paved	1.02	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Entrance to Working Face	Paved	1.16	33.00	66	0.00	0.27	0.02	0.00	0.00	0.02	0.00	0.01	77.22	14.74	3.68	0.13	0.00	0.00
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.00	18.00	36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5a	Mulch	Greenwaste Pad to Exit	Paved	0.00	13.00	26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5b	Mulch	Greenwaste Pad to CMU	Paved	0.65	7.00	14	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	9.09	1.73	0.43	0.02	0.00	0.00
6	Residual	MRF to Working Face	Paved	0.76	33.00	66	0.00	0.18	0.01	0.00	0.00	0.01	0.00	0.00	50.75	9.68	2.42	0.08	0.00	0.00
7	Organics	MRF to ADF	Paved	0.96	31.00	62	0.00	0.21	0.01	0.00	0.00	0.02	0.00	0.00	60.01	11.45	2.86	0.10	0.00	0.00
8a	Residual Compost	CMU to Working Face	Paved	1.72	26.00	52	0.00	0.32	0.02	0.00	0.00	0.02	0.00	0.01	89.98	17.17	4.29	0.15	0.00	0.00
9	Commodities	MRF to Exit	Paved	0.41	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Wood, Metals, Heavies	MRF to Exit	Paved	1.12	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	CMU to Exit	Paved	0.58	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	0.58	5.00	10	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	5.82	1.11	0.28	0.01	0.00	0.00
Through Entrance Only					*139.00*	*278.00*	*0.01*	*0.48*	*0.03*	*0.00*	*0.01*	*0.03*	*0.01*	*0.01*	*135.40*	*25.84*	*6.46*	*0.22*	*0.00*	*0.00*

Road Sections from Gate to Greenwaste Area using lower g/mi Silt Loading

CNG-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg CNG Trips Per Day**	**Avg CNG One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**
1	MSW	Gate to GW Section	Paved	0.57	28.00	56	0.00	0.10	1.47	0.00	0.00	0.02	0.00	0.01	5.18	0.99	0.25	0.05	0.00	0.00
2	Commmingled Recyclables	Gate to GW Section	Paved	0.57	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Gate to GW Section	Paved	0.57	11.00	22	0.00	0.04	0.58	0.00	0.00	0.01	0.00	0.00	2.04	0.39	0.10	0.02	0.00	0.00
4	Greenwaste	Gate to GW Section	Paved	0.57	6.00	12	0.00	0.02	0.31	0.00	0.00	0.00	0.00	0.00	1.11	0.21	0.05	0.01	0.00	0.00
5a	Mulch	GW Section to Gate	Paved	0.57	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Commodities	GW Section to Gate	Paved	0.57	13.00	26	0.00	0.05	0.68	0.00	0.00	0.01	0.00	0.00	2.41	0.46	0.11	0.02	0.00	0.00
12	Wood, Metals, Heavies	GW Section to Gate	Paved	0.57	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	GW Section to Gate	Paved	0.57	3.00	6	0.00	0.01	0.16	0.00	0.00	0.00	0.00	0.00	0.56	0.11	0.03	0.01	0.00	0.00
11	Spot Market Organics / Mulch	Gate to GW Section	Paved	0.57	2.00	4	0.00	0.01	0.10	0.00	0.00	0.00	0.00	0.00	0.37	0.07	0.02	0.00	0.00	0.00
Through Entrance Only					*47.00*	*94.00*	*0.01*	*0.17*	*2.47*	*0.00*	*0.00*	*0.03*	*0.00*	*0.01*	*8.70*	*1.66*	*0.42*	*0.09*	*0.00*	*0.00*

Diesel-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day			Starting Exhaust Emissions (lbs/day)
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg Diesel Trips Per Day**	**Avg Dsl One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**	**NOx**
1	MSW	Gate to GW Section	Paved	0.57	83.00	166	0.00	0.33	2.08E-02	0.00	0.00	0.02	0.00	0.01	15.37	2.93	0.73	0.16	0.00	0.00	0.549195728
2	Commmingled Recyclables	Gate to GW Section	Paved	0.57	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3	Bypass MSW	Gate to GW Section	Paved	0.57	33.00	66	0.00	0.13	8.26E-03	0.00	0.00	0.01	0.00	0.00	6.11	1.17	0.29	0.06	0.00	0.00	0.218354928
4	Greenwaste	Gate to GW Section	Paved	0.57	18.00	36	0.00	0.07	4.50E-03	0.00	0.00	0.01	0.00	0.00	3.33	0.64	0.16	0.03	0.00	0.00	0.119102688
5a	Mulch	GW Section to Gate	Paved	0.57	13.00	26	0.00	0.05	3.25E-03	0.00	0.00	0.00	0.00	0.00	2.41	0.46	0.11	0.02	0.00	0.00	0.086018608
9	Commodities	GW Section to Gate	Paved	0.57	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
12	Wood, Metals, Heavies	GW Section to Gate	Paved	0.57	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
10	Finished Compost	GW Section to Gate	Paved	0.57	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
11	Spot Market Organics / Mulch	Gate to GW Section	Paved	0.57	5.00	10	0.00	0.02	1.25E-03	0.00	0.00	0.00	0.00	0.00	0.93	0.18	0.04	0.01	0.00	0.00	0.03308408
Through Entrance Only					*139.00*	*278.00*	*0.01*	*0.56*	*0.03*	*0.01*	*0.01*	*0.04*	*0.01*	*0.01*	*25.74*	*4.91*	*1.23*	*0.26*	*0.00*	*0.00*	*0.92*

Road Sections from Entrance to Gate using 0.5 g/mi Silt Loading

CNG-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day		
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg CNG Trips Per Day**	**Avg CNG One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**

1	MSW	Entrance to Gate	Paved	0.14	28.00	56	0.00	0.02	0.37	0.00	0.00	0.00	0.00	0.00	0.69	0.13	0.03	0.01	0.00	0.00
2	Commmingled Recyclables	Entrance to Gate	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Bypass MSW	Entrance to Gate	Paved	0.14	11.00	22	0.00	0.01	0.14	0.00	0.00	0.00	0.00	0.00	0.27	0.05	0.01	0.01	0.00	0.00
4	Greenwaste	Entrance to Gate	Paved	0.14	6.00	12	0.00	0.01	0.08	0.00	0.00	0.00	0.00	0.00	0.15	0.03	0.01	0.00	0.00	0.00
5a	Mulch	Gate to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Commodities	Gate to Exit	Paved	0.14	13.00	26	0.00	0.01	0.17	0.00	0.00	0.00	0.00	0.00	0.32	0.06	0.02	0.01	0.00	0.00
12	Wood, Metals, Heavies	Gate to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	Finished Compost	Gate to Exit	Paved	0.14	3.00	6	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.07	0.01	0.00	0.00	0.00	0.00
11	Spot Market Organics / Mulch	Entrance to Gate	Paved	0.14	2.00	4	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.05	0.01	0.00	0.00	0.00	0.00
Through Entrance Only					*47.00*	*94.00*	*0.00*	*0.0411*	*0.61*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*1.15*	*0.22*	*0.06*	*0.02*	*0.00*	*0.00*

Diesel-Fueled Truck Trips

							Running Exhaust, PM Brake Wear, and PM Tire Wear Emissions (lbs/day)								Paved Roadway Emissions (lbs/day)			MT/day			Starting Exhaust Emissions (lbs/day)
Material Route ID#	**Material / Route**	**Route**	**Paved or Unpaved?**	**Distance (mi)**	**Avg Diesel Trips Per Day**	**Avg Dsl One-Way Trips Per Day**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM 10 BW TW**	**PM2.5 Ex**	**PM2.5 BW TW**	**PM30 Fug Dust**	**PM 10 Fug Dust**	**PM 2.5 Fug Dust**	**CO2**	**CH4**	**N2O**	**NOx**
1	MSW	Entrance to Gate	Paved	0.14	83.00	166	0.00	0.08	5.17E-03	0.00	0.00	0.01	0.00	0.00	2.04	0.39	0.10	0.04	0.00	0.00	0.549195728
2	Commmingled Recyclables	Entrance to Gate	Paved	0.00	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
3	Bypass MSW	Entrance to Gate	Paved	0.14	33.00	66	0.00	0.03	2.06E-03	0.00	0.00	0.00	0.00	0.00	0.81	0.15	0.04	0.02	0.00	0.00	0.218354928
4	Greenwaste	Entrance to Gate	Paved	0.14	18.00	36	0.00	0.02	1.12E-03	0.00	0.00	0.00	0.00	0.00	0.44	0.08	0.02	0.01	0.00	0.00	0.119102688
5a	Mulch	Gate to Exit	Paved	0.14	13.00	26	0.00	0.01	8.10E-04	0.00	0.00	0.00	0.00	0.00	0.32	0.06	0.02	0.01	0.00	0.00	0.086018608
9	Commodities	Gate to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
12	Wood, Metals, Heavies	Gate to Exit	Paved	0.00	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
10	Finished Compost	Gate to Exit	Paved	0.14	0.00	0	0.00	0.00	0.00E+00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0
11	Spot Market Organics / Mulch	Entrance to Gate	Paved	0.14	5.00	10	0.00	0.01	3.11E-04	0.00	0.00	0.00	0.00	0.00	0.12	0.02	0.01	0.00	0.00	0.00	0.03308408
Through Entrance Only					*139.00*	*278.00*	*0.00*	*0.1391*	*0.01*	*0.00*	*0.00*	*0.01*	*0.00*	*0.00*	*3.41*	*0.65*	*0.16*	*0.07*	*0.00*	*0.00*	*0.9197*

		Running Exhaust Emission Factors and PM BW and TW (g/mi)										
Emission Factors	**EMFAC Vehicle Class**	**ROG_RUNEX**	**NOx_RUNEX**	**CO_RUNEX**	**SOx_RUNEX**	**PM10_RUNEX**	**PM10_BW_TW**	**PM2.5_RUNEX**	**PM2.5_BW_TW**	**CO2_RUNEX**	**CH4_RUNEX**	**N2O_RUNEX**
CNG	T7 SWCV Class 8	0.054473548	1.402597197	20.92852007	0	0.000799764	0.246000071	0.000735353	0.082500024	1613.53653	3.812531203	0.328929978
Diesel	T7 Single Dump Class 8	0.017259633	1.603485589	0.099810161	0.015747868	0.019883053	0.1169341	0.01902292	0.037326934	1663.02662	0.000801665	0.262010521

Emission Factors (g/mi)	**PM10**	**PM2.5**
Paved Road Dust	87.09738293	21.77434573

		Starting Exhaust (g/trip)								
Emission Factors	**EMFAC Vehicle Class**	**ROG_STREX**	**NOx_STREX**	**CO_STREX**	**SOx_STREX**	**PM10_STREX**	**PM2.5_STREX**	**CO2_STREX**	**CH4_STREX**	**N2O_STREX**
CNG	T7 SWCV Class 8	0	0	0	0	0	0	0	0	0
Diesel	T7 Single Dump Class 8	0	3.001337253	0	0	0	0	0	0	0

Material Route ID#	Material / Route	Route	Paved or Unpaved?	Distance (mi)	% CNG	% Diesel	Average Trips per Day
1	MSW	Entrance to MRF	Paved	1.023674242	25%	75%	110
2	Commmingled Recyclables	Entrance to MRF	Paved	1.023674242	25%	75%	
3	Bypass MSW	Entrance to Working Face	Paved	1.873106061	25%	75%	43
4	Greenwaste	Entrance to Greenwaste Pad	Paved	0.710227273	25%	75%	24
5a	Mulch	Greenwaste Pad to Exit	Paved	0.710227273	0%	100%	13
5b	Mulch	Greenwaste Pad to CMU	Paved	0.645075758	0%	100%	6
6	Residual	MRF to Working Face	Paved	0.764204545	0%	100%	32
7	Organics	MRF to ADF	Paved	0.961931818	0%	100%	30
8a	Residual Compost	CMU to Working Face	Paved	1.71969697	0%	100%	26
9	Commodities	MRF to Exit	Paved	1.121022727	100%	0%	13
12	Wood, Metals, Heavies	MRF to Exit	Paved	1.121022727	100%	0%	
10	Finished Compost	CMU to Exit	Paved	1.288825758	100%	0%	2
11	Spot Market Organics / Mulch	Entrance to ADF	Paved	1.288825758	25%	75%	6

Source: 2023.05.12 Truck Data Summary for AECOM Data Needs (2038)

Paved 1

Breakup of Entrance to MRF	
Hwy 101 to Gate	0.1416
Gate to GW Area	0.5687
GW Area to MRF	0.3134
Sum	1.02

2022 Front Gate Vehicle Data

Vehicle type	VPD	% by type
Diesel (20 ton)	25293	75.68%
CNG (9 ton)	7733	23.14%
Other diesel (10 ton)	395	1.18%
Total	33421	100.00%

Source: From Diesel CNG and Other Percentage Report by John Viggianelli

Alternatives Trip Analysis 5.4.23

Existing and Project Off-Site Emissions for 1% per Year Waste Increase

	Emissions (lb/day)							MT/day		
	ROG	NOx	CO	SOx	PM10 (Ex, BW, TW, Paved RD)	PM2.5 (Ex, BW, TW, Paved RD)	PM30 Paved Road Dust	CO2	CH4	N2O
Existing Off-Site Mobile Emissions	0.464828106	27.97573616	88.38636113	0.21748258	34.06825645	8.912431816	163.2403044	13.460	0.007	0.002
Project Off-Site Mobile Emissions	0.524713936	31.5799721	99.77356103	0.245501808	38.45741832	9.67693754	184.2712638	15.194	0.008	0.003
Net Off-Site Mobile Emissions	0.0599	3.6042	11.3872	0.0280	4.3892	0.7645	21.0310	1.7342	0.0009	0.0003

				Emissions (lb/day)												MT/day		
Description	Roundtrip Miles	ADT	Daily VMT	ROG	NOx	CO	SOx	PM10 Ex	PM10 BW_TW	PM2.5 Ex	PM2.5 BW_TW	PM30_Paved Road Dust	PM10_Paved Road Dust	PM2.5_Paved Road Dust	CO2	CH4	N2O
Existing - Diesel Trips	50	125	6264	0.238360493	22.14459701	1.378407026	0.21748258	0.274590672	1.614893548	0.262712001	0.515495692	125.4695233	23.94456552	5.98614138	10.41759961	5.02182E-06	0.001641297
Existing - CNG Trips	50	38	1886	0.226467613	5.831139143	87.0079541	0	0.003324928	1.022717458	0.003057148	0.342984513	37.77078106	7.208164324	1.802041081	3.042740966	0.007189515	0.000620283
			Total	**0.464828106**	**27.97573616**	**88.38636113**	**0.21748258**	**0.2779156**	**2.637611006**	**0.26576915**	**0.858480206**	**163.2403044**	**31.15272984**	**7.788182461**	**13.46034058**	**0.007194537**	**0.00226158**
Project - Diesel Trips	50	141	7071	0.269069514	24.9975819	1.555993208	0.245501808	0.309967385	1.822947318	0.296558333	0.581909248	141.6343085	27.02944819	6.757362048	11.75974434	5.66881E-06	0.001852753
Project - CNG Trips	50	43	2129	0.255644422	6.582390199	98.21756782	0	0.003753292	1.154478603	0.003451014	0.003451014	42.63695531	8.136823532	2.034205883	3.434750538	0.008115771	0.000700196
			Total	**0.524713936**	**31.5799721**	**99.77356103**	**0.245501808**	**0.313720677**	**2.977425921**	**0.300009347**	**0.585360262**	**184.2712638**	**35.16627172**	**8.79156793**	**15.19449488**	**0.00812144**	**0.002552949**

Notes: Existing emissons based on DEIR baseline of 163 vehicle trips per day; Project emissions based on anticipated 1% growth in waste per year, resulting in 184 daily truck trips under the project scenario.
Resource Center trips to the working face of the landfill accessed via internal roadways and captured in the Project_On Site Mobile tab.

	Diesel	CNG
Fleet Mix Assumptions	76.86%	23.14%

Source: Based on 2022 Front Gate Vehice Data

		Running Exhaust Emission Factors and PM BW and TW (g/mi)										
Emission Factors	EMFAC Vehicle Class	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_RUNEX	PM10_BW_TW	PM2.5_RUNEX	PM2.5_BW_TW	CO2_RUNEX	CH4_RUNEX	N2O_RUNEX
CNG	T7 SWCV Class 8	0.054473548	1.402597197	20.92852007	0	0.000799764	0.246000071	0.000735353	0.082500024	1613.536534	3.812531203	0.328929978
Diesel	T7 Single Dump Class 8	0.017259633	1.603485589	0.099810161	0.015747868	0.019883053	0.1169341	0.01902292	0.037326934	1663.026619	0.000801665	0.262010521

Paved Roads Fugitive Dust Emissions

Paved Road Dust $EF_{DUST} = [(k(sL)^{0.91} \times (W)^{1.02}](1 - P/4N))$

Source: AP-42 Section 13.2.1 (Paved Roads) - http://www.epa.gov/ttnchie1/ap42/ch13/final/c13s0201.pdf

Variable	Value	Description
k (PM30)	5.24	particle size multiplier for particle size range and units of interest (g/VMT)
k (PM10)	1	particle size multiplier for particle size range and units of interest (g/VMT)
k (PM2.5)	0.25	particle size multiplier for particle size range and units of interest (g/VMT)
sL - for on-site paved roads (All other sections)	7.4	road surface silt loading (g/m^2) based on mean value from AP-42 Table 13.2.1-3 for Municipal solid waste landfills
sL - for on-site paved roads (Gate to Green Waste Area)	1	road surface silt loading (g/m^2) based on mean value from AP-42 Table 13.2.1-3 for Municipal solid waste landfills, with sweeping once per day
sL - for on-site paved roads (101 to Gate)	0.5	road surface silt loading (g/m^2) based on mean value from AP-42 Table 13.2.1-3 for Municipal solid waste landfills, with sweeping once per day
sL - for offsite paved roads	0.1	road surface silt loading (g/m^2) based on value from ATC Mod 14500-10
W	13.75	Vehicle weight based on Freightliner tractor + trailer and tractor/trailer = average of 40,000 lbs loaded and 15,000 lbs empty, based on assumption that project is primarily served by 20-ton trucks
P	40	AP-42 Figure 13.2.1-2
N	365	number of days in averaging period

All Vehicle Trip Types - Onsite Paved Roads North of Green Waste Area

EF (PM30)	456.390	g/mi
EF (PM10)	87.097	g/mi
EF (PM2.5)	21.774	g/mi

All Vehicle Trip Types - Onsite Paved Roads from GW Area to MRF

EF (PM30)	170.005	g/mi
EF (PM10)	32.444	g/mi
EF (PM2.5)	8.111	g/mi

0.372498513

All Vehicle Trip Types - Onsite Paved Roads from Gate to Green Waste Area

EF (PM30)	73.847	g/mi
EF (PM10)	14.093	g/mi
EF (PM2.5)	3.523	g/mi

All Vehicle Trip Types - Onsite Paved Road from 101 to Gate with Sweeping

EF (PM30)	39.301	g/mi
EF (PM10)	7.500	g/mi
EF (PM2.5)	1.875	g/mi

All Vehicle Trip Types - Offsite Paved Roads

EF (PM30)	9.085	g/mi
EF (PM10)	1.734	g/mi
EF (PM2.5)	0.433	g/mi

Conversion Units	
lbs	tons
2000	1
lb	grams
1	453.59237

Project Off-Site Emissions - Alternatives Analysis
Emissions Analysis

	Emissions (lb/day)						MT/day		
	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
Off-Site Mobile Emissions Summary	0.0593	5.7451	0.2551	0.0363	4.1042	1.0820	1.7401	0.0000	0.0003

				Emissions (lb/day)											MT/day		
Destination	**Roundtrip Miles**	**ADT**	**Daily VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM10 BW_TW**	**PM2.5 Ex**	**PM2.5 BW_TW**	**PM30_Paved Road Dust**	**PM10_Paved Road Dust**	**PM2.5_Paved Road Dust**	**CO2**	**CH4**	**N2O**
Marborg to Tajiguas	55	10	554	0.033283291	3.224031749	0.143177596	0.020386395	0.028443003	0.157120688	0.027212571	0.05059534	11.0963348	2.117621145	0.529405286	0.976525567	7.01219E-07	0.00015385
SCRTS to Tajiguas	45	6	267.6	0.016076911	1.557312087	0.069159431	0.009847291	0.013738895	0.075894397	0.013144556	0.024439193	5.359890239	1.022879817	0.255719954	0.471693577	3.38711E-07	7.43155E-05
SYVRTS to Tajiguas	55.2	3	165.6	0.00994894	0.963717794	0.042798213	0.006093839	0.008502096	0.046966039	0.008134299	0.015123806	3.316882749	0.632992891	0.158248223	0.291900061	2.09606E-07	4.5989E-05
TJ to Tajiguas	0	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			Total	**0.059309142**	**5.745061629**	**0.25513524**	**0.036327525**	**0.050683994**	**0.279981124**	**0.048491427**	**0.090158339**	**19.77310779**	**3.773493853**	**0.943373463**	**1.740119206**	**1.24954E-06**	**0.000274156**

Source: Alternatives Trip Analysis 5.4.23 (2038 Volumes) with EMFAC2021 emissions factors for 2026 calendar year.

Resource Center trips to the working face of the landfill accessed via internal roadways and captured in the Project_On Site Mobile tab.

Alternatives - No Project Alternatives
Emissions Analysis

	Emissions (lb/day)						MT/day		
No Project Alternatives Emissions Summary	ROG	NOx	CO	SOx	PM10	PM2.5	CO2	CH4	N2O
Scenario 1	0.365935964	35.44689	1.574178227	0.22414	25.32256	6.676057	10.73649	7.70961E-06	0.001691539
Scenario 2	0.25383015	24.58761	1.091923003	0.155474	17.5649	4.630823	7.447329	5.34774E-06	0.00117333

Scenario 1

				Emissions (lb/day)										MT/day		
Destination	**Roundtrip Miles**	**ADT**	**Daily VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM10 BW_TW**	**PM2.5 Ex**	**PM2.5 BW_TW**	**PM10_Paved Road Dust**	**PM2.5_Paved Road Dust**	**CO2**	**CH4**	**N2O**
Marborg to Chiquita	136	10	1360	0.081706	7.914591	0.351483	0.050046	0.069823979	0.385711435	0.066803424	0.124205167	5.198492342	1.299623085	2.397247	1.7214E-06	0.000377687
SCRTS to Chiquita	148	6	888	0.053349	5.167762	0.229498	0.032677	0.045590951	0.251846878	0.043618706	0.081098668	3.394309706	0.848577426	1.565261	1.12398E-06	0.000246608
SYVRTS to Chiquita	210	3	630	0.037849	3.666318	0.162819	0.023183	0.032344931	0.17867515	0.030945704	0.057536217	2.408125129	0.602031282	1.110489	7.97415E-07	0.000174958
TJ to Chiquita	189	17	3213	0.193031	18.69822	0.830378	0.118234	0.16495915	0.911243266	0.15782309	0.293434707	12.28143816	3.070359539	5.663496	4.06682E-06	0.000892286
			Total	**0.365936**	**35.44689**	**1.574178**	**0.22414**	**0.31271901**	**1.727476729**	**0.299190924**	**0.556274758**	**23.28236533**	**5.820591334**	**10.73649**	**7.70961E-06**	**0.001691539**

Source: Alternatives Trip Analysis 5.4.23 (2038 Volumes) with EMFAC2021 emissions factors for 2026 calendar year.

Scenario 2

				Emissions (lb/day)										MT/day		
Destination	**Roundtrip Miles**	**ADT**	**Daily VMT**	**ROG**	**NOx**	**CO**	**SOx**	**PM10 Ex**	**PM10 BW_TW**	**PM2.5 Ex**	**PM2.5 BW_TW**	**PM10_Paved Road Dust**	**PM2.5_Paved Road Dust**	**CO2**	**CH4**	**N2O**
Marborg to Chiquita	136	10	1360	0.081706	7.914591	0.351483	0.050046	0.069823979	0.385711435	0.066803424	0.124205167	5.198492342	1.299623085	2.397247	1.7214E-06	0.000377687
SCRTS to Chiquita	148	6	888	0.053349	5.167762	0.229498	0.032677	0.045590951	0.251846878	0.043618706	0.081098668	3.394309706	0.848577426	1.565261	1.12398E-06	0.000246608
SYVRTS to SMR	64	3	192	0.011535	1.117354	0.049621	0.007065	0.009857503	0.054453379	0.009431072	0.017534847	0.733904801	0.1834762	0.338435	2.43022E-07	5.33205E-05
TJ to SMR	105	17	1785	0.107239	10.3879	0.461321	0.065685	0.091643972	0.506246259	0.087679494	0.163019282	6.823021199	1.7057553	3.146387	2.25934E-06	0.000495714
			Total	**0.25383**	**24.58761**	**1.091923**	**0.155474**	**0.216916404**	**1.198257951**	**0.207532697**	**0.385857963**	**16.14972805**	**4.037432012**	**7.447329**	**5.34774E-06**	**0.00117333**

Source: Alternatives Trip Analysis 5.4.23 (2038 Volumes)

Descriptions from EIR (5.0_Alternatives Analysis_rev2_May23)

Scenario 1 — Waste Export to the Chiquita Canyon Landfill

The County waste will continue to be disposed of at the Tajiguas Landfill until the currently permitted capacity is reached (~March 2026) and then export of all solid waste requiring burial from the Tajiguas Landfill wasteshed will be directed to the Chiquita Canyon Landfill located in western Los Angeles County off Route 126.

Scenario 2 — Waste Export to the Chiquita Canyon Landfill and Santa Maria Regional Landfill OR Integrated Waste Management Facility

The County waste will continue to be disposed of at the Tajiguas Landfill until the currently permitted capacity is reached (~March 2026) and then export of non-recyclable waste generated in the Santa Barbara area to the Chiquita Canyon Landfill and export of non-recyclable waste from the SYVRTS and bypass and residual waste from the ReSource Center to the Santa Maria Regional Landfill until the City of Santa Maria's planned Integrated Waste Management Facility (IWMF) is operational (anticipated to be 2026-2028, but currently undergoing revised environmental review and permitting).

Source: EMFAC2021 (v1.0.2) Emission Rates
Region Type: Air District
Region: Santa Barbara County APCD
Calendar Year: 2026
Season: Annual
Vehicle Classification: EMFAC202x Categories
Units: miles/day for CVMT and EVMT, trips/day for Trips, g/mile for RUNEX, PMBW and PMTW, g/trip for STREX, HOTSOAK and RUNLOSS, g/vehicle/day for IDLEX and DIURN. PHEV calculated based on total VMT.

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Populatior	Total VMT	% VMT	CVMT	EVMT	Trips	ROG_RUNEX	NOx_RUNI	CO_RUNEX	SOx_RUNE	PM10_RUI	PM10_BW	PM2.5_RU	PM2.5_BW	CO2_RUNEX	CH4_RUNE	N2O_RUNEX
Santa Barb	2026	T7 Public Class 8	Aggregate	Aggregate	Diesel	301.1102	12947.78	15%	12947.78	0	1544.695	0.094692263	6.864452	0.330113	0.017347	0.042074	0.146122	0.040253	0.047543	1831.873149	0.004398	0.288612
Santa Barb	2026	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	197.9361	10961.3	13%	10961.3	0	1864.558	0.017259633	1.603486	0.09981	0.015748	0.019883	0.116934	0.019023	0.037327	1663.026619	0.000802	0.262011
Santa Barb	2026	T7 Single Other Class 8	Aggregate	Aggregate	Diesel	504.0998	25844.68	31%	25844.68	0	4748.621	0.013113872	1.323398	0.075929	0.015348	0.016732	0.116847	0.016008	0.037296	1620.763241	0.000609	0.255352
Santa Barb	2026	T7 SWCV Class 8	Aggregate	Aggregate	Diesel	80.91507	5242.204	6%	5242.204	0	372.2093	0.024730765	6.895991	0.060707	0.036133	0.01646	0.246	0.015748	0.0825	3815.770407	0.001149	0.601176
Santa Barb	2026	T7 Tractor Class 8	Aggregate	Aggregate	Diesel	414.0256	29365.68	35%	29365.68	0	6015.791	0.014136493	1.562405	0.076302	0.014467	0.023265	0.114741	0.022259	0.03656	1527.767579	0.000657	0.2407
Average Diesel Truck (2026) Emission Factor (g/mi)												**0.02725**	**2.63970**	**0.11723**	**0.01669**	**0.02329**	**0.12864**	**0.02228**	**0.04143**	**1762.68153**	**0.00127**	**0.27771**

Region	Calendar Y	Vehicle Category	Model Yea	Speed	Fuel	Populatior	Total VMT	CVMT	EVMT	Trips	ROG_RUNEX	NOx_RUNI	CO_RUNEX	SOx_RUNE	PM10_RUI	PM10_BW	PM2.5_RU	PM2.5_BW	CO2_RUNEX	CH4_RUNE	N2O_RUNEX
Santa Barb	2026	T7 SWCV Class 8	Aggregate	Aggregate	Natural Ga	65.04236	4211.748	4211.748	0	299.1949	0.054473548	1.402597	20.92852	0	0.0008	0.246	0.000735	0.0825	1613.536534	3.812531	0.32893
Santa Barb	2026	T7 Single Dump Class 8	Aggregate	Aggregate	Diesel	197.9361	10961.3	10961.3	0	1864.558	0.017259633	1.603486	0.09981	0.015748	0.019883	0.116934	0.019023	0.037327	1663.026619	0.000802	0.262011

Indirect GHG Emissions
Electricity Consumption

	kWh	MWh	MT CO2e
Project Electricity Consumption (Net)	2361.828	2.3618282	0.621358944

Source: Based on potential 2% increase electricity consumption from existing FY21/22 electricity usage per information provided via 24Jan2023 email.

Electrical Usage (FY21/22) for TSL

J06000 Tajiguas Landfill [J06000TAJUGUSLANDFILL]					
Landfill	1,000 SqFt				
Primary Use	Floor Area				
Building			1/1/1970		
Place Type	Build Date				
Meter	#Days	**Use**	**UOM**	**Demand**	**UOM**
Calle Real Ped EL1 Meter 222013-989231 [J06001EL1]		553.13	kWh		
14470 Calle Real #2 EL2 Meter 259000-084082 [J06001EL2]		1,576.60	kWh	6	kW
Calle Real TPPB EL2 Meter 222014-050812 [J06027EL2]		1,103.80	kWh	2	kW
14450 PMP EL5 Meter 256000-220929 [J06027EL5]		164.28	kWh		
14450 PMP EL6 Meter 256000-220914 [J06027EL6]		377.6	kWh		
Tajiguas Well 5 EL4 Meter 259000-080590 [J06011EL4]		69,439.47	kWh	72	kW
Dewatering Well EL5 Meter 256000-081299 [J06011EL5]		19,799.53	kWh	10	kW
Tajiguas PMP EL6 Meter 359150-006223 [J06011EL6]		25,077.00	kWh		
Building Total		118,091.41	**kWh**		

Southern California Edison GHG Intensity (lbs CO2e/MWh)	580

Source: SCE Power Mix

[Southern California Edison Power Content Label (2021)]

Appendix C Modeling Archive

Table 1
Landfill Buried Tonage

New Landfill
Buried tonnage rates from January 2023 capacity memo for 2026-2038

Year	*mt landfilled (calc.)*	tons landfilled		
2026	*122,490*	135,023	75% of 2026 total for new landfill (April-Dec)	
2027	*164,954*	181,830		
2028	*166,605*	183,650		
2029	*168,274*	185,490		
2030	*169,952*	187,340		
2031	*171,658*	189,220		
2032	*173,372*	191,110		5070206.87
2033	*175,105*	193,020		
2034	*176,856*	194,950		1
2035	*178,625*	196,900		1.29693009
2036	*180,412*	198,870		
2037	*182,217*	200,860		
2038	*184,041*	202,870		

Existing Landfill
Historical 1967-2021 from Subpart HH Part 98 filing for 2021 from EPA FLIGHT
Buried tonnage rates for 2022-2025 from January 2023 capacity memo

Year	mt landfilled	Year	mt landfilled	Year	mt landfilled	tons landfilled	
1967	47,970	1987	291,738	2007	198,666		
1968	102,193	1988	316,555	2008	195,615		
1969	109,486	1989	275,241	2009	174,378		
1970	116,778	1990	260,928	2010	162,209		
1971	124,072	1991	223,333	2011	156,953		
1972	131,362	1992	218,085	2012	150,454		
1973	138,654	1993	220,359	2013	167,348		
1974	145,949	1994	196,871	2014	158,848		
1975	153,187	1995	202,731	2015	173,818		
1976	160,452	1996	212,640	2016	184,403		
1977	167,827	1997	207,805	2017	192,425		
1978	175,120	1998	245,785	2018	217,558		
1979	182,412	1999	217,048	2019	203,869		
1980	189,703	2000	199,704	2020	195,662		
1981	196,998	2001	184,492	2021	157,349		
1982	204,294	2002	193,274	2022	*122,772*	135,333	
1983	211,582	2003	209,589	2023	*158,513*	174,730	
1984	218,876	2004	218,800	2024	*160,100*	176,480	25% of 2026 total for existing landfill (Jan-Mar)
1985	227,899	2005	227,650	2025	*161,697*	178,240	
1986	283,689	2006	201,621	2026	*40,830*	45,008	

Table 2b
NSPS Subpart WWW Calculation - Project (New Landfill Portion)

Subpart WWW, §60.754(a)(1)(ii) Calculation Inputs (mt or Mg) NMOC = 2*Lo*R*(e^-kc - e^-kt)*C_{NMOC}*3.6E-9 Subpart WWW, §60.755(a)(1)(i) Calculation Inputs m3/yr LFG = 2*Lo*R*(e^-kc - e^-kt)		
Lo	100	methane generation potential, m3/Mg
Cnmoc	170	NMOC concentration, ppm NMOC
k	0.02	decay rate constant, <25 in rain/yr

Landfill Status	c, time since closure, years; if active c=0	t, age of landfill, years	Year of Waste Disposal	Mg Landfilled in year of waste disposal	R, Average annual acceptance rate, Mg/yr	total mt NMOC generated	total lbs NMOC generated	LFG collection efficiency	lbs fugitive NMOC	lbs/day fugitive NMOC	ROC / NMOC Ratio	lbs fugitive ROC	lbs/day fugitive ROC
Open	0	0	2026	122,490									
Open	0	1	2027	164,954	143,722	0.35	767.9	0.68	245.74	0.673	0.93	228.54	0.63
Open	0	2	2028	166,605	151,350	0.73	1,601.4	0.68	512.45	1.404	0.93	476.58	1.31
Open	0	3	2029	168,274	155,581	1.11	2,444.9	0.68	782.36	2.143	0.93	727.60	1.99
Open	0	4	2030	169,952	158,455	1.49	3,287.4	0.68	1,051.97	2.882	0.93	978.34	2.68
Open	0	5	2031	171,658	160,655	1.87	4,125.5	0.68	1,320.16	3.617	0.93	1,227.75	3.36
Open	0	6	2032	173,372	162,472	2.25	4,957.7	0.68	1,586.46	4.346	0.93	1,475.40	4.04
Open	0	7	2033	175,105	164,051	2.62	5,783.3	0.68	1,850.66	5.070	0.93	1,721.11	4.72
Open	0	8	2034	176,856	165,474	2.99	6,602.1	0.68	2,112.68	5.788	0.93	1,964.80	5.38
Open	0	9	2035	178,625	166,789	3.36	7,414.0	0.68	2,372.49	6.500	0.93	2,206.42	6.04
Open	0	10	2036	180,412	168,028	3.73	8,219.0	0.68	2,630.08	7.206	0.93	2,445.98	6.70
Open	0	11	2037	182,217	169,210	4.09	9,017.1	0.68	2,885.47	7.905	0.93	2,683.49	7.35
Open	0	12	2038	184,041	170,351	4.45	9,808.4	0.68	3,138.68	8.599	0.93	2,918.97	8.00
Closed (first year of closure)	1	13	2039	-	170,351	4.36	9,614.2	0.68	3,076.53	8.429	0.93	2,861.17	7.84
Closed	2	14	2040	-	170,351	4.27	9,423.8	0.68	3,015.61	8.262	0.93	2,804.52	7.68
Closed	3	15	2041	-	170,351	4.19	9,237.2	0.68	2,955.90	8.098	0.93	2,748.99	7.53
Closed	4	16	2042	-	170,351	4.11	9,054.3	0.68	2,897.37	7.938	0.93	2,694.55	7.38
Closed	5	17	2043	-	170,351	4.03	8,875.0	0.68	2,840.00	7.781	0.93	2,641.20	7.24
Closed	6	18	2044	-	170,351	3.95	8,699.2	0.68	2,783.76	7.627	0.93	2,588.90	7.09
Closed	7	19	2045	-	170,351	3.87	8,527.0	0.68	2,728.64	7.476	0.93	2,537.63	6.95
Closed	8	20	2046	-	170,351	3.79	8,358.1	0.68	2,674.61	7.328	0.93	2,487.38	6.81
Closed	9	21	2047	-	170,351	3.72	8,192.6	0.68	2,621.65	7.183	0.93	2,438.13	6.68
Closed	10	22	2048	-	170,351	3.64	8,030.4	0.68	2,569.73	7.040	0.93	2,389.85	6.55
Closed	11	23	2049	-	170,351	3.57	7,871.4	0.68	2,518.85	6.901	0.93	2,342.53	6.42
Closed	12	24	2050	-	170,351	3.50	7,715.5	0.68	2,468.97	6.764	0.93	2,296.15	6.29

	Total gas generation					Indirect GHG from MRF LFG engines/flare									
Year of Waste Disposal	total CH4 generation, m3/yr	total LFG generation, m3/yr	total CH4 generation, mmft3/yr	total CH4 generation, mt/yr	total LFG generation, mmft3/yr	captured LFG, mm3ft/yr	LFG HHV, MMBtu/ MMcf	CO2 emission factor (kg/MMBtu)	CO2 from Combustion (mt CO2)	CH4 emission factor (kg/MMBtu)	CH4 from Combustion (mt CH4)	N2O emission factor (kg/MMBtu)	N2O from Combustion (mt N2O)	CO2e from Combustion (mt CO2e) = CO2 + (CH4*25) +(N2O*265)
2026														
2027	284,589	569,177	10.050	189.209	20.100	13.668	511	52.07	363.68	0.0032	0.022	0.00063	0.0044	365.4
2028	593,450	1,186,900	20.957	394.555	41.915	14.251	511	52.07	379.19	0.0032	0.023	0.00063	0.0046	381.0
2029	906,031	1,812,063	31.996	602.375	63.992	21.757	511	52.07	578.92	0.0032	0.036	0.00063	0.0070	581.7
2030	1,218,260	2,436,519	43.022	809.960	86.045	29.255	511	52.07	778.42	0.0032	0.048	0.00063	0.0094	782.1
2031	1,528,839	3,057,677	53.990	1,016.448	107.981	36.713	511	52.07	976.86	0.0032	0.060	0.00063	0.0118	981.5
2032	1,837,228	3,674,455	64.881	1,221.481	129.762	44.119	511	52.07	1173.91	0.0032	0.072	0.00063	0.0142	1,179.5
2033	2,143,194	4,286,388	75.686	1,424.903	151.372	51.467	511	52.07	1369.41	0.0032	0.084	0.00063	0.0166	1,375.9
2034	2,446,635	4,893,271	86.402	1,626.646	172.804	58.753	511	52.07	1563.30	0.0032	0.096	0.00063	0.0189	1,570.7
2035	2,747,513	5,495,025	97.027	1,826.684	194.055	65.979	511	52.07	1755.55	0.0032	0.108	0.00063	0.0212	1,763.9
2036	3,045,822	6,091,644	107.562	2,025.015	215.124	73.142	511	52.07	1946.15	0.0032	0.120	0.00063	0.0235	1,955.4
2037	3,341,579	6,683,159	118.007	2,221.650	236.014	80.245	511	52.07	2135.13	0.0032	0.131	0.00063	0.0258	2,145.3
2038	3,634,812	7,269,624	128.362	2,416.605	256.724	87.286	511	52.07	2322.49	0.0032	0.143	0.00063	0.0281	2,333.5
2039	3,562,838	7,125,676	125.820	2,368.753	251.641	85.558	511	52.07	2276.50	0.0032	0.140	0.00063	0.0275	2,287.3
2040	3,492,289	6,984,578	123.329	2,321.849	246.658	83.864	511	52.07	2231.43	0.0032	0.137	0.00063	0.0270	2,242.0
2041	3,423,137	6,846,274	120.887	2,275.873	241.774	82.203	511	52.07	2187.24	0.0032	0.134	0.00063	0.0265	2,197.6
2042	3,355,354	6,710,709	118.493	2,230.808	236.986	80.575	511	52.07	2143.93	0.0032	0.132	0.00063	0.0259	2,154.1
2043	3,288,914	6,577,828	116.147	2,186.635	232.294	78.980	511	52.07	2101.48	0.0032	0.129	0.00063	0.0254	2,111.4
2044	3,223,789	6,447,578	113.847	2,143.337	227.694	77.416	511	52.07	2059.87	0.0032	0.127	0.00063	0.0249	2,069.6
2045	3,159,954	6,319,908	111.593	2,100.896	223.185	75.883	511	52.07	2019.08	0.0032	0.124	0.00063	0.0244	2,028.7
2046	3,097,383	6,194,765	109.383	2,059.295	218.766	74.380	511	52.07	1979.10	0.0032	0.122	0.00063	0.0239	1,988.5
2047	3,036,050	6,072,101	107.217	2,018.518	214.434	72.908	511	52.07	1939.91	0.0032	0.119	0.00063	0.0235	1,949.1
2048	2,975,932	5,951,865	105.094	1,978.549	210.188	71.464	511	52.07	1901.50	0.0032	0.117	0.00063	0.0230	1,910.5
2049	2,917,005	5,834,010	103.013	1,939.371	206.026	70.049	511	52.07	1863.84	0.0032	0.115	0.00063	0.0226	1,872.7
2050	2,859,244	5,718,489	100.973	1,900.969	201.947	68.662	511	52.07	1826.94	0.0032	0.112	0.00063	0.0221	1,835.6

	Direct GHG from LFG Methane and Oxidized CO2							
Year of Waste Disposal	non-collected /fugitive LFG, mmft3/yr	non-collected CH4 , mm3ft/yr	non-collected CH4 , mt/yr	Oxidation fraction	Oxidized CH4 to CO2 (mt CO2) = mt CH4*0.25*44/ 16	Fugitive Methane Not collected/ oxidized (mt CH4)	CO2e from Methane not collected (mt CO2e) = CO2 + (CH4 * 25)	Total CO2e, mt (Fugitive + Combustion)
2026								
2027	6.432	3.216	60.547	0.25	41.63	45.41	1,176.9	1,542.3
2028	13.413	6.706	126.258	0.25	86.80	94.69	2,454.1	2,835.1
2029	20.478	10.239	192.760	0.25	132.52	144.57	3,746.8	4,328.4
2030	27.534	13.767	259.187	0.25	178.19	194.39	5,038.0	5,820.1
2031	34.554	17.277	325.264	0.25	223.62	243.95	6,322.3	7,303.8
2032	41.524	20.762	390.874	0.25	268.73	293.16	7,597.6	8,777.1
2033	48.439	24.220	455.969	0.25	313.48	341.98	8,862.9	10,238.8
2034	55.297	27.649	520.527	0.25	357.86	390.40	10,117.7	11,688.4
2035	62.098	31.049	584.539	0.25	401.87	438.40	11,362.0	13,125.8
2036	68.840	34.420	648.005	0.25	445.50	486.00	12,595.6	14,551.0
2037	75.524	37.762	710.928	0.25	488.76	533.20	13,818.7	15,963.9
2038	82.152	41.076	773.314	0.25	531.65	579.99	15,031.3	17,364.8
2039	80.525	40.263	758.001	0.25	521.13	568.50	14,733.6	17,020.9
2040	78.931	39.465	742.992	0.25	510.81	557.24	14,441.9	16,683.9
2041	77.368	38.684	728.279	0.25	500.69	546.21	14,155.9	16,353.5
2042	75.836	37.918	713.859	0.25	490.78	535.39	13,875.6	16,029.7
2043	74.334	37.167	699.723	0.25	481.06	524.79	13,600.9	15,712.3
2044	72.862	36.431	685.868	0.25	471.53	514.40	13,331.6	15,401.2
2045	71.419	35.710	672.287	0.25	462.20	504.21	13,067.6	15,096.2
2046	70.005	35.003	658.974	0.25	453.04	494.23	12,808.8	14,797.3
2047	68.619	34.309	645.926	0.25	444.07	484.44	12,555.2	14,504.3
2048	67.260	33.630	633.136	0.25	435.28	474.85	12,306.6	14,217.1
2049	65.928	32.964	620.599	0.25	426.66	465.45	12,062.9	13,935.6
2050	64.623	32.311	608.310	0.25	418.21	456.23	11,824.0	13,659.6

ROC/NMOC ratio from - SBCAPCD Rule 341, Staff Report September 18, 1997
Annual acceptance rate for closed years based on overall average for all years open

Table 2b
NSPS Subpart WWW Calculation - Project (New Landfill Portion)

Subpart WWW, §60.754(a)(1)(ii) Calculation Inputs (mt or Mg) NMOC = 2*Lo*R*(e^-kc - e^-kt)*C_{NMOC}*3.6E-9 Subpart WWW, §60.755(a)(1)(i) Calculation Inputs m3/yr LFG = 2*Lo*R*(e^-kc - e^-kt)		
Lo	100	methane generation potential, m3/Mg
Cnmoc	170	NMOC concentration, ppm NMOC
k	0.02	decay rate constant, <25 in rain/yr

Landfill Status	c, time since closure, years; if active c=0	t, age of landfill, years	Year of Waste Disposal	Mg Landfilled in year of waste disposal	R, Average annual acceptance rate, Mg/yr	mt NMOC generated	lbs NMOC generated	LFG collection efficiency	lbs fugitive NMOC	lbs/day fugitive NMOC	ROC / NMOC Ratio	lbs fugitive ROC	lbs/day fugitive ROC
Open	0	0	1967	47,970									
Open	0	1	1968	102,193	75,082	0.18	401.2	0.68	128.4	0.352	0.93	119.39	0.33
Open	0	2	1969	109,486	86,550	0.42	915.8	0.68	293.0	0.803	0.93	272.53	0.75
Open	0	3	1970	116,778	94,107	0.67	1,478.8	0.68	473.2	1.297	0.93	440.11	1.21
Open	0	4	1971	124,072	100,100	0.94	2,076.7	0.68	664.6	1.821	0.93	618.04	1.69
Open	0	5	1972	131,362	105,310	1.23	2,704.3	0.68	865.4	2.371	0.93	804.79	2.20
Open	0	6	1973	138,654	110,074	1.52	3,358.8	0.68	1,074.8	2.945	0.93	999.57	2.74
Open	0	7	1974	145,949	114,558	1.83	4,038.5	0.68	1,292.3	3.541	0.93	1,201.86	3.29
Open	0	8	1975	153,187	118,850	2.15	4,741.9	0.68	1,517.4	4.157	0.93	1,411.20	3.87
Open	0	9	1976	160,452	123,010	2.48	5,468.0	0.68	1,749.8	4.794	0.93	1,627.28	4.46
Open	0	10	1977	167,827	127,085	2.82	6,216.3	0.68	1,989.2	5.450	0.93	1,849.97	5.07
Open	0	11	1978	175,120	131,088	3.17	6,985.6	0.68	2,235.4	6.124	0.93	2,078.91	5.70
Open	0	12	1979	182,412	135,036	3.53	7,775.0	0.68	2,488.0	6.816	0.93	2,313.84	6.34
Open	0	13	1980	189,703	138,940	3.89	8,583.8	0.68	2,746.8	7.526	0.93	2,554.55	7.00
Open	0	14	1981	196,998	142,811	4.27	9,411.3	0.68	3,011.6	8.251	0.93	2,800.81	7.67
Open	0	15	1982	204,294	146,654	4.65	10,256.8	0.68	3,282.2	8.992	0.93	3,052.43	8.36
Open	0	16	1983	211,582	150,473	5.04	11,119.6	0.68	3,558.3	9.749	0.93	3,309.18	9.07
Open	0	17	1984	218,876	154,273	5.44	11,999.0	0.68	3,839.7	10.520	0.93	3,570.89	9.78
Open	0	18	1985	227,899	158,148	5.85	12,901.8	0.68	4,128.6	11.311	0.93	3,839.58	10.52
Open	0	19	1986	283,689	164,425	6.36	14,026.9	0.68	4,488.6	12.298	0.93	4,174.40	11.44
Open	0	20	1987	291,738	170,488	6.88	15,167.0	0.68	4,853.5	13.297	0.93	4,513.71	12.37
Open	0	21	1988	316,555	177,127	7.44	16,392.1	0.68	5,245.5	14.371	0.93	4,878.29	13.37
Open	0	22	1989	275,241	181,393	7.90	17,423.7	0.68	5,575.6	15.276	0.93	5,185.30	14.21
Open	0	23	1990	260,928	184,707	8.34	18,377.7	0.68	5,880.9	16.112	0.93	5,469.20	14.98
Open	0	24	1991	223,333	186,252	8.69	19,159.7	0.68	6,131.1	16.798	0.93	5,701.91	15.62
Open	0	25	1992	218,085	187,476	9.03	19,905.5	0.68	6,369.7	17.451	0.93	5,923.87	16.23
Open	0	26	1993	220,359	188,694	9.37	20,646.3	0.68	6,606.8	18.101	0.93	6,144.34	16.83
Open	0	27	1994	196,871	188,986	9.65	21,278.6	0.68	6,809.2	18.655	0.93	6,332.52	17.35
Open	0	28	1995	202,731	189,460	9.94	21,921.9	0.68	7,015.0	19.219	0.93	6,523.96	17.87
Open	0	29	1996	212,640	190,233	10.25	22,591.9	0.68	7,229.4	19.807	0.93	6,723.36	18.42
Open	0	30	1997	207,805	190,800	10.54	23,230.1	0.68	7,433.6	20.366	0.93	6,913.27	18.94
Open	0	31	1998	245,785	192,518	10.89	24,003.8	0.68	7,681.2	21.044	0.93	7,143.54	19.57
Open	0	32	1999	217,048	193,261	11.18	24,652.0	0.68	7,888.6	21.613	0.93	7,336.44	20.10
Open	0	33	2000	199,704	193,451	11.44	25,221.2	0.68	8,070.8	22.112	0.93	7,505.84	20.56
Open	0	34	2001	184,492	193,195	11.67	25,721.4	0.68	8,230.9	22.550	0.93	7,654.69	20.97
Open	0	35	2002	193,274	193,197	11.90	26,244.7	0.68	8,398.3	23.009	0.93	7,810.42	21.40
Open	0	36	2003	209,589	193,640	12.16	26,818.7	0.68	8,582.0	23.512	0.93	7,981.24	21.87
Open	0	37	2004	218,800	194,302	12.44	27,415.7	0.68	8,773.0	24.036	0.93	8,158.92	22.35
Open	0	38	2005	227,650	195,157	12.72	28,033.9	0.68	8,970.8	24.578	0.93	8,342.89	22.86
Open	0	39	2006	201,621	195,319	12.95	28,545.2	0.68	9,134.5	25.026	0.93	8,495.05	23.27
Open	0	40	2007	198,666	195,400	13.17	29,035.7	0.68	9,291.4	25.456	0.93	8,641.04	23.67
Open	0	41	2008	195,615	195,406	13.38	29,505.7	0.68	9,441.8	25.868	0.93	8,780.88	24.06
Open	0	42	2009	174,378	194,917	13.56	29,890.5	0.68	9,565.0	26.205	0.93	8,895.42	24.37
Open	0	43	2010	162,209	194,173	13.71	30,224.4	0.68	9,671.8	26.498	0.93	8,994.79	24.64
Open	0	44	2011	156,953	193,346	13.85	30,532.9	0.68	9,770.5	26.769	0.93	9,086.58	24.89
Open	0	45	2012	150,454	192,414	13.98	30,812.1	0.68	9,859.9	27.013	0.93	9,169.67	25.12
Open	0	46	2013	167,348	191,880	14.13	31,143.5	0.68	9,965.9	27.304	0.93	9,268.31	25.39
Open	0	47	2014	158,848	191,192	14.26	31,438.9	0.68	10,060.5	27.563	0.93	9,356.23	25.63
Open	0	48	2015	173,818	190,838	14.41	31,779.0	0.68	10,169.3	27.861	0.93	9,457.42	25.91
Open	0	49	2016	184,403	190,709	14.58	32,147.7	0.68	10,287.3	28.184	0.93	9,567.15	26.21
Open	0	50	2017	192,425	190,743	14.76	32,535.9	0.68	10,411.5	28.525	0.93	9,682.68	26.53
Open	0	51	2018	217,558	191,258	14.97	32,999.8	0.68	10,559.9	28.931	0.93	9,820.74	26.91
Open	0	52	2019	203,869	191,496	15.15	33,409.8	0.68	10,691.1	29.291	0.93	9,942.76	27.24
Open	0	53	2020	195,662	191,573	15.32	33,785.1	0.68	10,811.2	29.620	0.93	10,054.44	27.55
Open	0	54	2021	157,349	190,951	15.44	34,028.8	0.68	10,889.2	29.834	0.93	10,126.98	27.75
Open	0	55	2022	122,772	189,734	15.49	34,156.2	0.68	10,930.0	29.945	0.93	10,164.87	27.85
Open	0	56	2023	158,513	189,186	15.60	34,394.0	0.68	11,006.1	30.154	0.93	10,235.67	28.04
Open	0	57	2024	160,100	188,684	15.71	34,631.8	0.68	11,082.2	30.362	0.93	10,306.43	28.24
Open	0	58	2025	161,697	188,227	15.82	34,869.5	0.68	11,158.3	30.571	0.93	10,377.17	28.43
Open	0	59	2026	40,830	185,770	15.75	34,725.6	0.68	11,112.2	30.444	0.93	10,334.34	28.31
Closed (first year of closure)	1	60	2027	-	185,770	15.44	34,038.0	0.68	10,892.2	29.842	0.93	10,129.71	27.75
Closed	2	61	2028	-	185,770	15.13	33,364.0	0.68	10,676.5	29.251	0.93	9,929.13	27.20
Closed	3	62	2029	-	185,770	14.83	32,703.4	0.68	10,465.1	28.671	0.93	9,732.52	26.66
Closed	4	63	2030	-	185,770	14.54	32,055.8	0.68	10,257.9	28.104	0.93	9,539.80	26.14
Closed	5	64	2031	-	185,770	14.25	31,421.0	0.68	10,054.7	27.547	0.93	9,350.90	25.62
Closed	6	65	2032	-	185,770	13.97	30,798.9	0.68	9,855.6	27.002	0.93	9,165.74	25.11
Closed	7	66	2033	-	185,770	13.69	30,189.0	0.68	9,660.5	26.467	0.93	8,984.25	24.61
Closed	8	67	2034	-	185,770	13.42	29,591.2	0.68	9,469.2	25.943	0.93	8,806.35	24.13
Closed	9	68	2035	-	185,770	13.16	29,005.3	0.68	9,281.7	25.429	0.93	8,631.97	23.65
Closed	10	69	2036	-	185,770	12.90	28,430.9	0.68	9,097.9	24.926	0.93	8,461.05	23.18
Closed	11	70	2037	-	185,770	12.64	27,868.0	0.68	8,917.7	24.432	0.93	8,293.51	22.72
Closed	12	71	2038	-	185,770	12.39	27,316.1	0.68	8,741.2	23.948	0.93	8,129.28	22.27
Closed	13	72	2039	-	185,770	12.15	26,775.2	0.68	8,568.1	23.474	0.93	7,968.31	21.83
Closed	14	73	2040	-	185,770	11.90	26,245.1	0.68	8,398.4	23.009	0.93	7,810.53	21.40
Closed	15	74	2041	-	185,770	11.67	25,725.4	0.68	8,232.1	22.554	0.93	7,655.87	20.97
Closed	16	75	2042	-	185,770	11.44	25,216.0	0.68	8,069.1	22.107	0.93	7,504.27	20.56
Closed	17	76	2043	-	185,770	11.21	24,716.7	0.68	7,909.3	21.669	0.93	7,355.68	20.15
Closed	18	77	2044	-	185,770	10.99	24,227.2	0.68	7,752.7	21.240	0.93	7,210.03	19.75
Closed	19	78	2045	-	185,770	10.77	23,747.5	0.68	7,599.2	20.820	0.93	7,067.26	19.36
Closed	20	79	2046	-	185,770	10.56	23,277.3	0.68	7,448.7	20.407	0.93	6,927.32	18.98
Closed	21	80	2047	-	185,770	10.35	22,816.4	0.68	7,301.2	20.003	0.93	6,790.15	18.60
Closed	22	81	2048	-	185,770	10.14	22,364.6	0.68	7,156.7	19.607	0.93	6,655.69	18.23
Closed	23	82	2049	-	185,770	9.94	21,921.7	0.68	7,014.9	19.219	0.93	6,523.90	17.87
Closed	24	83	2050	-	185,770	9.75	21,487.6	0.68	6,876.0	18.838	0.93	6,394.72	17.52

ROC/NMOC ratio from - SBCAPCD Rule 341, Staff Report September 18, 1997
Annual acceptance rate for closed years based on overall average for all years open

on)

Landfill Status	c, time since closure, years; if active c=0	t, age of landfill, years	Year of Waste Disposal	Mg Landfilled in year of waste disposal	captured LFG, mm3ft/yr	LFG HHV, MMBtu/ MMcf	CO2 emission factor (kg/MMBtu)	CO2 from Combustion (mt CO2)	CH4 emission factor (kg/MMBtu)	CH4 from Combustion (mt CH4)	N2O emission factor (kg/MMBtu)	N2O from Combustion (mt N2O)	CO2e from Combustion (mt CO2e) = CO2 + (CH4*25) +(N2O*265)
					Indirect GHG from MRF LFG engines/flare								
Open	0	0	1967	47,970									
Open	0	1	1968	102,193	7.140	511	52.07	189.99	0.0032	0.012	0.00063	0.0023	190.9
Open	0	2	1969	109,486	8.150	511	52.07	216.84	0.0032	0.013	0.00063	0.0026	217.9
Open	0	3	1970	116,778	13.160	511	52.07	350.17	0.0032	0.022	0.00063	0.0042	351.8
Open	0	4	1971	124,072	18.481	511	52.07	491.74	0.0032	0.030	0.00063	0.0059	494.1
Open	0	5	1972	131,362	24.066	511	52.07	640.34	0.0032	0.039	0.00063	0.0077	643.4
Open	0	6	1973	138,654	29.890	511	52.07	795.32	0.0032	0.049	0.00063	0.0096	799.1
Open	0	7	1974	145,949	35.939	511	52.07	956.27	0.0032	0.059	0.00063	0.0116	960.8
Open	0	8	1975	153,187	42.199	511	52.07	1122.82	0.0032	0.069	0.00063	0.0136	1,128.1
Open	0	9	1976	160,452	48.661	511	52.07	1294.75	0.0032	0.080	0.00063	0.0157	1,300.9
Open	0	10	1977	167,827	55.320	511	52.07	1471.94	0.0032	0.090	0.00063	0.0178	1,478.9
Open	0	11	1978	175,120	62.166	511	52.07	1654.09	0.0032	0.102	0.00063	0.0200	1,661.9
Open	0	12	1979	182,412	69.191	511	52.07	1841.02	0.0032	0.113	0.00063	0.0223	1,849.8
Open	0	13	1980	189,703	76.389	511	52.07	2032.54	0.0032	0.125	0.00063	0.0246	2,042.2
Open	0	14	1981	196,998	83.753	511	52.07	2228.48	0.0032	0.137	0.00063	0.0270	2,239.0
Open	0	15	1982	204,294	91.277	511	52.07	2428.68	0.0032	0.149	0.00063	0.0294	2,440.2
Open	0	16	1983	211,582	98.955	511	52.07	2632.96	0.0032	0.162	0.00063	0.0319	2,645.5
Open	0	17	1984	218,876	106.781	511	52.07	2841.20	0.0032	0.175	0.00063	0.0344	2,854.7
Open	0	18	1985	227,899	114.815	511	52.07	3054.98	0.0032	0.188	0.00063	0.0370	3,069.5
Open	0	19	1986	283,689	124.827	511	52.07	3321.38	0.0032	0.204	0.00063	0.0402	3,337.1
Open	0	20	1987	291,738	134.974	511	52.07	3591.35	0.0032	0.221	0.00063	0.0435	3,608.4
Open	0	21	1988	316,555	145.876	511	52.07	3881.44	0.0032	0.239	0.00063	0.0470	3,899.8
Open	0	22	1989	275,241	155.056	511	52.07	4125.71	0.0032	0.254	0.00063	0.0499	4,145.3
Open	0	23	1990	260,928	163.546	511	52.07	4351.59	0.0032	0.267	0.00063	0.0527	4,372.2
Open	0	24	1991	223,333	170.505	511	52.07	4536.75	0.0032	0.279	0.00063	0.0549	4,558.3
Open	0	25	1992	218,085	177.142	511	52.07	4713.35	0.0032	0.290	0.00063	0.0570	4,735.7
Open	0	26	1993	220,359	183.735	511	52.07	4888.77	0.0032	0.300	0.00063	0.0591	4,912.0
Open	0	27	1994	196,871	189.362	511	52.07	5038.49	0.0032	0.310	0.00063	0.0610	5,062.4
Open	0	28	1995	202,731	195.087	511	52.07	5190.82	0.0032	0.319	0.00063	0.0628	5,215.4
Open	0	29	1996	212,640	201.049	511	52.07	5349.47	0.0032	0.329	0.00063	0.0647	5,374.8
Open	0	30	1997	207,805	206.728	511	52.07	5500.57	0.0032	0.338	0.00063	0.0666	5,526.7
Open	0	31	1998	245,785	213.614	511	52.07	5683.79	0.0032	0.349	0.00063	0.0688	5,710.7
Open	0	32	1999	217,048	219.382	511	52.07	5837.27	0.0032	0.359	0.00063	0.0706	5,865.0
Open	0	33	2000	199,704	224.448	511	52.07	5972.05	0.0032	0.367	0.00063	0.0723	6,000.4
Open	0	34	2001	184,492	228.899	511	52.07	6090.49	0.0032	0.374	0.00063	0.0737	6,119.4
Open	0	35	2002	193,274	233.556	511	52.07	6214.39	0.0032	0.382	0.00063	0.0752	6,243.9
Open	0	36	2003	209,589	238.664	511	52.07	6350.31	0.0032	0.390	0.00063	0.0768	6,380.4
Open	0	37	2004	218,800	243.977	511	52.07	6491.68	0.0032	0.399	0.00063	0.0785	6,522.5
Open	0	38	2005	227,650	249.478	511	52.07	6638.06	0.0032	0.408	0.00063	0.0803	6,669.5
Open	0	39	2006	201,621	254.028	511	52.07	6759.12	0.0032	0.415	0.00063	0.0818	6,791.2
Open	0	40	2007	198,666	258.394	511	52.07	6875.28	0.0032	0.423	0.00063	0.0832	6,907.9
Open	0	41	2008	195,615	262.575	511	52.07	6986.55	0.0032	0.429	0.00063	0.0845	7,019.7
Open	0	42	2009	174,378	266.000	511	52.07	7077.68	0.0032	0.435	0.00063	0.0856	7,111.2
Open	0	43	2010	162,209	268.972	511	52.07	7156.75	0.0032	0.440	0.00063	0.0866	7,190.7
Open	0	44	2011	156,953	271.717	511	52.07	7229.78	0.0032	0.444	0.00063	0.0875	7,264.1
Open	0	45	2012	150,454	274.201	511	52.07	7295.89	0.0032	0.448	0.00063	0.0883	7,330.5
Open	0	46	2013	167,348	277.151	511	52.07	7374.37	0.0032	0.453	0.00063	0.0892	7,409.3
Open	0	47	2014	158,848	279.780	511	52.07	7444.32	0.0032	0.457	0.00063	0.0901	7,479.6
Open	0	48	2015	173,818	282.806	511	52.07	7524.83	0.0032	0.462	0.00063	0.0910	7,560.5
Open	0	49	2016	184,403	286.087	511	52.07	7612.15	0.0032	0.468	0.00063	0.0921	7,648.2
Open	0	50	2017	192,425	289.542	511	52.07	7704.07	0.0032	0.473	0.00063	0.0932	7,740.6
Open	0	51	2018	217,558	293.670	511	52.07	7813.91	0.0032	0.480	0.00063	0.0945	7,851.0
Open	0	52	2019	203,869	297.319	511	52.07	7911.00	0.0032	0.486	0.00063	0.0957	7,948.5
Open	0	53	2020	195,662	300.659	511	52.07	7999.86	0.0032	0.492	0.00063	0.0968	8,037.8
Open	0	54	2021	157,349	302.828	511	52.07	8057.58	0.0032	0.495	0.00063	0.0975	8,095.8
Open	0	55	2022	122,772	303.961	511	52.07	8087.73	0.0032	0.497	0.00063	0.0979	8,126.1
Open	0	56	2023	158,513	306.078	511	52.07	8144.05	0.0032	0.500	0.00063	0.0985	8,182.7
Open	0	57	2024	160,100	308.194	511	52.07	8200.36	0.0032	0.504	0.00063	0.0992	8,239.3
Open	0	58	2025	161,697	310.309	511	52.07	8256.64	0.0032	0.507	0.00063	0.0999	8,295.8
Open	0	59	2026	40,830	309.029	511	52.07	8222.57	0.0032	0.505	0.00063	0.0995	8,261.6
Closed (first year of closure)	1	60	2027	-	302.910	511	52.07	8059.75	0.0032	0.495	0.00063	0.0975	8,098.0
Closed	2	61	2028	-	296.912	511	52.07	7900.15	0.0032	0.486	0.00063	0.0956	7,937.6
Closed	3	62	2029	-	291.032	511	52.07	7743.72	0.0032	0.476	0.00063	0.0937	7,780.4
Closed	4	63	2030	-	285.269	511	52.07	7590.38	0.0032	0.466	0.00063	0.0918	7,626.4
Closed	5	64	2031	-	279.621	511	52.07	7440.08	0.0032	0.457	0.00063	0.0900	7,475.4
Closed	6	65	2032	-	274.084	511	52.07	7292.76	0.0032	0.448	0.00063	0.0882	7,327.3
Closed	7	66	2033	-	268.657	511	52.07	7148.35	0.0032	0.439	0.00063	0.0865	7,182.3
Closed	8	67	2034	-	263.337	511	52.07	7006.81	0.0032	0.431	0.00063	0.0848	7,040.0
Closed	9	68	2035	-	258.122	511	52.07	6868.06	0.0032	0.422	0.00063	0.0831	6,900.6
Closed	10	69	2036	-	253.011	511	52.07	6732.07	0.0032	0.414	0.00063	0.0815	6,764.0
Closed	11	70	2037	-	248.001	511	52.07	6598.76	0.0032	0.406	0.00063	0.0798	6,630.1
Closed	12	71	2038	-	243.091	511	52.07	6468.10	0.0032	0.398	0.00063	0.0783	6,498.8
Closed	13	72	2039	-	238.277	511	52.07	6340.02	0.0032	0.390	0.00063	0.0767	6,370.1
Closed	14	73	2040	-	233.559	511	52.07	6214.48	0.0032	0.382	0.00063	0.0752	6,244.0
Closed	15	74	2041	-	228.934	511	52.07	6091.43	0.0032	0.374	0.00063	0.0737	6,120.3
Closed	16	75	2042	-	224.401	511	52.07	5970.81	0.0032	0.367	0.00063	0.0722	5,999.1
Closed	17	76	2043	-	219.957	511	52.07	5852.58	0.0032	0.360	0.00063	0.0708	5,880.3
Closed	18	77	2044	-	215.602	511	52.07	5736.69	0.0032	0.353	0.00063	0.0694	5,763.9
Closed	19	78	2045	-	211.333	511	52.07	5623.10	0.0032	0.346	0.00063	0.0680	5,649.8
Closed	20	79	2046	-	207.148	511	52.07	5511.75	0.0032	0.339	0.00063	0.0667	5,537.9
Closed	21	80	2047	-	203.046	511	52.07	5402.61	0.0032	0.332	0.00063	0.0654	5,428.2
Closed	22	81	2048	-	199.026	511	52.07	5295.63	0.0032	0.325	0.00063	0.0641	5,320.7
Closed	23	82	2049	-	195.085	511	52.07	5190.77	0.0032	0.319	0.00063	0.0628	5,215.4
Closed	24	83	2050	-	191.222	511	52.07	5087.99	0.0032	0.313	0.00063	0.0616	5,112.1

ROC/NMOC ratio from - SBCAPCD Rule 341, Staff Report September 18, 1997

Annual acceptance rate for closed years based on overall average for all years open

Landfill Status	c, time since closure, years; if active c=0	t, age of landfill, years	Year of Waste Disposal	Mg Landfilled in year of waste disposal	Direct GHG from LFG Methane and Oxidized CO2 non-collected /fugitive LFG, mmft3/yr	non-collected CH4 , mm3ft/yr	non-collected CH4 , mt/yr	Oxidation fraction	Oxidized CH4 to CO2 (mt CO2) = mt CH4*0.25*44/16	Fugitive Methane Not collected/ oxidized (mt CH4)	CO2e from Methane not collected (mt CO2e) = CO2 + (CH4 * 25)	Total CO2e, mt (Fugitive + Combustion)
Open	0	0	1967	47,970								
Open	0	1	1968	102,193	3.360	1.680	31.630	0.25	21.75	23.72	614.8	805.7
Open	0	2	1969	109,486	7.670	3.835	72.201	0.25	49.64	54.15	1,403.4	1,621.3
Open	0	3	1970	116,778	12.386	6.193	116.596	0.25	80.16	87.45	2,266.3	2,618.2
Open	0	4	1971	124,072	17.394	8.697	163.735	0.25	112.57	122.80	3,182.6	3,676.7
Open	0	5	1972	131,362	22.650	11.325	213.211	0.25	146.58	159.91	4,144.3	4,787.7
Open	0	6	1973	138,654	28.132	14.066	264.814	0.25	182.06	198.61	5,147.3	5,946.4
Open	0	7	1974	145,949	33.825	16.913	318.406	0.25	218.90	238.80	6,189.0	7,149.8
Open	0	8	1975	153,187	39.717	19.858	373.863	0.25	257.03	280.40	7,267.0	8,395.1
Open	0	9	1976	160,452	45.798	22.899	431.109	0.25	296.39	323.33	8,379.7	9,680.6
Open	0	10	1977	167,827	52.066	26.033	490.107	0.25	336.95	367.58	9,526.4	11,005.4
Open	0	11	1978	175,120	58.509	29.254	550.758	0.25	378.65	413.07	10,705.4	12,367.3
Open	0	12	1979	182,412	65.121	32.560	612.999	0.25	421.44	459.75	11,915.2	13,764.9
Open	0	13	1980	189,703	71.895	35.948	676.768	0.25	465.28	507.58	13,154.7	15,196.9
Open	0	14	1981	196,998	78.826	39.413	742.010	0.25	510.13	556.51	14,422.8	16,661.9
Open	0	15	1982	204,294	85.908	42.954	808.669	0.25	555.96	606.50	15,718.5	18,158.7
Open	0	16	1983	211,582	93.134	46.567	876.690	0.25	602.72	657.52	17,040.7	19,686.1
Open	0	17	1984	218,876	100.499	50.250	946.025	0.25	650.39	709.52	18,388.4	21,243.0
Open	0	18	1985	227,899	108.062	54.031	1,017.208	0.25	699.33	762.91	19,772.0	22,841.5
Open	0	19	1986	283,689	117.485	58.742	1,105.909	0.25	760.31	829.43	21,496.1	24,833.2
Open	0	20	1987	291,738	127.034	63.517	1,195.802	0.25	822.11	896.85	23,243.4	26,851.8
Open	0	21	1988	316,555	137.295	68.648	1,292.390	0.25	888.52	969.29	25,120.8	29,020.7
Open	0	22	1989	275,241	145.936	72.968	1,373.724	0.25	944.44	1030.29	26,701.8	30,847.0
Open	0	23	1990	260,928	153.925	76.963	1,448.936	0.25	996.14	1086.70	28,163.7	32,535.9
Open	0	24	1991	223,333	160.475	80.238	1,510.589	0.25	1038.53	1132.94	29,362.1	33,920.3
Open	0	25	1992	218,085	166.722	83.361	1,569.390	0.25	1078.96	1177.04	30,505.0	35,240.7
Open	0	26	1993	220,359	172.927	86.463	1,627.800	0.25	1119.11	1220.85	31,640.4	36,552.3
Open	0	27	1994	196,871	178.223	89.111	1,677.652	0.25	1153.39	1258.24	32,609.4	37,671.8
Open	0	28	1995	202,731	183.611	91.805	1,728.372	0.25	1188.26	1296.28	33,595.2	38,810.7
Open	0	29	1996	212,640	189.223	94.611	1,781.198	0.25	1224.57	1335.90	34,622.0	39,996.9
Open	0	30	1997	207,805	194.568	97.284	1,831.510	0.25	1259.16	1373.63	35,600.0	41,126.6
Open	0	31	1998	245,785	201.048	100.524	1,892.514	0.25	1301.10	1419.39	36,785.7	42,496.5
Open	0	32	1999	217,048	206.477	103.239	1,943.619	0.25	1336.24	1457.71	37,779.1	43,644.0
Open	0	33	2000	199,704	211.245	105.622	1,988.497	0.25	1367.09	1491.37	38,651.4	44,651.8
Open	0	34	2001	184,492	215.434	107.717	2,027.932	0.25	1394.20	1520.95	39,417.9	45,537.3
Open	0	35	2002	193,274	219.817	109.909	2,069.188	0.25	1422.57	1551.89	40,219.8	46,463.7
Open	0	36	2003	209,589	224.625	112.312	2,114.443	0.25	1453.68	1585.83	41,099.5	47,479.9
Open	0	37	2004	218,800	229.625	114.813	2,161.516	0.25	1486.04	1621.14	42,014.5	48,536.9
Open	0	38	2005	227,650	234.803	117.401	2,210.254	0.25	1519.55	1657.69	42,961.8	49,631.4
Open	0	39	2006	201,621	239.085	119.543	2,250.565	0.25	1547.26	1687.92	43,745.4	50,536.5
Open	0	40	2007	198,666	243.194	121.597	2,289.241	0.25	1573.85	1716.93	44,497.1	51,405.0
Open	0	41	2008	195,615	247.130	123.565	2,326.290	0.25	1599.32	1744.72	45,217.3	52,236.9
Open	0	42	2009	174,378	250.353	125.177	2,356.633	0.25	1620.19	1767.48	45,807.1	52,918.3
Open	0	43	2010	162,209	253.150	126.575	2,382.960	0.25	1638.29	1787.22	46,318.8	53,509.5
Open	0	44	2011	156,953	255.733	127.867	2,407.277	0.25	1655.00	1805.46	46,791.4	54,055.5
Open	0	45	2012	150,454	258.072	129.036	2,429.290	0.25	1670.14	1821.97	47,219.3	54,549.8
Open	0	46	2013	167,348	260.848	130.424	2,455.421	0.25	1688.10	1841.57	47,727.3	55,136.6
Open	0	47	2014	158,848	263.322	131.661	2,478.714	0.25	1704.12	1859.04	48,180.0	55,659.6
Open	0	48	2015	173,818	266.170	133.085	2,505.522	0.25	1722.55	1879.14	48,701.1	56,261.6
Open	0	49	2016	184,403	269.259	134.629	2,534.594	0.25	1742.53	1900.95	49,266.2	56,914.4
Open	0	50	2017	192,425	272.510	136.255	2,565.200	0.25	1763.57	1923.90	49,861.1	57,601.7
Open	0	51	2018	217,558	276.396	138.198	2,601.776	0.25	1788.72	1951.33	50,572.0	58,423.0
Open	0	52	2019	203,869	279.830	139.915	2,634.103	0.25	1810.95	1975.58	51,200.4	59,148.9
Open	0	53	2020	195,662	282.973	141.487	2,663.690	0.25	1831.29	1997.77	51,775.5	59,813.3
Open	0	54	2021	157,349	285.015	142.507	2,682.908	0.25	1844.50	2012.18	52,149.0	60,244.8
Open	0	55	2022	122,772	286.081	143.040	2,692.946	0.25	1851.40	2019.71	52,344.1	60,470.2
Open	0	56	2023	158,513	288.073	144.037	2,711.702	0.25	1864.29	2033.78	52,708.7	60,891.4
Open	0	57	2024	160,100	290.065	145.033	2,730.449	0.25	1877.18	2047.84	53,073.1	61,312.4
Open	0	58	2025	161,697	292.056	146.028	2,749.190	0.25	1890.07	2061.89	53,437.4	61,733.2
Open	0	59	2026	40,830	290.851	145.425	2,737.843	0.25	1882.27	2053.38	53,216.8	61,478.4
Closed (first year of closure)	1	60	2027	-	285.091	142.546	2,683.630	0.25	1845.00	2012.72	52,163.1	60,261.0
Closed	2	61	2028	-	279.446	139.723	2,630.491	0.25	1808.46	1972.87	51,130.2	59,067.8
Closed	3	62	2029	-	273.913	136.956	2,578.404	0.25	1772.65	1933.80	50,117.7	57,898.2
Closed	4	63	2030	-	268.489	134.244	2,527.348	0.25	1737.55	1895.51	49,125.3	56,751.7
Closed	5	64	2031	-	263.172	131.586	2,477.303	0.25	1703.15	1857.98	48,152.6	55,627.9
Closed	6	65	2032	-	257.961	128.981	2,428.249	0.25	1669.42	1821.19	47,199.1	54,526.4
Closed	7	66	2033	-	252.853	126.427	2,380.167	0.25	1636.36	1785.12	46,264.5	53,446.7
Closed	8	67	2034	-	247.847	123.923	2,333.036	0.25	1603.96	1749.78	45,348.4	52,388.4
Closed	9	68	2035	-	242.939	121.469	2,286.839	0.25	1572.20	1715.13	44,450.4	51,351.1
Closed	10	69	2036	-	238.128	119.064	2,241.556	0.25	1541.07	1681.17	43,570.3	50,334.2
Closed	11	70	2037	-	233.413	116.707	2,197.171	0.25	1510.55	1647.88	42,707.5	49,337.6
Closed	12	71	2038	-	228.791	114.396	2,153.664	0.25	1480.64	1615.25	41,861.8	48,360.6
Closed	13	72	2039	-	224.261	112.130	2,111.018	0.25	1451.33	1583.26	41,032.9	47,403.0
Closed	14	73	2040	-	219.820	109.910	2,069.217	0.25	1422.59	1551.91	40,220.4	46,464.4
Closed	15	74	2041	-	215.467	107.734	2,028.244	0.25	1394.42	1521.18	39,424.0	45,544.3
Closed	16	75	2042	-	211.201	105.600	1,988.082	0.25	1366.81	1491.06	38,643.3	44,642.5
Closed	17	76	2043	-	207.019	103.509	1,948.716	0.25	1339.74	1461.54	37,878.2	43,758.5
Closed	18	77	2044	-	202.920	101.460	1,910.128	0.25	1313.21	1432.60	37,128.1	42,892.0
Closed	19	78	2045	-	198.901	99.451	1,872.305	0.25	1287.21	1404.23	36,392.9	42,042.7
Closed	20	79	2046	-	194.963	97.481	1,835.231	0.25	1261.72	1376.42	35,672.3	41,210.2
Closed	21	80	2047	-	191.102	95.551	1,798.891	0.25	1236.74	1349.17	34,965.9	40,394.2
Closed	22	81	2048	-	187.318	93.659	1,763.271	0.25	1212.25	1322.45	34,273.6	39,594.3
Closed	23	82	2049	-	183.609	91.805	1,728.356	0.25	1188.24	1296.27	33,594.9	38,810.3
Closed	24	83	2050	-	179.974	89.987	1,694.132	0.25	1164.72	1270.60	32,929.7	38,041.8

ROC/NMOC ratio from - SBCAPCD Rule 341, Staff Report September 18, 1997
Annual acceptance rate for closed years based on overall average for all years open

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Landfill Status	c, time since closure, years; if active c=0	t, age of landfill, years	Year of Waste Disposal	Mg Landfilled in year of waste disposal	Total gas generation: total CH4 generation, m3/yr	total LFG generation, m3/yr	total CH4 generation, mmft3/yr	total CH4 generation, mt/yr	total LFG generation, mmft3/yr
Open	0	0	1967	47,970					
Open	0	1	1968	102,193	148,671	297,343	5.250	98.844	10.501
Open	0	2	1969	109,486	339,366	678,732	11.985	225.628	23.969
Open	0	3	1970	116,778	548,035	1,096,070	19.354	364.361	38.707
Open	0	4	1971	124,072	769,604	1,539,208	27.178	511.671	54.357
Open	0	5	1972	131,362	1,002,159	2,004,317	35.391	666.285	70.782
Open	0	6	1973	138,654	1,244,707	2,489,414	43.956	827.544	87.913
Open	0	7	1974	145,949	1,496,606	2,993,212	52.852	995.019	105.704
Open	0	8	1975	153,187	1,757,273	3,514,545	62.058	1,168.323	124.115
Open	0	9	1976	160,452	2,026,346	4,052,692	71.560	1,347.216	143.119
Open	0	10	1977	167,827	2,303,652	4,607,304	81.353	1,531.583	162.705
Open	0	11	1978	175,120	2,588,732	5,177,463	91.420	1,721.119	182.840
Open	0	12	1979	182,412	2,881,282	5,762,564	101.752	1,915.621	203.503
Open	0	13	1980	189,703	3,181,017	6,362,035	112.337	2,114.900	224.673
Open	0	14	1981	196,998	3,487,674	6,975,347	123.166	2,318.780	246.332
Open	0	15	1982	204,294	3,800,993	7,601,986	134.231	2,527.091	268.462
Open	0	16	1983	211,582	4,120,714	8,241,429	145.522	2,739.657	291.043
Open	0	17	1984	218,876	4,446,607	8,893,215	157.030	2,956.327	314.061
Open	0	18	1985	227,899	4,781,192	9,562,383	168.846	3,178.776	337.692
Open	0	19	1986	283,689	5,198,114	10,396,227	183.570	3,455.966	367.139
Open	0	20	1987	291,738	5,620,637	11,241,273	198.491	3,736.881	396.982
Open	0	21	1988	316,555	6,074,630	12,149,260	214.524	4,038.718	429.047
Open	0	22	1989	275,241	6,456,927	12,913,854	228.024	4,292.889	456.048
Open	0	23	1990	260,928	6,810,445	13,620,889	240.509	4,527.925	481.017
Open	0	24	1991	223,333	7,100,233	14,200,465	250.742	4,720.591	501.485
Open	0	25	1992	218,085	7,376,616	14,753,233	260.503	4,904.344	521.005
Open	0	26	1993	220,359	7,651,160	15,302,320	270.198	5,086.875	540.396
Open	0	27	1994	196,871	7,885,481	15,770,963	278.473	5,242.663	556.946
Open	0	28	1995	202,731	8,123,879	16,247,758	286.892	5,401.162	573.784
Open	0	29	1996	212,640	8,372,177	16,744,353	295.661	5,566.243	591.321
Open	0	30	1997	207,805	8,608,658	17,217,316	304.012	5,723.467	608.024
Open	0	31	1998	245,785	8,895,398	17,790,797	314.138	5,914.107	628.276
Open	0	32	1999	217,048	9,135,607	18,271,214	322.621	6,073.809	645.242
Open	0	33	2000	199,704	9,346,548	18,693,096	330.070	6,214.054	660.140
Open	0	34	2001	184,492	9,531,903	19,063,806	336.616	6,337.287	673.232
Open	0	35	2002	193,274	9,725,821	19,451,642	343.464	6,466.213	686.928
Open	0	36	2003	209,589	9,938,531	19,877,061	350.976	6,607.633	701.952
Open	0	37	2004	218,800	10,159,788	20,319,576	358.790	6,754.736	717.579
Open	0	38	2005	227,650	10,388,873	20,777,746	366.880	6,907.044	733.759
Open	0	39	2006	201,621	10,578,349	21,156,698	373.571	7,033.017	747.142
Open	0	40	2007	198,666	10,760,136	21,520,272	379.991	7,153.878	759.981
Open	0	41	2008	195,615	10,934,276	21,868,552	386.140	7,269.655	772.281
Open	0	42	2009	174,378	11,076,902	22,153,803	391.177	7,364.479	782.354
Open	0	43	2010	162,209	11,200,645	22,401,291	395.547	7,446.751	791.094
Open	0	44	2011	156,953	11,314,942	22,629,884	399.583	7,522.741	799.167
Open	0	45	2012	150,454	11,418,409	22,836,817	403.237	7,591.530	806.475
Open	0	46	2013	167,348	11,541,236	23,082,472	407.575	7,673.192	815.150
Open	0	47	2014	158,848	11,650,717	23,301,434	411.441	7,745.981	822.882
Open	0	48	2015	173,818	11,776,722	23,553,445	415.891	7,829.755	831.782
Open	0	49	2016	184,403	11,913,372	23,826,744	420.717	7,920.607	841.434
Open	0	50	2017	192,425	12,057,227	24,114,455	425.797	8,016.249	851.594
Open	0	51	2018	217,558	12,229,147	24,458,294	431.868	8,130.550	863.736
Open	0	52	2019	203,869	12,381,094	24,762,188	437.234	8,231.572	874.468
Open	0	53	2020	195,662	12,520,161	25,040,323	442.145	8,324.031	884.291
Open	0	54	2021	157,349	12,610,492	25,220,984	445.335	8,384.087	890.671
Open	0	55	2022	122,772	12,657,674	25,315,348	447.002	8,415.456	894.003
Open	0	56	2023	158,513	12,745,831	25,491,662	450.115	8,474.067	900.230
Open	0	57	2024	160,100	12,833,950	25,667,900	453.227	8,532.653	906.453
Open	0	58	2025	161,697	12,922,039	25,844,077	456.337	8,591.219	912.675
Open	0	59	2026	40,830	12,868,705	25,737,409	454.454	8,555.760	908.908
Closed (first year of closure)	1	60	2027	-	12,613,887	25,227,774	445.455	8,386.345	890.910
Closed	2	61	2028	-	12,364,116	24,728,231	436.635	8,220.284	873.269
Closed	3	62	2029	-	12,119,290	24,238,579	427.989	8,057.511	855.977
Closed	4	63	2030	-	11,879,312	23,758,623	419.514	7,897.962	839.028
Closed	5	64	2031	-	11,644,086	23,288,171	411.207	7,741.572	822.414
Closed	6	65	2032	-	11,413,517	22,827,034	403.065	7,588.278	806.129
Closed	7	66	2033	-	11,187,514	22,375,029	395.083	7,438.020	790.167
Closed	8	67	2034	-	10,965,987	21,931,974	387.260	7,290.738	774.520
Closed	9	68	2035	-	10,748,846	21,497,691	379.592	7,146.371	759.184
Closed	10	69	2036	-	10,536,004	21,072,009	372.075	7,004.864	744.151
Closed	11	70	2037	-	10,327,377	20,654,755	364.708	6,866.158	729.416
Closed	12	71	2038	-	10,122,882	20,245,763	357.486	6,730.199	714.972
Closed	13	72	2039	-	9,922,435	19,844,870	350.407	6,596.932	700.815
Closed	14	73	2040	-	9,725,958	19,451,916	343.469	6,466.304	686.938
Closed	15	74	2041	-	9,533,371	19,066,742	336.668	6,338.263	673.336
Closed	16	75	2042	-	9,344,598	18,689,195	330.001	6,212.757	660.003
Closed	17	76	2043	-	9,159,562	18,319,124	323.467	6,089.736	646.934
Closed	18	77	2044	-	8,978,191	17,956,381	317.062	5,969.151	634.124
Closed	19	78	2045	-	8,800,411	17,600,821	310.784	5,850.954	621.567
Closed	20	79	2046	-	8,626,151	17,252,301	304.630	5,735.097	609.259
Closed	21	80	2047	-	8,455,341	16,910,683	298.598	5,621.535	597.195
Closed	22	81	2048	-	8,287,914	16,575,829	292.685	5,510.221	585.370
Closed	23	82	2049	-	8,123,803	16,247,606	286.889	5,401.111	573.779
Closed	24	83	2050	-	7,962,941	15,925,881	281.209	5,294.162	562.417

	FUGITIVE			COMBUSTION			TOTAL		
Year	New portion CO2e	Existing Portion CO2e	Total existing + new CO2e	New portion CO2e	Existing Portion CO2e	Total existing + new CO2e	New portion CO2e	Existing Portion CO2e	Total existing + new CO2e
1967									
1968									
1969									
1970									
1971									
1972									
1973									
1974									
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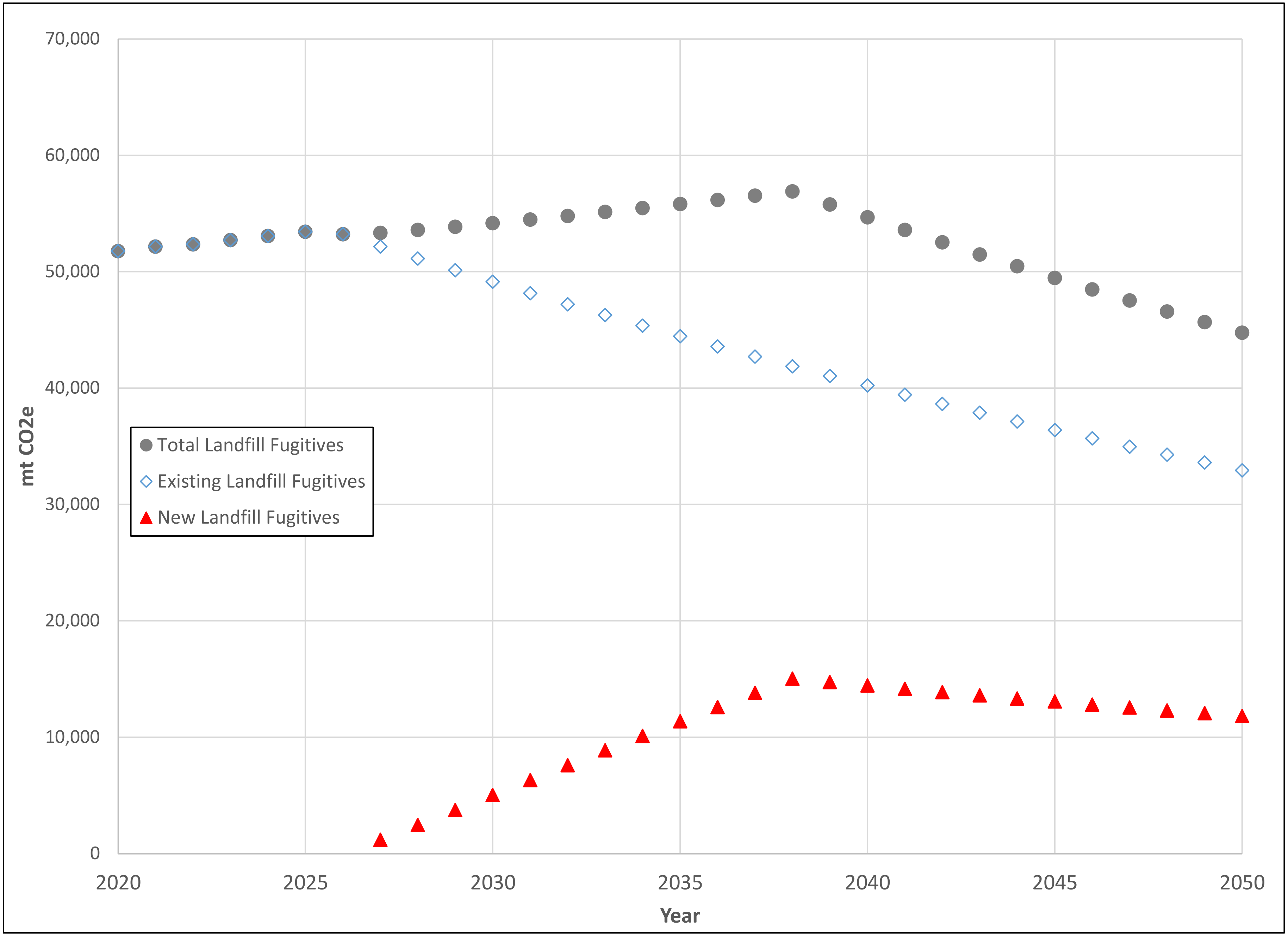
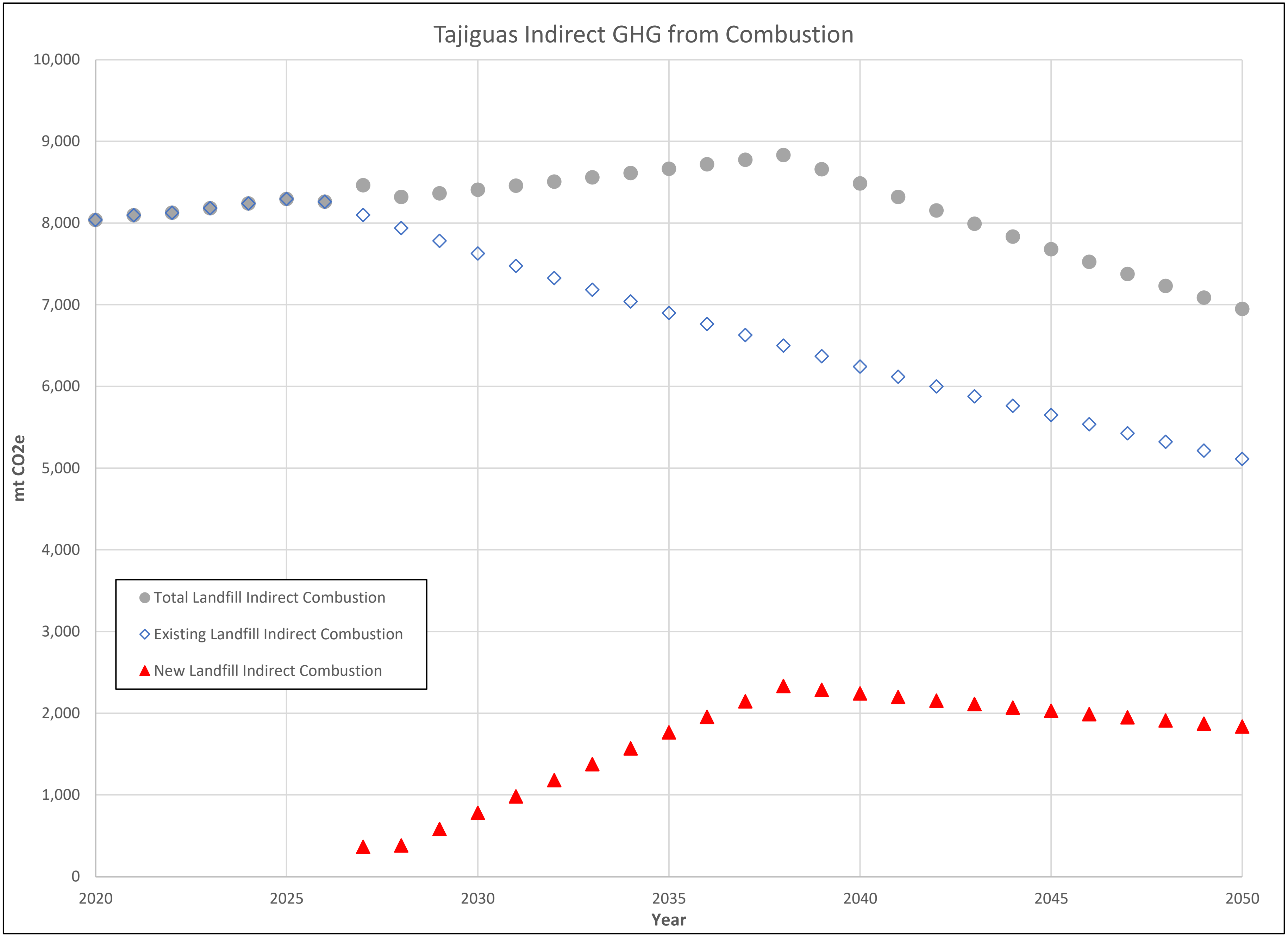
2014									
2015									
2016									
2017									
2018									
2019									
2020	0	51,775.5	51,775.5	0	8,037.8	8,037.8	0.0	59,813.3	59,813.3
2021	0	52,149.0	52,149.0	0	8,095.8	8,095.8	0.0	60,244.8	60,244.8
2022	0	52,344.1	52,344.1	0	8,126.1	8,126.1	0.0	60,470.2	60,470.2
2023	0	52,708.7	52,708.7	0	8,182.7	8,182.7	0.0	60,891.4	60,891.4
2024	0	53,073.1	53,073.1	0	8,239.3	8,239.3	0.0	61,312.4	61,312.4
2025	0	53,437.4	53,437.4	0	8,295.8	8,295.8	0.0	61,733.2	61,733.2
2026	0	53,216.8	53,216.8	0	8,261.6	8,261.6	0.0	61,478.4	61,478.4
2027	1,176.9	52,163.1	53,339.9	365.4	8,098.0	8,463.4	1,542.3	60,261.0	61,803.3
2028	2,454.1	51,130.2	53,584.3	381.0	7,937.6	8,318.6	2,835.1	59,067.8	61,902.9
2029	3,746.8	50,117.7	53,864.5	581.7	7,780.4	8,362.1	4,328.4	57,898.2	62,226.6
2030	5,038.0	49,125.3	54,163.3	782.1	7,626.4	8,408.5	5,820.1	56,751.7	62,571.8
2031	6,322.3	48,152.6	54,474.9	981.5	7,475.4	8,456.9	7,303.8	55,627.9	62,931.8
2032	7,597.6	47,199.1	54,796.7	1,179.5	7,327.3	8,506.8	8,777.1	54,526.4	63,303.5
2033	8,862.9	46,264.5	55,127.4	1,375.9	7,182.3	8,558.2	10,238.8	53,446.7	63,685.5
2034	10,117.7	45,348.4	55,466.1	1,570.7	7,040.0	8,610.8	11,688.4	52,388.4	64,076.9
2035	11,362.0	44,450.4	55,812.4	1,763.9	6,900.6	8,664.5	13,125.8	51,351.1	64,476.9
2036	12,595.6	43,570.3	56,165.8	1,955.4	6,764.0	8,719.4	14,551.0	50,334.2	64,885.2
2037	13,818.7	42,707.5	56,526.2	2,145.3	6,630.1	8,775.3	15,963.9	49,337.6	65,301.5
2038	15,031.3	41,861.8	56,893.1	2,333.5	6,498.8	8,832.3	17,364.8	48,360.6	65,725.4
2039	14,733.6	41,032.9	55,766.6	2,287.3	6,370.1	8,657.4	17,020.9	47,403.0	64,424.0
2040	14,441.9	40,220.4	54,662.3	2,242.0	6,244.0	8,486.0	16,683.9	46,464.4	63,148.3
2041	14,155.9	39,424.0	53,579.9	2,197.6	6,120.3	8,317.9	16,353.5	45,544.3	61,897.9
2042	13,875.6	38,643.3	52,519.0	2,154.1	5,999.1	8,153.2	16,029.7	44,642.5	60,672.2
2043	13,600.9	37,878.2	51,479.0	2,111.4	5,880.3	7,991.8	15,712.3	43,758.5	59,470.8
2044	13,331.6	37,128.1	50,459.7	2,069.6	5,763.9	7,833.5	15,401.2	42,892.0	58,293.2
2045	13,067.6	36,392.9	49,460.5	2,028.7	5,649.8	7,678.4	15,096.2	42,042.7	57,138.9
2046	12,808.8	35,672.3	48,481.1	1,988.5	5,537.9	7,526.4	14,797.3	41,210.2	56,007.5
2047	12,555.2	34,965.9	47,521.1	1,949.1	5,428.2	7,377.3	14,504.3	40,394.2	54,898.5
2048	12,306.6	34,273.6	46,580.2	1,910.5	5,320.7	7,231.3	14,217.1	39,594.3	53,811.4
2049	12,062.9	33,594.9	45,657.8	1,872.7	5,215.4	7,088.1	13,935.6	38,810.3	52,745.9
2050	11,824.0	32,929.7	44,753.7	1,835.6	5,112.1	6,947.7	13,659.6	38,041.8	51,701.4

ROC/NMOC ratio from - SBCAPCD Rule 341, Staff Report September 18, 1997
Annual acceptance rate for closed years based on overall average for all years open



70,000
60,000
50,000
40,000
30,000
20,000
10,000
0
mt CO2e
Total Landfill Fugitives
Existing Landfill Fugitives
New Landfill Fugitives
2020
2025
2030
2035
2040
2045
2050
Year



Tajiguas Indirect GHG from Combustion
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
mt CO2e
2020
2025
2030
2035
2040
2045
2050
Year
Total Landfill Indirect Combustion
Existing Landfill Indirect Combustion
New Landfill Indirect Combustion

Table 3
LFG Fugitive Emissions

Item	Units	Existing landfill Value	New landfill portion Value	Total future landfill Value	Comments
CH_4 Production	MT/yr	6,730	2,417	9,147	MT = mmcu. ft. * 453.6 g/lb * 16 lb/lb-mole * 10^6 cf/mmcf / (385.5 cf/lb-mole * 10^6 g/MT)
CH_4 Production	mmcu. ft./yr	357.49	128.36	485.85	As calcualted using LFG is 50% CH4 from AP-42 Section 2.4, equation 3 CH4 = LFG * 0.5
LFG Production	mmcu. ft./yr	714.97	256.72	971.70	As calcualted using §60.755(a)(1)(i), NSPS Subpart WWW
NMOC Concentration	ppmv as hexane	170	170	170	As directed by APDC based on highest observed sample Nov 2021-Jul 2023
NMOC Production	lb/yr	27,316.14	9,808.38	37,124.52	As calcualted by §60.754(a)(1)(ii), NSPS Subpart WWW
LFG Collection Efficiency	unitless	0.68	0.68	0.68	As directed by APDC based on historical value
LFG Fugitive Emissions	mmcu. ft./yr	228.791	82.152	310.943	LFG fugitive emissions = LFG production x (1 - Collection efficiency)
LFG Fugitive NMOC Emissions	lb/yr	8,741.16	3,138.68	11,879.85	Fugitive NMOC = NMOC Production x (1 - Collection efficiency)
ROC / NMOC Ratio	unitless	0.93	0.93	0.93	SBCAPCD Rule 341, Staff Report September 18, 1997
LFG Fugitive ROC Emissions	lb/yr	8,129.28	2,918.97	11,048.26	Fugitive ROC lb/yr = Fugitive NMOC lb/yr x 0.93
LFG Fugitive ROC Emissions	lb/day	22.27	8.00	30.27	Fugitive ROC lb/hr = Fugitive ROC lb/yr / 365 days/yr

[a] Modeled using Equation 40 CFR 60, Subpart WWW §60.754(a)(1)(ii) - from 2038, highest modeled year

Table 4
Landfill Gas TAC Concentrations

Compound	CAS Number	Molecular Weight	LFG Concentration (ppm)[a] AP-42, Table 2.4-1 (10/08 draft)	2009 Tajiguas Sample	2011 Tajiguas Sample	2012 Tajiguas Sample	2013 Tajiguas Sample	2021 Tajiguas Sample	2022 Tajiguas Sample	Selected Value[b]
1,1,1-Trichloroethane	71556	133.4	2.43E-01	2.00E-02	2.00E-02	4.00E-02	4.00E-02			4.00E-02
1,1,2,2-Tetrachloroethane	79345	167.86	5.35E-01	3.00E-02	3.00E-02	6.00E-02	6.00E-02			6.00E-02
1,1,2-Trichloroethane	79005	133.4	1.58E-01			6.00E-02	6.00E-02			6.00E-02
1,1-Dichloroethane	75343	98.96	2.08E+00	3.40E-02	3.00E-02	6.00E-02	6.00E-02			6.00E-02
1,1-Dichloroethene (1,1-Dichloroethylene)	75354	97	1.60E-01	4.00E-02	4.00E-02	6.00E-02	6.00E-02			6.00E-02
1,2-Dibromoethane (Ethylene dibromide)	106934	187.88	4.80E-03							4.80E-03
1,2-Dichloroethane (Ethylene dichloride)	107062	98.96	1.59E-01	3.00E-02	3.00E-02	6.00E-02	6.00E-02	2.00E-01		2.00E-01
1,3-Butadiene (Vinyl ethylene)	106990	54.1	1.66E-01							1.66E-01
1,4-Dioxane (1,4-Diethylene dioxide)	123911	88.12	8.29E-03							8.29E-03
2-Butanone (Methyl ethyl ketone)	78933	72.11	4.01E+00	4.39E+00	4.72E+00	5.44E+00	3.86E+00	1.39E+01		1.39E+01
2-Propanol (Isopropyl alcohol)	67630	60.1	1.80E+00	4.40E+00	1.00E+00	2.00E-01	2.00E-01	4.48E+00	1.22E-02	4.48E+00
Acetaldehyde	75070	44.06	7.74E-02					0.00E+00	0.00E+00	7.74E-02
Acrylonitrile	107131	53.06		1.50E-01	2.00E-01	3.00E-01	3.00E-01			3.00E-01
Benzene	71432	78.12	2.40E+00			5.09E-01	4.60E-01	8.14E-01		8.14E-01
Benzyl chloride	100447	126.58	1.81E-02							1.81E-02
Bromomethane (Methyl bromide)	74839	94.95	2.10E-02							2.10E-02
Carbon disulfide	75150	76.13	1.47E-01	2.00E-01	2.00E-01	2.00E-01	2.00E-01	1.06E-01		2.00E-01
Carbon tetrachloride	56235	153.81	7.98E-03	3.00E-02	3.00E-02	4.00E-02	4.00E-02			4.00E-02
Carbonyl Sulfide	463581	60.08	1.22E-01							1.22E-01
Chlorobenzene	108907	112.56	4.84E-01	3.20E-02	4.40E-02	6.00E-02	7.20E-02			7.20E-02
Chloroethane (Ethyl chloride)	75003	64.52	3.95E+00	9.10E-02	4.00E-02	4.30E-02	6.00E-02	1.36E-01		1.36E-01
1,4-Dichlorobenzene	106467	147.01	9.40E-01	1.68E-01	4.38E-01	5.00E-01	6.47E-01			6.47E-01
Dichloromethane (Methylene chloride)	75092	84.94	6.15E+00	5.70E-02	4.20E-02	6.00E-02	6.00E-02			6.00E-02
Ethylbenzene	100414	106.17	4.86E+00	3.26E+00	4.88E+00	5.28E+00	5.26E+00	3.22E+00	6.91E-03	5.28E+00
Formaldehyde	50000	30.03	1.17E-02							1.17E-02
n-Hexane	110543	86.18	3.10E+00					6.24E-01		6.24E-01
Hydrogen sulfide	7783064	34.08	2.00E+01	7.39E+01	6.72E+01	9.40E+01	8.80E+01	1.10E+01	0.00E+00	9.40E+01
Methyl tert-butyl ether (MTBE)	1634044	88.15	1.18E-01							1.18E-01
Naphthalene	91203	128.18	1.07E-01					0.00E+00	0.00E+00	1.07E-01
Propene (Propylene)	115071	42.08	3.32E+00					2.61E-01		2.61E-01
Styrene (Vinylbenzene)	100425	104.16	4.11E-01					3.05E-01	1.53E-03	3.05E-01
Tetrachloroethylene (Perchloroethylene)	127184	165.82	2.03E+00	1.57E-01	1.14E-01	1.16E-01	1.02E-01	1.47E-01		1.57E-01
Toluene (Methyl benzene)	108883	92.13	2.95E+01			3.80E+00	3.90E+00	4.51E+00	2.92E-03	4.51E+00
Trichloroethylene (Trichloroethene)	79016	131.38	8.28E-01	8.50E-02	5.50E-02	4.00E-02	6.10E-02			8.50E-02
Trichloromethane (Chloroform)	67663	119.38	7.08E-02	2.00E-02	2.00E-02	4.00E-02	4.00E-02			4.00E-02
Vinyl acetate	108054	86.09	2.48E-01							2.48E-01
Vinyl chloride (Chloroethene)	75014	62.5	1.42E+00	1.27E-01	7.50E-02	1.33E-01	8.60E-02			1.33E-01
Xylenes (o-, m-, p-, mixtures)	1330207	106.16	9.23E+00	8.52E+00	1.30E+01	1.40E+01	1.47E+01	7.60E+00	2.28E-02	1.47E+01

[a] Values for Tajiguas samples are results from analysis of Tajiguas Ll 98.90 142.13

[b] Selected value is maximum value measured in Tajiguas samples or value from AP-42 if compound was not measured in Tajiguas samples.

Table 5a
Total Landfill Gas Fugitive TAC Emissions

Compound	CAS Number	Molecular Weight	LFG Concentration (ppm)[a]	Hourly Emission Rate (lb/hr)[b]	Annual Emission Rate (lb/yr)[c]	
1,1,1-Trichloroethane	71556	133.40	4.00E-02	4.91E-04	4.30E+00	**LFGFUT**
1,1,2,2-Tetrachloroethane	79345	167.86	6.00E-02	9.27E-04	8.12E+00	
1,1,2-Trichloroethane	79005	133.40	6.00E-02	7.37E-04	6.46E+00	
1,1-Dichloroethane	75343	98.96	6.00E-02	5.47E-04	4.79E+00	
1,1-Dichloroethene (1,1-Dichloroethylene)	75354	97.00	6.00E-02	5.36E-04	4.69E+00	
1,2-Dibromoethane (Ethylene dibromide)	106934	187.88	4.80E-03	8.30E-05	7.27E-01	
1,2-Dichloroethane (Ethylene dichloride)	107062	98.96	2.00E-01	1.82E-03	1.60E+01	
1,3-Butadiene (Vinyl ethylene)	106990	54.10	1.66E-01	8.27E-04	7.24E+00	
1,4-Dioxane (1,4-Diethylene dioxide)	123911	88.12	8.29E-03	6.73E-05	5.89E-01	
2-Butanone (Methyl ethyl ketone)	78933	72.11	1.39E+01	9.23E-02	8.09E+02	
2-Propanol (Isopropyl alcohol)	67630	60.10	4.48E+00	2.48E-02	2.17E+02	
Acetaldehyde	75070	44.06	7.74E-02	3.14E-04	2.75E+00	
Acrylonitrile	107131	53.06	3.00E-01	1.47E-03	1.28E+01	
Benzene	71432	78.12	8.14E-01	5.85E-03	5.13E+01	
Benzyl chloride	100447	126.58	1.81E-02	2.11E-04	1.85E+00	
Bromomethane (Methyl bromide)	74839	94.95	2.10E-02	1.84E-04	1.61E+00	
Carbon disulfide	75150	76.13	2.00E-01	1.40E-03	1.23E+01	
Carbon tetrachloride	56235	153.81	4.00E-02	5.66E-04	4.96E+00	
Carbonyl Sulfide	463581	60.08	1.22E-01	6.75E-04	5.91E+00	
Chlorobenzene	108907	112.56	7.20E-02	7.46E-04	6.54E+00	
Chloroethane (Ethyl chloride)	75003	64.52	1.36E-01	8.10E-04	7.10E+00	
1,4-Dichlorobenzene	106467	147.01	6.47E-01	8.76E-03	7.67E+01	
Dichloromethane (Methylene chloride)	75092	84.94	6.00E-02	4.69E-04	4.11E+00	
Ethylbenzene	100414	106.17	5.28E+00	5.16E-02	4.52E+02	
Formaldehyde	50000	30.03	1.17E-02	3.24E-05	2.83E-01	
n-Hexane	110543	86.18	6.24E-01	4.95E-03	4.34E+01	
Hydrogen sulfide	7783064	34.08	9.40E+01	2.95E-01	2.58E+03	
Methyl tert-butyl ether (MTBE)	1634044	88.15	1.18E-01	9.58E-04	8.39E+00	
Naphthalene	91203	128.18	1.07E-01	1.26E-03	1.11E+01	
Propene (Propylene)	115071	42.08	2.61E-01	1.01E-03	8.87E+00	
Styrene (Vinylbenzene)	100425	104.16	3.05E-01	2.93E-03	2.56E+01	
Tetrachloroethylene (Perchloroethylene)	127184	165.82	1.57E-01	2.40E-03	2.10E+01	
Toluene (Methyl benzene)	108883	92.13	4.51E+00	3.83E-02	3.35E+02	
Trichloroethylene (Trichloroethene)	79016	131.38	8.50E-02	1.03E-03	9.01E+00	
Trichloromethane (Chloroform)	67663	119.38	4.00E-02	4.40E-04	3.85E+00	
Vinyl acetate	108054	86.09	2.48E-01	1.97E-03	1.72E+01	
Vinyl chloride (Chloroethene)	75014	62.50	1.33E-01	7.65E-04	6.70E+00	
Xylenes (o-, m-, p-, mixtures)	1330207	106.16	1.47E+01	1.44E-01	1.26E+03	
LFG fugitive emission rate =	310.94	mmcu. ft./year				
Molar volume =	385.5	scf/lb-mole				

[a] See Table 2

[b] Hourly emission rate [lb/hr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole] / 8,760 [hr/year]

[b] Annual emission rate [lb/yr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole]

Table 5b
Project Landfill Gas Fugitive TAC Emissions

Compound	CAS Number	Molecular Weight	LFG Concentration (ppm)[a]	Hourly Emission Rate (lb/hr)[b]	Annual Emission Rate (lb/yr)[c]	
1,1,1-Trichloroethane	71556	133.40	4.00E-02	1.30E-04	1.14E+00	**LFPROJ**
1,1,2,2-Tetrachloroethane	79345	167.86	6.00E-02	2.45E-04	2.15E+00	
1,1,2-Trichloroethane	79005	133.40	6.00E-02	1.95E-04	1.71E+00	
1,1-Dichloroethane	75343	98.96	6.00E-02	1.44E-04	1.27E+00	
1,1-Dichloroethene (1,1-Dichloroethylene)	75354	97.00	6.00E-02	1.42E-04	1.24E+00	
1,2-Dibromoethane (Ethylene dibromide)	106934	187.88	4.80E-03	2.19E-05	1.92E-01	
1,2-Dichloroethane (Ethylene dichloride)	107062	98.96	2.00E-01	4.82E-04	4.22E+00	
1,3-Butadiene (Vinyl ethylene)	106990	54.10	1.66E-01	2.18E-04	1.91E+00	
1,4-Dioxane (1,4-Diethylene dioxide)	123911	88.12	8.29E-03	1.78E-05	1.56E-01	
2-Butanone (Methyl ethyl ketone)	78933	72.11	1.39E+01	2.44E-02	2.14E+02	
2-Propanol (Isopropyl alcohol)	67630	60.10	4.48E+00	6.54E-03	5.73E+01	
Acetaldehyde	75070	44.06	7.74E-02	8.30E-05	7.27E-01	
Acrylonitrile	107131	53.06	3.00E-01	3.87E-04	3.39E+00	
Benzene	71432	78.12	8.14E-01	1.55E-03	1.35E+01	
Benzyl chloride	100447	126.58	1.81E-02	5.57E-05	4.88E-01	
Bromomethane (Methyl bromide)	74839	94.95	2.10E-02	4.85E-05	4.25E-01	
Carbon disulfide	75150	76.13	2.00E-01	3.70E-04	3.24E+00	
Carbon tetrachloride	56235	153.81	4.00E-02	1.50E-04	1.31E+00	
Carbonyl Sulfide	463581	60.08	1.22E-01	1.78E-04	1.56E+00	
Chlorobenzene	108907	112.56	7.20E-02	1.97E-04	1.73E+00	
Chloroethane (Ethyl chloride)	75003	64.52	1.36E-01	2.14E-04	1.88E+00	
1,4-Dichlorobenzene	106467	147.01	6.47E-01	2.31E-03	2.03E+01	
Dichloromethane (Methylene chloride)	75092	84.94	6.00E-02	1.24E-04	1.09E+00	
Ethylbenzene	100414	106.17	5.28E+00	1.36E-02	1.19E+02	
Formaldehyde	50000	30.03	1.17E-02	8.55E-06	7.49E-02	
n-Hexane	110543	86.18	6.24E-01	1.31E-03	1.15E+01	
Hydrogen sulfide	7783064	34.08	9.40E+01	7.79E-02	6.83E+02	
Methyl tert-butyl ether (MTBE)	1634044	88.15	1.18E-01	2.53E-04	2.22E+00	
Naphthalene	91203	128.18	1.07E-01	3.34E-04	2.92E+00	
Propene (Propylene)	115071	42.08	2.61E-01	2.68E-04	2.34E+00	
Styrene (Vinylbenzene)	100425	104.16	3.05E-01	7.73E-04	6.77E+00	
Tetrachloroethylene (Perchloroethylene)	127184	165.82	1.57E-01	6.33E-04	5.55E+00	
Toluene (Methyl benzene)	108883	92.13	4.51E+00	1.01E-02	8.86E+01	
Trichloroethylene (Trichloroethene)	79016	131.38	8.50E-02	2.72E-04	2.38E+00	
Trichloromethane (Chloroform)	67663	119.38	4.00E-02	1.16E-04	1.02E+00	
Vinyl acetate	108054	86.09	2.48E-01	5.19E-04	4.55E+00	
Vinyl chloride (Chloroethene)	75014	62.50	1.33E-01	2.02E-04	1.77E+00	
Xylenes (o-, m-, p-, mixtures)	1330207	106.16	1.47E+01	3.80E-02	3.33E+02	
LFG fugitive emission rate =	82.152	mmcu. ft./year				
Molar volume =	385.5	scf/lb-mole				

[a] See Table 2

[b] Hourly emission rate [lb/hr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole] / 8,760 [hr/year]

[b] Annual emission rate [lb/yr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole]

Table 5c
Existing Landfill Gas Fugitive TAC Emissions

Compound	CAS Number	Molecular Weight	LFG Concentration (ppm)[a]	Hourly Emission Rate (lb/hr)[b]	Annual Emission Rate (lb/yr)[c]	
1,1,1-Trichloroethane	71556	133.40	4.00E-02	3.62E-04	3.17E+00	LFGFUG
1,1,2,2-Tetrachloroethane	79345	167.86	6.00E-02	6.82E-04	5.98E+00	
1,1,2-Trichloroethane	79005	133.40	6.00E-02	5.42E-04	4.75E+00	
1,1-Dichloroethane	75343	98.96	6.00E-02	4.02E-04	3.52E+00	
1,1-Dichloroethene (1,1-Dichloroethylene)	75354	97.00	6.00E-02	3.94E-04	3.45E+00	
1,2-Dibromoethane (Ethylene dibromide)	106934	187.88	4.80E-03	6.11E-05	5.35E-01	
1,2-Dichloroethane (Ethylene dichloride)	107062	98.96	2.00E-01	1.34E-03	1.18E+01	
1,3-Butadiene (Vinyl ethylene)	106990	54.10	1.66E-01	6.08E-04	5.33E+00	
1,4-Dioxane (1,4-Diethylene dioxide)	123911	88.12	8.29E-03	4.95E-05	4.34E-01	
2-Butanone (Methyl ethyl ketone)	78933	72.11	1.39E+01	6.79E-02	5.95E+02	
2-Propanol (Isopropyl alcohol)	67630	60.10	4.48E+00	1.82E-02	1.60E+02	
Acetaldehyde	75070	44.06	7.74E-02	2.31E-04	2.02E+00	
Acrylonitrile	107131	53.06	3.00E-01	1.08E-03	9.45E+00	
Benzene	71432	78.12	8.14E-01	4.31E-03	3.77E+01	
Benzyl chloride	100447	126.58	1.81E-02	1.55E-04	1.36E+00	
Bromomethane (Methyl bromide)	74839	94.95	2.10E-02	1.35E-04	1.18E+00	
Carbon disulfide	75150	76.13	2.00E-01	1.03E-03	9.04E+00	
Carbon tetrachloride	56235	153.81	4.00E-02	4.17E-04	3.65E+00	
Carbonyl Sulfide	463581	60.08	1.22E-01	4.97E-04	4.35E+00	
Chlorobenzene	108907	112.56	7.20E-02	5.49E-04	4.81E+00	
Chloroethane (Ethyl chloride)	75003	64.52	1.36E-01	5.96E-04	5.22E+00	
1,4-Dichlorobenzene	106467	147.01	6.47E-01	6.44E-03	5.65E+01	
Dichloromethane (Methylene chloride)	75092	84.94	6.00E-02	3.45E-04	3.02E+00	
Ethylbenzene	100414	106.17	5.28E+00	3.80E-02	3.33E+02	
Formaldehyde	50000	30.03	1.17E-02	2.38E-05	2.09E-01	
n-Hexane	110543	86.18	6.24E-01	3.64E-03	3.19E+01	
Hydrogen sulfide	7783064	34.08	9.40E+01	2.17E-01	1.90E+03	
Methyl tert-butyl ether (MTBE)	1634044	88.15	1.18E-01	7.05E-04	6.17E+00	
Naphthalene	91203	128.18	1.07E-01	9.29E-04	8.14E+00	
Propene (Propylene)	115071	42.08	2.61E-01	7.45E-04	6.53E+00	
Styrene (Vinylbenzene)	100425	104.16	3.05E-01	2.15E-03	1.89E+01	
Tetrachloroethylene (Perchloroethylene)	127184	165.82	1.57E-01	1.76E-03	1.55E+01	
Toluene (Methyl benzene)	108883	92.13	4.51E+00	2.82E-02	2.47E+02	
Trichloroethylene (Trichloroethene)	79016	131.38	8.50E-02	7.57E-04	6.63E+00	
Trichloromethane (Chloroform)	67663	119.38	4.00E-02	3.24E-04	2.83E+00	
Vinyl acetate	108054	86.09	2.48E-01	1.45E-03	1.27E+01	
Vinyl chloride (Chloroethene)	75014	62.50	1.33E-01	5.63E-04	4.93E+00	
Xylenes (o-, m-, p-, mixtures)	1330207	106.16	1.47E+01	1.06E-01	9.26E+02	
LFG fugitive emission rate =	228.791	mmcu. ft./year				
Molar volume =	385.5	scf/lb-mole				

[a] See Table 2

[b] Hourly emission rate [lb/hr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole] / 8,760 [hr/year]

[b] Annual emission rate [lb/yr] = Concentration [ppm] x 10^{-6} x Molecular weight [lb/lb-mole] x Fugitive LFG emission rate [scf/yr] / Molar volume [scf/lb-mole]

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APPENDIX F

SUPPLEMENTAL PHASE I ARCHEOLOGICAL SURVEY

MEMORANDUM
PADRE ASSOCIATES, INC.
369 Pacific Street Tel: 805/786-2650
San Luis Obispo, CA 93401 Fax: 805/786-2651

To:	Matt Ingamells	Date:	April 13, 2023
From:	Rachael J. Letter, M.S., RPA	Project No:	2202-4091
Subject:	**Supplemental Phase I Survey, Tajiguas Landfill Capacity Increase Project, Santa Barbara County**		

On behalf of the Santa Barbara County Public Works Department, Resource Recovery and Waste Management Division (County), Padre Associates, Inc. (Padre) conducted a supplemental Phase I archaeological survey for the Tajiguas Landfill Capacity Increase Project (Project) in Santa Barbara County. The purpose of the Project is to increase the capacity of the landfill into a 1.5-acre undisturbed area (Project site). Previous cultural resource surveys within the landfill were conducted by Conejo Archaeological Consultants (Conejo) on behalf of Padre in 2013 (Maki, 2013); with additional areas being surveyed by Padre in May 2017 (Letter, 2017). For cultural setting information, see Section 3.0 of Conejo's 2013 report. This memo summarizes an updated records search and Sacred Lands File search, survey results, and field conditions observed by Padre.

The Project site is located in Section 28 of Township 5 North, Range 31 West as shown on the Tajiguas, California United States Geological Survey (USGS) 7.5-Minute Series topographic quadrangle map (Figure 7). Specifically, the Project site is a 1.5-acre undisturbed area along the southern edge of the existing north burrow/stockpile. The area examined (Survey Area) encompassed approximately five acres and included additional lands in all directions of the proposed Project site.

On March 15, 2023, Padre ordered an archaeological records search from the Central Coast Information Center (CCIC) located at the Santa Barbara Museum of Natural History. The center is an affiliate of the State of California Office of Historic Preservation and the official state repository of archaeological and historic records and reports for Santa Barbara and San Luis Obispo counties. Padre received the results on March 22, 2023.

Padre emailed a request for a Sacred Lands File search to the Native American Heritage Commission (NAHC) on March 15, 2023, to request information about sacred or traditional cultural properties that may be located within the Project site. Padre received a response from the NAHC on April 7, 2023, which indicated that a search of the Sacred Lands File (SLF) was conducted with negative results. The NAHC response is attached to this memo to assist with Native American consultation pursuant to Public Resources Code (PRC) § 21080.3.1.

Updated Records Search Results

The initial records search for the Tajiguas Landfill was completed by Conejo in 2013 and is summarized in Section 4.0 of that report. Padre's updated records search included a review of all recorded historic-era and prehistoric archaeological sites within a 0.25-mile radius of the proposed Project site as well as a review of known cultural resource surveys and technical reports. The State Historic Property Data Files, National Register of Historic Places, National Register of

Determined Eligible Properties, California Points of Historic Interest, and the California Office of Historic Preservation Archaeological Determinations of Eligibility also were analyzed.

The updated records search did not identify any previously recorded cultural resources within the proposed Project site or 0.25-mile search radius that were not already identified in 2013 (Conejo). The records search revealed that three cultural resources studies (Carrico, 1984; Macko, 1984; Brown, 1998) have been completed within a 0.25-mile radius of the Project site that were not already identified in 2013 (Conejo).

Survey Conditions and Methods

Padre Staff Archaeologist Val K. Kirstine conducted the supplemental Phase I archaeological survey on March 31, 2023. The Survey Area consisted of a previously undisturbed area approximately five acres in size, located east of the North Sedimentation Basin. The proposed Final Waste Footprint Perimeter line, as depicted on the Tajiguas Sanitary Landfill Increased Capacity Project Permitted Master Fill Plan, would cross through the center of this previously undisturbed area. The archaeologist examined the Survey Area with parallel transects spaced at no more than 15-meter intervals, where not constrained by terrain and vegetation.

The current Survey Area consisted of a large, natural drainage swale and adjacent slopes. This drainage swale is characterized by a heavily vegetated gulley, moderately sloped from east-west and flanked on opposite sides by moderate to steep slopes of approximately 35 to 50 degrees (Figure 1). The gulley extends east from the shoulder of an existing, unpaved access road and terminates at another unpaved access road that runs along the ridgeline to the east. Heavy rainfall preceding the survey was observed to have caused significant, localized erosion to the general area, as evidenced by a narrow channel measuring several feet wide and approximately one to six feet deep, extending east and upslope through the center of the gulley and angling north and across the face of a north-south oriented embankment (Figure 2). Level areas, both within and directly adjacent to the Survey Area, were also noted to have been subject to extensive sheet washing (Figure 3).

Elevation within the Survey Area ranges from approximately 485 feet above mean sea level (AMSL) at the downslope, western boundary, to approximately 673 feet AMSL at the eastern boundary, adjacent to the ridgeline access road. Existing concrete-lined V-ditches were present within the center of the gulley, and also along the crest of a finger ridge that is adjacent to the Survey Area's southern boundary (Figure 4).

With the exception of exposed margins along the V-ditches and a roughly graded access road servicing a utility pole near the eastern edge of the survey area, extremely dense vegetation predominated. Species observed within the survey area included sage, thistle, mustard, tree tobacco, poison oak, scrub-brush, seasonal grasses, and wildflowers. Surface visibility ranged from zero to 60 percent, with dense vegetation and accumulated leaf litter accounting for the areas of reduced visibility (Figure 5). Sufficient opportunity for the inspection of surface soils was provided by patches of thinner vegetation and areas where subsurface soils had been exposed in profile by recent fluvial action (Figure 6).

Figure 1. Overview of east slope of Survey Area, facing southeast.

Figure 2. Overview of gulley, facing southwest

Figure 3. Overview of sheet washing at access road along southern edge of Survey Area, facing east

Figure 4. Overview of V-ditch alignment, facing northeast

Figure 5. Overview of dense vegetation along southern boundary, facing south

Figure 6. Close-up of soil profile exposed by fluvial action within gulley

Soil composition consisted of loosely consolidated clay-loam and colluvium, interspersed with highly angular clasts of sandstone, mudstone and shale. Small patches of exposed mudstone bedrock were occasionally observed on the surface. Surface soils on both sides of the embankment appeared to have been disturbed, possibly due to earlier surface grading or re-sloping efforts. Small bits of modern trash, primarily plastics, thin pieces of foil, and string, were occasionally observed within the survey area. No cultural materials were observed within the survey area.

Results and Recommendations

The supplemental Phase I archaeological survey was negative for cultural materials and no intact soils were observed. Padre recommends incorporating the same mitigation measures proposed by Conejo in 2013. These mitigation measures are repeated here for easy reference:

1. In the event that archaeological resources are exposed during construction, all earth disturbing work within the vicinity of the find must be temporarily suspended or redirected until a professional archaeologist has been retained to evaluate the nature and significance of the find. The County shall be notified immediately of any such find. After the find has been appropriately mitigated, work in the area may resume. A Chumash representative should monitor any mitigation work associated with Native American cultural material.

2. If human remains are unearthed, State Health and Safety Code Section 7050.5 requires that no further disturbance shall occur until the County Coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the NAHC. The County shall be notified immediately of any such find.

References Cited

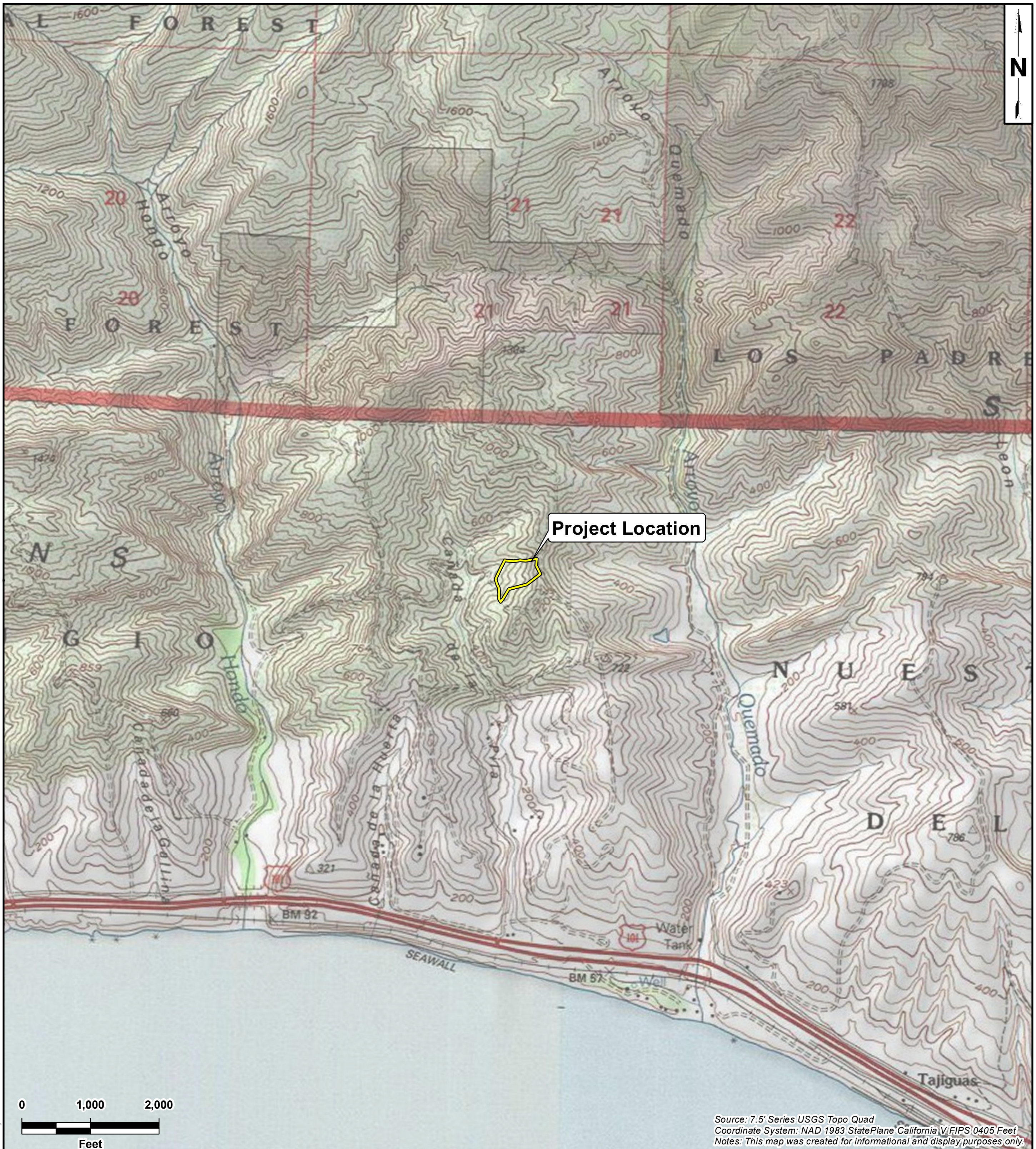
Brown, J. 1998. A Cultural Resources Reconnaissance of the Upper Pila Creek, Tajiguas Landfill, Santa Barbara County, California. Prepared by RMW Paleo Associates, Inc. Prepared for TRC. SR-02324.

Carrico, R. 1984. Preliminary Results of a Cultural Resources Survey of Canada de la Huerta for the Shell Molino Project. SR-00079.

Macko, M. 1984. Final Cultural Resources Technical Appendix: Getty Gaviota Consolidated Coastal Facility Environmental Impact Report. SR-00084.

Maki, M. 2013. Phase I Cultural Resources Investigation of Approximately 30 acres for the Tajiguas Landfill Resource Recovery Project and Proposed Alternatives, Santa Barbara County, California. Prepared by Conejo Archaeological Consultants. Prepared for Padre Associates, Inc., Ventura.

Letter, R. 2017. Letter Report: Supplemental Phase I Survey, Tajiguas Landfill Resource Recovery and Expansion Project, Santa Barbara County. Prepared by Padre Associates, Inc., Ventura.



LEGEND:

Project Location

MAP EXTENT:

padre associates, inc. ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS	PROJECT NAME: TAJIGUAS LANDFILL CAPACITY INCREASE PROJECT SANTA BARBARA COUNTY, CA	PROJECT LOCATION	FIGURE 7
	PROJECT NUMBER: 2202-4091 / DATE: March 2023		

Z:\GIS Projects\GIS Maps\Map Project\Tajiguas Landfill\Project Location.mxd 3/14/2023

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

STATE OF CALIFORNIA **Gavin Newsom, *Governor***

NATIVE AMERICAN HERITAGE COMMISSION

April 7, 2023

Rachael Letter
Padre Associates, Inc.

Via Email to: rletter@padreinc.com

Re: Tajiguas Landfill Capacity Increase Project, Santa Barbara County

Dear Ms. Letter:

A record search of the Native American Heritage Commission (NAHC) Sacred Lands File (SLF) was completed for the information you have submitted for the above referenced project. The results were negative. However, the absence of specific site information in the SLF does not indicate the absence of cultural resources in any project area. Other sources of cultural resources should also be contacted for information regarding known and recorded sites.

Attached is a list of Native American tribes who may also have knowledge of cultural resources in the project area. This list should provide a starting place in locating areas of potential adverse impact within the proposed project area. I suggest you contact all of those indicated; if they cannot supply information, they might recommend others with specific knowledge. By contacting all those listed, your organization will be better able to respond to claims of failure to consult with the appropriate tribe. If a response has not been received within two weeks of notification, the Commission requests that you follow-up with a telephone call or email to ensure that the project information has been received.

If you receive notification of change of addresses and phone numbers from tribes, please notify me. With your assistance, we can assure that our lists contain current information.

If you have any questions or need additional information, please contact me at my email address: Cody.Campagne@nahc.ca.gov.

Sincerely,

Cody Campagne

Cody Campagne
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Native American Contact List
Santa Barbara County
4/7/2023

Barbareno/ Ventureno Band of Mission Indians
Annette Ayala, CRM Committee Chair
188 S. Santa Rosa Street
Ventura, CA, 93001
Phone: (805) 515 - 9844
annetteayala78@yahoo.com
Chumash

Barbareno/Ventureno Band of Mission Indians
Dayna Barrios, Chairperson
Phone: (805) 890 - 6855
barrios_dayna@yahoo.com
Chumash

Chumash Council of Bakersfield
Julio Quair, Chairperson
729 Texas Street
Bakersfield, CA, 93307
Phone: (661) 322 - 0121
chumashtribe@sbcglobal.net
Chumash

Coastal Band of the Chumash Nation
Mia Lopez, Chairperson
P. O. Box 40653
Santa Barbara, CA, 93140
Phone: (805) 324 - 0135
cbcntribalchair@gmail.com
Chumash

Coastal Band of the Chumash Nation
Gabe Frausto, Vice Chair
P.O. Box 40653
Santa Barbara, CA, 93140
Phone: (805) 324 - 0135
cbcn22vicechair@gmail.com
Chumash

Northern Chumash Tribal Council
Violet Walker, Chairperson
P.O. Box 6533
Los Osos, CA, 93412
Phone: (760) 549 - 3532
violetsagewalker@gmail.com
Chumash

San Luis Obispo County Chumash Council
Chumash

Santa Ynez Band of Chumash Indians
Kenneth Kahn, Chairperson
P.O. Box 517
Santa Ynez, CA, 93460
Phone: (805) 688 - 7997
Fax: (805) 686-9578
Chairman@chumash.gov
Chumash

Barbareno Band of Chumash Indians
Barbara Lopez,
PO Box 61041
Santa Barbara, CA, 93160
Phone: (805) 689 - 9528
chumashangles@aol.com
Chumash

Barbareno Band of Chumash Indians
Eleanor Fishburn (nee Arellanes), Chairperson
PO Box 5687
Ventura, CA, 93005
Phone: (805) 701 - 3246
eleanor@spiritinthewind.net
Chumash

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resource Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources assessment for the proposed Tajiguas Landfill Capacity Increase Project, Santa Barbara County.

APPENDIX G

GEOTECHNICAL EVALUATIONS REPORT

Geosyntec consultants

3530 Hyland Avenue, Suite 100
Costa Mesa, CA 92627
PH 714.969.0800
www.geosyntec.com

March 24, 2023
Updated August 17, 2023

Ms. Jamie Reyes
Resource Recovery and Waste Management Division
130 E Victoria Street, Suite 100
Santa Barbara, CA 93101

Subject: Geotechnical Evaluations Report
In Support of the Environmental Impact Report (EIR)
for the Tajiguas Sanitary Landfill Capacity Increase Project
Santa Barbara County, California
Geosyntec Consultants Project SC1308

Dear Ms. Reyes,

Geosyntec Consultants, Inc. (Geosyntec), prepared this report for Santa Barbara County Public Works Resource Recovery and Waste Management Division (RRWMD) to document its slope stability evaluations in support of the Environmental Impact Report (EIR) for the Capacity Increase Project (the Project) at Tajiguas Sanitary Landfill (TSL). This report provides a description of the Project, an assessment of the geologic setting of areas affected by the Project, and procedures and findings of Geosyntec's seismic hazard analysis and slope stability analyses.

1. PROJECT DESCRIPTION

TSL is a Class III landfill located in the County of Santa Barbara at 14470 Calle Real, Goleta, California, approximately 26 miles west of the City of Santa Barbara as shown in Figure 1. TSL consists of a pre-subtitle D waste area and lined lateral expansions. The lined lateral expansions have been ongoing with Phases IA, IB, IIA, IIB, IIC, IIIA, IIIB, IIIC, IIID, and IIIE. The current total permitted airspace for the TSL is 23.3 million cubic yards (mcy) with remaining capacity of approximately 1.7 mcy as of April 2022 based on the "Increased Capacity at the Tajiguas Sanitary Landfill 2023 Report" memorandum dated January 27, 2023 (SWT, 2023). Based on information provided by the RRWMD, we understand, the proposed Project is expected to increase the permitted top elevation from 620 feet above mean sea level (ft msl) to 650 ft msl and the permitted disposal area footprint from 118 acres to 132.25 acres. The proposed height and permitted footprint increase is expected to increase the design capacity of the landfill and extend the estimated closure date from approximately 2026 to 2038. Based on the description provided in the memorandum, SWT evaluated five options (Options 1 through 5) for the Project and RRWMD selected Option 5. Option 5 consists of excavating an approximate 14.25-acre lined cell (Phase IV) for refuse placement, in multiple phases. The schematic layout of the pre-subtitle D areas, completed phases, and the proposed Phase IV are shown in the Site Layout presented in this report as Figure 2.

The grading plan for the proposed Project and limit of grading for the existing Phases are shown in Figure 3. The proposed final grades of TSL, as part of the Project, corresponding to top of future landfill cover is shown in Figure 4. As shown in Figure 3, the proposed grading plan consists of excavating the westerly facing slope on the north side of the existing landfill and excavating the existing knob on the north side by extending the landfill footprint by approximately 300 feet (ft) to the north. The planned excavation slope inclination is typically 2 horizontal to 1 vertical (2H:1V) in between benches located every 40 to 50 ft vertically. Only exception is the lower approximately 20 feet of the southeasterly facing slopes which will be excavated with a 1H:1V slope inclination. As shown in Figure 4, the final waste fill slopes facing to the northwest and southwest will be inclined at 2H:1V with highest elevation of 650 ft msl. A toe buttress stability berm will be built over the waste on the west side of the landfill along the Pila Creek Channel.

The existing liner systems used at TSL consists of high-density polyethylene geomembrane (GM) over compacted clay liner (CCL) and GM over geosynthetic clay liner with GM backing (GCL). The proposed base composite liner system for Phase IV is GM over CCL for the floor and GM over GCL for the sideslopes as shown in Figure 3. The liner system configurations of the various composite liner systems of proposed and existing phases of site are summarized in Table 1. Encountered groundwater or potential seeps will be controlled below the base of the proposed grades for the Project with an underdrain system to reduce and/or limit potential impact to the stability of the proposed waste fill or excavation slopes.

2. REGULATORY REQUIREMENTS AND STABILITY CRITERIA

Title 27 of the California Code of Regulations (CCR) requires performing Maximum Probable Earthquake (MPE) seismic hazard analyses for Class III landfills and limiting the maximum permanent seismic displacement during an MPE event to six inches. The current standard of practice is also to perform Maximum Credible Earthquake (MCE) seismic hazard analyses and to limit the maximum permanent seismic displacement during an MCE event to 12 inches. Consistent with previous reports for the site, the minimum acceptable factor of safety (FoS) against potential slope instability under static conditions is 1.5. Also consistent with previous reports, we used large displacement ("residual") shear strength parameters for both static and pseudostatic slope stability analyses.

3. GEOLOGY

A detailed discussion of the regional and local geology for the TSL is included in the Joint Technical Document (JTD, 2022). This section provides a brief summary of the regional and local geology and describes the specific data collected for the Project to evaluate the stability of proposed cut slopes.

The TSL is located within the Santa Ynez Mountain uplift, which is generally composed of sedimentary rocks ranging from late Mesozoic to Quaternary in age. The total stratigraphic thickness of the exposed section is approximately 40,000 ft. The Tertiary-age bedrock units exposed in the vicinity of the TSL as shown on Figure 5 are the undivided Sespe-Alegria formation, the Vaqueros Sandstone, and the Rincon Shale.

The major grading activities as part of the Project are proposed to occur solely within the Sespe-Alegria formation to the north of the existing TSL footprint. Geosyntec's geologist made field observations and took field measurements within the Project area on October 19, 2022, to document visually observed bedding orientations and to assess potential geologic hazards. Measurements were collected on south and southwest facing exposed bedding planes along existing cut slopes and within the undisturbed vegetated areas within the Sespe-Alegria formation. Measurements were focused to areas within the proposed northern and eastern expansion areas. The visual bedding measurements collected on October 19, 2022, are show on Figure 5.

In the areas of the proposed grading, bedding orientation strikes between N65°E to S86°E with bedding dips varying between 53 degrees to the south to steeply overturned, dipping 83 degrees to the north. The measured bedding dips typically range between 62 and 84 degrees to the south. These measurements are consistent with previous bedding measurements collected at the TSL and are within the overall average range of bedding dip measurements as described in the JTD (2022). The observed bedding orientations and bedding dips are generally favorable for the stability of the proposed cut slopes, as the bedding planes (potential failure surfaces) would not be daylighted or left unsupported by the proposed excavations.

In addition, based on visual field observations performed by Geosyntec and review of relevant/available site information, no other geologic hazards (including surface faults) were observed in the proposed expansion area.

4. SEISMIC HAZARD ANALYSIS

A seismic hazard analysis was performed to estimate the potential for ground shaking at the TSL caused by potential earthquakes using the available seismic source model and ground motion models. The approach, inputs, and resulting acceleration response spectra are described in the following sections:

4.1 Approach

A seismic hazard analysis is performed, and target response spectra are developed for both the MCE and the MPE. The MCE is defined as the maximum earthquake that appears capable of occurring under the presently known geologic framework. The MPE is defined as the maximum earthquake that is likely to occur during a 100-year interval. We conduct a deterministic seismic

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hazard analysis (DSHA) to develop both the MCE and MPE response spectra, with the MCE magnitude corresponding to rupture of the full fault area, and the MPE magnitude evaluated by subtracting 0.5 magnitude units from the MCE magnitude based on the Overview of Landfill Reviews technical presentation to State Water Resources Control Board dated February 11, 2009 (Driller, 2009).

The DSHA was performed by identifying sources capable of producing ground motions of engineering significance at the TSL, defining deterministic scenarios for those sources in terms of moment magnitude (M_W), rupture characteristics (dip, mechanism, rupture width), and site-to-source distance parameters (R_{RUP}, R_{JB}, R_X, R_{Y0}, Z_{TOR}, Z_{HYPO}), and calculating response spectra for each scenario at the median (50th-percentile) ground motion level. The envelope of the individual response spectra is the MCE or MPE target response spectrum, which describes the 5%-damped horizontal pseudo-spectral acceleration across a range of periods. The fundamental inputs to the DSHA are the seismic source model, ground motion models, and site characterization, as briefly summarized below.

4.2 Seismic Source Model

Seismic source characterization consists of identifying capable seismic sources in the region and developing an understanding of the earthquakes that can occur on those sources in terms of source geometry and earthquake magnitude. The United States Geological Survey (USGS) Third Uniform California Earthquake Rupture Forecast (UCERF3; Field et al., 2014) source model was used to characterize the fault sources for the DSHA. Figure 6 shows the simplified fault traces as modeled in UCERF3. The UCERF3 source model also defines the faulting mechanism (i.e., strike-slip, reverse, reverse-oblique), dip, trace length, and seismogenic thickness of each fault. The dip and seismogenic thickness were used to calculate the downdip width of the fault. The trace length and downdip width were used to calculate the fault area. The MCE magnitude for each fault was determined by assuming that the full fault area ruptures and using the Ellsworth-B magnitude-area scaling relationship:

$$M_W = \log_{10}(A) + 4.2$$

Where A is the fault area in square kilometers (km^2) and M_W is the moment magnitude.

Epicenter locations from the Mueller (2018) earthquake catalog are also shown on Figure 6 to illustrate historical seismicity in the region. Significant historical earthquakes include the 1812 M 7.1 earthquake at an epicentral distance of 43 km, the 1927 M 7.1 earthquake at an epicentral distance of 72 km, the 1925 M 6.8 earthquake at an epicentral distance of 36 km, and the 1821 M 6.3 earthquake at an epicentral distance of 26 kilometers (km) from the TSL. Note that there is significant uncertainty associated with the magnitudes and epicenter locations for these events stemming from the lack of seismic recording stations available at the time of the earthquakes. The causative faults of the earthquakes and rupture geometries are also generally not known.

4.3 Ground Motion Models

Ground motion characterization consists of identifying ground motion models for use in the DSHA that are appropriate for estimating ground shaking based on earthquake magnitude, source-to-site distance, local site conditions, and other parameters. There is uncertainty regarding which ground motion model represents the true median of the ground motion; therefore, a logic tree is utilized to incorporate alternative models for the ground motion inputs. The NGA-West2 relationships are the latest ground motion models for active shallow crustal earthquakes occurring on the fault sources. These models are Abrahamson, Silva, and Kamai (2014), Boore et al. (2014), Campbell and Bozorgnia (2014), Chiou and Youngs (2014), and Idriss (2014). For the DSHA, the Idriss (2014) model was excluded because it does not include a hanging wall term, and the four remaining models are used with equal weight.

4.4 Site Characterization

Site characterization consists of developing an understanding of the subsurface conditions with respect to the properties that are used to describe the seismic site response in the ground motion models. In the case of the NGA-West2 ground motion models, those properties are the time averaged shear-wave velocity in the upper 30 meters (V_{S30}), the depth to a shear-wave velocity of 1.0 km/s ($Z_{1.0}$), and the depth to a shear-wave velocity of 2.5 km/s ($Z_{2.5}$). Site-specific shear-wave velocity measurements are not available at the TSL; therefore, estimates were made based on typical values for the underlying Tertiary-age bedrock. A V_{S30} value of 732 m/s was assigned to the bedrock, consistent with the V_{S30} used in the 2008 seismic hazard assessment (Geosyntec, 2008), and is based on Burger (1992). $Z_{1.0}$ and $Z_{2.5}$ parameters for the TSL are estimated as 0.051 km and 0.634 km based on the relationships in Chiou and Youngs (2013) and Campbell and Bozorgnia (2013) that estimate these values from V_{S30}.

4.5 Maximum Credible Earthquake (MCE) Response Spectrum

The deterministic scenarios for the MCE are listed on Figure 7. Magnitudes were calculated assuming full fault rupture and deterministic distances were calculated using a modified version of the computer program HAZ45 (Abrahamson, 2022). It is standard practice to check that the magnitudes considered for the MCE are not less than historical earthquakes that have occurred on those faults. We note that the causative faults and rupture geometries for the four significant earthquakes mentioned previously are generally not known, but that we do consider multiple scenarios with magnitudes larger than the largest historical magnitude (M 7.1) at distances significantly closer than the epicentral distances of the historical earthquakes.

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Distances were calculated for faults within 50 km of the TSL based on the results of the previous assessments (GLA, 2003; Geosyntec, 2008), which showed that the controlling ground motions came from faults close to the TSL. The deterministic scenarios were then sorted by closest rupture distance (R_{RUP}). Response spectra were calculated at the median (50th-percentile) ground motion level and are also shown on Figure 7. Response spectra were calculated for the top six scenarios, after which the deterministic analysis was truncated as faults further out were clearly not going to produce controlling ground motions. A separate check was performed for a M 7.9 earthquake on the San Andreas fault (repeat of the 1857 Fort Tejon event) at a closest distance of 81.5 km, which did not produce controlling ground motions at any period, confirming that the ground motions for the TSL are controlled by nearby faults. The MCE deterministic response spectrum is the envelope of the response spectra from the individual scenarios.

The Pitas Point (Lower West) deterministic scenario produces the maximum spectral acceleration at periods of 3 seconds (s) or less, while the Red Mountain deterministic scenario produces the maximum spectral acceleration at periods of 4 s or greater. Note that the Pitas Point (Lower West) fault dips at a shallow angle of 13° toward the TSL, so although the trace of the Santa Ynez (West) fault is closer, the Pitas Point (Lower West) scenario has a larger magnitude and places the TSL on the hanging wall side of the rupture, leading to higher ground motions. The MCE response spectrum has a PGA of 0.660 g associated with a M 7.25 earthquake on the Pitas Point (Lower West) Fault at a distance (R_{RUP}) of 7.56 km. The MCE response spectrum is presented in Table 2.

4.6 Maximum Probable Earthquake (MPE) Response Spectrum

The deterministic scenarios for the MPE are listed on Figure 8. The MPE assessment was limited to the six closest faults based on the MCE assessment results. Magnitudes were calculated by subtracting 0.5 magnitude units from the MCE magnitude. Because the MPE magnitude would not rupture the full fault area, a decision needs to be made as to where the rupture occurs. We assume that the rupture occurs at the closest distance from the Site to the fault, leading to R_{RUP} distances for the MPE that are the same as those for the MCE. Where there are multiple options for the location of the rupture down dip, we place the rupture in the center of the fault.

Response spectra were calculated at the median (50^{th}-percentile) ground motion level and are also shown in Figure 8. The MPE deterministic response spectrum is the envelope of the response spectra from the individual scenarios. Similar to the MCE, the Pitas Point (Lower West) and Red Mountain faults lead to the largest spectral accelerations, depending on period. The MPE response spectrum has a PGA of 0.566 g associated with a M 6.75 earthquake on the Pitas Point (Lower West) fault at a distance (R_{RUP}) of 7.56 km. The MPE response spectrum is presented in Table 3.

We again note that it is standard practice to check that the magnitudes considered for the MPE are not less than historical earthquakes that have occurred on those faults. As mentioned previously, the causative faults of the significant historical earthquakes in the area are not known. With respect to the M 6.3 and M 6.8 historical earthquakes, we considered scenarios with magnitudes larger than these events at distances significantly closer than the epicentral distances of the historical earthquakes. With respect to the M 7.1 historical earthquakes, which are thought to have occurred at epicentral distances of 43 and 72 km, we performed a sensitivity check by increasing the MPE scenario on the Los Alamos 2011 CFM fault to M 7.1 and comparing the response spectrum to the MPE response spectrum. This check produced ground motions lower than the MPE response spectrum at all periods less than 3.0 s, demonstrating that even if the historical M 7.1 earthquakes had occurred at a rupture distance of approximately 10 km, the estimated ground motions are captured by the MPE response spectrum. We also repeated the check for the M 7.9 earthquake on the San Andreas fault, which produced ground motions lower than the MPE response spectrum at all periods.

4.7 Response Spectra Comparisons

The MCE and MPE deterministic response spectra are compared with the MCE deterministic response spectrum previously developed by Geosyntec (2008) as shown in Figure 9. Figure 9a presents the comparison, which shows that the ground motions from the current study are generally higher than the MCE ground motions previously developed for the TSL. Based on a review of the seismic source model and ground motion models used in the 2008 study, the differences in the response spectra are primarily driven by differences in the seismic source characterization. In 2008, the CGS/USGS (2003) source model for California was used, while the current study uses the UCERF3 (2014) source model. There are several key differences (updates) between the two source models that are impacting the resulting response spectra. In some cases, the fault geometries have changed such that they are now capable of larger magnitude earthquakes, and in some cases the fault geometries or locations have changed such that they are closer to the TSL. Effected faults include Pitas Point (Lower West), Los Alamos extension, Red Mountain, and Los Alamos 2011 CFM. All four of these faults are now associated with MCE ground motions that exceed the 2008 MCE response spectrum. The 2008 MCE was for a M 7.1 earthquake on the Santa Ynez (West) Fault at a distance of 6.2 km. The updated MCE is for a M 7.25 earthquake on the Pitas Point (Lower West) Fault at a distance of 7.56 km. In addition to the increase in magnitude, the updated MCE is also on a reverse fault where the TSL is on the hanging wall side of the rupture, leading to higher ground motions.

The MCE and MPE deterministic response spectra from the current study were also compared with probabilistic uniform hazard spectra (UHS) at a range of return periods from the USGS 2018 National Seismic Hazard Model (NSHM) via the NSHM Hazard Tool (https://earthquake.usgs.gov/nshmp). We note that MCE and MPE response spectra were developed based on a deterministic analysis and use the probabilistic spectra for comparison purposes only. The disaggregation information from the 2018 NSHM was also used to check the

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closest rupture distances (R_{RUP}) for the deterministic scenarios, and the distances were consistent. Figure 9b presents the comparison, which shows that the MCE ground motions at a period of 1 s (relevant to the dynamic response of the landfill, as discussed below) are representative of a ground motion that has a return period of approximately 1100 years. Similarly, the MPE ground motions at a period of 1 s are representative of a ground motion that has a return period of approximately 700 years.

5. DEVELOPMENT OF GROUND MOTION TIME-HISTORIES

Ground motions are needed as input to the seismic site response analyses and are applied at the base of the waste column to represent the ground motions at the top of bedrock (V_{S30} = 732 m/s). The MCE and MPE deterministic response spectra serve as the targets for the development of ground motions. Four horizontal single component time-histories were selected and scaled to approximate the MCE target response spectrum over the period range of interest, which was identified as 0.5 s to 2.0 s; reflecting the range of periods between ± 2 times the approximate fundamental period of the waste column evaluated (i.e., 1 s). Another four time-histories were selected and scaled to approximate the MPE target response spectrum.

5.1 Criteria for Time-History Selection

Candidate time-histories were selected from the PEER NGA-West2 ground motion database (Ancheta et al., 2013) and 2019 Ridgecrest Earthquake Sequence Suite (Ahdi et al., 2019). The selection criteria used to select the candidate time-histories included a target magnitude and closest distance to the rupture (R_{RUP}). The shape of the response spectrum was also considered by selecting time-histories that, after scaling, minimized the mean squared error with respect to the target spectrum over the period range of interest (0.5 to 2.0 s). Modification of the time-histories involved scaling only, where the recorded acceleration values were multiplied by a single scale factor at each time step in the time domain. Scaling over a targeted period range is appropriate for earthen systems like landfills, whose response is dominated by their first mode (i.e., at the fundamental response period of the sliding mass). In addition to magnitude, distance, and pseudo-spectral acceleration (through the target spectrum), we also developed target ground motion parameters for Arias Intensity, peak ground velocity (PGV), and significant duration.

Arias Intensity is a ground motion parameter that is calculated as the integral of the square of the acceleration time-history. PGV is the maximum value of the velocity time-history, which is obtained by integrating the acceleration time-history. Significant duration is defined as the time interval between two thresholds of the Arias Intensity (typically either 5% to 75% or 5% to 95%). These ground motion parameters are included in the selection criteria because they have been shown to correlate well with seismic slope stability (Travasarou et al., 2003; Bray and Macedo, 2019). For each ground motion parameter, a median value and ± one standard deviation range was estimated. Target Arias Intensity was estimated from Abrahamson, Shi, and Yang (2016), target PGV was estimated from Abrahamson and Bhasin (2020) and target significant durations ($D_{5\text{-}75\%}$ and $D_{5\text{-}95\%}$) were estimated from Kempton and Stewart (2006). These relationships are appropriate for the tectonic environment at the TSL, which is categorized as a shallow active crustal region.

5.2 MCE Ground Motion Time-Histories

Four time-histories representing the M 7.25 earthquake on the Pitas Point (Lower West) Fault were selected based on the selection criteria described above and scaled to the MCE deterministic target spectrum. A preference for ground motions recorded in California was also considered in the final selection process, and two of the four time-histories come from California events. Figure 10 summarizes the target ground motion parameters and properties of the final scaled time-histories for the MCE.

The summarizing table in Figure 10 shows that the magnitudes and distances of the selected records are similar to the target (M 7.25, R_{RUP} 7.56 km). The secondary ground motion parameters of Arias Intensity, PGV, $D_{5\text{-}75\%}$, and $D_{5\text{-}95\%}$ were computed for the scaled time-histories and are consistent with the target ranges. This is demonstrated through plots on Figure 10 showing the Arias Intensity, PGV, $D_{5\text{-}75\%}$, and $D_{5\text{-}95\%}$ of the individual scaled ground motions compared to the target median and range. Figure 11 presents the response spectra for the four scaled time-histories along with the geometric mean response spectrum from the suite and target spectrum for comparison. The geometric mean response spectrum exhibits a good match of the target spectrum over the period range of interest (0.5 to 2.0 s).

5.3 MPE Ground Motion Time-Histories

Four time-histories representing the M 6.75 earthquake on the Pitas Point (Lower West) Fault were selected based on the selection criteria described above and scaled to the MPE deterministic target spectrum. Similar to the MCE, a preference for ground motions recorded in California was considered in the final selection process, and two of the four time-histories come from California events. Figure 12 summarizes the target ground motion parameters and properties of the final scaled time-histories for the MPE.

The summarizing table in Figure 12 shows that the magnitudes and distances of the selected records are similar to the target (M 6.75, R_{RUP} 7.56 km). The secondary ground motion parameters of Arias Intensity, PGV, $D_{5\text{-}75\%}$, and $D_{5\text{-}95\%}$ are also consistent with the target ranges, as shown on Figure 12. Figure 13 presents the response spectra for the four scaled time-histories along with the geometric mean response spectrum from the suite and target spectrum for comparison. The geometric mean response spectrum exhibits a good match of the target spectrum over the period range of interest (0.5 to 2.0 s).

6. STATIC AND PSEUDOSTATIC STABILITY ANALYSES

6.1 Introduction

The slope stability analysis results are typically presented in terms of a FoS defined as the ratio of the total stabilizing forces/moments along an assumed sliding plane divided by the total sum of internal and external driving forces/moments acting on the sliding mass. The seismic stability was evaluated based upon pseudostatically estimated yield coefficients and site-specific seismic deformation charts developed based on results of the site response and Newmark-based displacement analyses discussed further in Section 7.2.

The cut slopes and final waste slopes for the proposed Project were evaluated for stability under both static and pseudostatic loading conditions. Upon review of the waste fill plan, Geosyntec noted that because of the nonuniform 3-D shape and the high height-to-width ratio of the waste mass, the "plane-stress" assumption made in 2-D analyses is not representative of the proposed waste slopes. Therefore, Geosyntec performed 3-D slope stability analysis of the waste mass. The following sections describe the methods utilized, shear strength parameters used, the results of 2-D excavation stability and 3-D waste mass analyses.

6.2 Method of Analysis

The 2-D slope stability analysis of the cut slopes for the proposed Project were performed under both static and pseudostatic loading conditions using the computer program SLOPE/W software version 9.0.5.16316 (GeoStudio, 2018). The 3-D slope stability analyses of the final waste slopes were performed using computer program SVSlope 3-D version 5.4.08 (Soilvision, 2018). The analyses were performed using the Morgenstern and Price (1965) method.

6.3 Representative Cross Sections

Slope stability analyses were performed on two major directions for the waste mass. Section A-A' represents the potential sliding masses perpendicular to the westerly facing waste fill slopes and Section B-B' represents the potential sliding masses perpendicular to the northerly facing waste fill slopes. Slope stability analyses were performed on two representative cross sections for the cut slopes. Section C'-C' and D-D' were evaluated for cut slope stability representing steepest inclination and highest cut slopes facing south and west, respectively. The locations of these cross sections are presented on the base grading plan (Figure 3) and the final waste fill plan (Figure 4).

6.4 Material Properties

6.4.1 Composite Liner Systems

As discussed in Section 1, The existing composite liner systems used at TSL consists of GM over CCL and GM over GCL. The proposed base composite liner system for Phase IV is GM over CCL for the floor and GM over GCL for the sideslopes as shown in Figure 3. Residual shear strength parameters are used for the composite liner systems over the sideslopes. Two sets of analyses are performed using residual or peak shear strength parameters for the composite liner systems over the floors. The conformance testing results for the prior phases for residual and peak strengths are plotted in Figure 14 and Figure 15 for GM over CCL on floor, respectively. The residual strength results are plotted in Figure 16 for GM over CCL on sideslopes, and in Figure 17 for GM over GCL on sideslopes. Also plotted on these figures are the shear strength envelopes used in prior analyses performed in 2008 and 2012. The same shear strength envelopes used in prior analyses are used in this evaluation, except for Phases IIC and IIIA where the conformance testing results for GM over CCL yielded slightly lower shear strength at some test normal loads. For these two phases, respective conformance test results are used as the liner shear strength parameters in our analyses. Peak strength parameters for composite liner system on the floor were not used in previous analyses. A summary of the parameters used in the analyses herein is presented in Table 4.

6.4.2 Municipal Solid Waste

The previous analyses performed at the TSL used Municipal Solid Waste (MSW) shear strength parameters in accordance with Kavazanjian et al. (1995). Geosyntec used a more recent shear strength model for MSW in this evaluation based on Bray et al (2009). The normal stress dependent shear strength values based on Bray et al. (2009) is shown in Figure 18.

6.4.3 Sespe Alegria Formation

The stability of the proposed cut slopes depends on the along-bedding and cross-bedding shear strength and the bedding plane orientation of the Sespe-Alegria formation. The shear strength parameters of the formation used in previous analyses are used in this evaluation and summarized in Table 4. A detailed discussion of development of Sespe Alegria formation material properties is provided in Geosyntec (2008). As discussed in Section 3, the measured bedding dips typically range between 62 and 84 degrees to the south. The south dipping beds play a role in slope stability only for the south facing cut slope which is evaluated by Section D-D’ and does not play a role for the west facing cut slope evaluated by Section C-C’. Therefore, the along-bedding strength and bed orientation was modeled with an anisotropic shear strength model for Section D-D’. In this model, the slices within the model with base inclination falling between 62 and 84 degrees are modeled with along-bedding strength and other slices are modeled with cross-bedding strength parameters. For Section C-C’ the entire formation is modeled with the cross-bedding parameters.

6.4.4 Engineered Fill

As mentioned in Section 6.1, a toe buttress stability berm will be built over the waste on the west side of the landfill along the Pila Creek Channel. Geosyntec used shear strength parameter for engineered fill material as summarized in Table 4.

6.5 2-D Cut Slope Stability Analysis Results

The computed static FoS representing the cut slopes for Sections C-C’ and D-D’ are 1.74 and 2.04, respectively and satisfy the minimum FoS criteria. The yield coefficient (k_y) for each critical sliding mass were estimated from the pseudostatic stability analyses. The k_y is defined as the horizontal acceleration coefficient resulting in a FoS of 1.0 and is the acceleration threshold value beyond which permanent displacement would occur. The results of the pseudostatic stability analysis are summarized in Table 5 and the SLOPE/W output figures are provided in Attachment A. Results of the 2-D analyses indicate that the minimum yield coefficient for the proposed cut slopes range between 0.24 and 0.37. The resulting yield coefficients were utilized in the seismic displacement analyses as discussed in Section 7.2. A summary of the computed 2-D static FoS and ky values for the representative cross sections is provided in Table 5 and the SLOPE/W output figures are provided in Attachment A.

6.6 3-D Waste Fill Slope Stability Analysis Results

The computed static FoS for Section A-A’ representing the southwesterly facing final waste fill slopes using residual and peak shear strength parameters for the composite liner system on the floor is 1.50 and 1.88, respectively. The computed static FoS for Section B-B’ representing the northwesterly facing final waste slopes using residual and peak shear strength parameters for the composite liner system on the floor is 1.53 and 1.84, respectively. The computed k_y values for Section A-A’ using residual and peak shear strength parameters for the composite liner system on the floor is 0.12 and 0.23, respectively. The computed k_y values for Section B-B’ using residual and peak shear strength parameters for the composite liner system on the floor is 0.11 and 0.20, respectively. A summary of the computed 3-D static FoS and k_y values for the final waste slopes is provided in Table 5 and the SVSlope output figures are provided in Attachment B.

6.7 Stability of Toe Buttress Stabilization Berm

A permit level stability of the proposed toe buttress stabilization berm was performed and documented in this report. Further detailed local stability analysis will be performed during the final design phase of the project once the detail construction level design is available. As part of construction level detail design, the effects of potential inundation at the toe of the berm will be evaluated. Geosyntec understands the estimated inundation elevation is approximately 393.4 ft as provided in Hydrology and Hydraulic Analysis report prepared by HDR (2023). The elevation of

393.4 ft is below the elevation of the proposed toe buttress stabilization berm over which the buttressing effect is developed. Therefore, the potential inundation level described by HDR is not anticipated to have direct impact on the global stability of the waste mass. Additionally, HDR (2023) states "*It should be noted that the proposed Ultimate Condition water surface of 393.4 is 2.5 feet above the Existing Condition water surface elevation of 390.9 (HDR, 2017b). However, water in the PCIA at this level would be infrequent and for a duration on the order of a few hours.*" Because the inundation period is relatively short, it is not anticipated that the proposed toe buttress stabilization berm will become saturated and/or a sudden drawdown condition occur. Nevertheless, the outer face of the lower part of the stabilization berm which may be exposed to potential brief inundation will be assessed for slope facing as part of the final construction design.

7. SITE RESPONSE AND DISPLACEMENT ANALYSES

One-dimensional non-linear site response analyses were performed to evaluate the dynamic response and expected performance of the landfill to the earthquake ground motions developed in Section 5. The results of the analyses were used to estimate the accumulated shear-induced permanent displacement of the landfill.

7.1 Site Response Analysis

One-dimensional non-linear site response analysis of the representative waste fill profile was conducted using the computer program DEEPSOIL (Hashash, et al. 2020). The dynamic response analyses were performed for three profiles, representative of waste thicknesses of 110, 190, and 260 ft. These waste thicknesses were selected based on review of the critical slip surfaces in the 3-D pseudostatic stability analysis. The liner was omitted from the analysis as the thickness of this layer is insignificant. The waste layer in the profiles was discretized such that the maximum transmitted frequency exceeded 30 Hz in each sublayer. The underlying bedrock was modeled as elastic and ground motions were applied on top of bedrock as outcrop motions.

The properties required for the site response analysis models include unit weight, shear wave velocity, and relationships describing the shear modulus reduction and material damping behavior. The shear wave velocity profile of the waste was developed using the relationship proposed by Ramaiah et al. (2016). A shear wave velocity of 2,400 ft/sec (732 m/s) was used for the bedrock consistent with what was assumed in the ground motion development and previous analyses as discussed in Section 5.

The stiffness and damping behavior of MSW was modeled in DEEPSOIL using the non-linear hysteretic constitutive model proposed by Matasovic and Vucetic (1993) with non-Masing Unload/Reload behavior. The constitutive model was calibrated using the shear modulus reduction and material damping curves proposed by Zekkos et al. (2008) for MSW.

Site response analyses were performed for each of the four ground motion time histories selected based on MPE and MCE seismic hazard analyses in Section 5 for the three profiles described above. The comparison of spectral accelerations of each input motion to the spectral accelerations at the top of the waste fill profiles are provided in Attachment C. The normalized shear stress time history at the base liner level was extracted from the bottom of the waste column for use in the permanent displacement analyses of waste on liner system (EPA, 1995).

7.2 <u>Displacement Analysis</u>

Maximum seismically induced permanent displacements of the waste-fill-landfill liner system were evaluated for a range of yield coefficients for MPE and MCE ground motion levels using Newmark-type (Newmark, 1965) sliding block analysis as implemented in the USGS software SLAMMER (Seismic Landslide Movement Modeled using Earthquake Records) developed by Jibson et al. (2013). As discussed in U.S. EPA (1995), the appropriate input time history to a Newmark-type analysis from a one-dimensional dynamic analysis is either the average acceleration of the sliding mass or the normalized shear stress at the interface. Permanent liner displacements were computed using the normalized shear stress time history in the displacement analyses. Displacements for cut slopes in bedrock were calculated using the actual outcropping ground motion time histories selected and scaled per Section 5. In a Newmark-type sliding block analysis, displacements are calculated by integrating the displacements for the instances when the normalized shear stress exceeds the yield coefficient. Permanent displacements were calculated for the standard and reverse polarity of each normalized shear stress time history; the maximum of each polarity was selected for the limited number of ground motions considered in the analysis.

The maximum permanent liner displacements of the 110, 190, and 260 ft profiles and the cut slopes for the input ground motion time histories selected and scaled based on the MPE and MCE ground motion levels are provided in Attachment E. The maximum permanent displacement of the waste profiles and cut slopes for a range of k_y values are summarized in Figures 19 and 20, respectively.

Based on the 3-D analysis of the proposed waste slopes, the estimated maximum permanent liner displacements for Section A-A' are less than 1 inch and approximately 3 inches for MPE and MCE ground motions, respectively using residual shear strength parameters for the floor liner system. The estimated maximum permanent liner displacements for Section A-A' are less than 1 inch for both MPE and MCE ground motions using peak shear strength parameters for the floor liner system. The 3-D permanent liner displacements for Section B-B' are 2 inches and 5 inches for MPE and MCE ground motions, respectively, using residual strength parameters for the floor liner system. The estimated maximum permanent liner displacements for Section B-B' are less than 1 inch for both MPE and MCE ground motions using peak shear strength parameters for the floor liner system.

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Based on the 2-D analysis of the proposed cut slopes, the estimated maximum slope displacements for Section C-C' are 1 inch and 2 inches for MPE and MCE ground motions, respectively. The permanent slope displacements for Section D-D' are less than 1 inches for both MPE and MCE ground motions. The maximum permanent displacements are summarized in Table 5.

8. ASSESSMENT OF PROJECT ALTERNATIVES OPTION 2 AND 3

As introduced in Section 1, SWT evaluated five options (Options 1 through 5) for the Project and RRWMD selected Option 5. As requested by RRWMD, a qualitative commentary regarding the potential impact of Options 2 and 3 to the slope stability of the Project is provided herein. Option 5, for which the stability evaluation is presented herein, consists of horizontal expansion to the north and east and vertical increase to a maximum elevation of 650 ft. Option 2 consist of only vertical increase to a maximum elevation of 655 ft without any horizontal expansion. Option 3 consists of horizontal expansion to the North but not impacting previously undisturbed areas and vertical increase to a maximum elevation of 620 ft. Based on our analyses presented herein, we anticipate the evaluation and the findings regarding the stability of the landfill for Options 2 and 3 would be similar to Option 5. While Options 2 and 3 are more limited in the increased airspace compared to Option 5, both of these options consist of substantial increase in waste height. Therefore, a toe buttress stability berm similar in size to or smaller than what is proposed on the west side of the landfill for Option 5 would likely be needed for Options 2 and 3 as well. Additionally, Options 2 and 3 may also require a toe buttress stability berm on the north side of the landfill which is not needed for Option 5.

9. CUMULATIVE IMPACTS

At the time of the preparation of this report, the only relatively large project at the TSL is the proposed Renewable Natural Gas project (RNGP) located to the south of the existing Resource Center Material Recovery Facility. The nearest component of the RNGP to the Project is approximately 500 feet to the southwest of the Project. Because the RNGP is located at a distance from the Project and involves limited earth work associated with its construction, it is not anticipated that the RNGP would pose slope stability or geohazard cumulative impacts to the Capacity Increase Project.

10. CONCLUSIONS

Geosyntec evaluated the stability of proposed cut slopes and waste slopes proposed by SWT in their 27 January 2023 memorandum for the Capacity Increase Project. The static and seismic stability criteria established herein is based on Title 27 of CCR and current standard of practice. The minimum acceptable FoS under static conditions is 1.5 and the FoS calculated is 1.50. The maximum acceptable permanent seismic displacement during an MPE and an MCE event are six

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inches and 12 inches, respectively. The calculated maximum displacement during and MPE and MCE event are 2 and 5 inches, respectively. The results of the stability evaluations documented herein indicate that the proposed grading and waste fill plans meet the established static and seismic stability criteria.

11. LIMITATIONS

The professional opinions and recommendations expressed in this report are made in accordance with the generally accepted standards of practice. This warranty is in lieu of any other warranty, either expressed or implied. We are responsible for the conclusions and recommendations contained in this report based on the data relating only to the specific project and location discussed herein. We are not responsible for the accuracy of the data produced by others and relied upon in the generation of this report. We are not responsible for the use of the information contained in this report for purposes other than those expressly stated in this report.

12. CLOSING

We appreciate the opportunity to continue our service to the Santa Barbara County Public Works Resource Recovery and Waste Management Division. If you have any questions regarding this report or require any additional information, please do not hesitate to contact either of the undersigned at (714) 969-0800.

Sincerely,

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14. ATTACHMENTS

Table 1: Liner System Configurations
Table 2: MCE Deterministic Response Spectrum
Table 3: MPE Deterministic Response Spectrum
Table 4: Summary of Shear Strength Parameters Used in Slope Stability Analyses
Table 5: Summary of Slope Stability and Seismic Displacement Analyses

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Figure 18: MSW Shear Strength
Figure 19: Maximum Permanent Displacement Waste Slopes
Figure 20: Maximum Permanent Displacement Cut Slopes

Attachment A: 2-D Cut Slope Stability Analysis
Attachment B: 3-D Waste Fill Slope Stability Analysis
Attachment C: Site Response Analysis
Attachment D: Permanent Displacement Analysis

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TABLES

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Table 1
Liner System Configurations
Tajiguas Sanitary Landfill
Santa Barbara County, California

Composite Liner System	Configuration (components from top to bottom)
Floor GM/CCL	• 2-ft Protective Soil Cover • 8 oz/yd^2 Geotextile • 9 to 12-in. Gravel (LCRS) • 12 oz/yd^2 Geotextile • 60-mil HDPE Geomembrane (double textured) • 2-ft Compacted Clay Liner (CCL) • HDPE Drainage Geocomposite (as needed) • Prepared Subgrade
Sideslope GM/CCL	• 2-ft Protective Soil Cover • 16 oz/yd^2 Geotextile • 60-mil HDPE Geomembrane (double textured) • 2-ft Compacted Clay Liner (CCL) • HDPE Drainage Geocomposite (as needed) • Prepared Subgrade
Sideslope GM/GCL	• 2-ft Protective Soil Cover • 16 oz/yd^2 Geotextile • 60-mil HDPE Geomembrane (double textured) • Geosynthetic Clay Liner (GCL) • HDPE Drainage Geocomposite (as needed) • Prepared Subgrade

Notes:
1. Refer to Figure 3 for existing and proposed liner configurations.

Table 2
MCE Deterministic Response Spectrum
Tajiguas Sanitary Landfill
Santa Barbara County, California

Period (s)	Horizontal Pseudo-Spectral Acceleration (g)	Controlling Source
0.01	0.660	Pitas Point (Lower West)
0.02	0.679	Pitas Point (Lower West)
0.03	0.747	Pitas Point (Lower West)
0.05	0.946	Pitas Point (Lower West)
0.075	1.194	Pitas Point (Lower West)
0.15	1.544	Pitas Point (Lower West)
0.2	1.530	Pitas Point (Lower West)
0.25	1.394	Pitas Point (Lower West)
0.3	1.265	Pitas Point (Lower West)
0.4	1.055	Pitas Point (Lower West)
0.5	0.879	Pitas Point (Lower West)
1	0.430	Pitas Point (Lower West)
1.5	0.252	Pitas Point (Lower West)
2	0.167	Pitas Point (Lower West)
3	0.087	Pitas Point (Lower West)
4	0.057	Red Mountain
5	0.042	Red Mountain
7.5	0.022	Red Mountain
10	0.014	Red Mountain

Table 3
MPE Deterministic Response Spectrum
Tajiguas Sanitary Landfill
Santa Barbara County, California

Period (s)	Horizontal Pseudo-Spectral Acceleration (g)	Controlling Source
0.01	0.566	Pitas Point (Lower West)
0.02	0.582	Pitas Point (Lower West)
0.03	0.642	Pitas Point (Lower West)
0.05	0.816	Pitas Point (Lower West)
0.075	1.032	Pitas Point (Lower West)
0.15	1.338	Pitas Point (Lower West)
0.2	1.316	Pitas Point (Lower West)
0.25	1.192	Pitas Point (Lower West)
0.3	1.071	Pitas Point (Lower West)
0.4	0.875	Pitas Point (Lower West)
0.5	0.716	Pitas Point (Lower West)
1	0.328	Pitas Point (Lower West)
1.5	0.184	Pitas Point (Lower West)
2	0.120	Pitas Point (Lower West)
3	0.059	Pitas Point (Lower West)
4	0.037	Red Mountain
5	0.026	Red Mountain
7.5	0.013	Red Mountain
10	0.008	Red Mountain

Table 4
Summary of Shear Strength Parameters Used in Slope Stability Analyses
Tajiguas Sanitary Landfill
Santa Barbara County, California

Material Description	Peak/Residual	Model	Condition	Friction Angle (deg.)	Cohesion (psf)	Total Unit Weight (pcf)
Sespe–Alegria Formation[1]	Peak	Mohr-Coulomb	Cross Bedding	30	600	140
			Along Bedding	14	350	
Floor GM/CCL	Residual[2]	Bilinear	σ <4320 psf	15.9	0	110
			σ >4320 psf	10.9	-	
	Peak[3]	Bilinear	σ <10800 psf	25.1	0	
			σ >10800 psf	14.6	-	
Sideslope GM/CCL[4]	Residual	Bilinear	σ <4320 psf	15.9	0	110
			σ >4320 psf	9.0	-	
Sideslope GM/GCL[4]	Residual	Bilinear	σ <4320 psf	10.0	0	110
			σ >4320 psf	9.3	-	
MSW[5]	Peak	Bray et al. (2009)	-	-	-	85

Notes:
1. Based upon laboratory testing presented by EMCON (1994).
2. Established shear strength envelope in prior studies. Specific shear strength properties were used for Phases IIC and IIIA. Refer to Figure 14.
3. Established shear strength envelop based on interface shear strength test results. Refer to Figure 15.
4. Established shear strength envelope in prior studies.
5. Refer to Figure 18 for data points used in the model.

Table 5
Summary of Slope Stability and Seismic Displacement Analyses
Tajiguas Sanitary Landfill
Santa Barbara County, California

Cross-section	Description	Static Factor of Safety (1)	Yield Coefficient	Height of Sliding Mass (ft)	MPE Seismic Displacement (in) (2)	MCE Seismic Displacement (in) (3)
2-D with Proposed Grades in 11 October 2022 Memorandum						
C-C'	Temporary Cut	1.74	0.24	-	~1	~2
D-D'	Temporary Cut	2.04	0.37	-	< 1	< 1
3-D with Proposed Grades in 18 January 2023 Memorandum						
Residual Floor GM/CCL Strength						
A-A'	Waste Slope	1.50	0.12	205	< 1	~3
B-B'	Waste Slope	1.53	0.11	140	~2	~5
Peak Floor GM/CCL Strength						
A-A'	Waste Slope	1.88	0.23	185	< 1	< 1
B-B'	Waste Slope	1.84	0.20	180	< 1	< 1

Notes:
1. Minimum Static Factor of Safety criterion = 1.50
2. MPE Maximum permanent seicmic displacement criterion = 6 inches
3. MCE Maximum permanent seicmic displacement criterion = 12 inches

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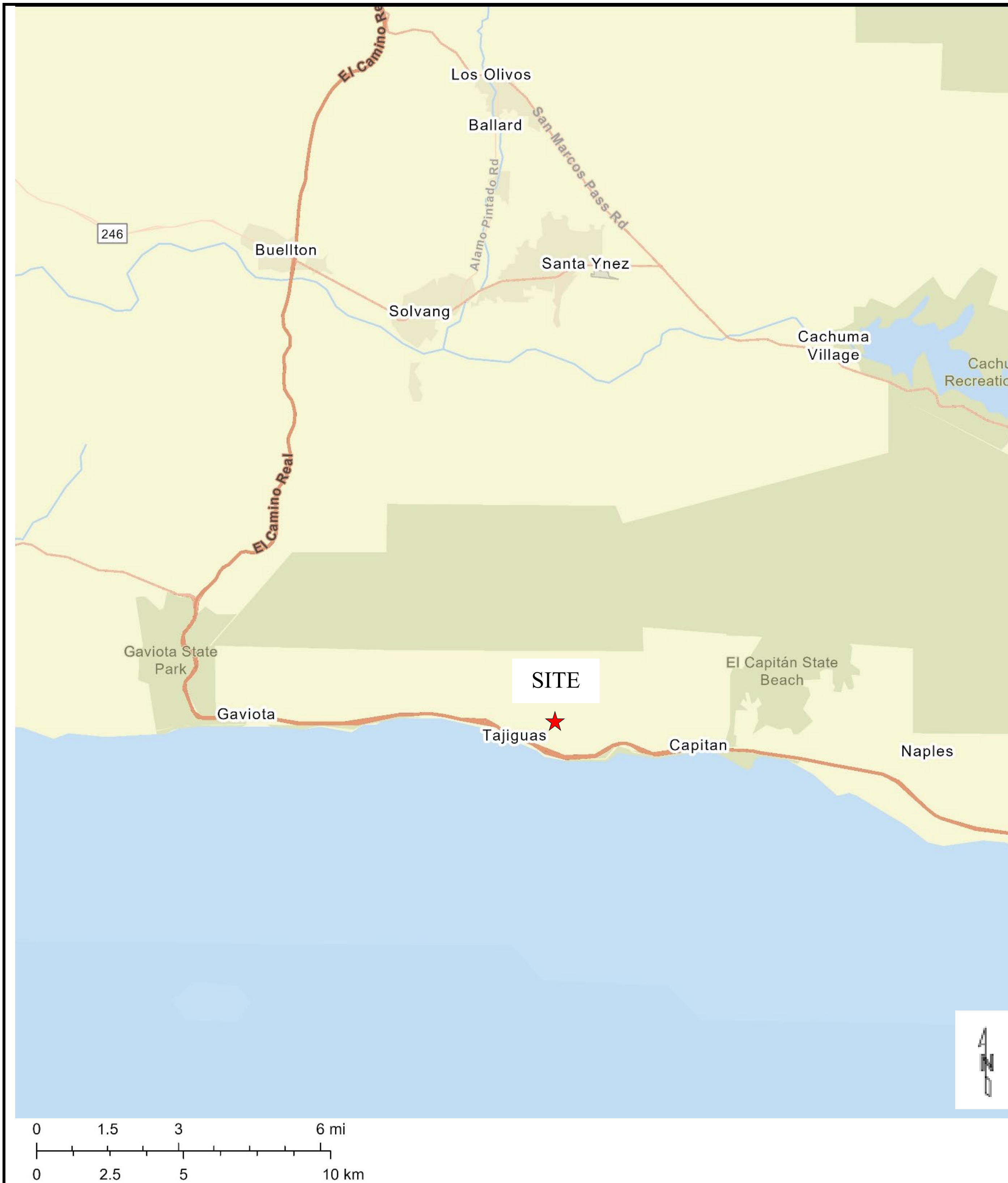
FIGURES



California State Parks, Esri, HERE, Garmin, SafeGraph, METI/NASA, USGS, Bureau of Land Management, EPA, NPS, USDA

SITE LOCATION MAP
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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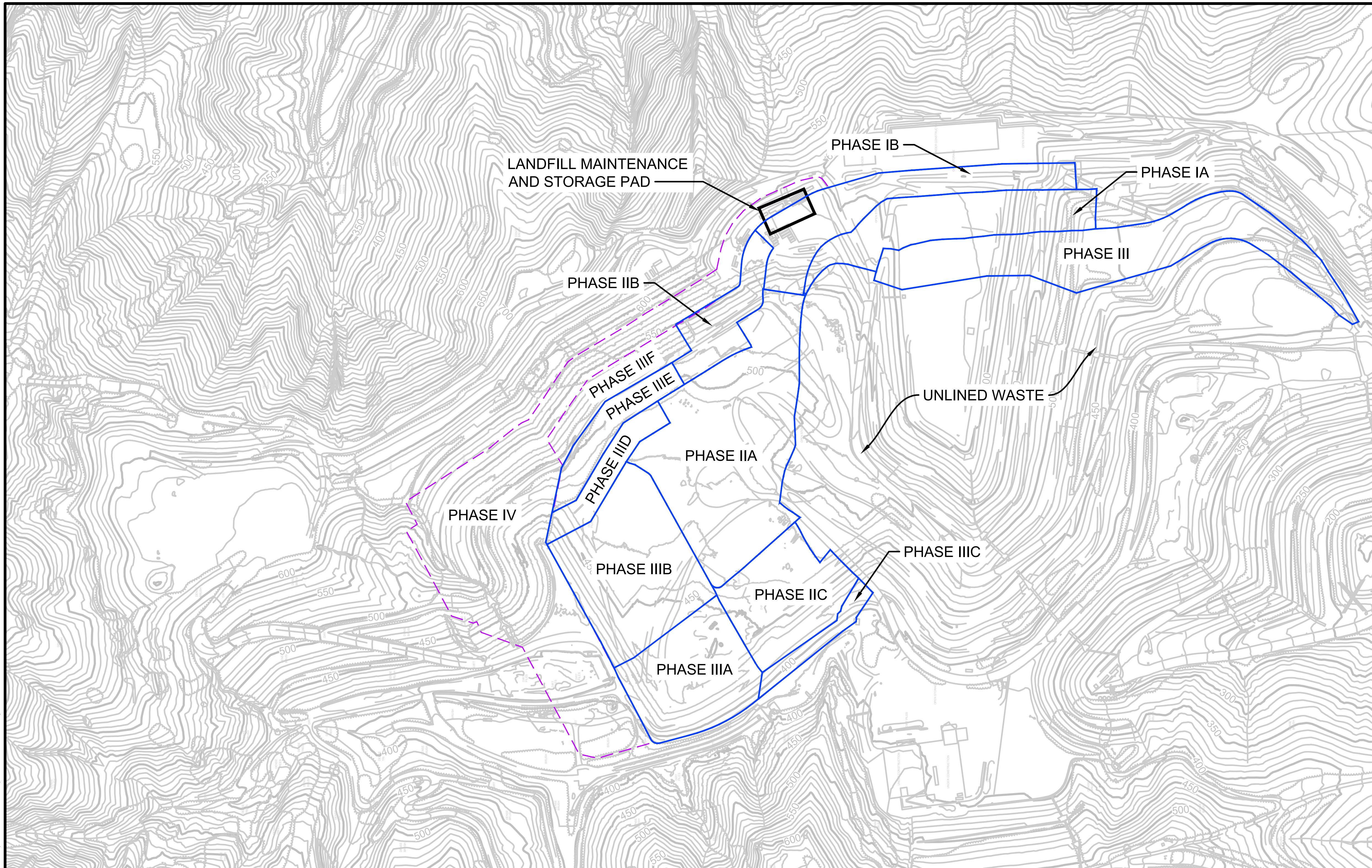
PROJECT NO: SC1308 | MARCH 2023

FIGURE 1

Figure 1 - Site Location



LEGEND

480 — EXISTING TOPOGRAPHY (2019 AND 2022)

EXISTING PHASE LIMITS

PROPOSED PHASE LIMITS

NOTE:
1. EXISTING TOPOGRAPHY SURVEY TAKEN IN SEPTEMBER 2019 AND UPDATED IN APRIL 2022.

N

0 400
SCALE IN FEET

SITE LAYOUT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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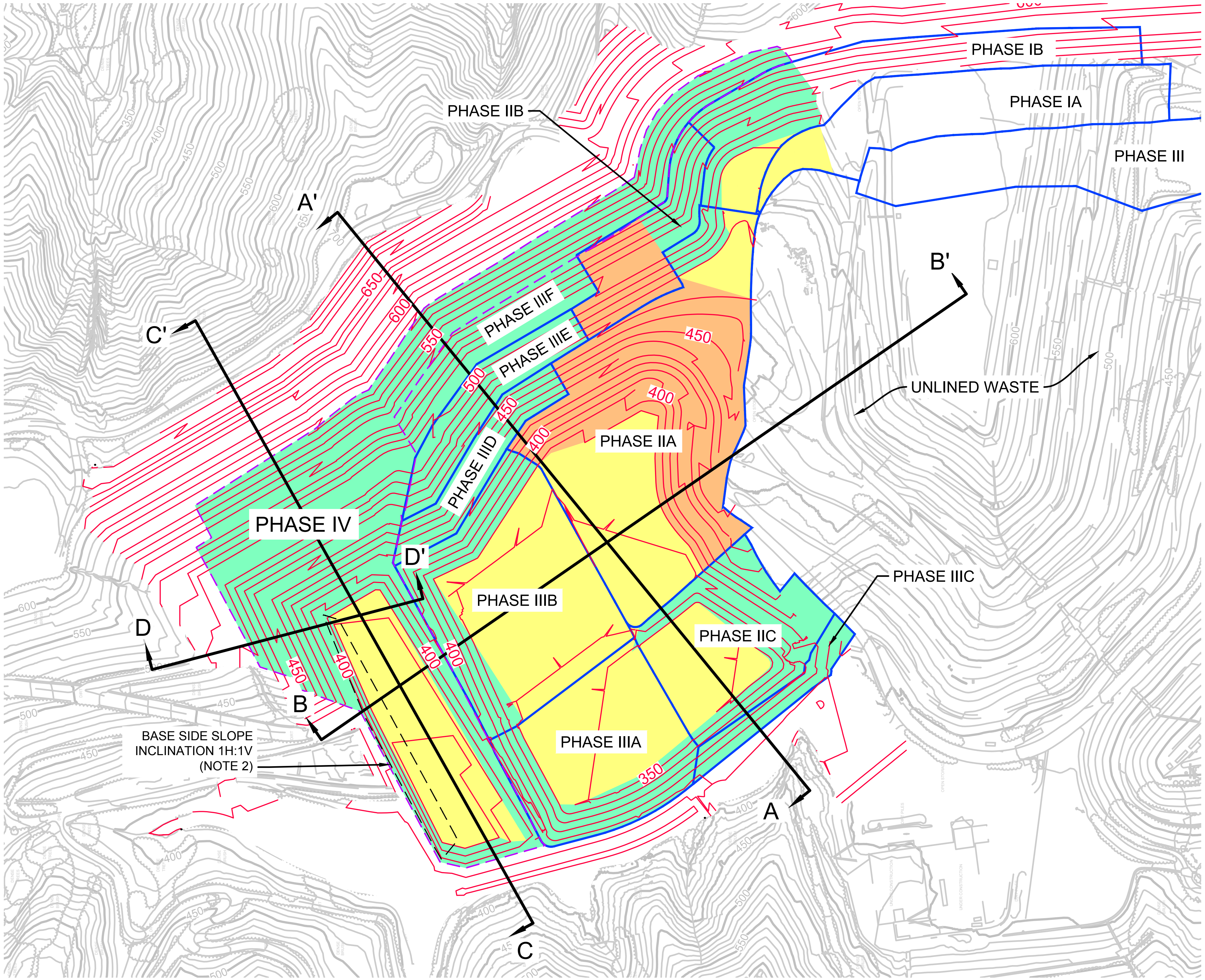
FIGURE 2

PROJECT NO: SC1308 | MARCH 2023

C:_GEOPWDS01\DMS12650\SC1308.01-F002 (SITE LAYOUT) - Last Saved by: KViswanathan on 3/17/23

S:\SANTA BARBARA (COUNTY)\SC1308 - TAJIGUAS LANDFILL\CADD\01 - GEOLOGIC INVESTIGATION\FIGURES\SC1308.01-F001 (SITE PLAN)



LEGEND

480	EXISTING TOPOGRAPHY (2019 AND 2022)
	EXISTING PHASE LIMITS
	PROPOSED PHASE LIMITS
600	EXCAVATION GRADES FROM MASTER PLAN
	60-MIL HDPE OVER CCL (BASE)
	60-MIL HDPE OVER CCL (SLOPE)
	60-MIL HDPE OVER GCL (SLOPE)
D D'	CROSS-SECTIONS

NOTE:
1. EXISTING TOPOGRAPHY SURVEY TAKEN IN SEPTEMBER 2019 AND UPDATED IN APRIL 2022.
2. TYPICAL BASE SIDE SLOPE INCLINATION IS 2H:1V.

N

0 300
SCALE IN FEET

BASE GRADING AND LINER CONFIGURATION PLAN
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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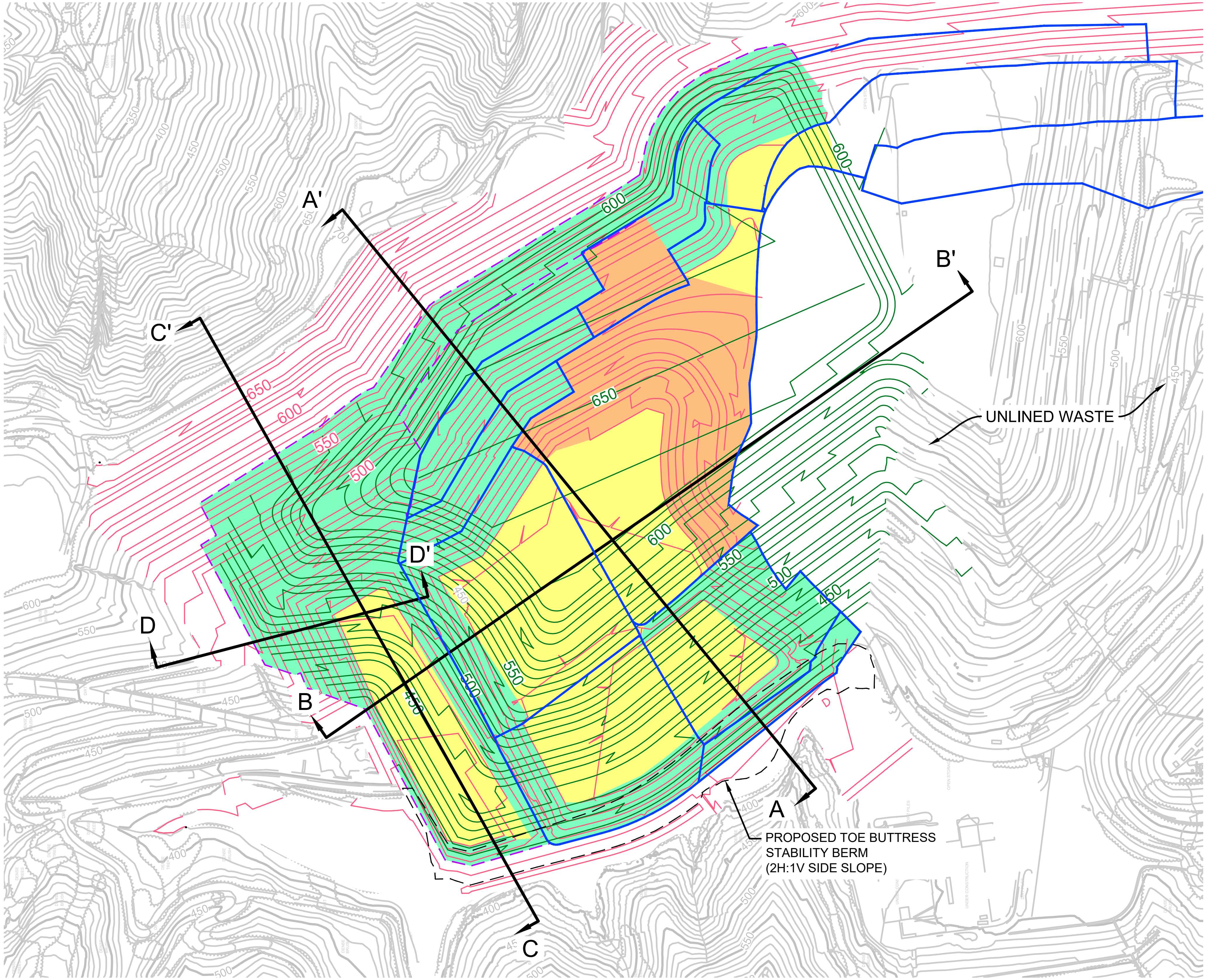
FIGURE 3

PROJECT NO: SC1308 | MARCH 2023

C:_GEOPWDS01\DMS12650\SC1308.01-F003 (BASE GRADING AND LINER CONFIGURATION PLAN) - Last Saved by: KViswanathan on 3/10/23

S:\SANTA BARBARA (COUNTY)\SC1308 - TAJIGUAS LANDFILL\CADD\01 - GEOLOGIC INVESTIGATION\FIGURES\SC1308.01-F001 (SITE PLAN)



LEGEND

480	EXISTING TOPOGRAPHY (2019 AND 2022)
	EXISTING PHASE LIMITS
	PROPOSED PHASE LIMITS
600	EXCAVATION GRADES FROM MASTER PLAN
600	FINAL WASTE COVER GRADES FROM MASTER PLAN
	60-MIL HDPE OVER CCL (BASE)
	60-MIL HDPE OVER CCL (SLOPE)
	60-MIL HDPE OVER GCL (SLOPE)
D D'	CROSS-SECTIONS

NOTE:

1. EXISTING TOPOGRAPHY SURVEY TAKEN IN SEPTEMBER 2019 AND UPDATED IN APRIL 2022.
2. FINAL WASTE FILL GRADES SHOWN ARE FOR TOP OF FINAL COVER.

N

0 300

SCALE IN FEET

FINAL WASTE FILL PLAN
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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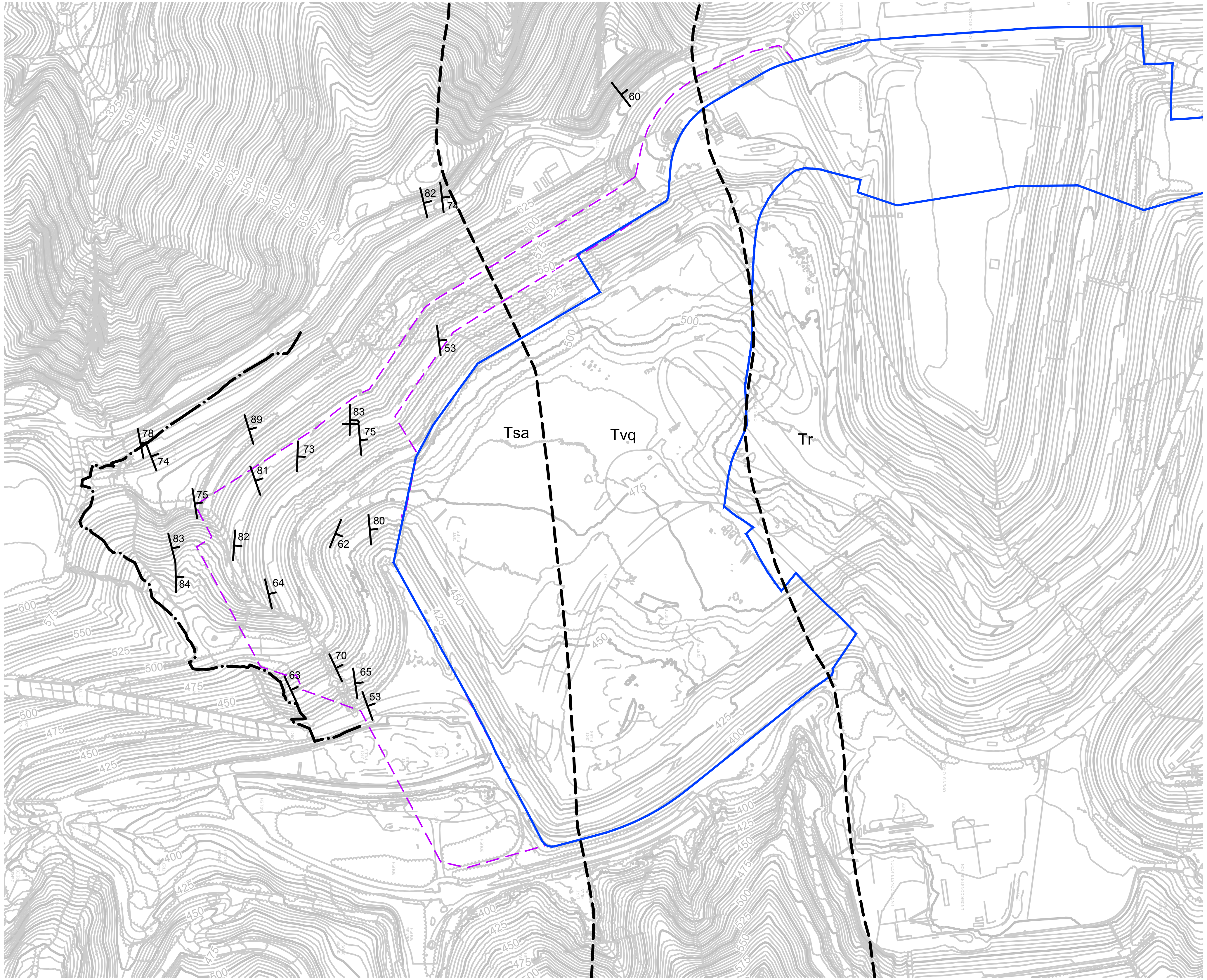
FIGURE 4

PROJECT NO: SC1308 | MARCH 2023

C:_GEOPWDS01\DMS12650\SC1308.01-F004-AND 6-10 (FINAL WASTE FILL PLAN) - Last Saved by: KViswanathan on 3/14/23

S\SANTA BARBARA (COUNTY)\SC1308 - TAJIGUAS LANDFILL\CADD\01 - GEOLOGIC INVESTIGATION\FIGURES\SC1308.01-F001 (SITE PLAN)



LEGEND

- EXISTING TOPOGRAPHY (2019 AND 2022)
- EXISTING PHASE LIMITS
- PROPOSED PHASE LIMITS
- GEOLOGIC CONTACT (APPROXIMATE)
- LIMIT OF PROPOSED EXCAVATION (PHASE IV)
- STRIKE DIP
- OVERTURNED BEDDING

GEOLOGIC UNITS

Tsa	SESPE AND ALEGRIA FORMATION
Tvq	VAQUEROS SANDSTONE
Tr	RINCON SHALE

NOTE:

1. STRIKE AND DIP OBSERVATIONS MADE ON 10/19/2022 AND OCTOBER 2008.
2. EXISTING TOPOGRAPHY SURVEY TAKEN IN SEPTEMBER 2019 AND UPDATED IN APRIL 2022.

N

0 300
SCALE IN FEET

LOCAL GEOLOGIC MAP
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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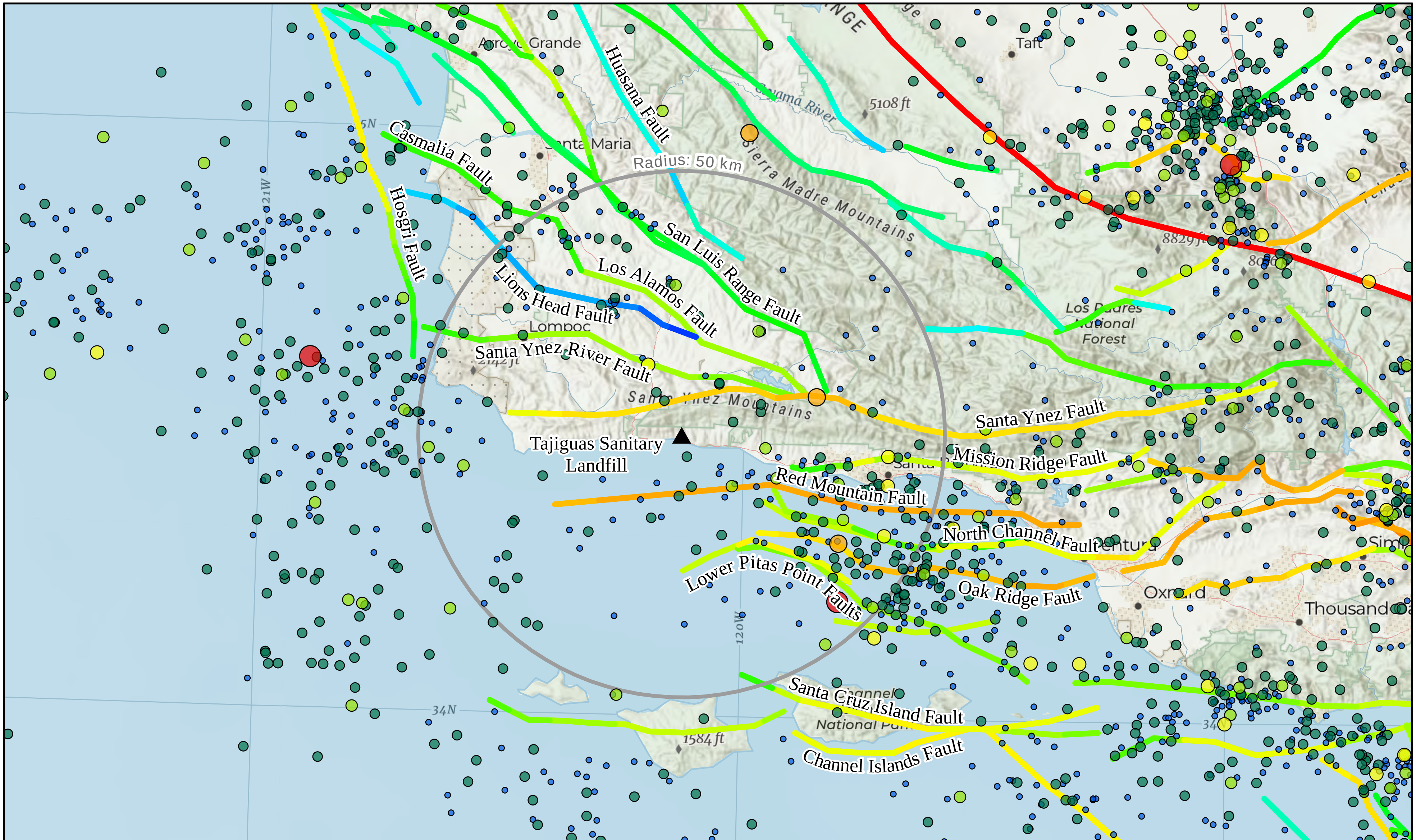
FIGURE 5

PROJECT NO: SC1308 | MARCH 2023

C:_GEOPWDS01\DMS12650\SC1308.01-F005 (GEOLOGIC ATTITUDE MEASUREMENT) - Last Saved by: KViswanathan on 3/10/23

S:\SANTA BARBARA (COUNTY)\SC1308 - TAJIGUAS LANDFILL\CADD\01 - GEOLOGIC INVESTIGATION\FIGURES\SC1308.01-F001 (SITE PLAN)



Earthquake Locations and Magnitude

- 7 - 8
- 6 - 7
- 5 - 6
- 4 - 5
- 3 - 4
- 2.5 - 3

30 Year M≥6.7 Probability

0.01% 0.1% 1% 10% 100%

NOTE: Fault locations are uncertain by up to several km

For more information, see www.wgcep.org/UCERF3

Notes:

Historical seismicity is from Mueller (2018) earthquake catalog.

Fault locations are from the UCERF3 source model (Field et al., 2014).

N

0 20 Kilometers

Faults and Historical Seismicity

Tajiguas Sanitary Landfill

Santa Barbara County, California

Geosyntec consultants

Figure 6

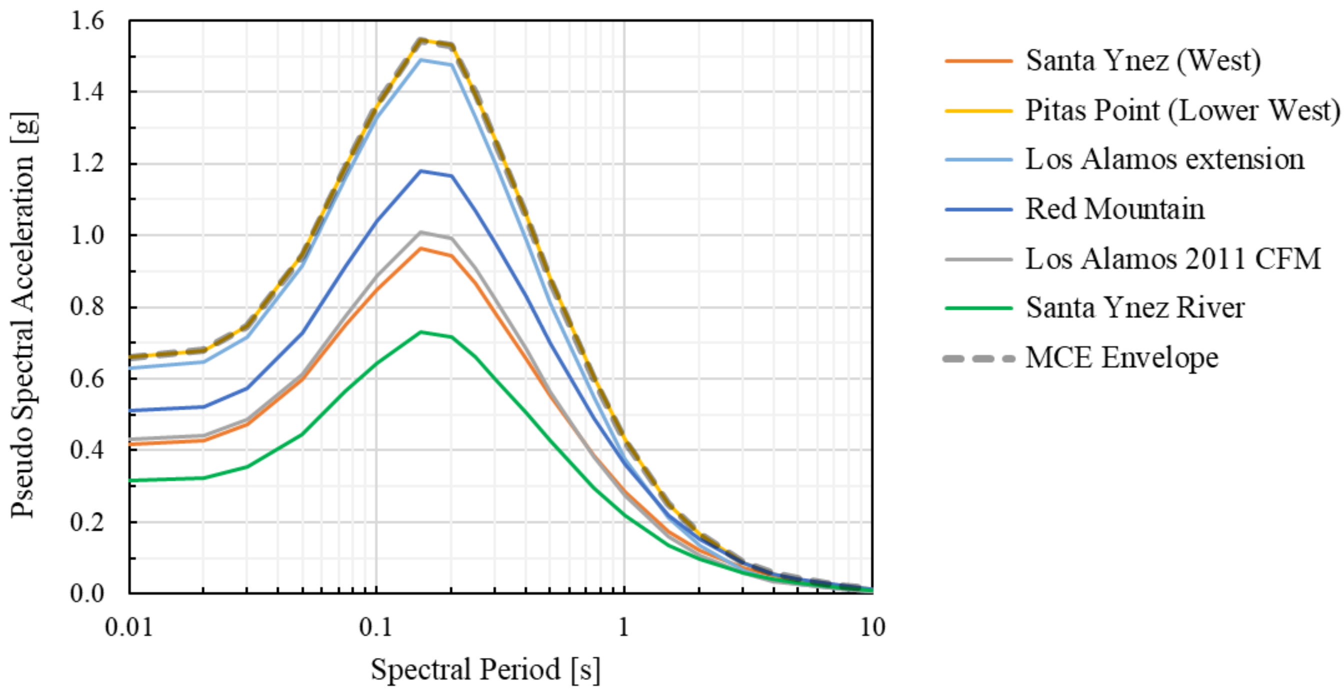
PROJECT: SC1308

MARCH 2023

C:\Users\khodson\Documents\ArcGIS\Projects\EQDB\TajiguasLF_EQMap.aprx\Tajiguas Landfill 11/29/2022 11:23 AM (KHodson)

Deterministic Scenarios for MCE

No.	Fault Name	Mag	Dip [°]	Mech	R_{RUP} [km]	R_{JB} [km]	R_X [km]	R_{Y0} [km]	Z_{TOR} [km]	RW [km]	Z_{HYPO} [km]
1	Santa Ynez (West)	7.09	70	SS	6.13	3.28	6.82	0.00	0.00	9.79	4.60
2	Pitas Point (Lower West)	7.25	13	RV	7.56	2.06	18.50	0.00	1.50	32.47	5.15
3	Los Alamos extension	6.93	30	RV	8.90	0.00	18.58	0.00	0.00	24.02	6.00
4	Red Mountain	7.43	56	RV	9.21	1.65	10.44	0.00	0.00	17.01	7.05
5	Los Alamos 2011 CFM	7.01	30	RV	10.23	5.83	18.01	6.64	0.00	24.02	6.00
6	Santa Ynez River	7.17	70	RVO	10.30	6.60	11.84	0.00	0.00	12.77	6.00
7	Lions Head 2011 CFM	7.11	75	RV	18.72	18.72	-16.65	3.72	0.00	12.42	6.00
8	North Channel	6.79	26	RV	19.51	19.09	6.64	16.55	1.10	7.76	2.80
9	Pitas Point (Upper)	6.85	42	RV	19.53	18.40	8.28	18.37	1.40	12.86	5.70
10	Mission Ridge-Arroyo P-S A	6.95	70	RV	21.81	21.81	-7.20	19.70	0.00	8.09	3.80
11	Oak Ridge (Offshore) west ext	6.18	67	RV	23.73	23.73	-13.32	17.47	0.00	3.37	1.55
12	Channel Islands Western DR	7.33	21	RV	24.69	24.22	-13.95	15.29	4.80	21.50	8.65
13	San Luis Range (So Margin)	7.49	45	RV	26.69	26.69	-27.21	0.00	0.00	16.97	6.00
14	Pitas Point (Lower)-Montalvo	7.33	16	RV	30.97	29.26	35.97	29.72	0.40	44.65	6.55
15	San Luis Range 2011 CFM	7.28	52	RV	32.53	32.53	-26.92	15.68	0.00	15.23	6.00
16	East Huasna 2011 CFM	7.25	90	SS	35.41	35.41	-27.18	17.80	0.00	15.00	7.50
17	Casmalia 2011 CFM	6.97	75	RV	36.38	35.40	14.23	30.62	0.00	12.42	6.00
18	Santa Ynez (East)	7.19	70	SS	45.04	45.04	-4.59	43.94	0.00	14.15	6.65
19	Santa Cruz Island	7.16	90	SS	47.12	47.12	-45.42	20.28	0.00	13.30	6.65



Notes:

1. Deterministic spectra are for the median (50th-percentile) ground motion level and site condition defined by V_{S30} = 732 m/s.
2. The Maximum Credible Earthquake (MCE) envelope corresponds to a M 7.25 earthquake on the Pitas Point (Lower West) fault at a distance (R_{RUP}) of 7.56 km for T ≤ 3 seconds and a M 7.43 earthquake on the Red Mountain fault at a distance (R_{RUP}) of 9.21 km for T ≥ 4 seconds.

DEVELOPMENT OF MCE RESPONSE SPECTRUM
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

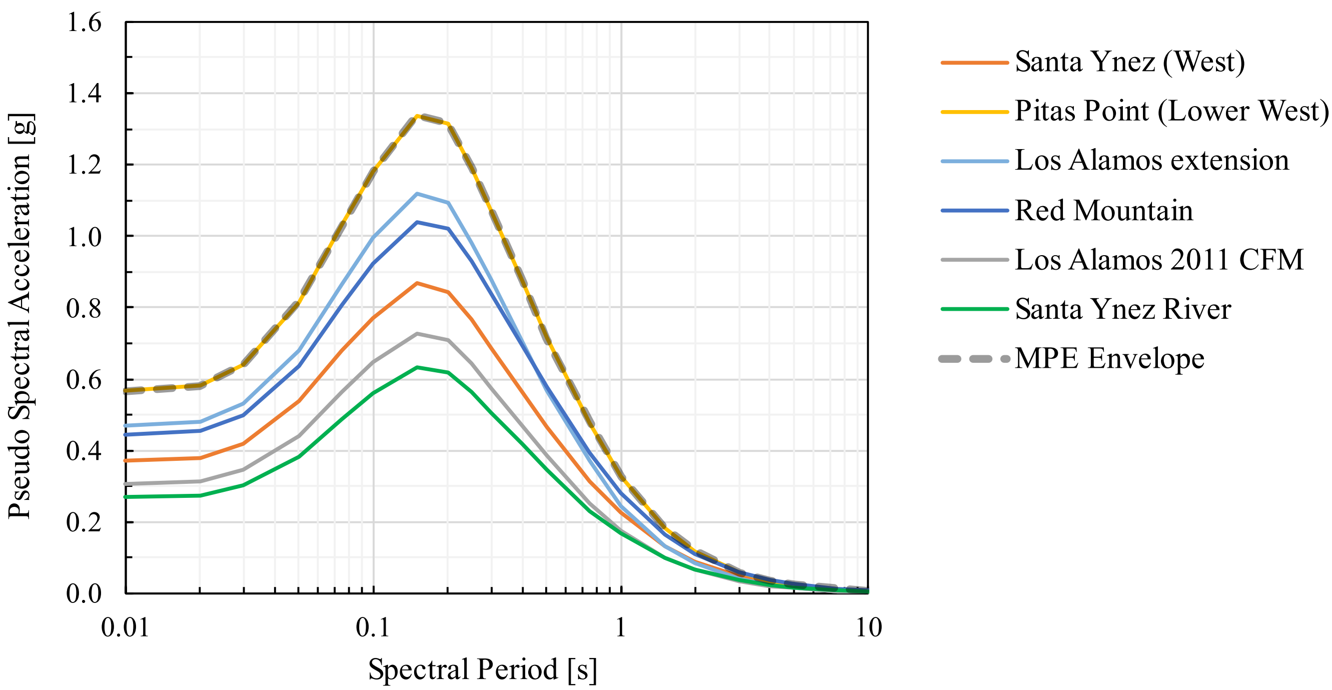
Geosyntec consultants

FIGURE 7

PROJECT NO: SC1308 | MARCH 2023

Deterministic Scenarios for MPE

No.	Fault Name	Mag	Dip [°]	Mech	R_{RUP} [km]	R_{JB} [km]	R_X [km]	R_{Y0} [km]	Z_{TOR} [km]	RW [km]	Z_{HYPO} [km]
1	Santa Ynez (West)	6.59	70	SS	6.13	3.28	6.82	0.00	0.00	9.79	4.60
2	Pitas Point (Lower West)	6.75	13	RV	7.56	2.06	13.98	0.00	3.55	18.84	5.72
3	Los Alamos extension	6.43	30	RV	8.90	0.00	10.82	0.00	4.00	13.03	7.50
4	Red Mountain	6.93	56	RV	9.21	1.65	10.44	0.00	0.00	17.01	7.05
5	Los Alamos 2011 CFM	6.51	30	RV	10.23	5.84	12.07	8.64	2.00	14.29	5.75
6	Santa Ynez River	6.67	70	RVO	10.30	6.60	11.84	0.00	0.00	12.77	6.00



Notes:

1. Deterministic spectra are for the median (50th-percentile) ground motion level and site condition defined by V_{S30} = 732 m/s.
2. The Maximum Probable Earthquake (MPE) envelope corresponds to a M 6.59 earthquake on the Pitas Point (Lower West) fault at a distance (R_{RUP}) of 7.56 km for $T \leq 3$ seconds and a M 6.93 earthquake on the Red Mountain fault at a distance (R_{RUP}) of 9.21 km for $T \geq 4$ seconds.

DEVELOPMENT OF MPE RESPONSE SPECTRUM

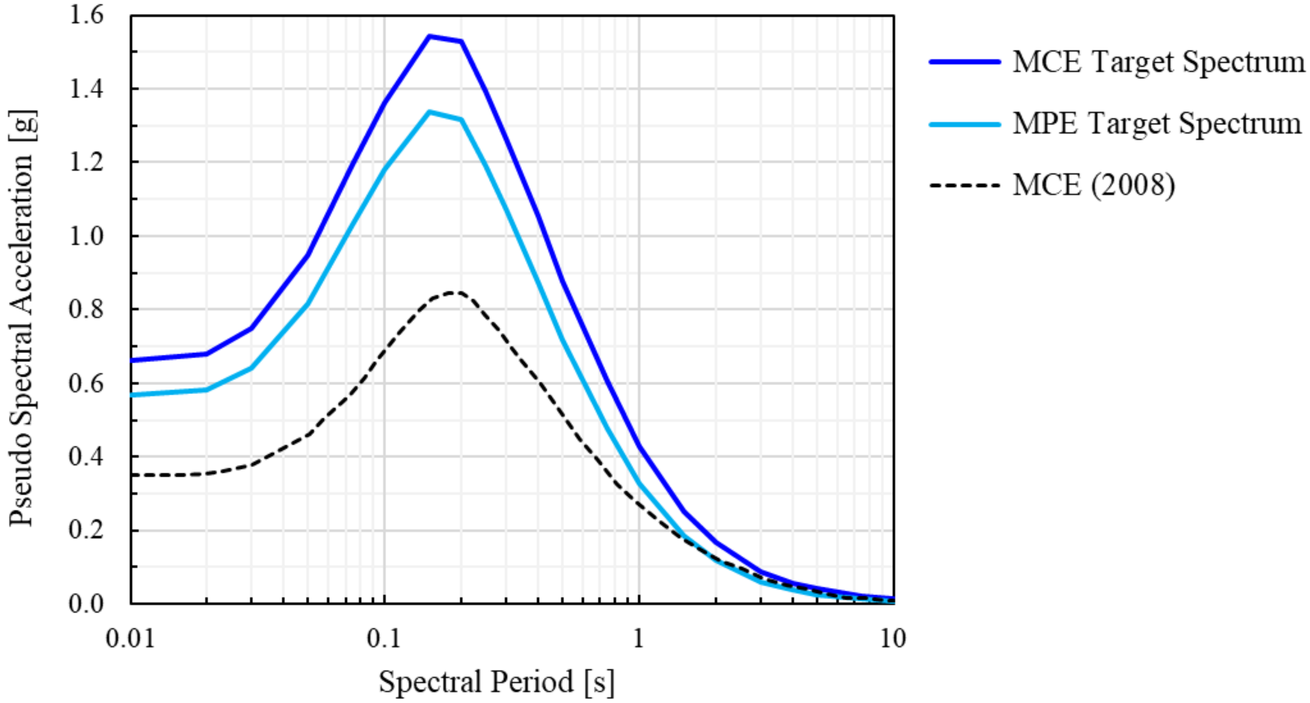
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

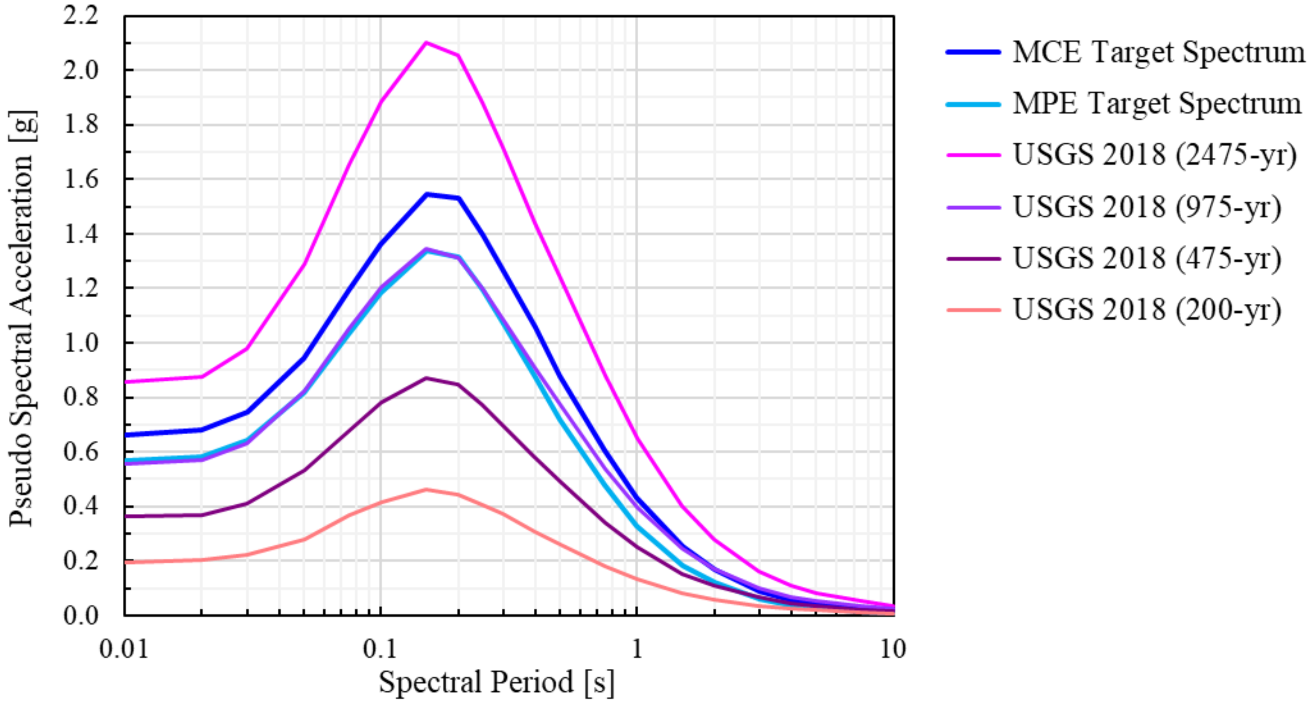
FIGURE **8**

PROJECT NO: SC1308 | MARCH 2023

(a)



(b)



Notes:

1. MCE (2008) corresponds to the MCE target response spectrum from Geosyntec (2008) for a M 7.1 earthquake at a distance of 6.2 km on the Santa Ynez (West) Fault using the NGA-West1 ground motion models.
2. USGS 2018 response spectra are probabilistic uniform hazard spectra (UHS) at a range of return periods from the USGS 2018 National Seismic Hazard Model (NSHM) for a site condition defined by V_{S30} = 732 m/s.

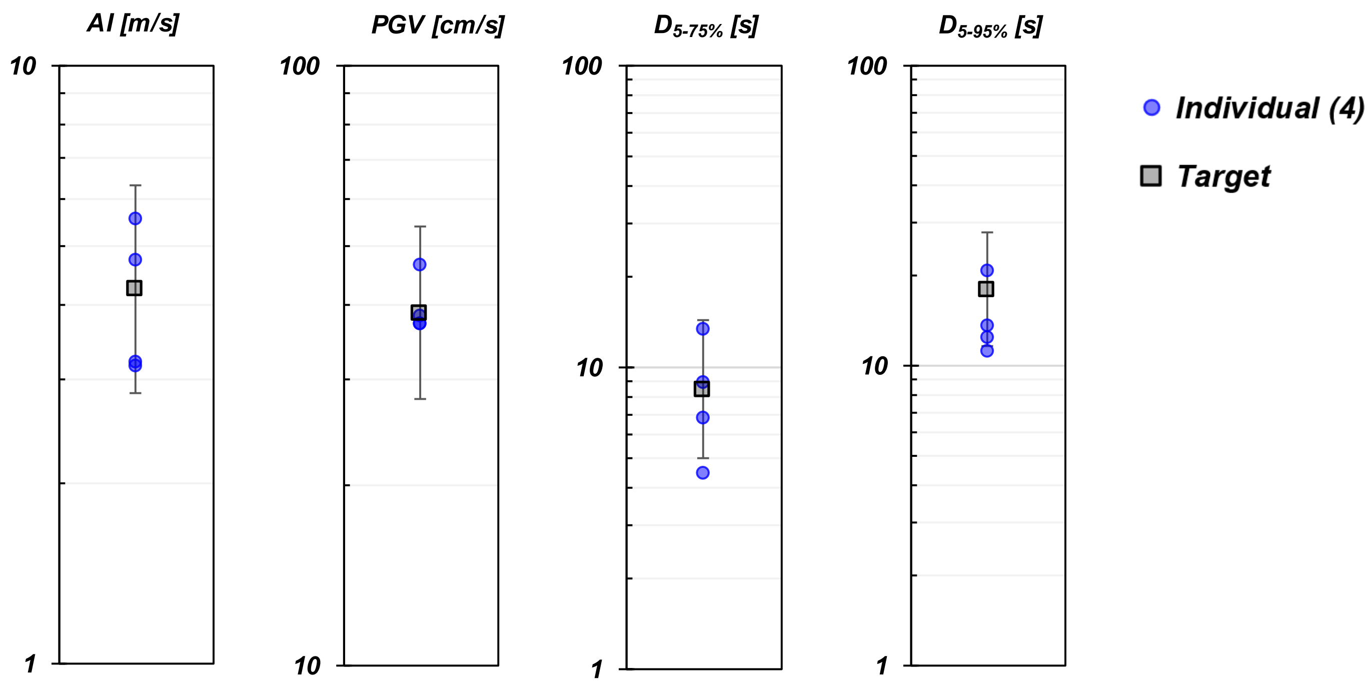
RESPONSE SPECTRA COMPARISONS TAJIGUAS SANITARY LANDFILL SANTA BARBARA COUNTY, CALIFORNIA		
Geosyntec consultants		FIGURE **9**
PROJECT NO: SC1308	MARCH 2023	

MCE Target Ground Motion Parameters

Parameter	Target		
	Median	-1 σ	+1 σ
Magnitude	7.25	-	-
R_{RUP} [km]	7.56	-	-
AI [m/s]	4.22	2.83	6.30
PGV [cm/s]	38.83	27.91	54.01
$D_{5-75\%}$ [s]	8.50	5.00	14.43
$D_{5-95\%}$ [s]	18.01	11.60	27.97

Summary of Scaled Time Histories for MCE

No.	RSN	Comp	Earthquake	Mag	R_{RUP} [km]	SF	AI [m/s]	PGV [cm/s]	$D_{5-75\%}$ [s]	$D_{5-95\%}$ [s]
1	769	H2	Loma Prieta, CA	6.9	18.33	2.682	3.20	37.41	4.51	12.65
2	R925	H2	Ridgecrest, CA	7.1	5.50	1.144	3.17	46.91	8.99	11.38
3	5657	H1	Iwate, Japan	6.9	4.80	0.515	5.55	37.31	6.91	13.66
4	6893	H2	Darfield, NZ	7.0	11.86	1.298	4.75	38.62	13.62	20.98



Notes:
1. AI = Arias Intensity
2. PGV = Peak Ground Velocity
3. $D_{5-75\%}$ = Significant Duration between 5% and 75% AI
4. $D_{5-95\%}$ = Significant Duration between 5% and 95% AI
5. RSN = Record Sequence Number
6. SF = Scale Factor

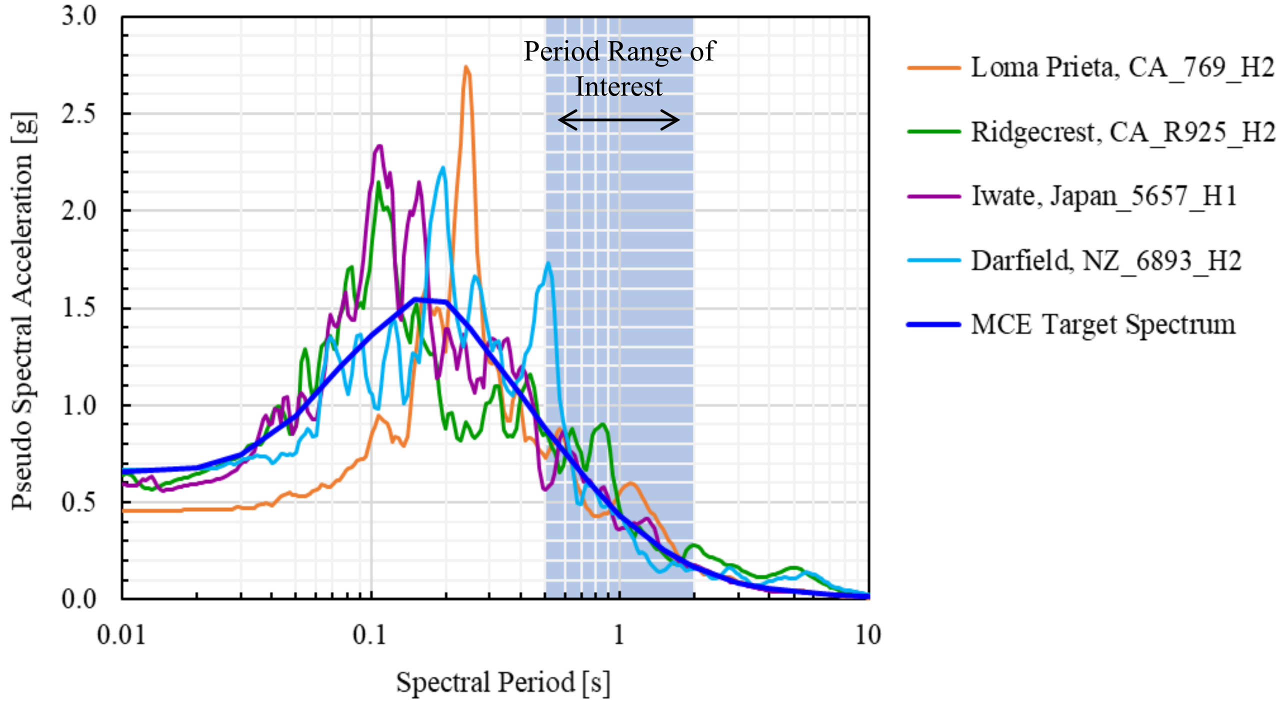
SUMMARY OF MCE TIME HISTORIES
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

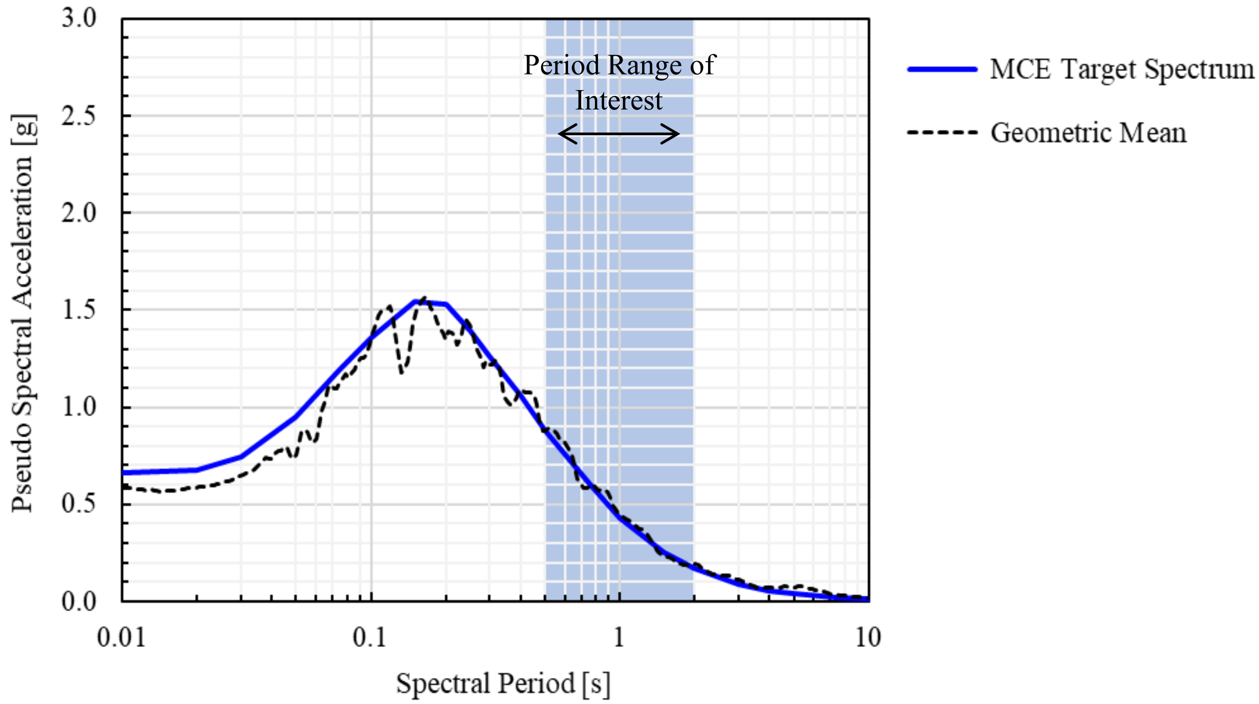
PROJECT NO: SC1308 | MARCH 2023

FIGURE 10

(a)



(b)



Notes:

1. Target spectrum is from a deterministic analysis of a M 7.25 earthquake on the Pitas Point (Lower West) Fault at a distance (R_{RUP}) of 7.56 km, median (50th-percentile) ground motion, and site condition defined by V_{S30} = 732 m/s.
2. Individual response spectra and geometric mean of response spectra are for scaled ground motions. Ground motions were scaled to match target spectrum over period range 0.5 – 2.0 s.

RESPONSE SPECTRA OF MCE TIME HISTORIES
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE 11

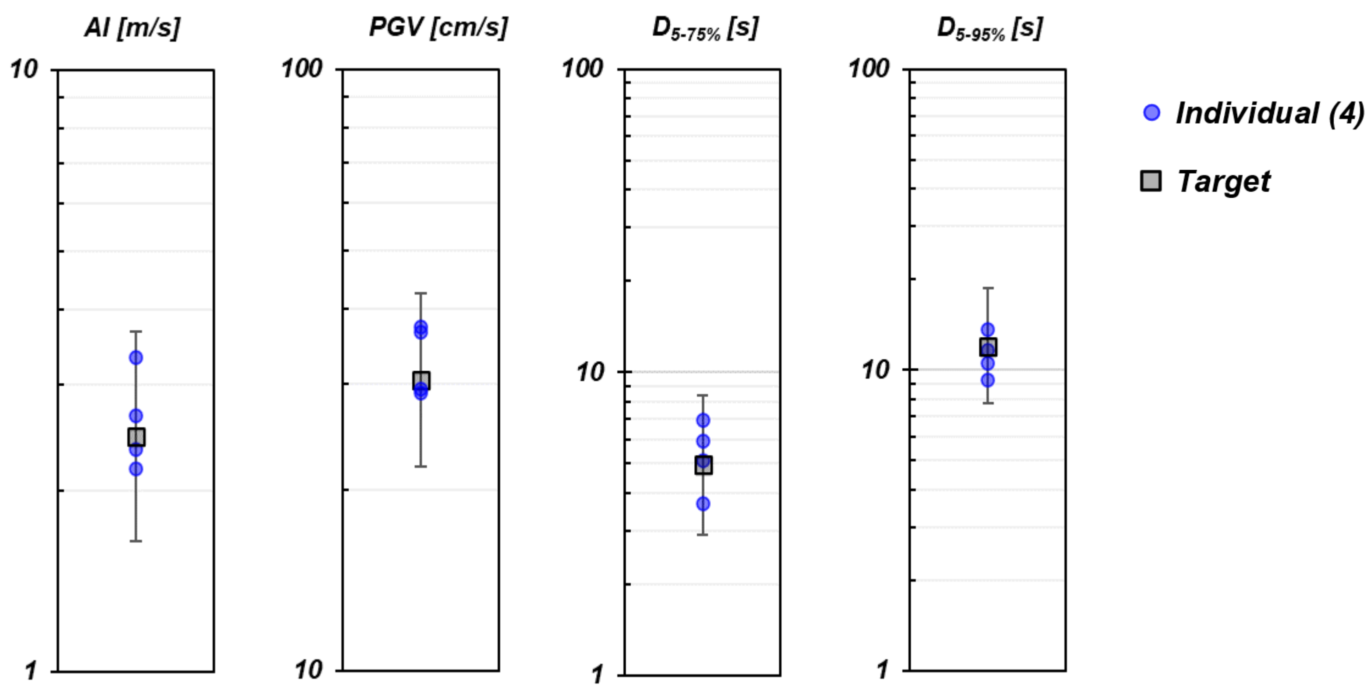
PROJECT NO: SC1308 | MARCH 2023

MPE Target Ground Motion Parameters

Parameter	Target		
	Median	**-1 σ**	**+1 σ**
Magnitude	6.75	-	-
R_{RUP} [km]	7.56	-	-
AI [m/s]	2.46	1.65	3.67
PGV [cm/s]	30.39	21.85	42.27
$D_{5\text{-}75\%}$ [s]	4.95	2.91	8.41
$D_{5\text{-}95\%}$ [s]	12.02	7.74	18.66

Summary of Scaled Time Histories for MPE

No.	RSN	Comp	Earthquake	Mag	R_{RUP} [km]	SF	AI [m/s]	PGV [cm/s]	$D_{5\text{-}75\%}$ [s]	$D_{5\text{-}95\%}$ [s]
1	957	H1	Northridge, CA	6.7	16.88	3.484	2.66	37.31	5.94	11.59
2	3943	H2	Tottori, Japan	6.6	9.12	2.393	2.18	36.54	3.67	9.28
3	3979	H1	San Simeon, CA	6.5	7.25	2.302	2.34	29.40	5.08	10.48
4	5657	H1	Iwate, Japan	6.9	4.80	0.399	3.33	28.91	6.91	13.67



Notes:
1. AI = Arias Intensity
2. PGV = Peak Ground Velocity
3. $D_{5\text{-}75\%}$ = Significant Duration between 5% and 75% AI
4. $D_{5\text{-}95\%}$ = Significant Duration between 5% and 95% AI
5. RSN = Record Sequence Number
6. SF = Scale Factor

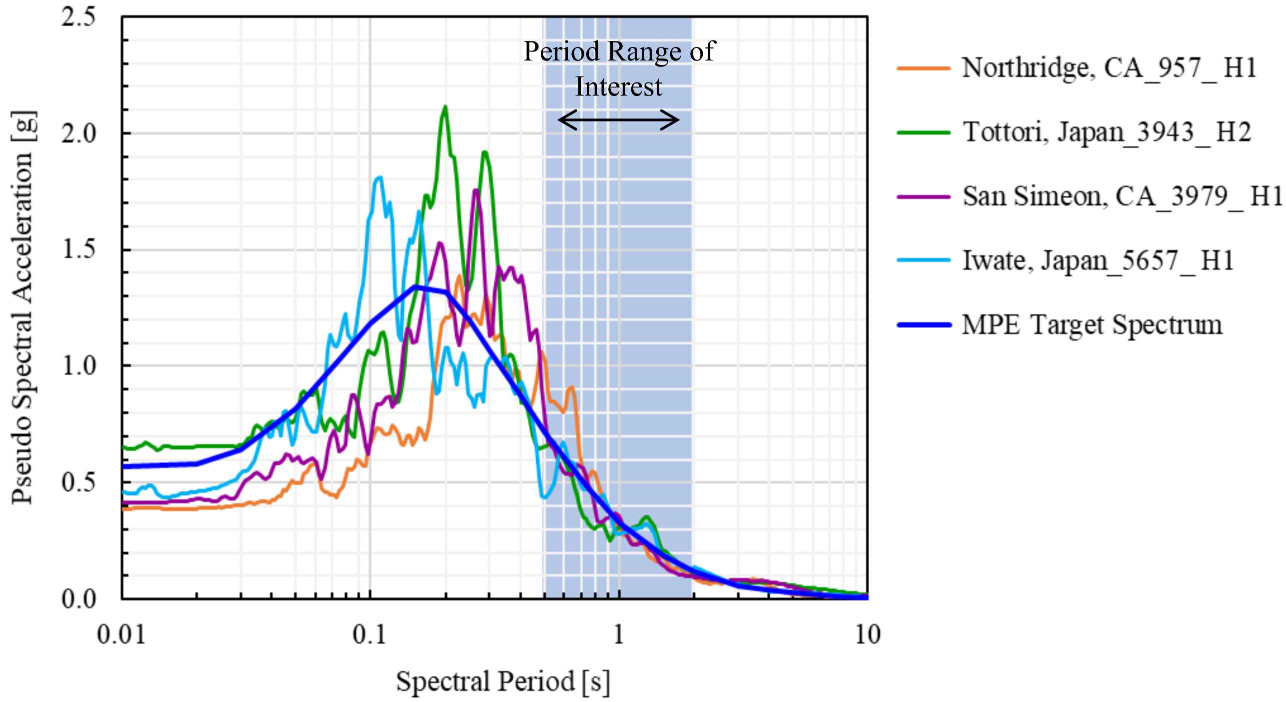
SUMMARY OF MPE TIME HISTORIES
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

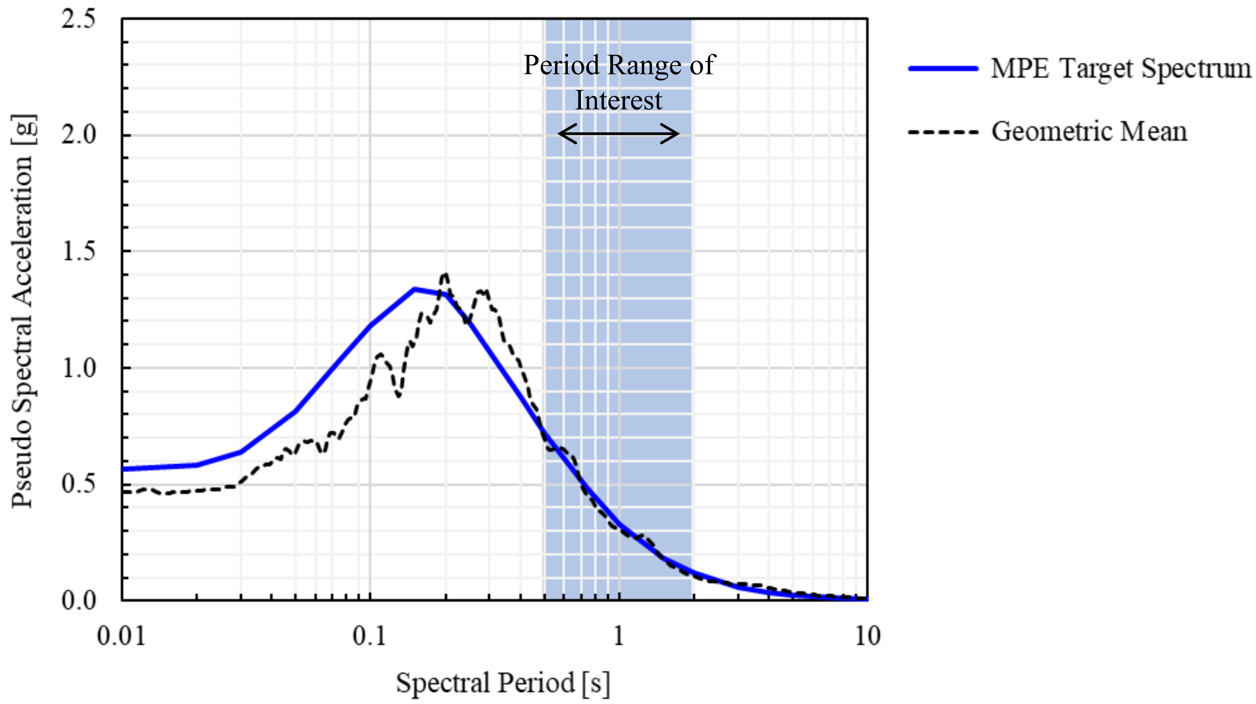
FIGURE **12**

PROJECT NO: SC1308 | MARCH 2023

(a)



(b)



Notes:

1. Target spectrum is from a deterministic analysis for a M 6.75 earthquake on the Pitas Point (Lower West) Fault at a distance (R_{RUP}) of 7.56 km, median (50th-percentile) ground motion, and site condition defined by V_{S30} = 732 m/s.
2. Individual response spectra and geometric mean of response spectra are for scaled ground motions. Ground motions were scaled to match target spectrum over period range 0.5 – 2.0 s.

RESPONSE SPECTRA OF MPE TIME HISTORIES

TAJIGUAS SANITARY LANDFILL

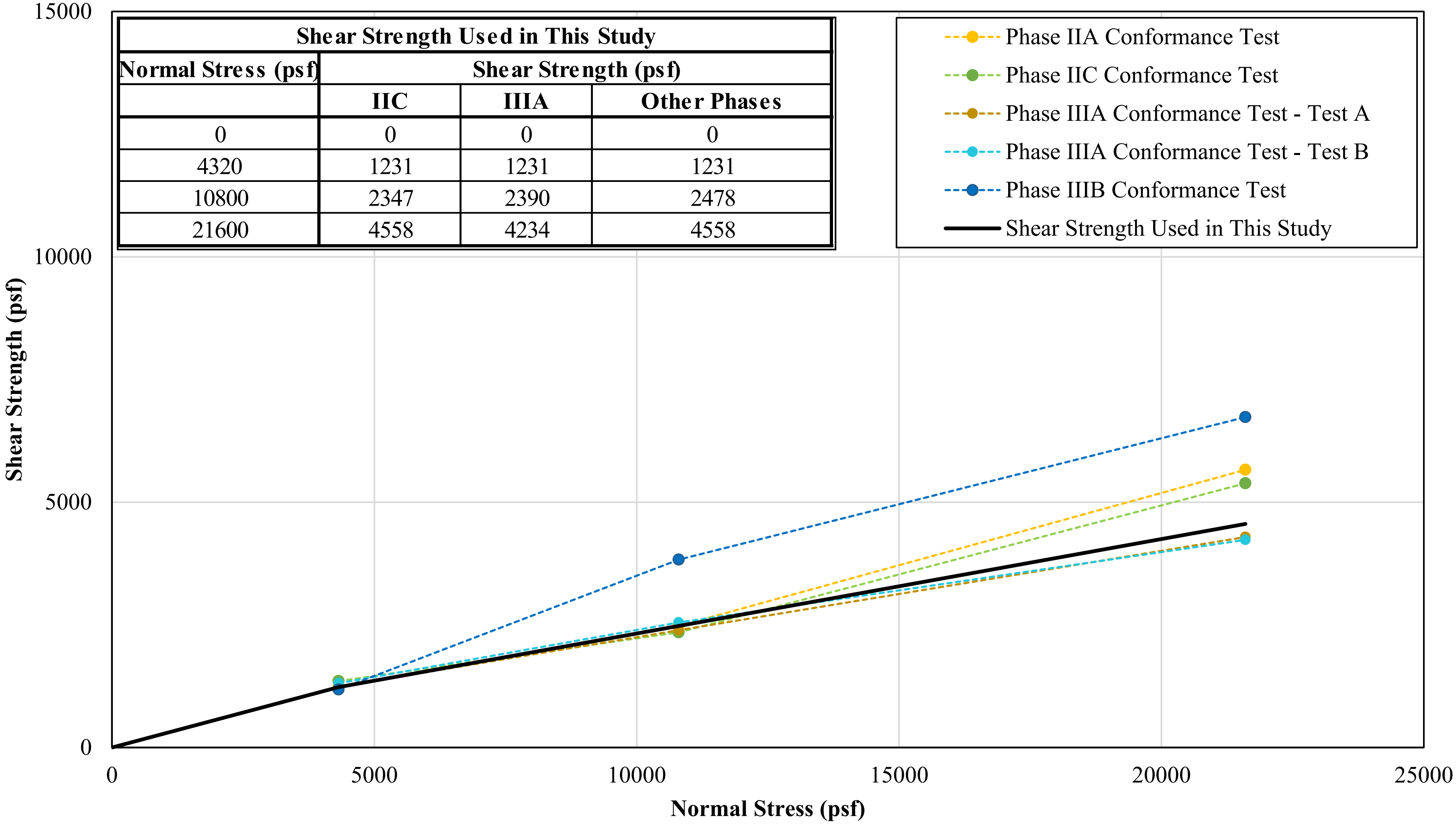
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE 13

PROJECT NO: SC1308

MARCH 2023



Shear Strength Used in This Study			
Normal Stress (psf)	Shear Strength (psf)		
	IIC	IIIA	Other Phases
0	0	0	0
4320	1231	1231	1231
10800	2347	2390	2478
21600	4558	4234	4558

Notes:
1. All strengths depicted are Residual (i.e., large displacement) strengths.
2. Shear strength model used is the same as the bilinear model used in previous studies, except for Phases IIC and IIIA.
3. Shear Strength used for Phases IIC and IIIA is based on the lower value of the conformance test results and the bilinear model at the tested normal stresses.

FLOOR GM/CCL INTERFACE SHEAR STRENGTH - RESIDUAL

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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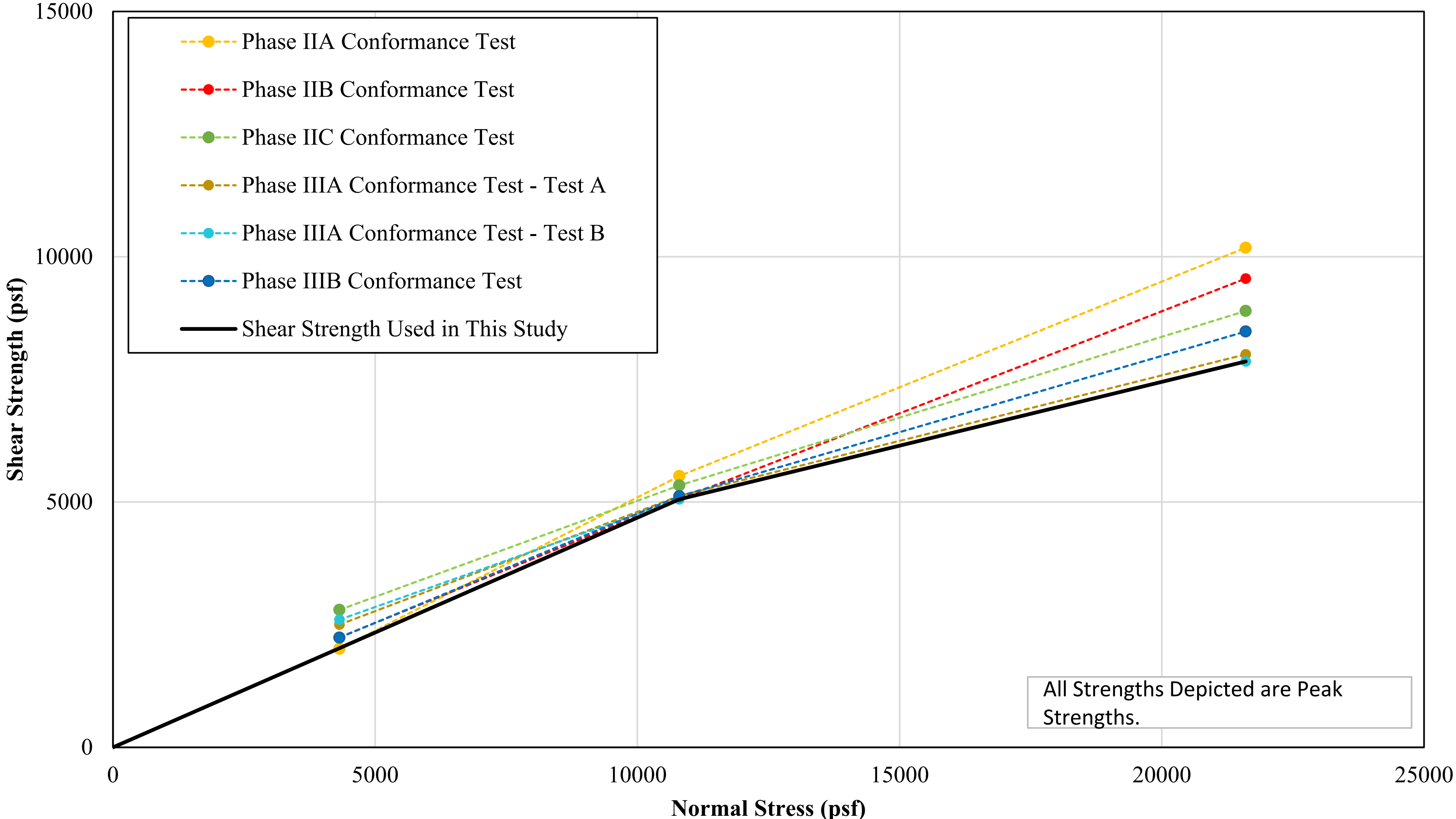
PROJECT NO: SC1308 | MARCH 2023

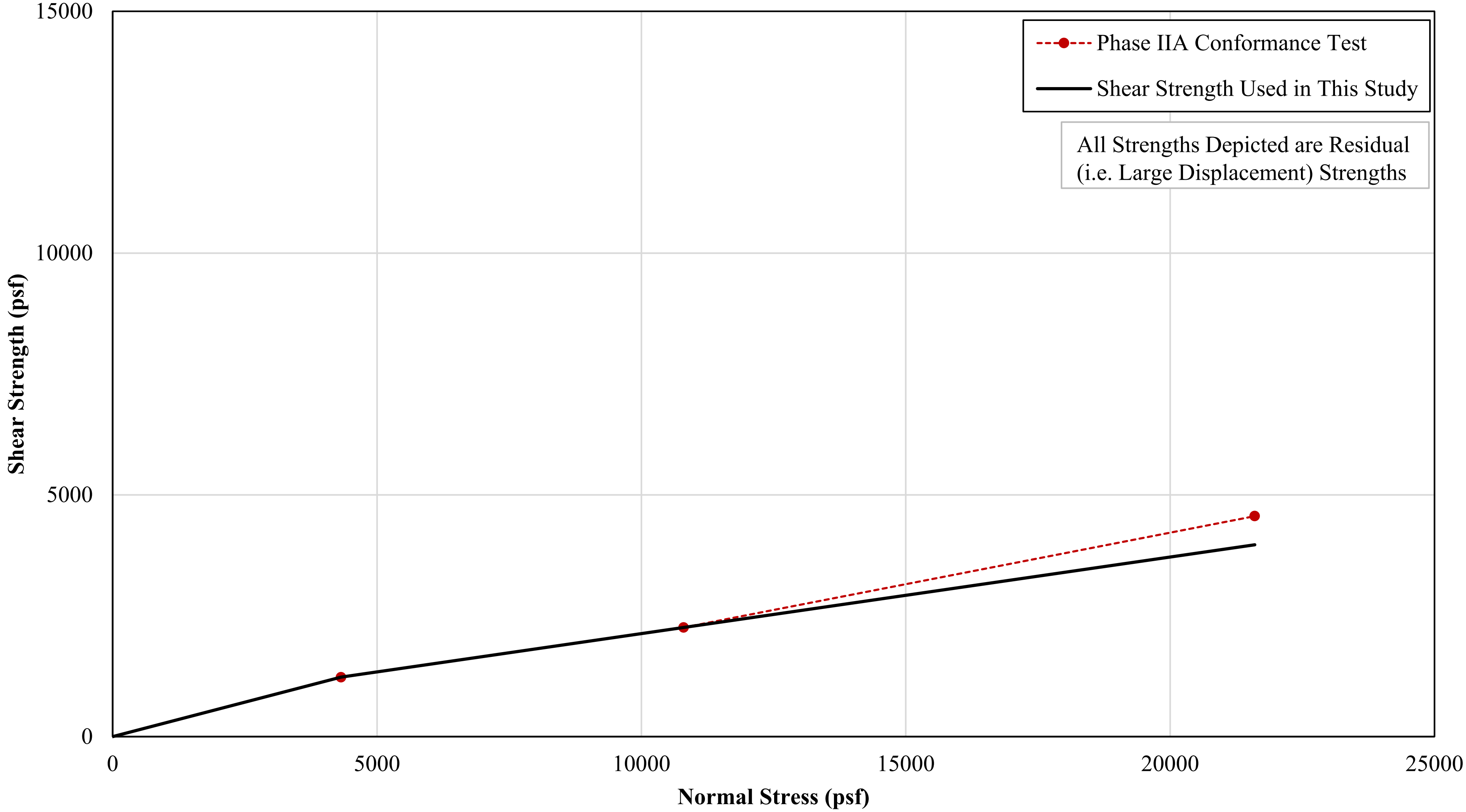
FIGURE 14



Notes:

1. All strengths depicted are Peak strengths.
2. Shear strength model used is a bilinear model.
3. Shear strength parameters used in the slope stability analyses are c = 0, ϕ_1' = 25.1°, ϕ_2' = 14.6°, σ = 10,800 psf.

FLOOR GM/CCL INTERFACE SHEAR STRENGTH - PEAK TAJIGUAS SANITARY LANDFILL SANTA BARBARA COUNTY, CALIFORNIA	Geosyntec consultants PROJECT NO: SC1308 / MARCH 2023	**FIGURE** **15**



Notes:

1. All strengths depicted are Residual (i.e., large displacement) strengths.
2. Shear strength model used is the same as the bilinear model used in previous studies.
3. Shear strength parameters used in the slope stability analyses are c = 0, ϕ_1' = 15.9°, ϕ_2' = 9.0°, σ = 4320 psf.

SIDE SLOPE GM/CCL INTERFACE SHEAR STRENGTH - RESIDUAL

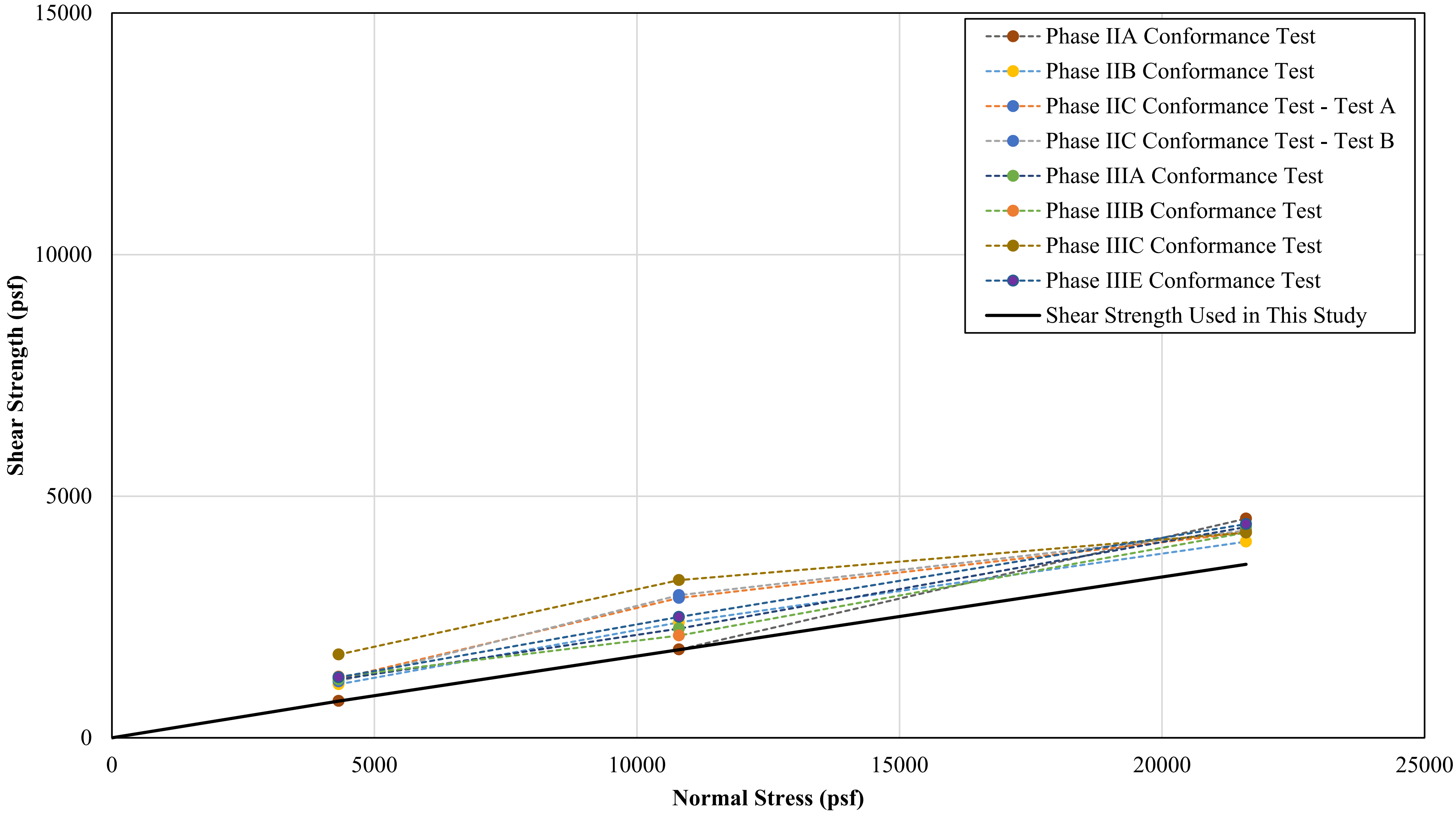
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308 | MARCH 2023

FIGURE

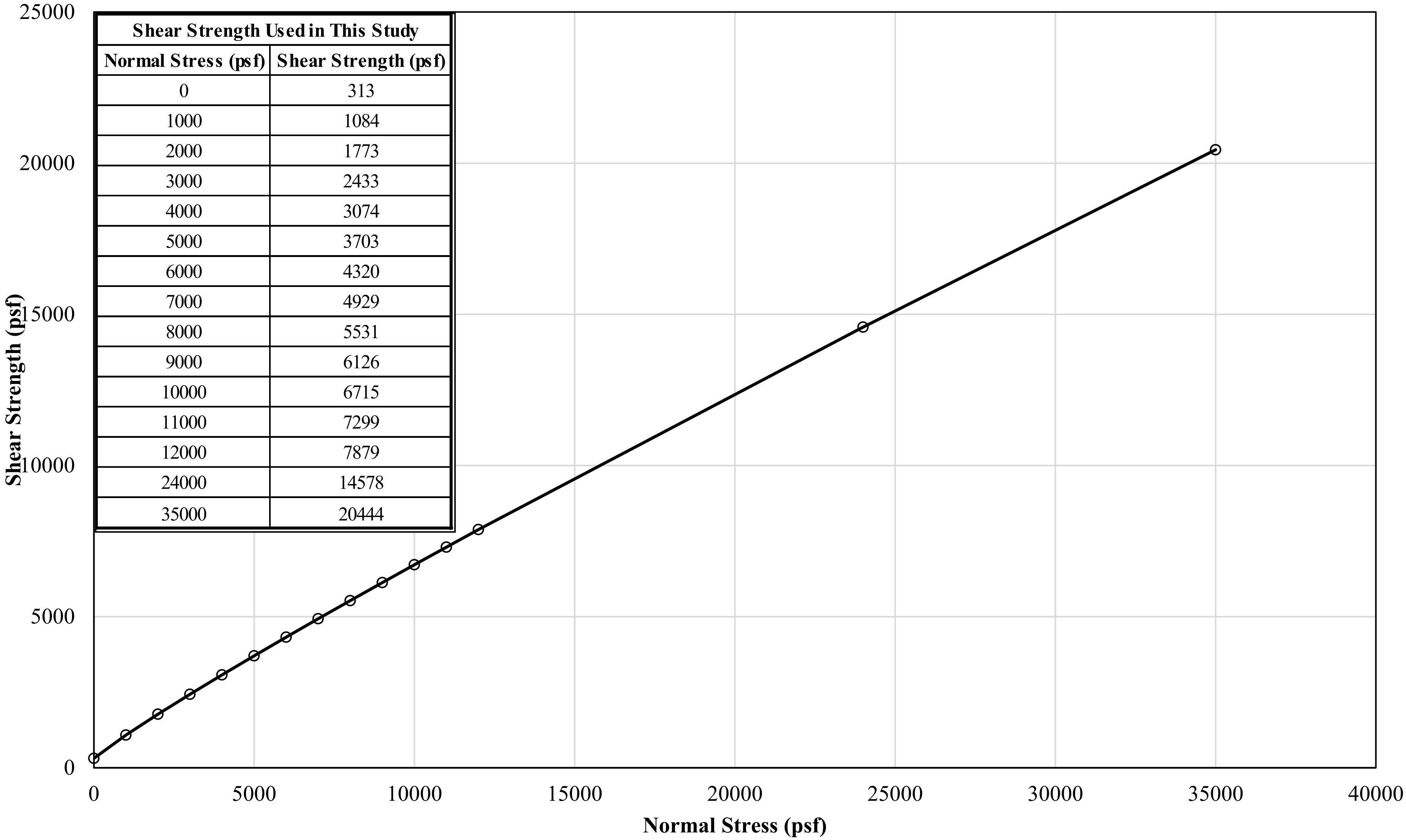
16



Notes:

1. All strengths depicted are Residual (i.e., large displacement) strengths.
2. Shear strength model used is the same as the bilinear model used in previous studies.
3. Shear strength parameters used in the slope stability analyses are c = 0, ϕ_1' = 10.0˚, ϕ_2' = 9.3˚, σ = 4320 psf.

SIDE SLOPE GM/GCL INTERFACE SHEAR STRENGTH - RESIDUAL TAJIGUAS SANITARY LANDFILL SANTA BARBARA COUNTY, CALIFORNIA	Geosyntec consultants PROJECT NO: SC1308 — MARCH 2023	**FIGURE** **17**



Shear Strength Used in This Study	
Normal Stress (psf)	Shear Strength (psf)
0	313
1000	1084
2000	1773
3000	2433
4000	3074
5000	3703
6000	4320
7000	4929
8000	5531
9000	6126
10000	6715
11000	7299
12000	7879
24000	14578
35000	20444

Notes:
1. Shear strength values were calculated using Bray et al. (2009) method.
2. Shear strength datapoint are provided in the table and plotted in the graph.

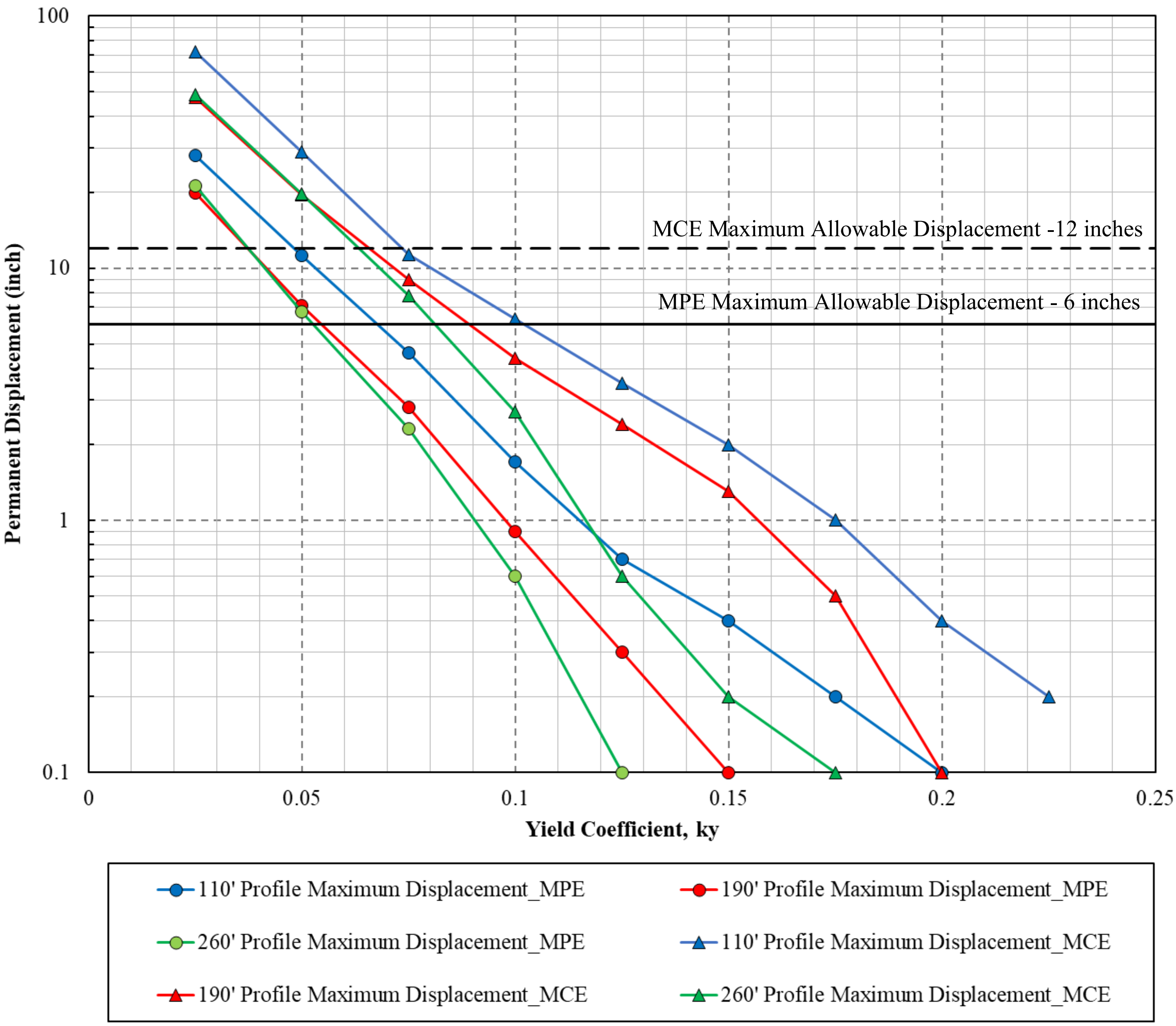
MSW SHEAR STRENGTH

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308 | MARCH 2023

FIGURE
18



Notes:

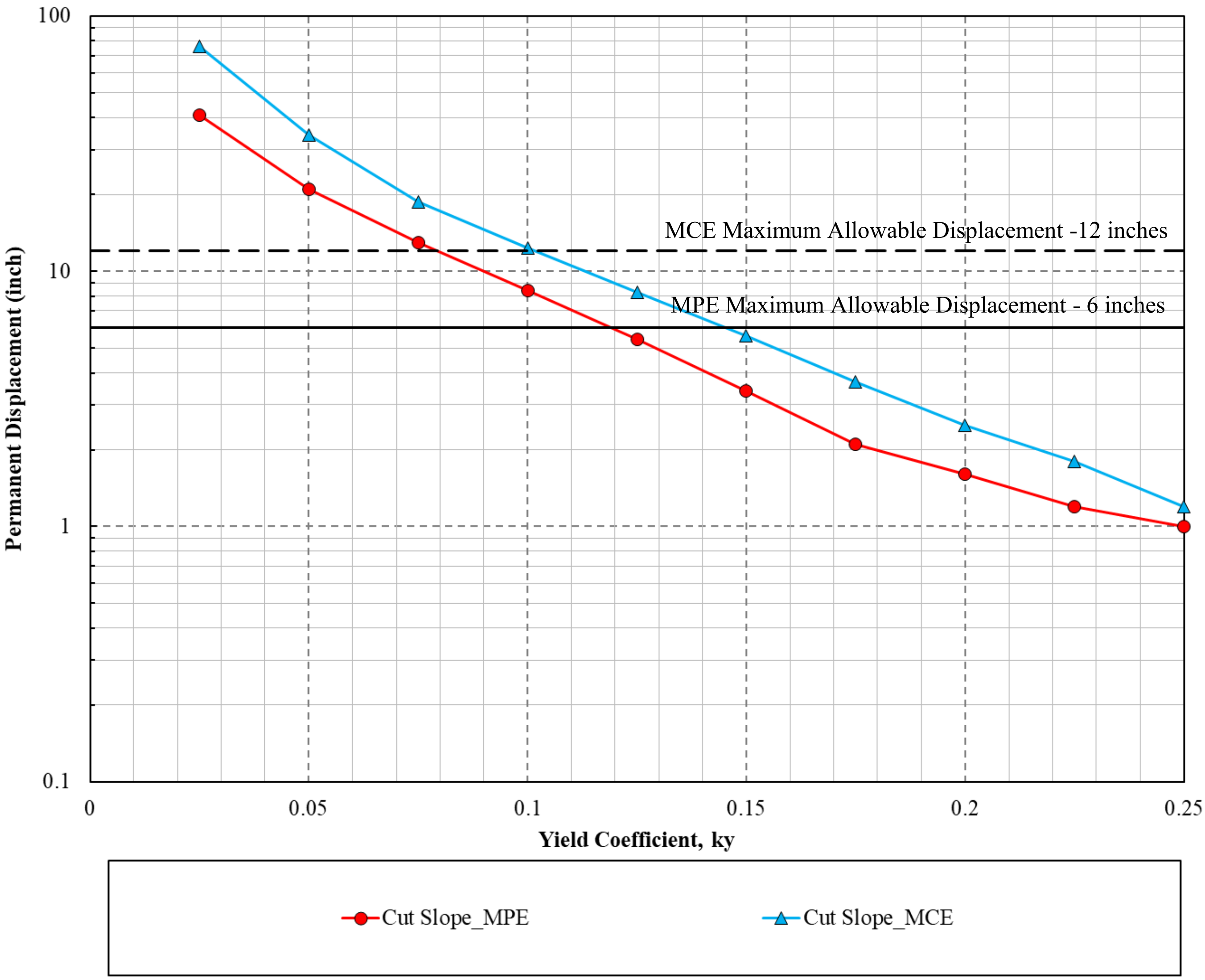
1. Plotted displacements are the maximum of the displacements calculated for the ground motion time histories for MPE and MCE ground motion levels.

MAXIMUM PERMANENT DISPLACEMENT
WASTE SLOPES
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308 | MARCH 2023

FIGURE **19**



Notes:

1. Plotted displacements are the maximum of the displacements calculated for the ground motion time histories for MPE and MCE ground motion levels.

MAXIMUM PERMANENT DISPLACEMENT
CUT SLOPES
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308 | MARCH 2023

FIGURE **20**

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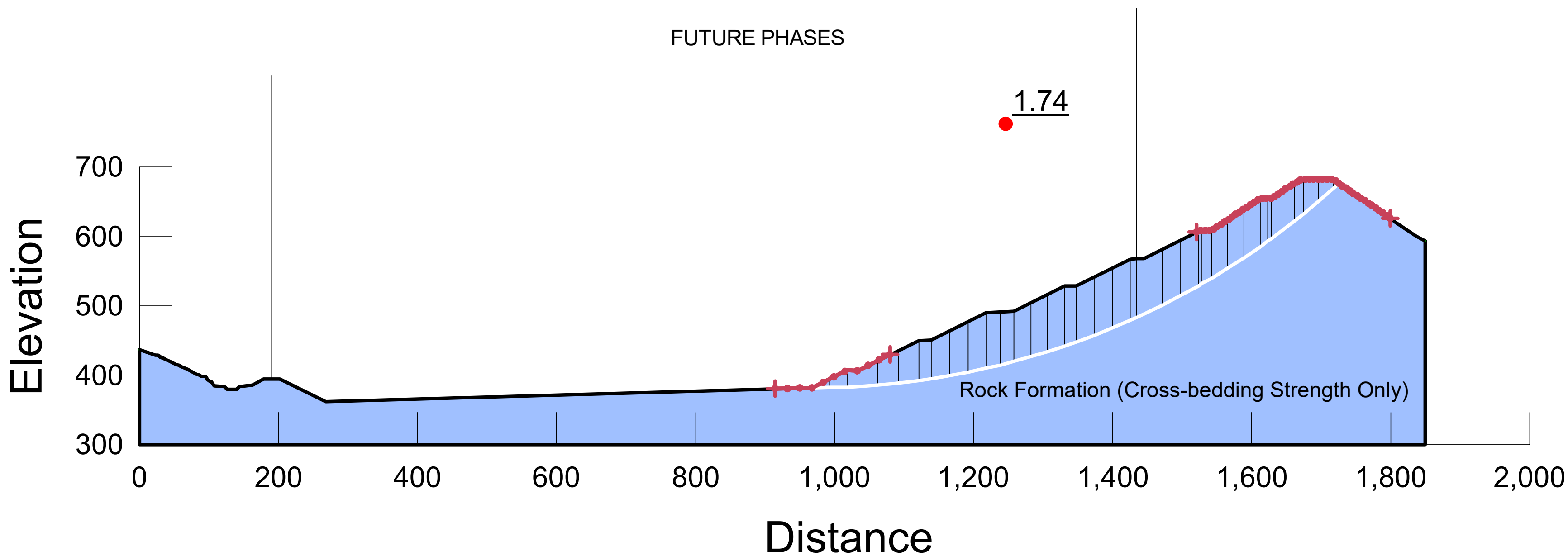
ATTACHMENT A
2-D Cut Slope Stability Analysis

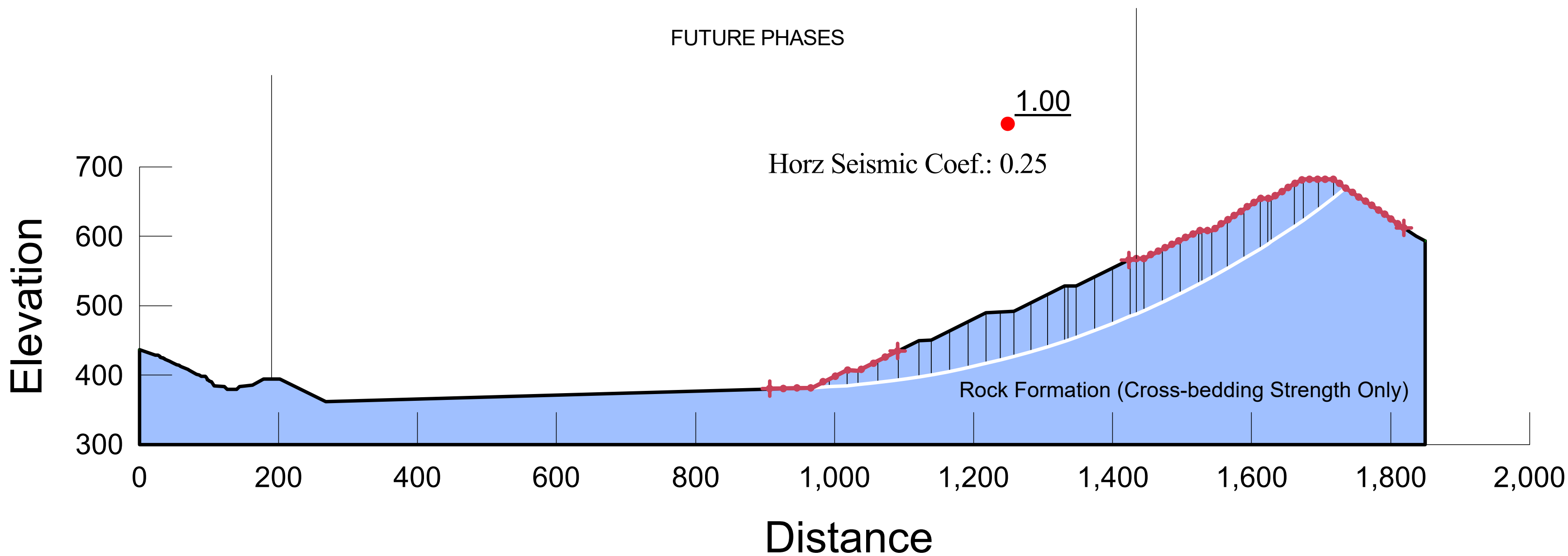


Section C-C' - Static - Cut

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308	MARCH 2023	Scale 1:3,000
		Figure A1



Section C-C' - Pseudostatic - Cut

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308	MARCH 2023	Scale 1:3,000
		Figure A2

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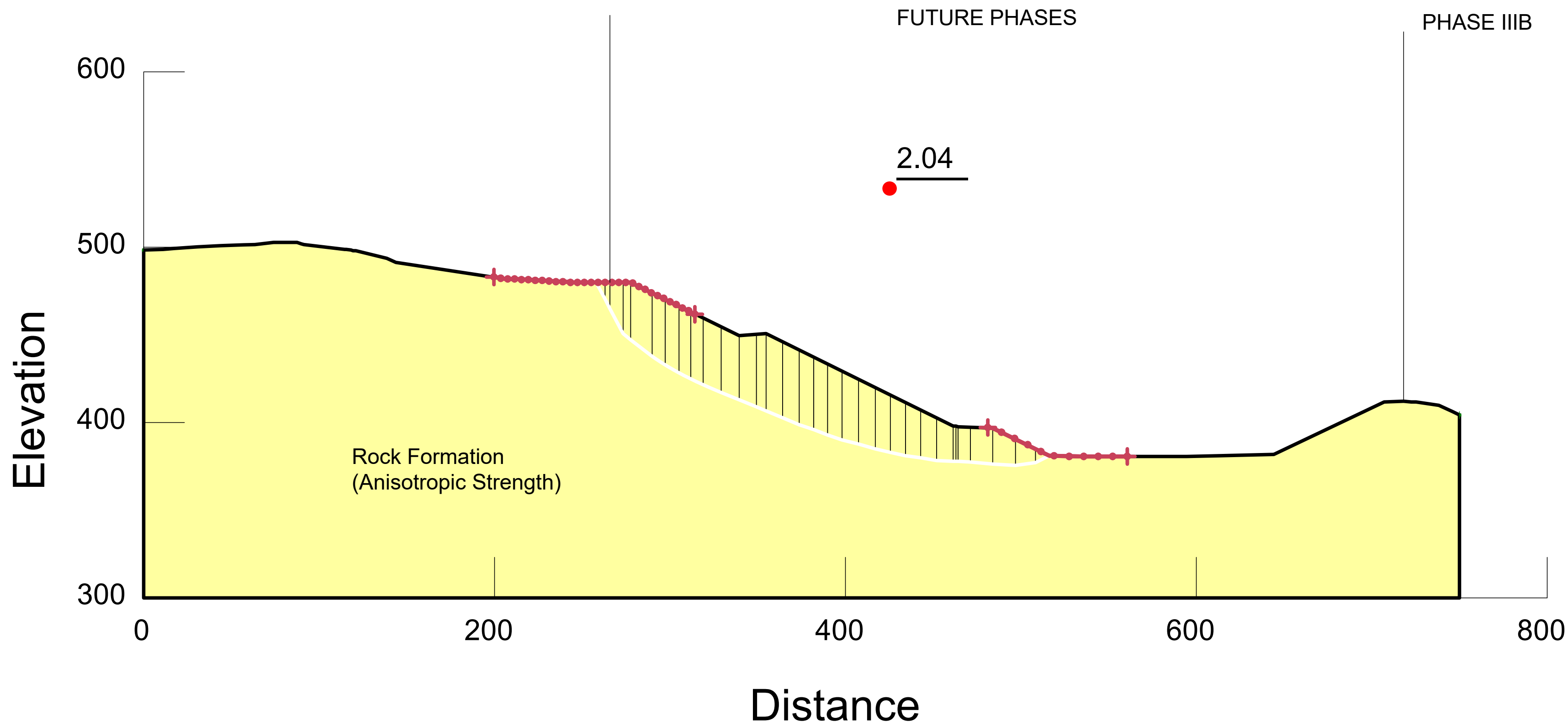

Section D-D' - Static - Cut

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

Scale 1:1,200

Figure A3

PROJECT NO: SC1308 | MARCH 2023

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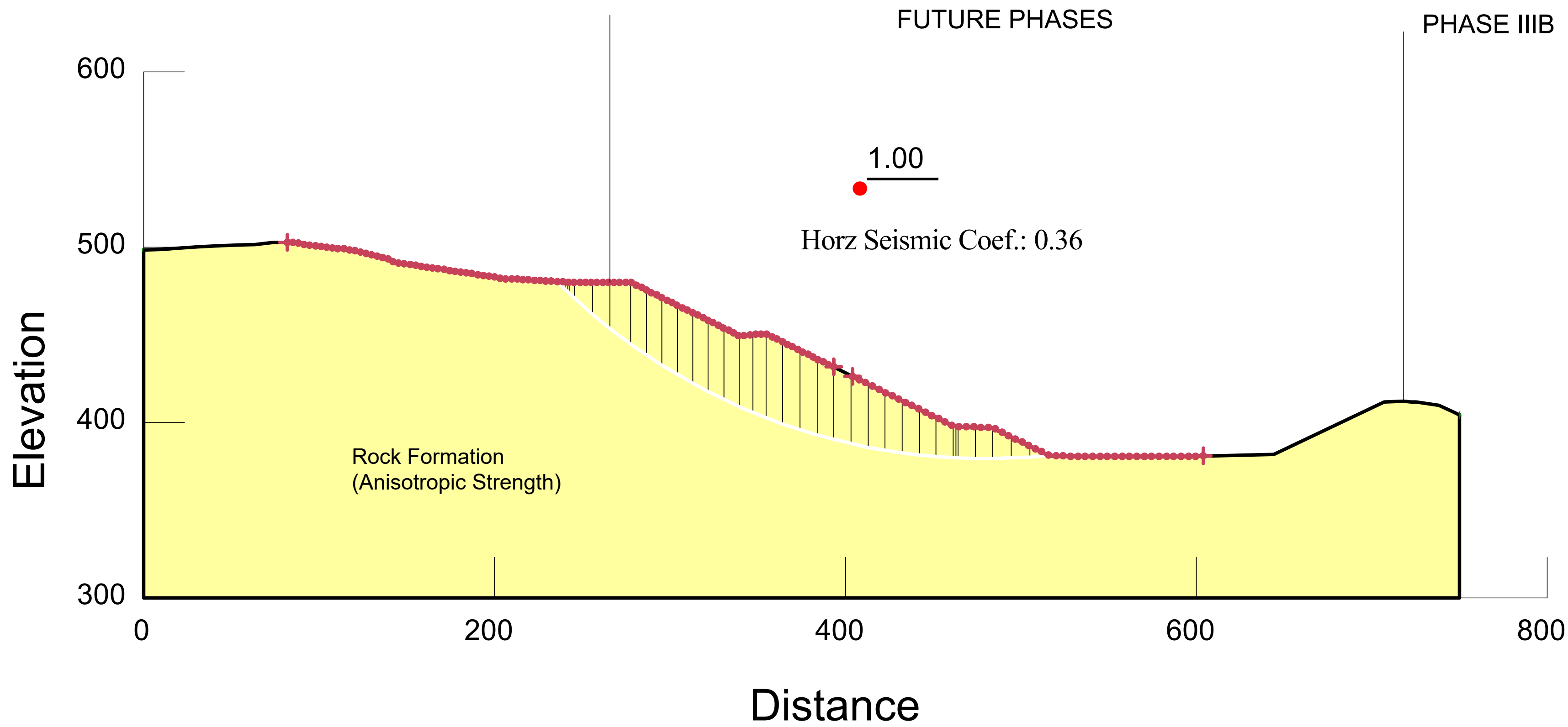

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Section D-D' - Pseudostatic - Cut

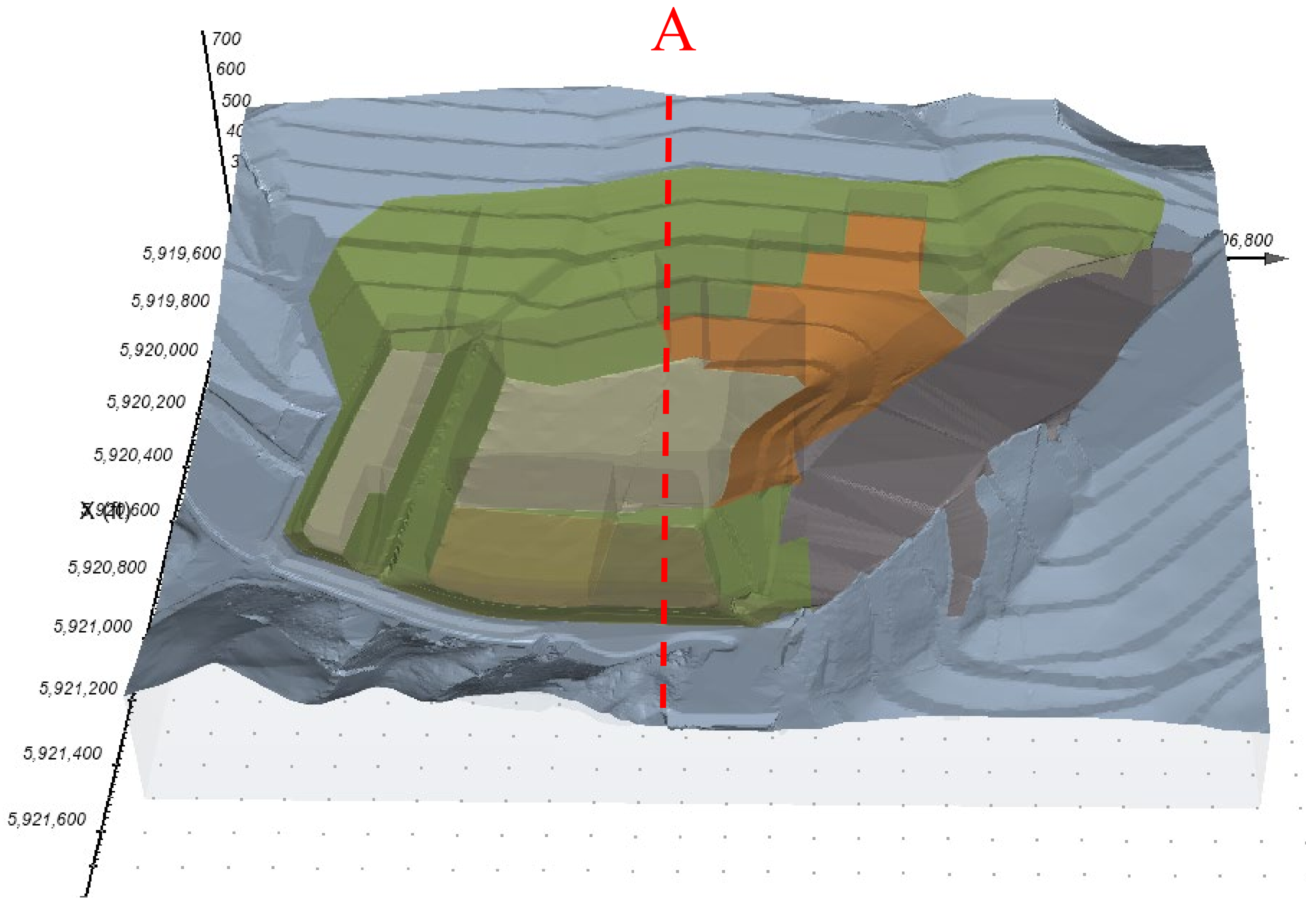
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308	MARCH 2023	Scale 1:1,200
		Figure A4

Geosyntec consultants

ATTACHMENT B
3-D Waste Fill Slope Stability Analysis



Materials

	Name	Strength Type	Unit Weight (lbf/ft^3)
	MSW	Shear Normal Function	85
	Floor CCL Ph 2C	Shear Normal Function	110
	Floor CCL Ph 3A	Shear Normal Function	110
	Floor CCL Other Phas	Shear Normal Function	110

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
	Unlined Waste	Mohr Coulomb	85	0.01	33
	Structural Fill	Mohr Coulomb	125	200	33

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
	Slope CCL	Bilinear	110	0.01	15.9	9	4320
	Slope GCL	Bilinear	110	0.01	10	9.3	4320

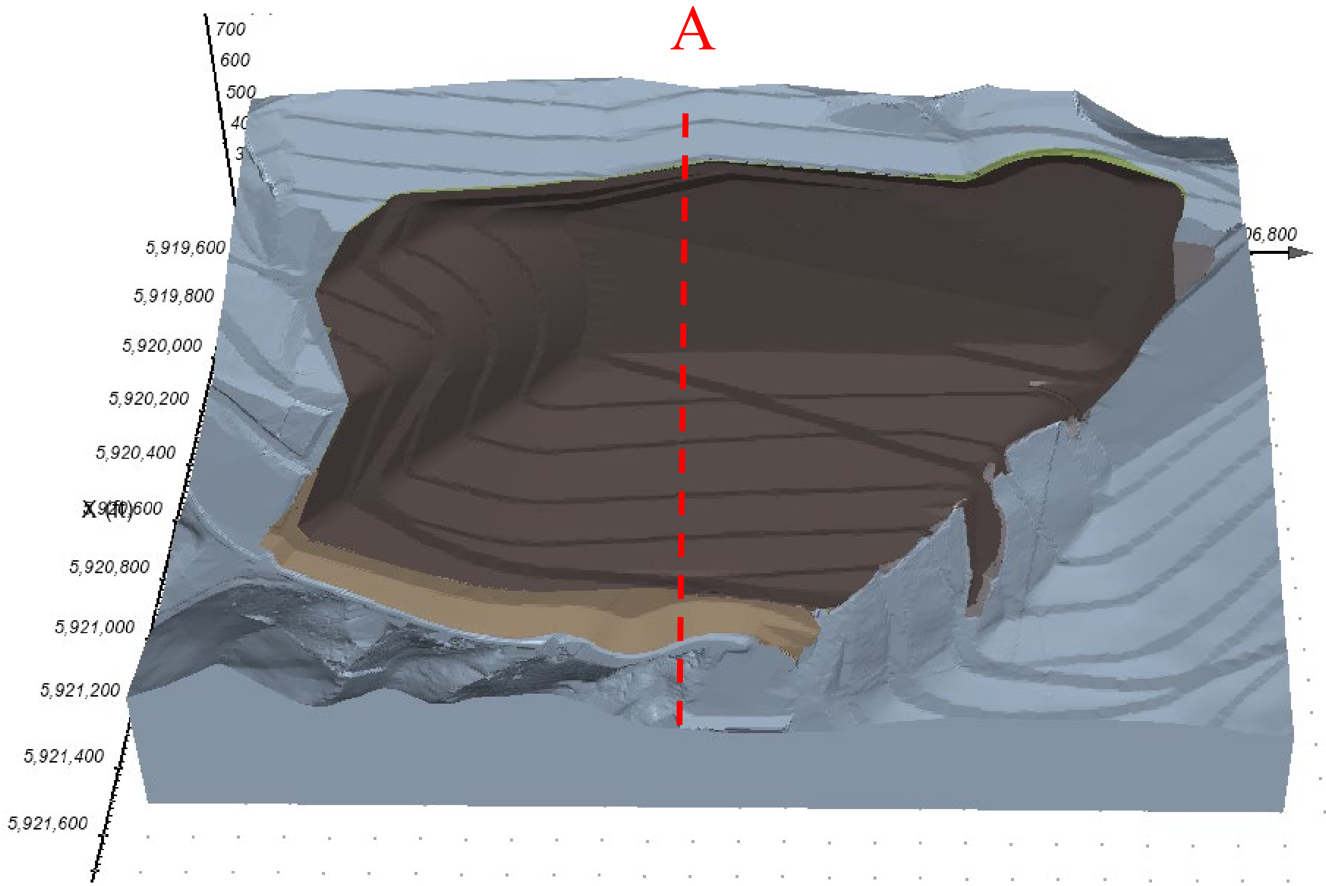
	Name	Strength Type
	Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – LINER CONFIGURATION
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE **B1**

PROJECT NO: SC1308 | MARCH 2023



Materials

	Name	Strength Type	Unit Weight (lbf/ft^3)
	MSW	Shear Normal Function	85
	Floor CCL Ph 2C	Shear Normal Function	110
	Floor CCL Ph 3A	Shear Normal Function	110
	Floor CCL Other Phas	Shear Normal Function	110

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
	Unlined Waste	Mohr Coulomb	85	0.01	33
	Structural Fill	Mohr Coulomb	125	200	33

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
	Slope CCL	Bilinear	110	0.01	15.9	9	4320
	Slope GCL	Bilinear	110	0.01	10	9.3	4320

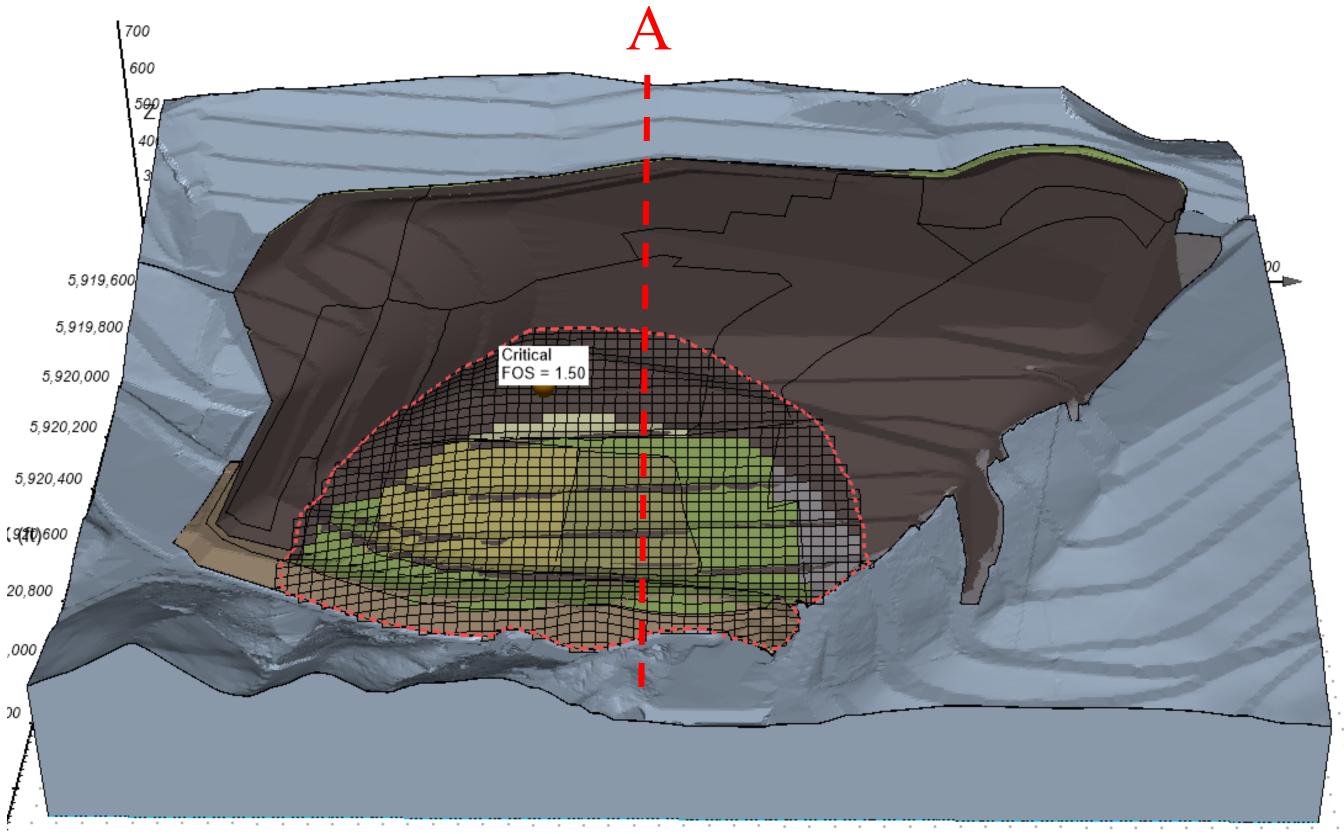
	Name	Strength Type
	Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – FILL PLAN
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE **B2**

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

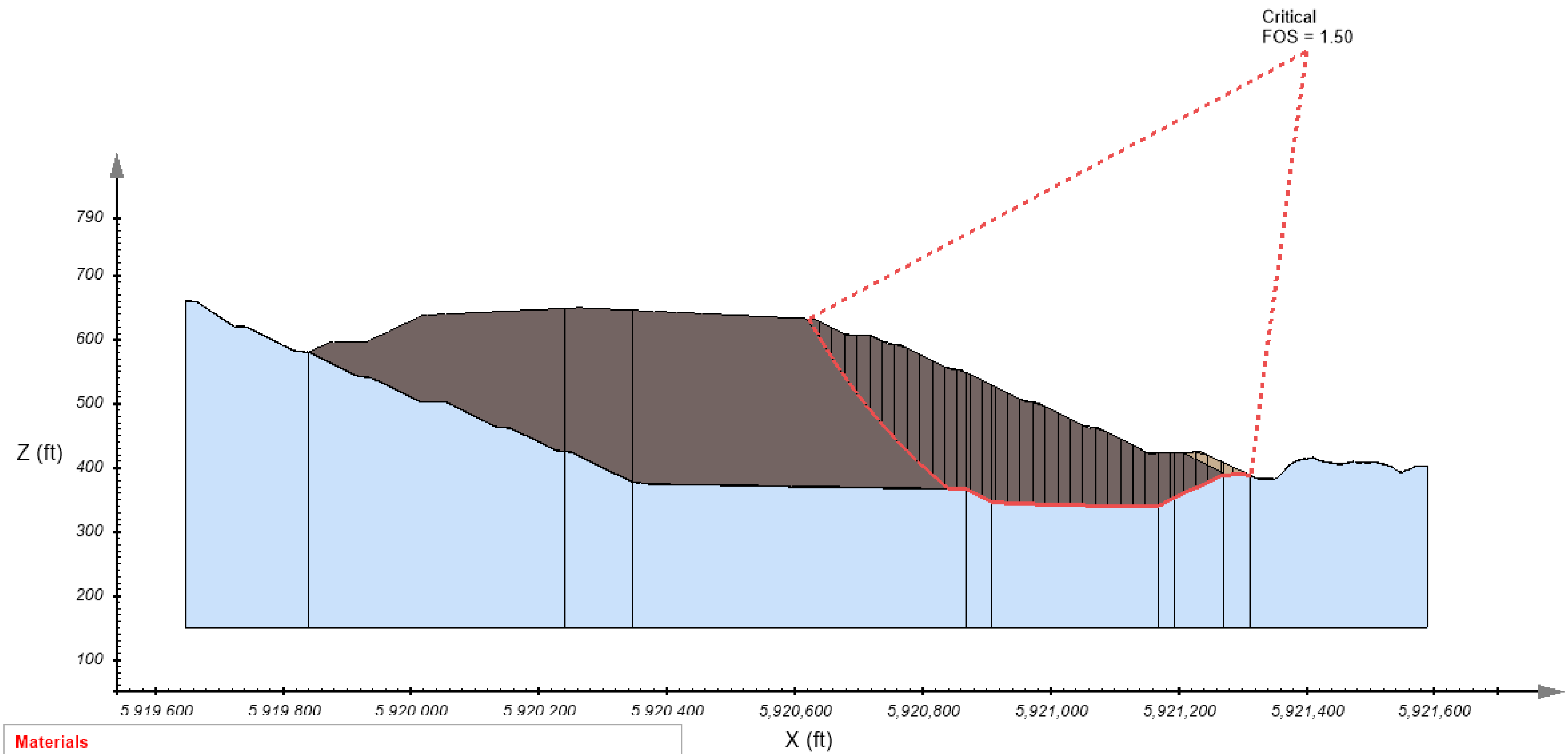
Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGHT FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE **B3**

PROJECT NO: SC1308 | MARCH 2023



Materials

	Name	Strength Type	Unit Weight (lbf/ft^3)
	MSW	Shear Normal Function	85
	Floor CCL Ph 2C	Shear Normal Function	110
	Floor CCL Ph 3A	Shear Normal Function	110
	Floor CCL Other Phas	Shear Normal Function	110

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
	Unlined Waste	Mohr Coulomb	85	0.01	33
	Structural Fill	Mohr Coulomb	125	200	33

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
	Slope CCL	Bilinear	110	0.01	15.9	9	4320
	Slope GCL	Bilinear	110	0.01	10	9.3	4320

	Name	Strength Type
	Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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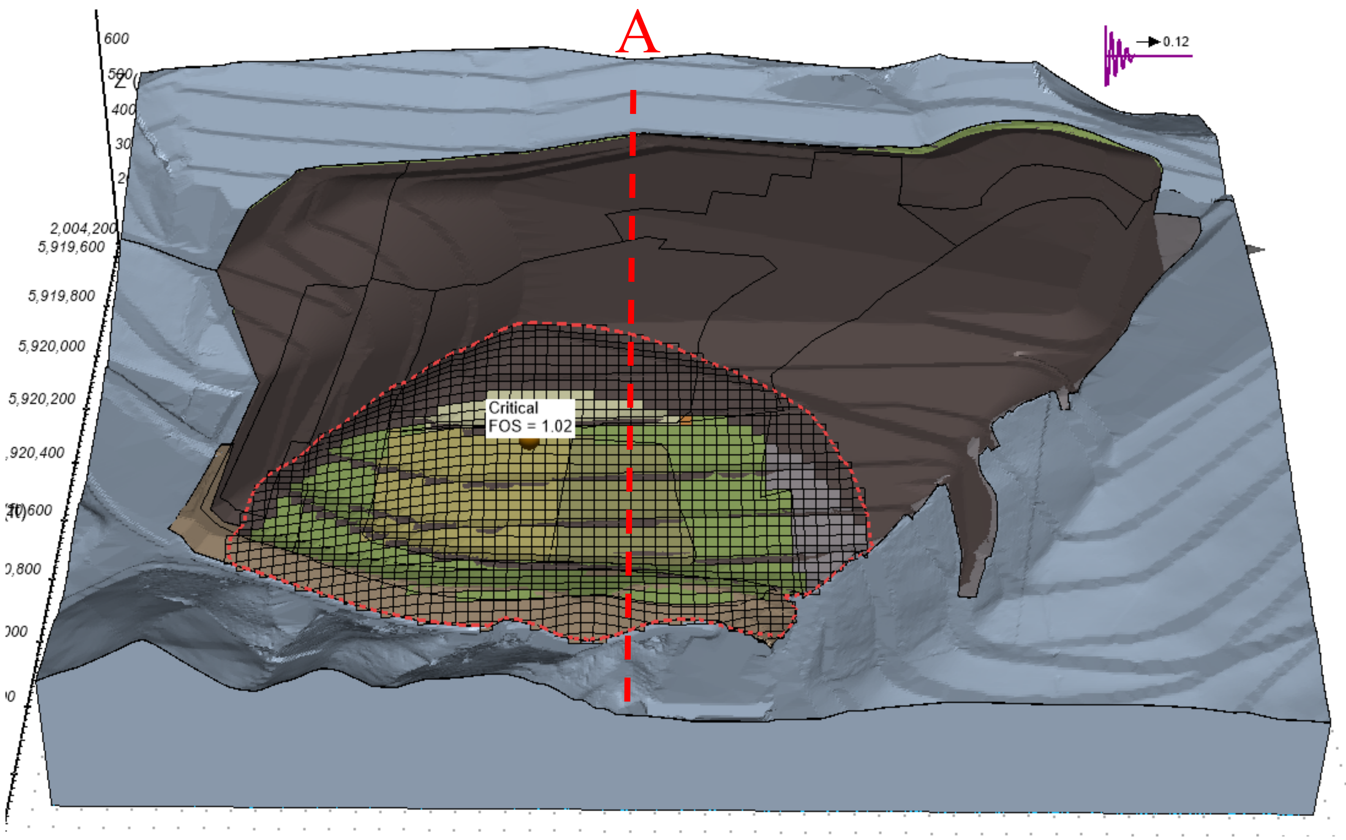
FIGURE

B4

PROJECT NO: SC1308

MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – PSEUDOSTATIC RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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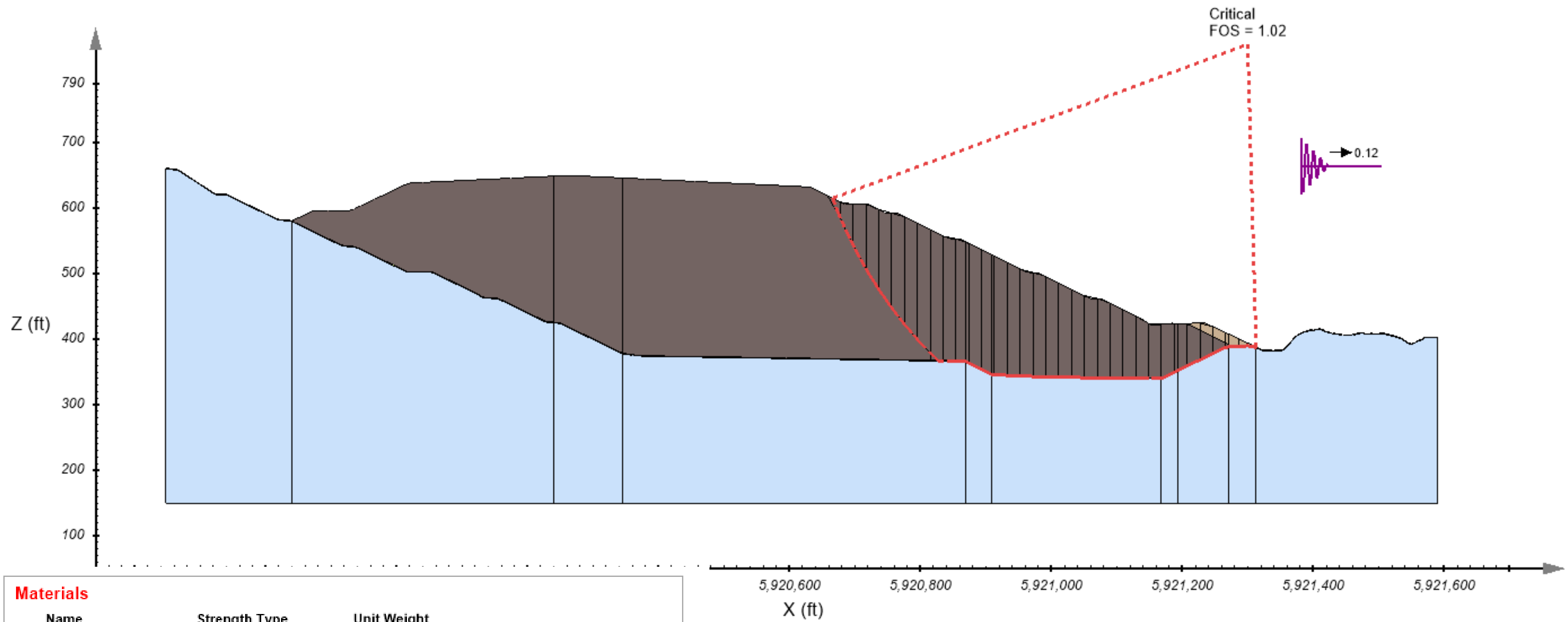
FIGURE

B5

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – PSEUDOSTATIC RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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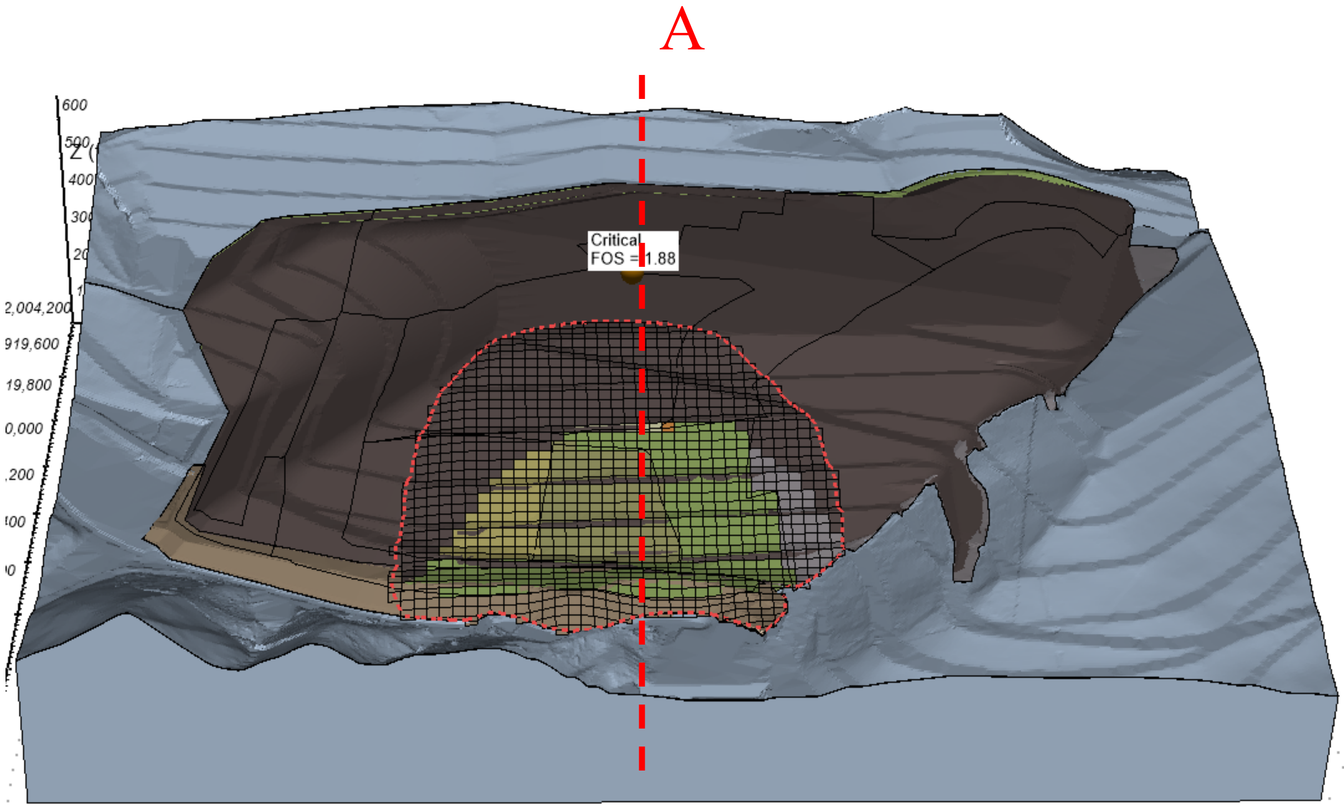
FIGURE
B6

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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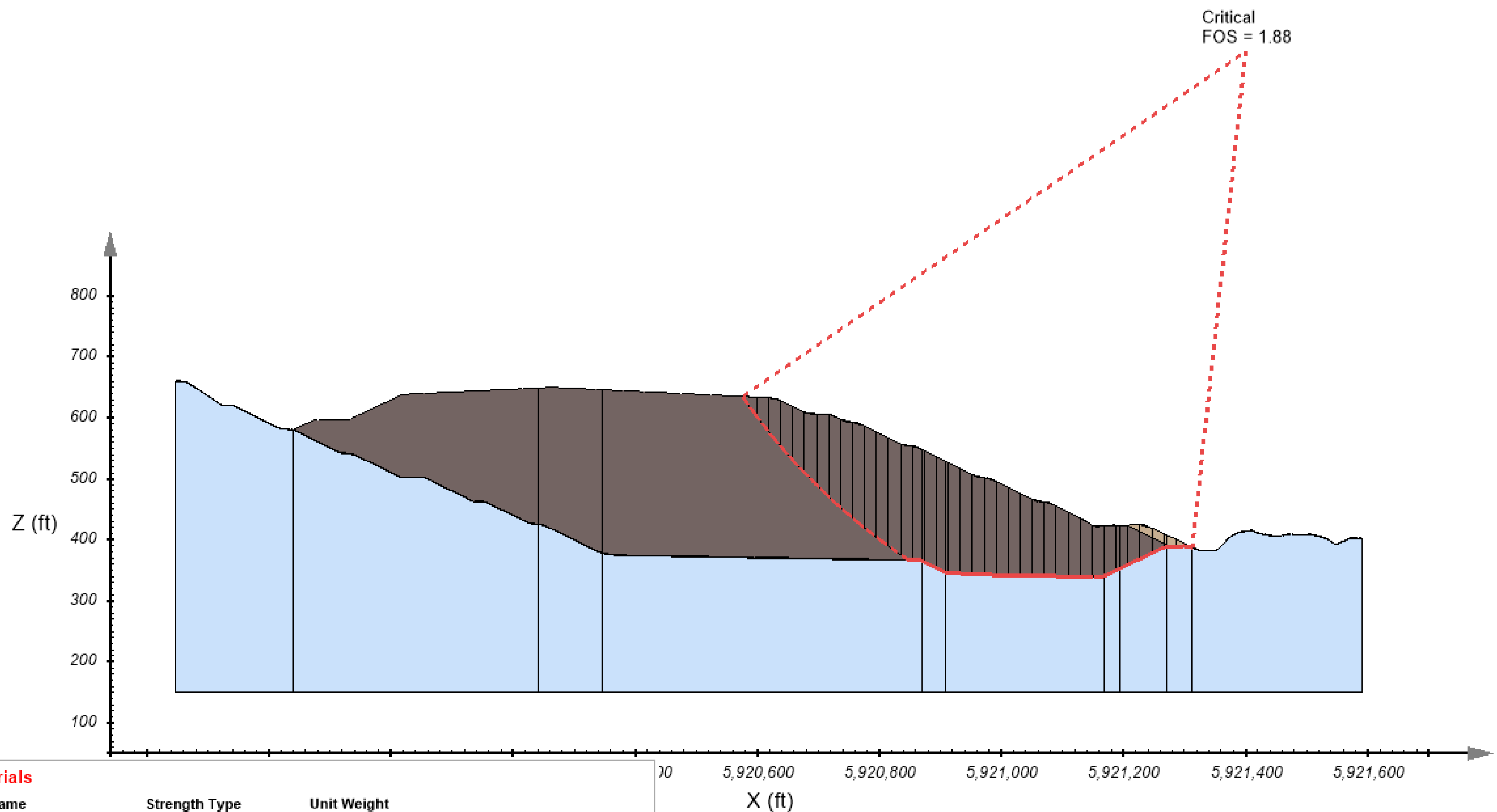
FIGURE

B7

PROJECT NO: SC1308

MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)				
MSW	Shear Normal Function	85				
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi (deg)**		
Unlined Waste	Mohr Coulomb	85	0.01	33		
Structural Fill	Mohr Coulomb	125	200	33		
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi1 (deg)**	**Phi2 (deg)**	**SigmaN (psf)**
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320
Name	**Strength Type**					
Sespe Alegria FM	Bedrock					

SECTION A PROPOSED GRADING – RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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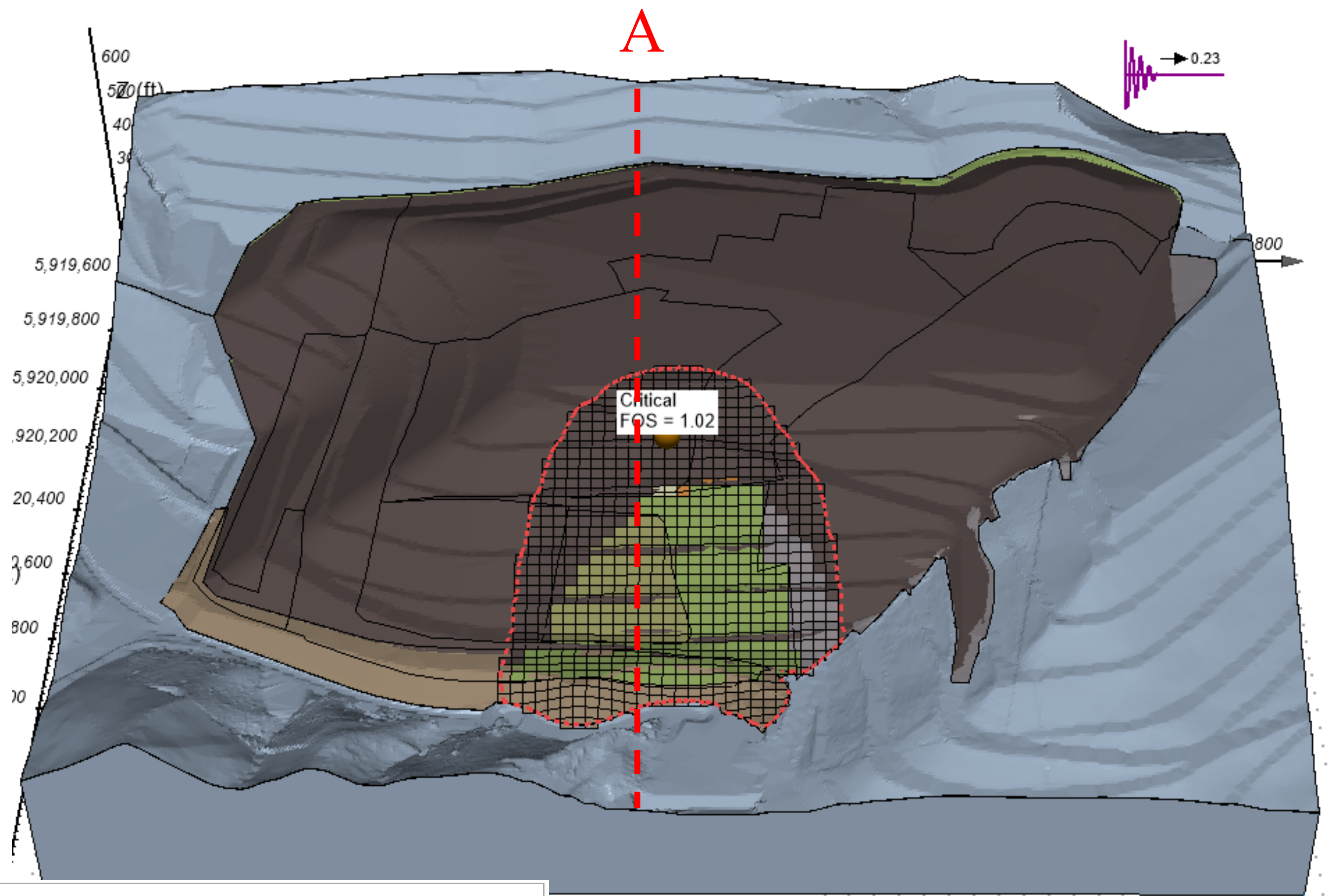
FIGURE **B8**

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – PSEUDOSTATIC RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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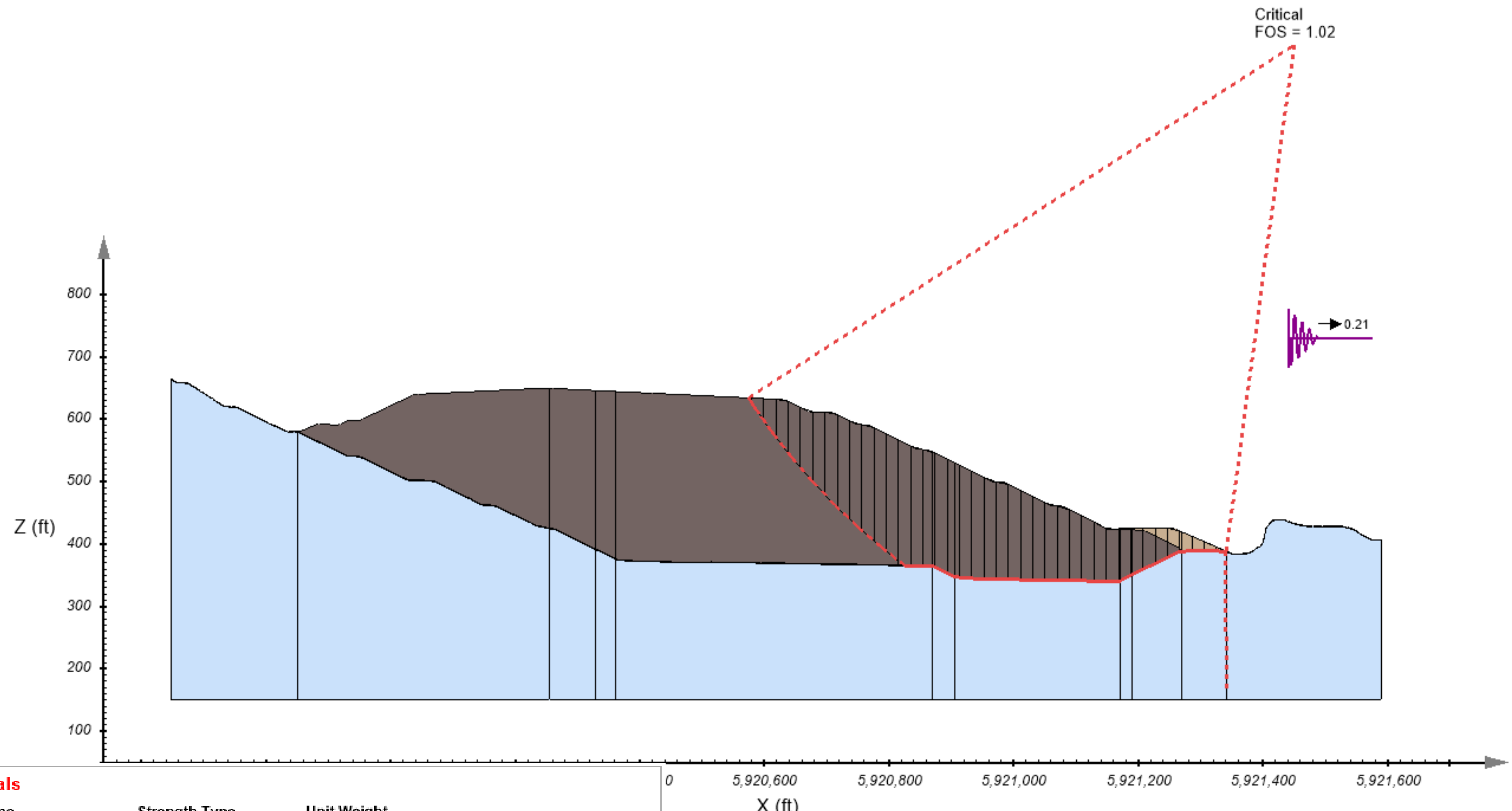
FIGURE **B9**

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION A PROPOSED GRADING – PSEUDOSTATIC RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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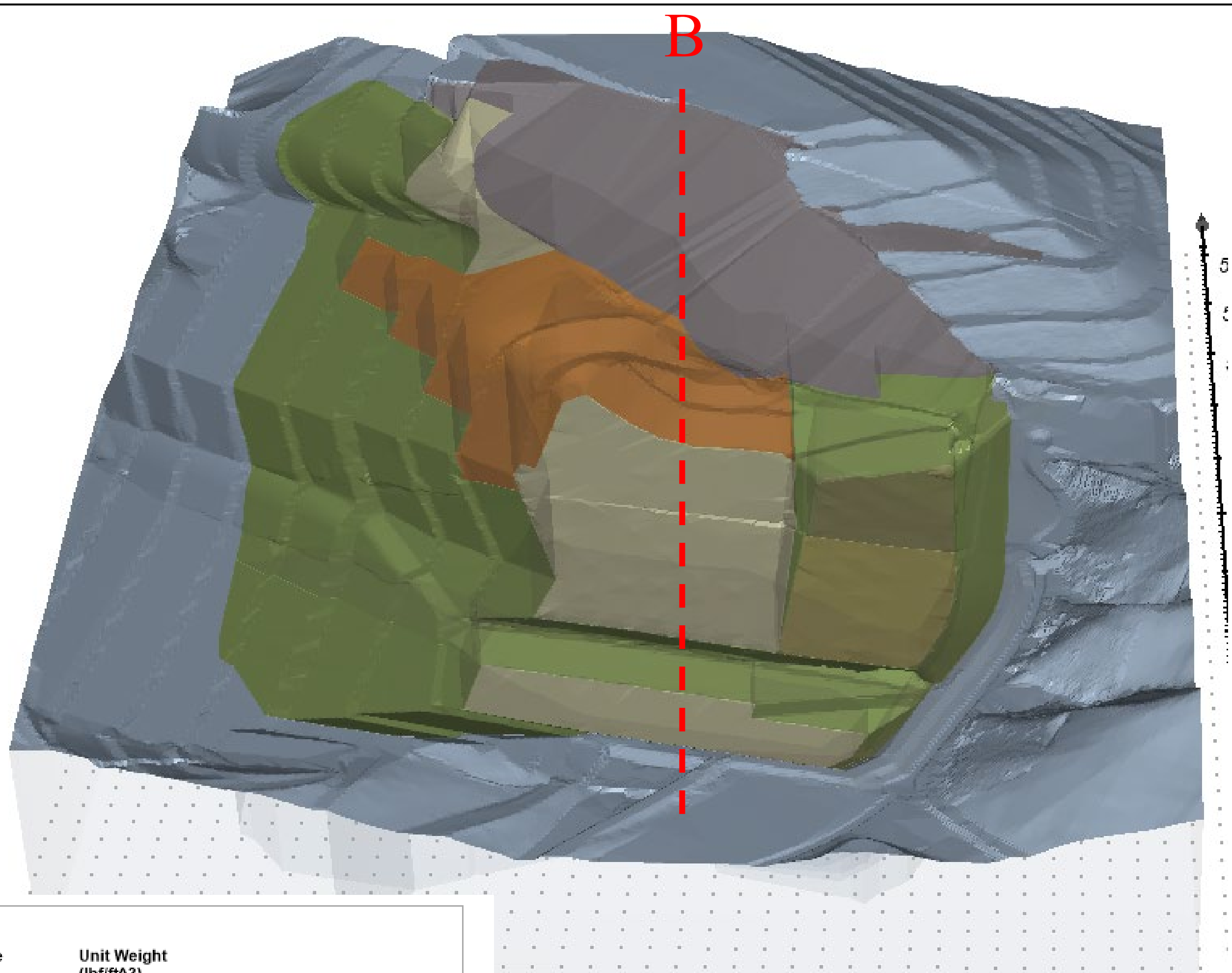
FIGURE **B10**

PROJECT NO: SC1308

MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

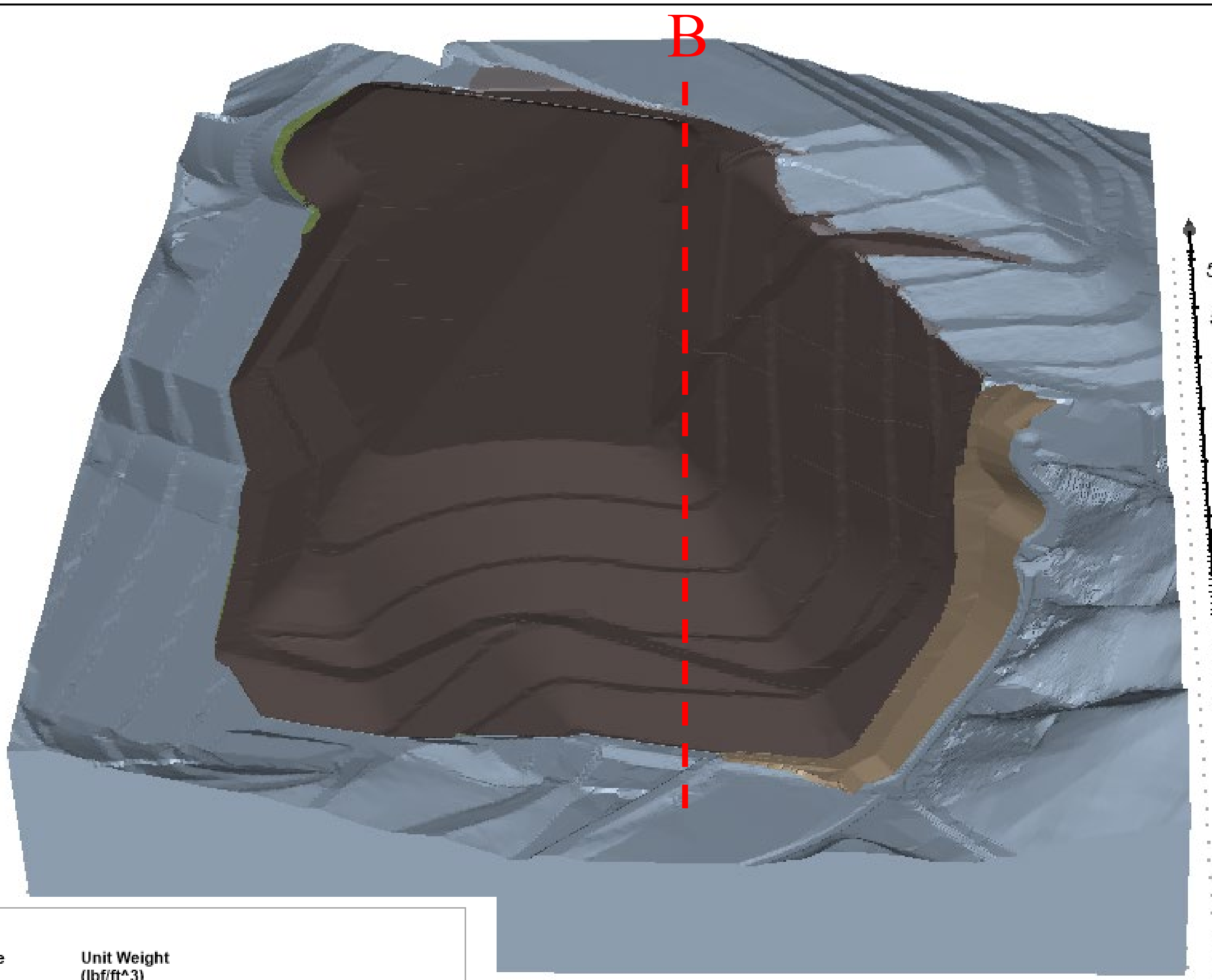
SECTION B PROPOSED GRADING – LINER CONFIGURATION
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE **B11**

PROJECT NO: SC1308 | MARCH 2023



Materials

	Name	Strength Type	Unit Weight (lbf/ft^3)
	MSW	Shear Normal Function	85
	Floor CCL Ph 2C	Shear Normal Function	110
	Floor CCL Ph 3A	Shear Normal Function	110
	Floor CCL Other Phas	Shear Normal Function	110

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
	Unlined Waste	Mohr Coulomb	85	0.01	33
	Structural Fill	Mohr Coulomb	125	200	33

	Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
	Slope CCL	Bilinear	110	0.01	15.9	9	4320
	Slope GCL	Bilinear	110	0.01	10	9.3	4320

	Name	Strength Type
	Sespe Alegria FM	Bedrock

SECTION B PROPOSED GRADING – FILL PLAN
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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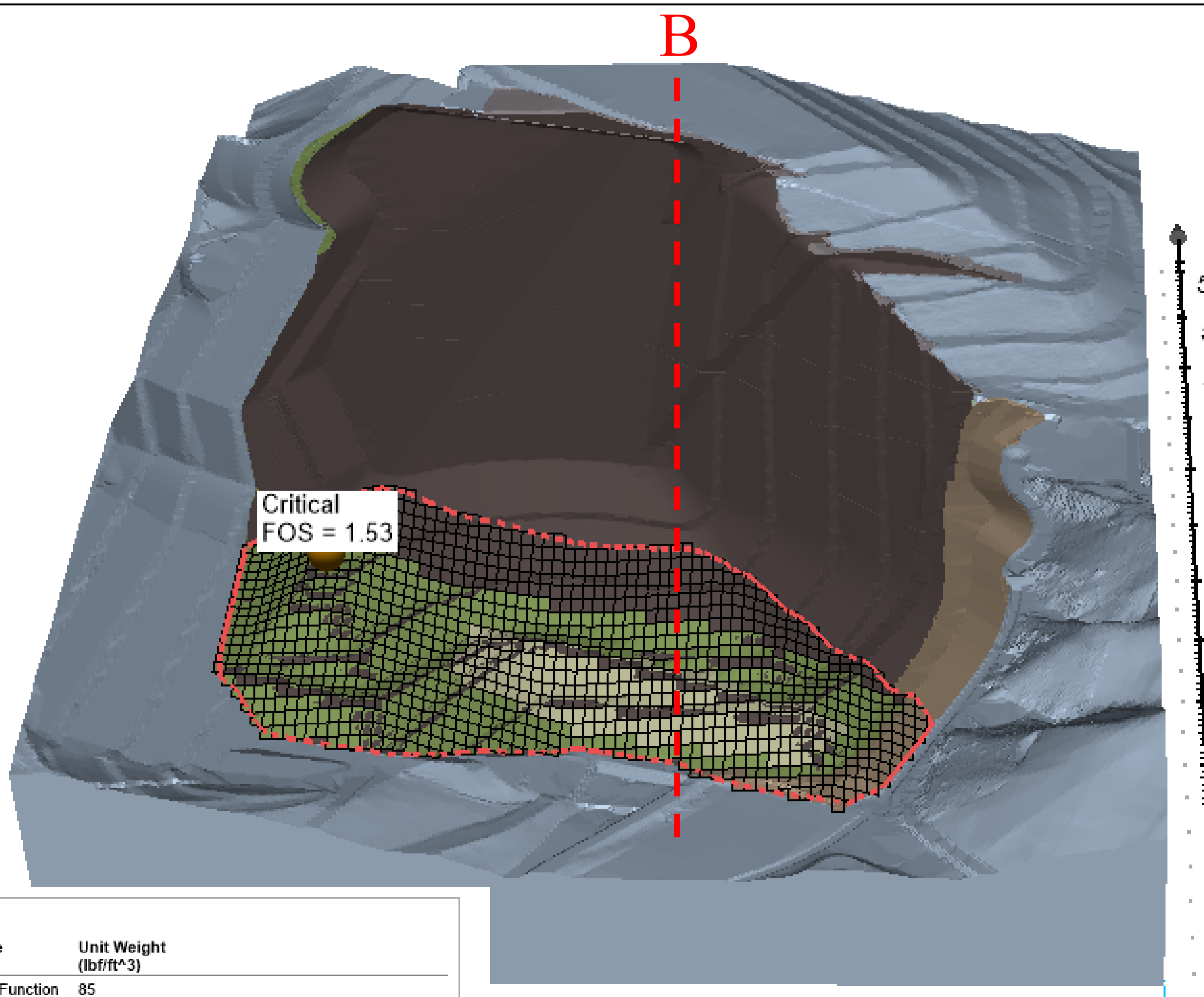
FIGURE **B12**

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)				
MSW	Shear Normal Function	85				
Floor CCL Ph 2C	Shear Normal Function	110				
Floor CCL Ph 3A	Shear Normal Function	110				
Floor CCL Other Phas	Shear Normal Function	110				
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi (deg)**		
Unlined Waste	Mohr Coulomb	85	0.01	33		
Structural Fill	Mohr Coulomb	125	200	33		
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi1 (deg)**	**Phi2 (deg)**	**SigmaN (psf)**
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320
Name	**Strength Type**					
Sespe Alegria FM	Bedrock					

SECTION B PROPOSED GRADING – RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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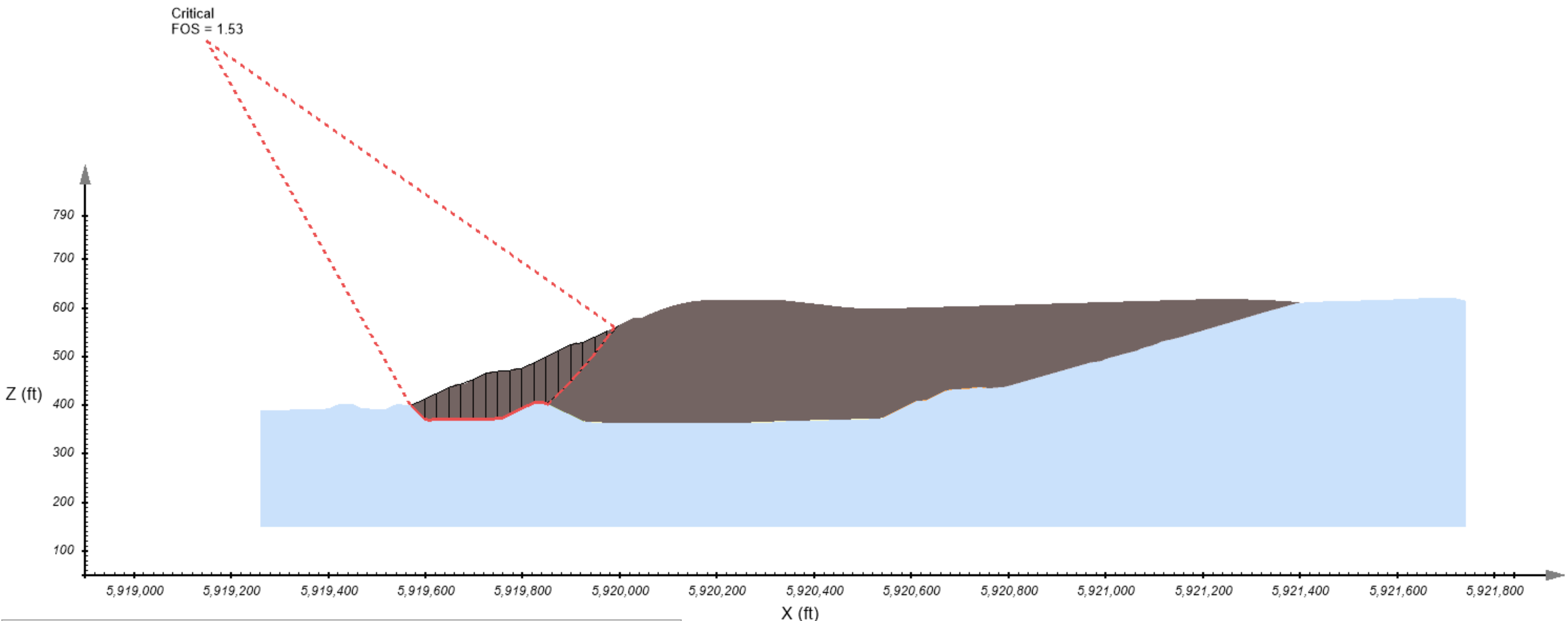
FIGURE **B13**

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION B PROPOSED GRADING – RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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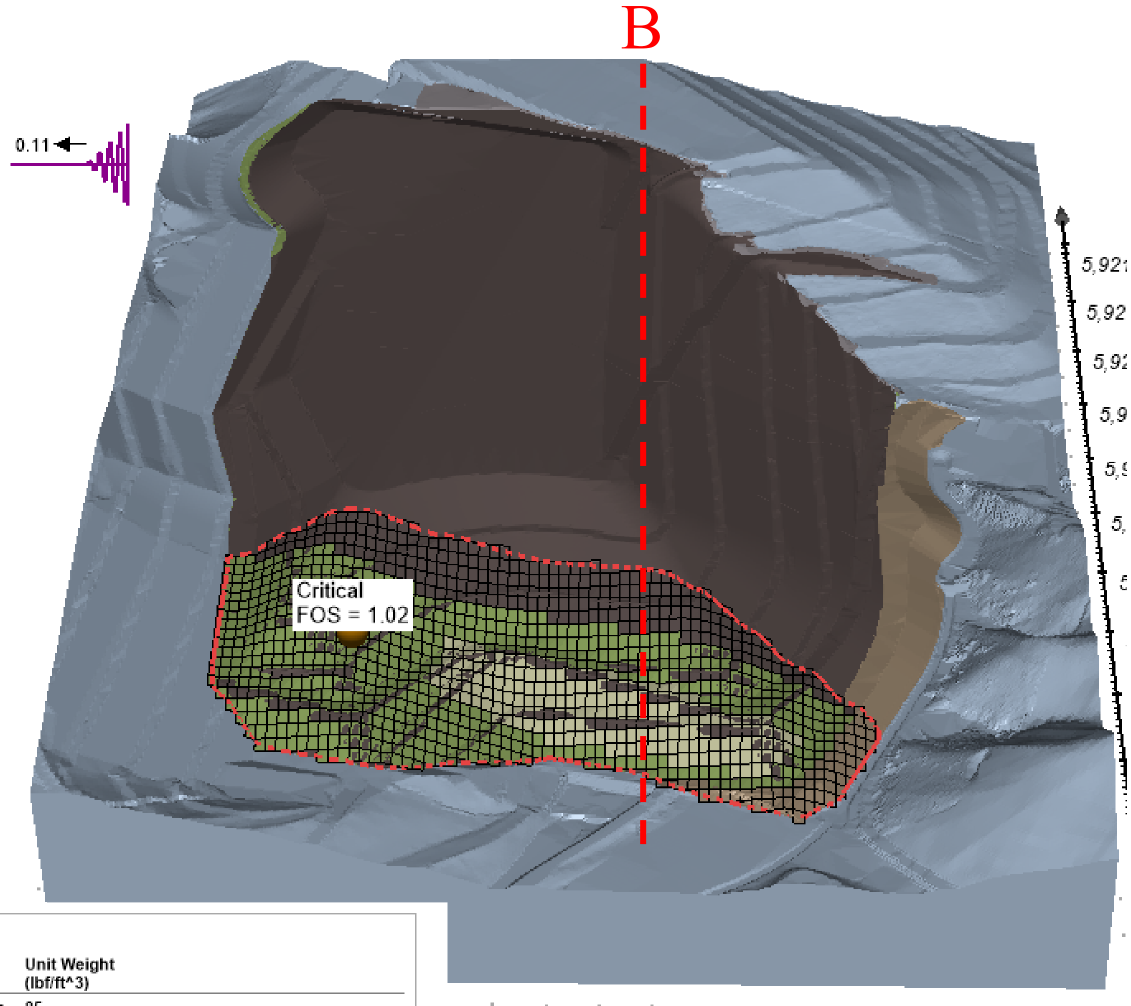
FIGURE

B14

PROJECT NO: SC1308

MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION B PROPOSED GRADING – PSEUDOSTATIC RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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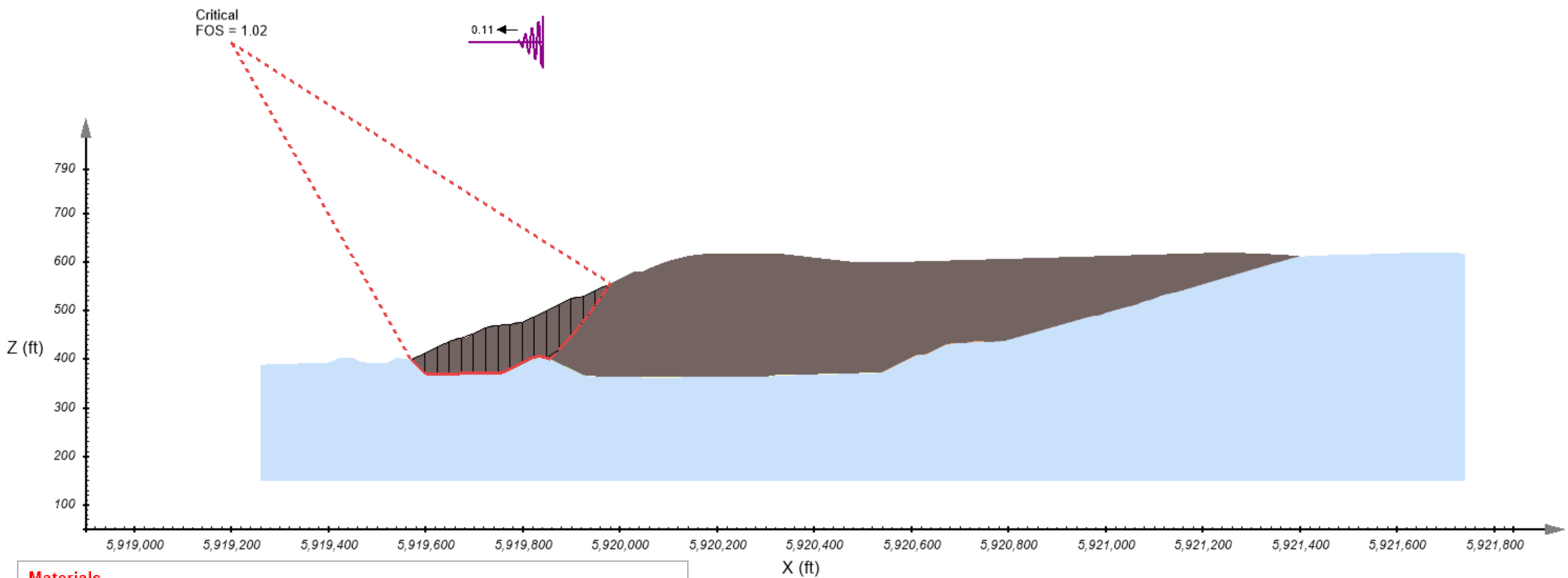
FIGURE
B15

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85
Floor CCL Ph 2C	Shear Normal Function	110
Floor CCL Ph 3A	Shear Normal Function	110
Floor CCL Other Phas	Shear Normal Function	110

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION B PROPOSED GRADING – PSEUDOSTATIC RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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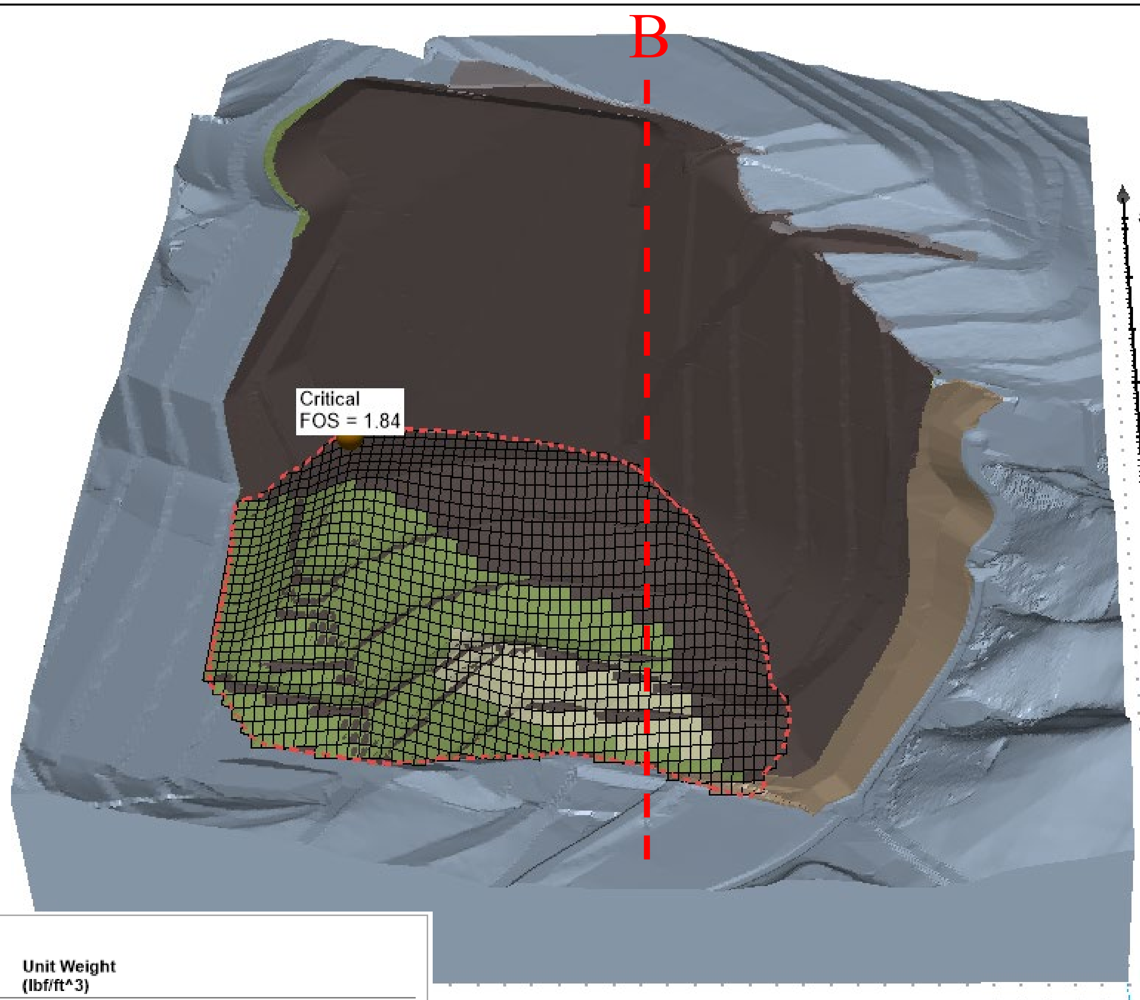
FIGURE
B16

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

SECTION B PROPOSED GRADING – RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

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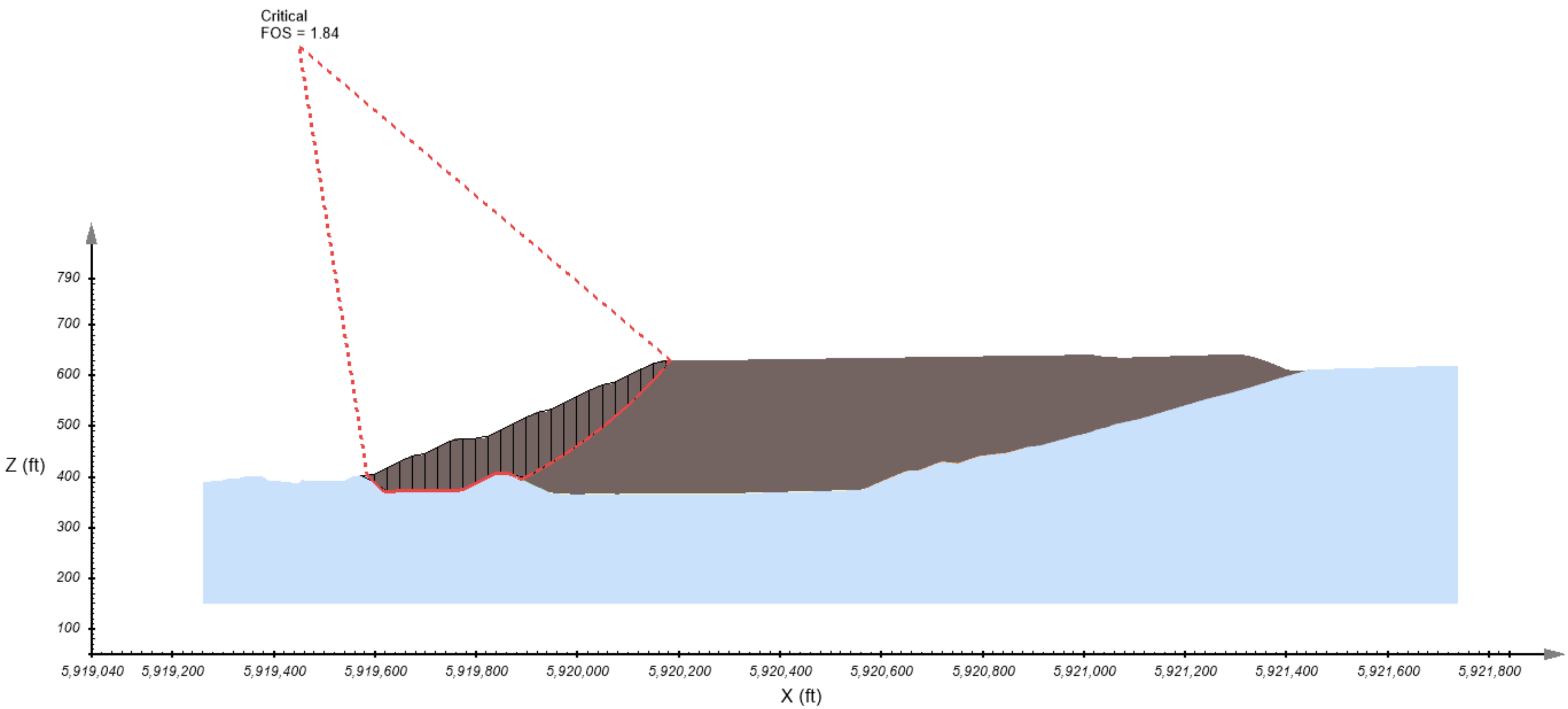
FIGURE **B17**

PROJECT NO: SC1308 | MARCH 2023



Materials

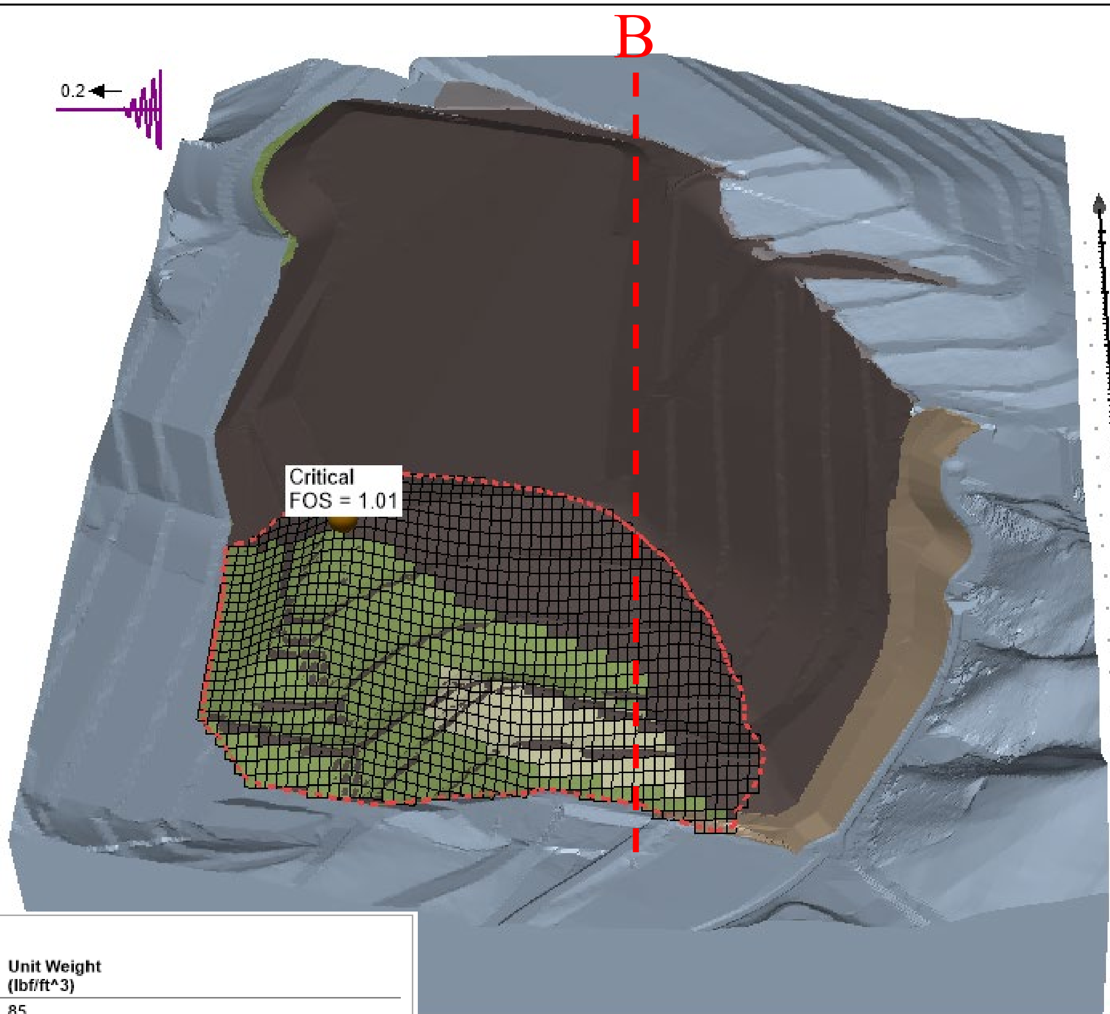
Name	Strength Type	Unit Weight (lbf/ft^3)				
MSW	Shear Normal Function	85				
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi (deg)**		
Unlined Waste	Mohr Coulomb	85	0.01	33		
Structural Fill	Mohr Coulomb	125	200	33		
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi1 (deg)**	**Phi2 (deg)**	**SigmaN (psf)**
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320
Name	**Strength Type**					
Sespe Alegria FM	Bedrock					

SECTION B PROPOSED GRADING – RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE
B18

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)
MSW	Shear Normal Function	85

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi (deg)
Unlined Waste	Mohr Coulomb	85	0.01	33
Structural Fill	Mohr Coulomb	125	200	33

Name	Strength Type	Unit Weight (lbf/ft^3)	Cohesion (psf)	Phi1 (deg)	Phi2 (deg)	SigmaN (psf)
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320

Name	Strength Type
Sespe Alegria FM	Bedrock

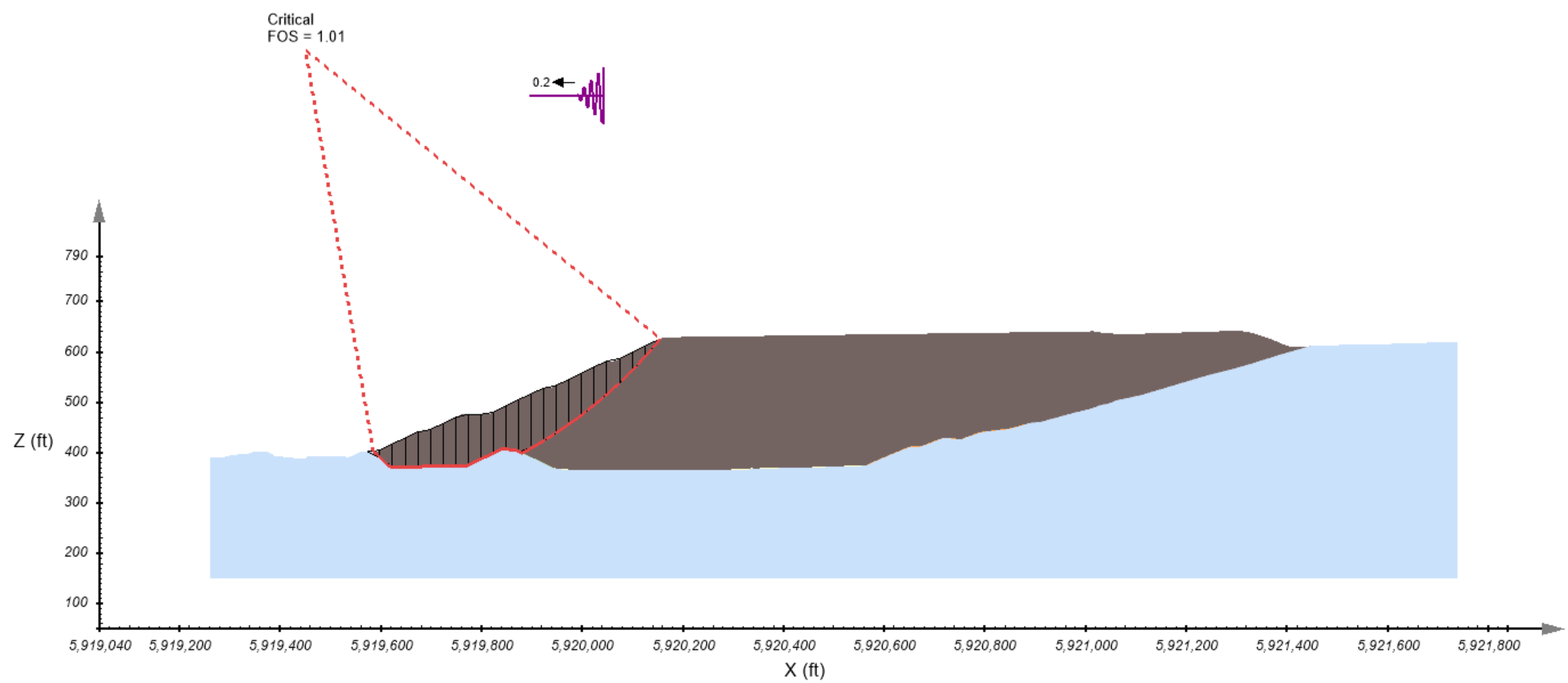
SECTION B PROPOSED GRADING – PSEUDOSTATIC RESULTS (3D VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
PEAK STRENGTH FOR FLOOR CCL COMPONENT

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE
B19

PROJECT NO: SC1308 | MARCH 2023



Materials

Name	Strength Type	Unit Weight (lbf/ft^3)				
MSW	Shear Normal Function	85				
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi (deg)**		
Unlined Waste	Mohr Coulomb	85	0.01	33		
Structural Fill	Mohr Coulomb	125	200	33		
Name	**Strength Type**	**Unit Weight (lbf/ft^3)**	**Cohesion (psf)**	**Phi1 (deg)**	**Phi2 (deg)**	**SigmaN (psf)**
Floor CCL Ph 2C	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Ph 3A	Bilinear	110	0.01	25.1	14.6	10800
Floor CCL Other Phas	Bilinear	110	0.01	25.1	14.6	10800
Slope CCL	Bilinear	110	0.01	15.9	9	4320
Slope GCL	Bilinear	110	0.01	10	9.3	4320
Name	**Strength Type**					
Sespe Alegria FM	Bedrock					

SECTION B PROPOSED GRADING – PSEUDOSTATIC RESULTS (PROFILE VIEW)
3D LIMIT EQUILIBRIUM SLOPE STABILITY ANALYSIS
RESIDUAL STRENGTH FOR FLOOR CCL COMPONENT
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

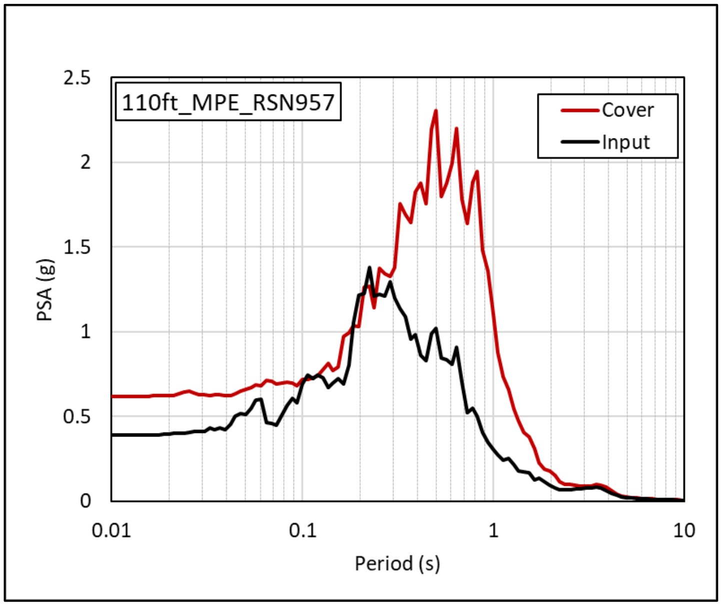
Geosyntec consultants

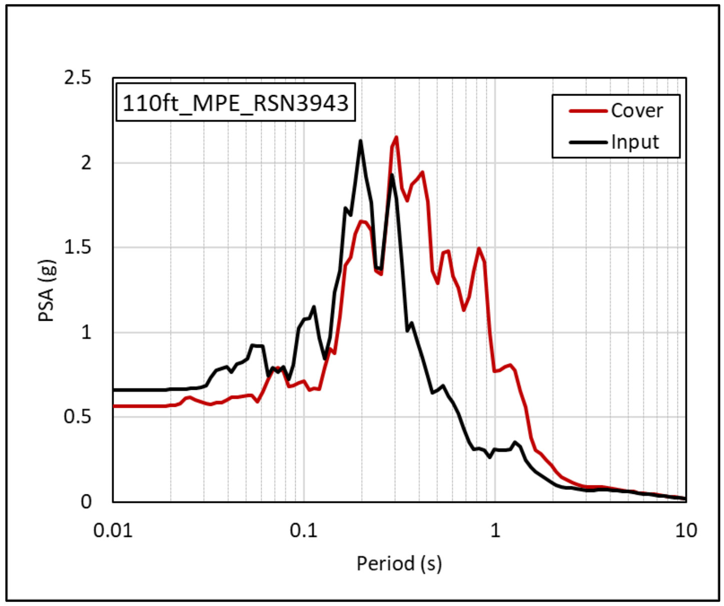
FIGURE
B20

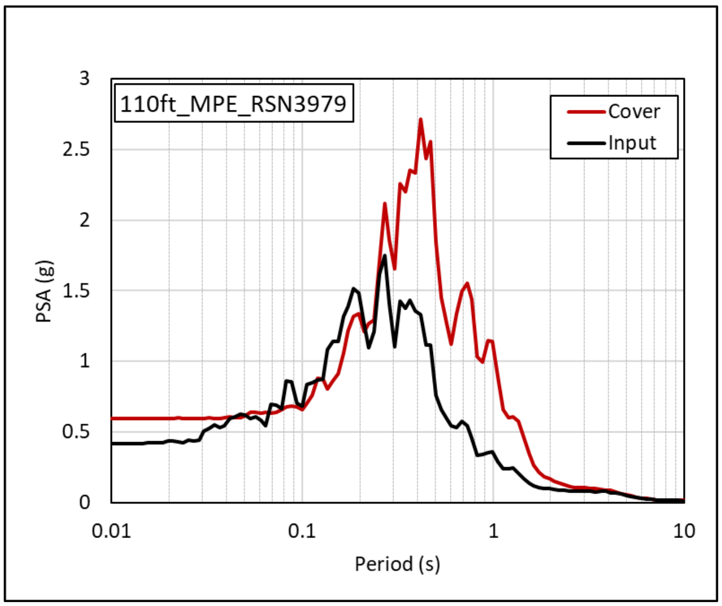
PROJECT NO: SC1308 | MARCH 2023

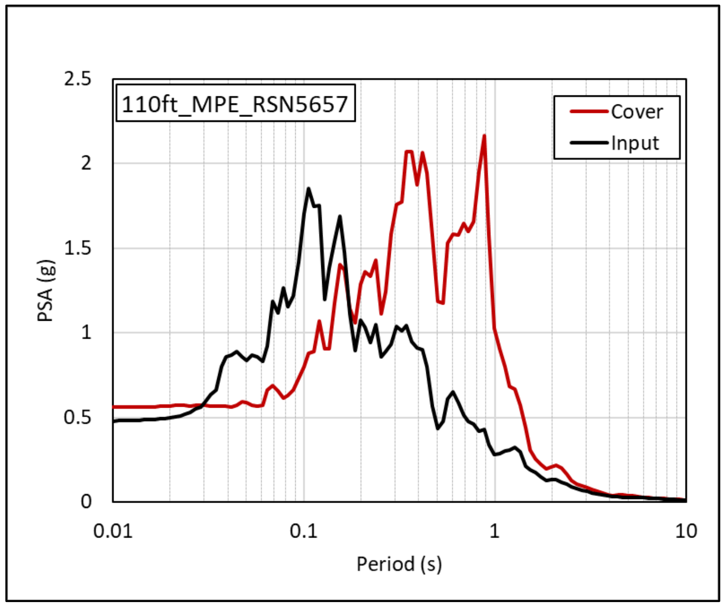
Geosyntec consultants

ATTACHMENT C
Site Response Analysis









Notes:

1. PSA = Pseudo-Spectral Acceleration

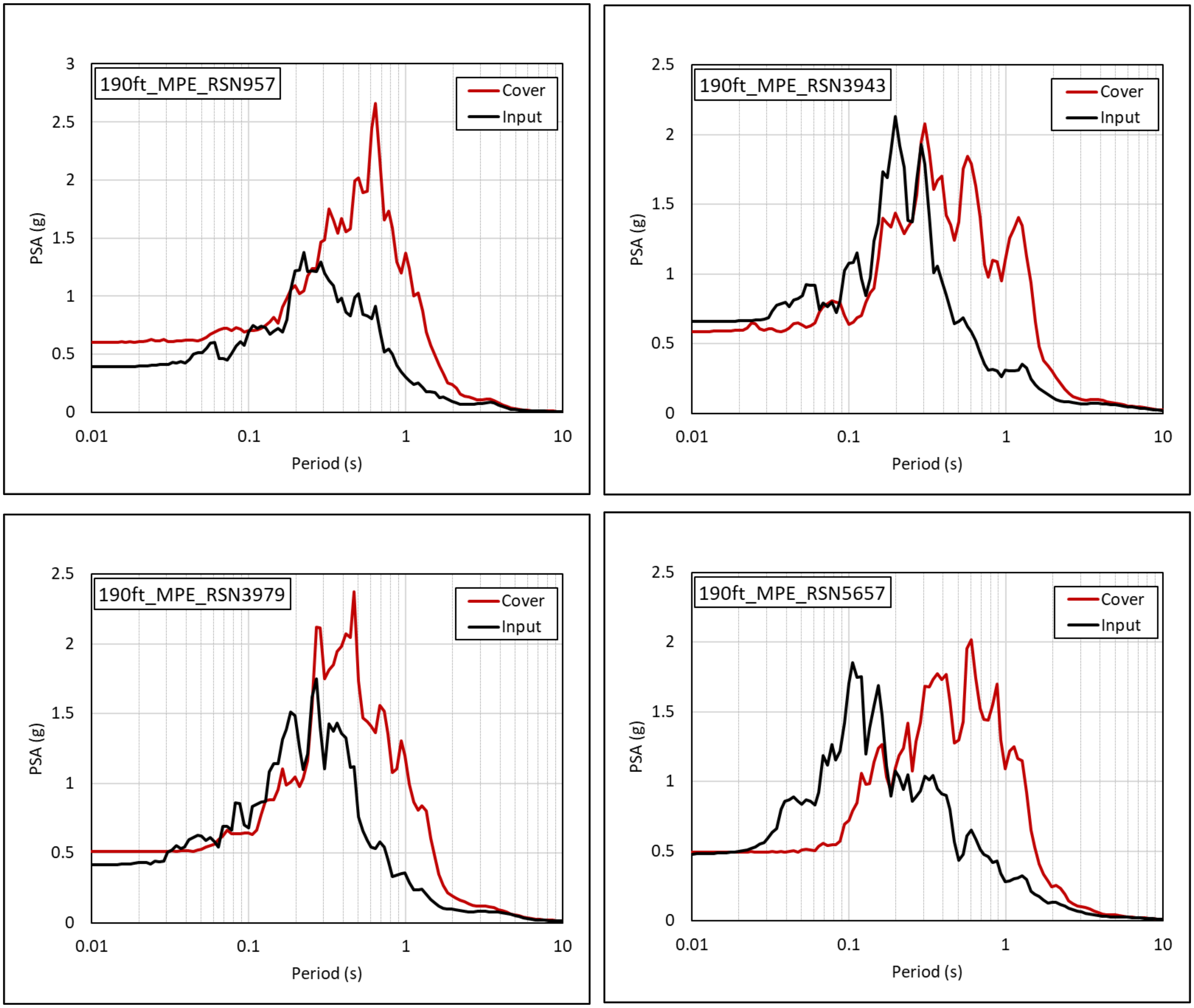
MPE RESPONSE SPECTRA– 110 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE

C1

PROJECT NO: SC1308 | MARCH 2023



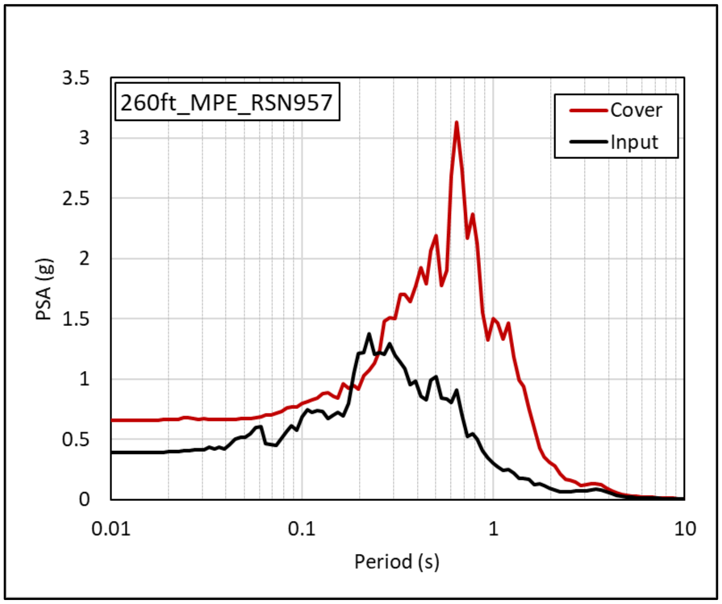
Notes:
1. PSA = Pseudo-Spectral Acceleration

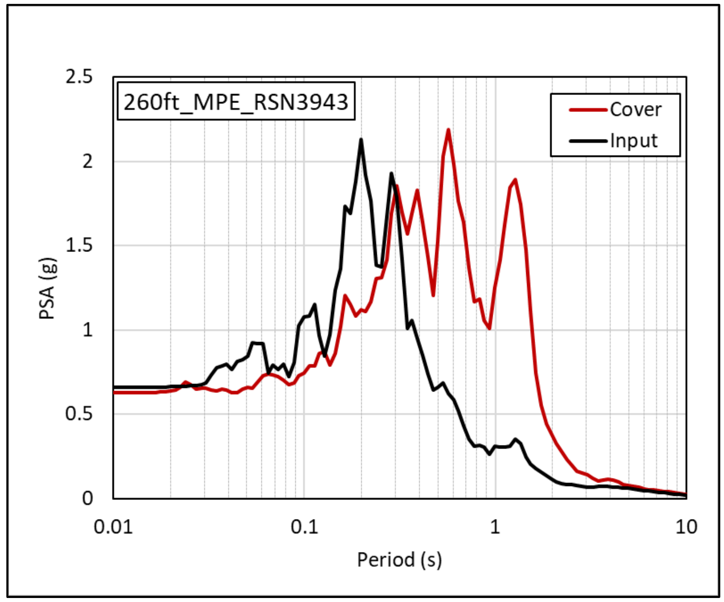
MPE RESPONSE SPECTRA– 190 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

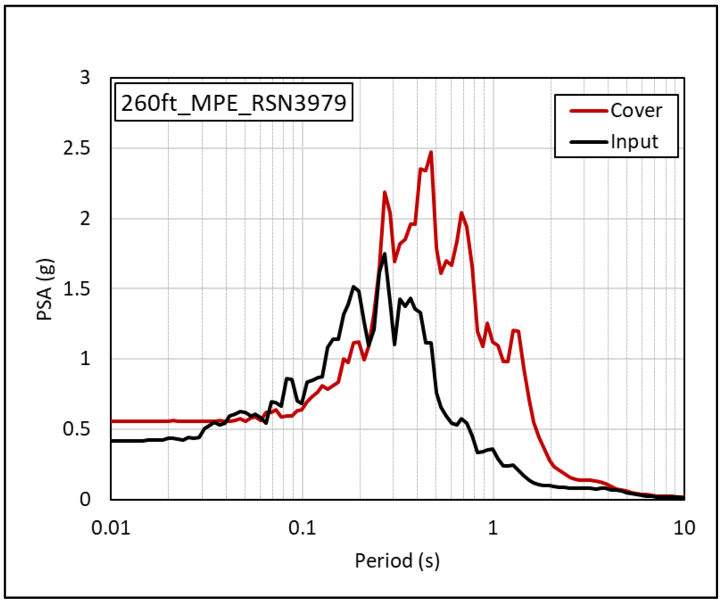
Geosyntec consultants

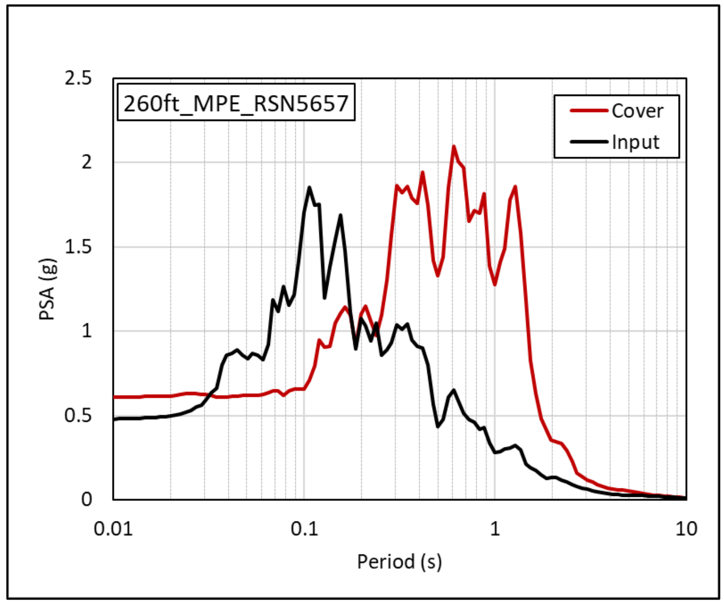
FIGURE **C2**

PROJECT NO: SC1308 | MARCH 2023









Notes:

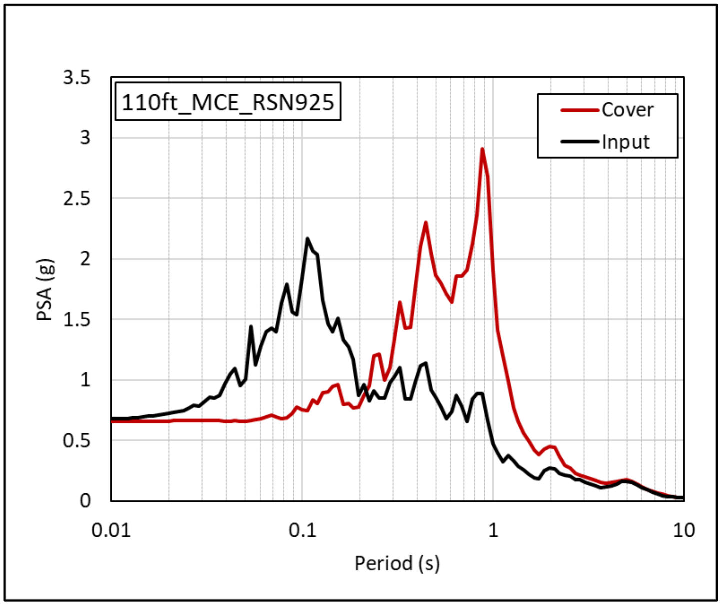
1. PSA = Pseudo-Spectral Acceleration

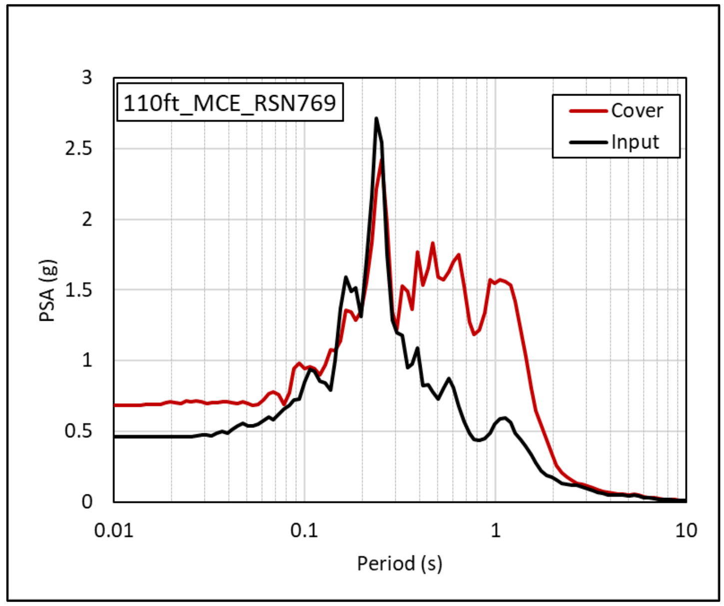
MPE RESPONSE SPECTRA– 260 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

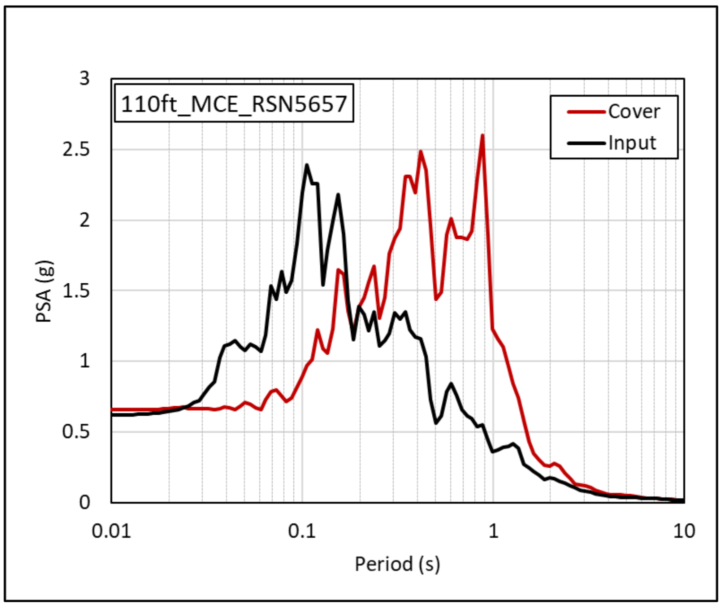
Geosyntec consultants

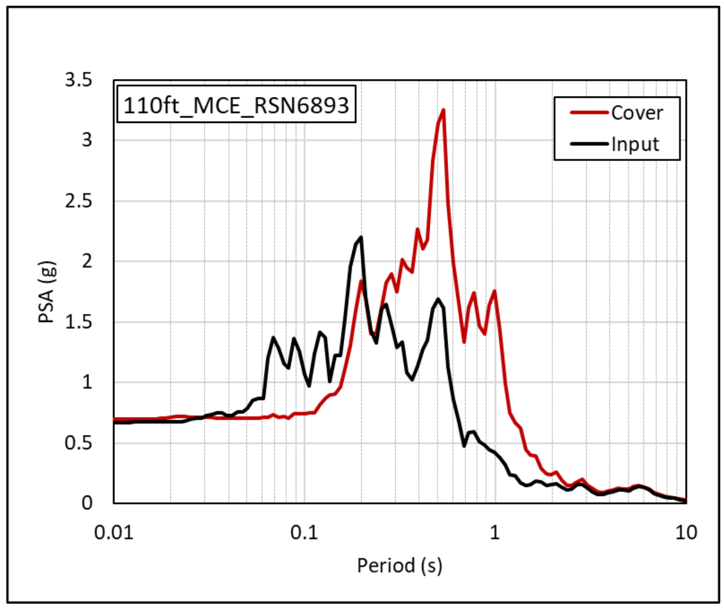
FIGURE **C3**

PROJECT NO: SC1308 | MARCH 2023









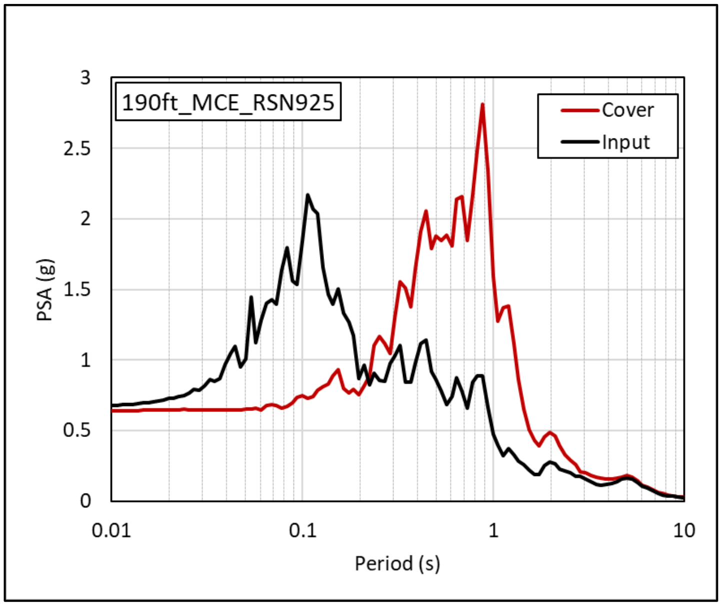
Notes:
1. PSA = Pseudo-Spectral Acceleration

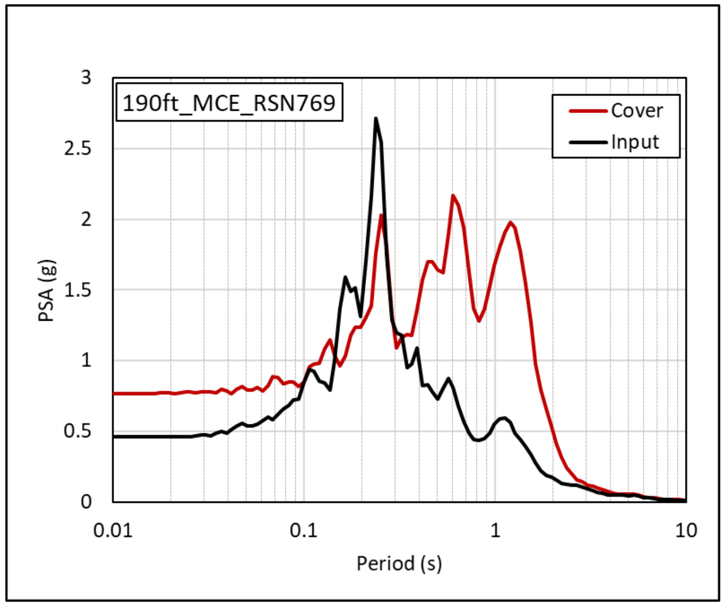
MCE RESPONSE SPECTRA– 110 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

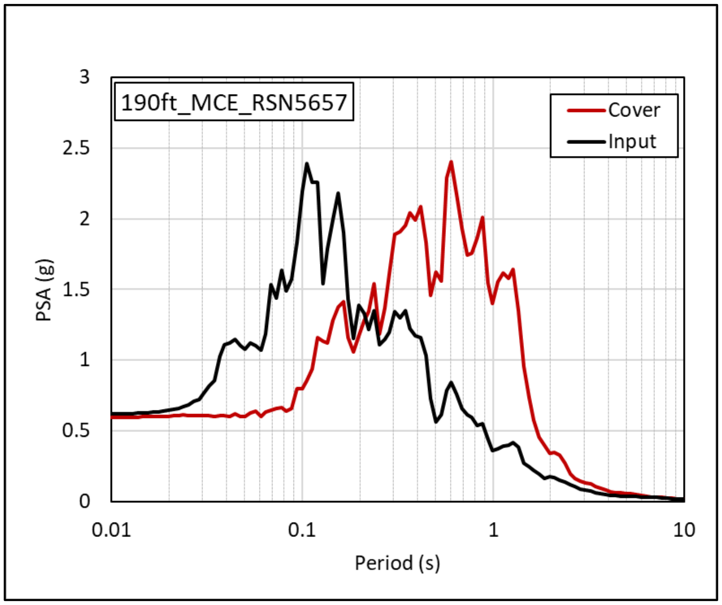
Geosyntec consultants

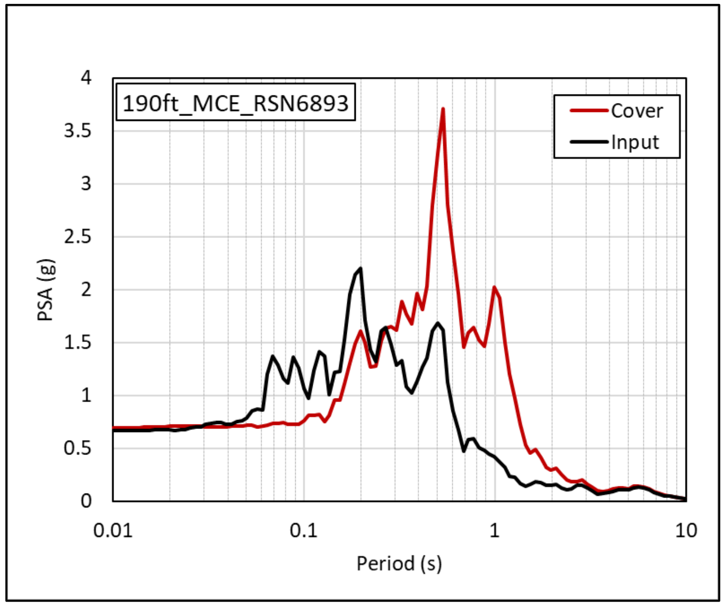
PROJECT NO: SC1308 | MARCH 2023

FIGURE **C4**









Notes:

1. PSA = Pseudo-Spectral Acceleration

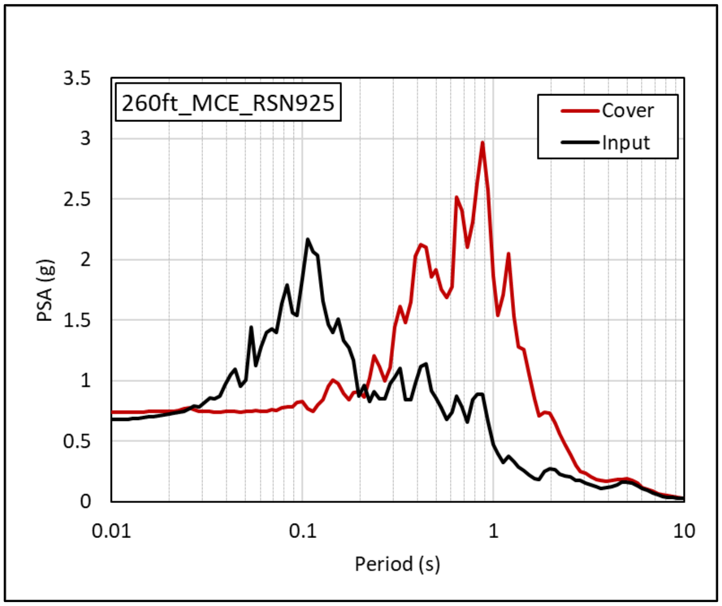
MCE RESPONSE SPECTRA– 190 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

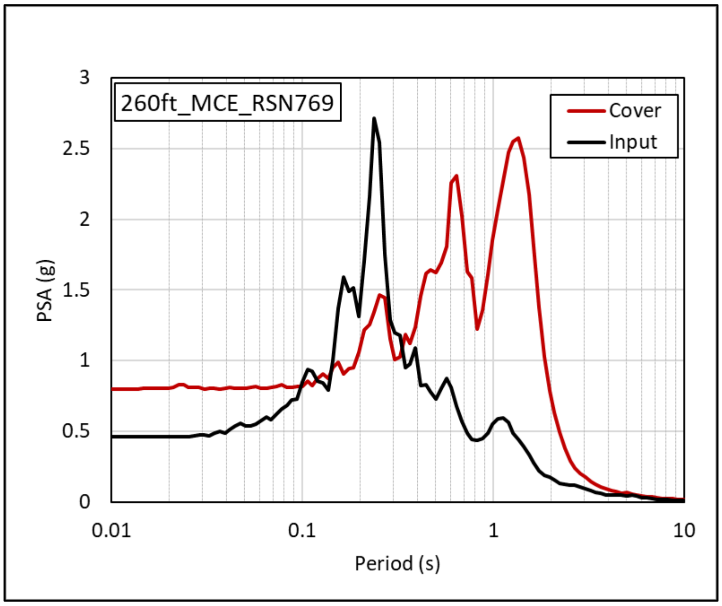
Geosyntec consultants

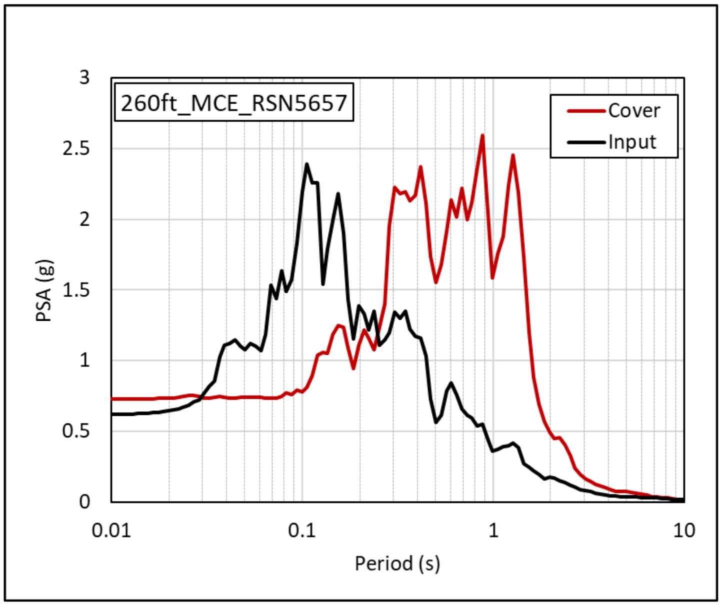
FIGURE

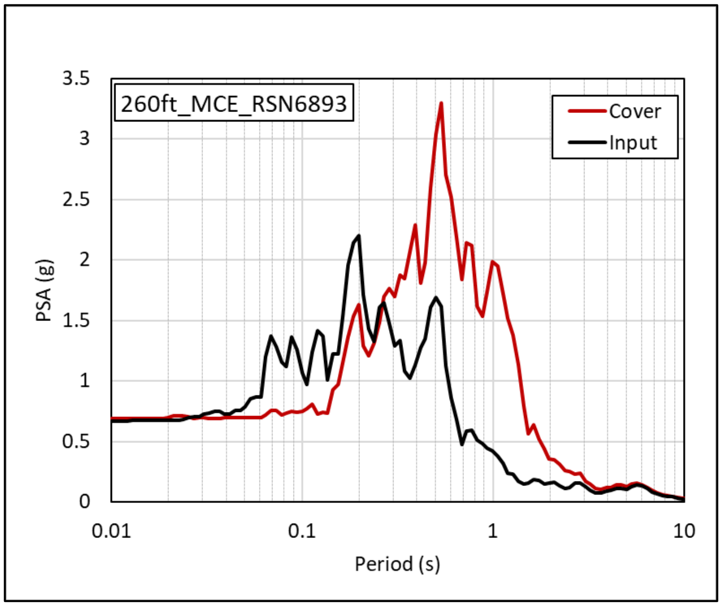
C5

PROJECT NO: SC1308 | MARCH 2023









Notes:

1. PSA = Pseudo-Spectral Acceleration

MCE RESPONSE SPECTRA– 260 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

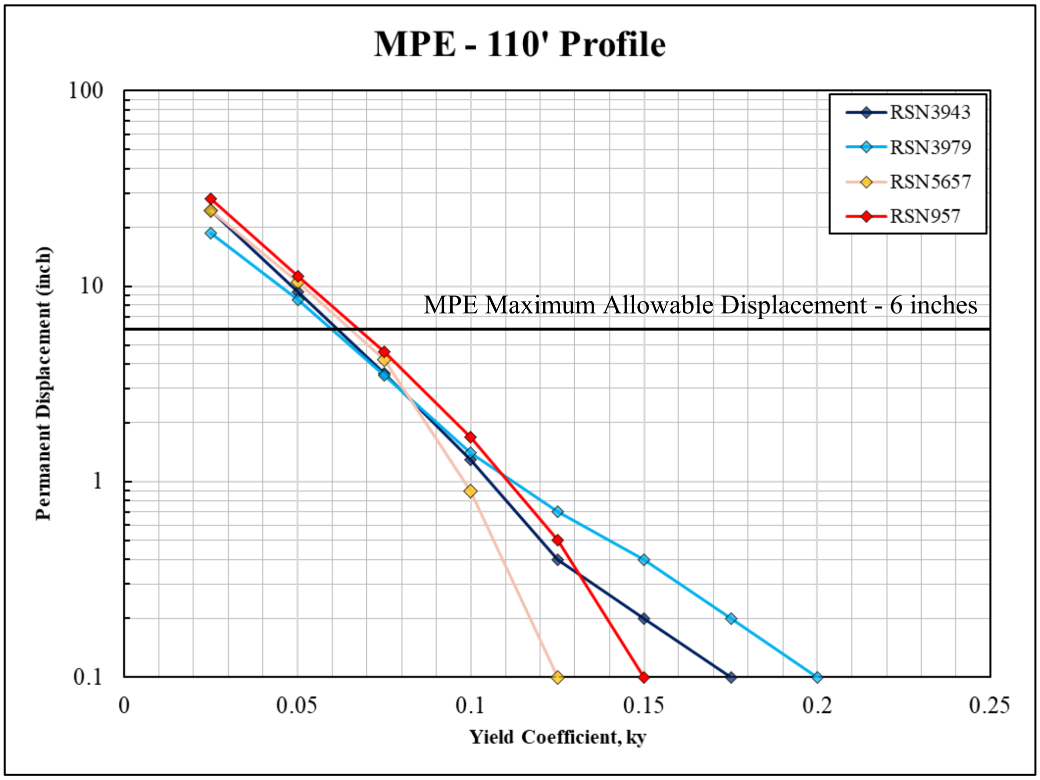
Geosyntec consultants

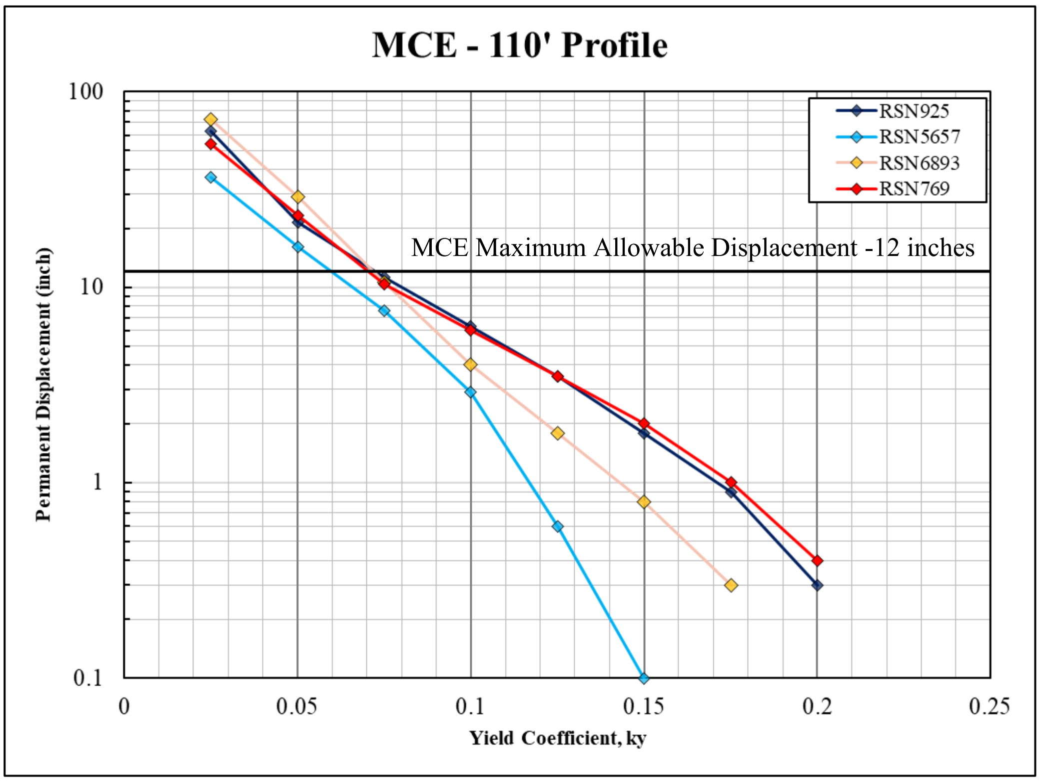
FIGURE **C6**

PROJECT NO: SC1308 | MARCH 2023

Geosyntec consultants

ATTACHMENT D
Permanent Displacement Analysis

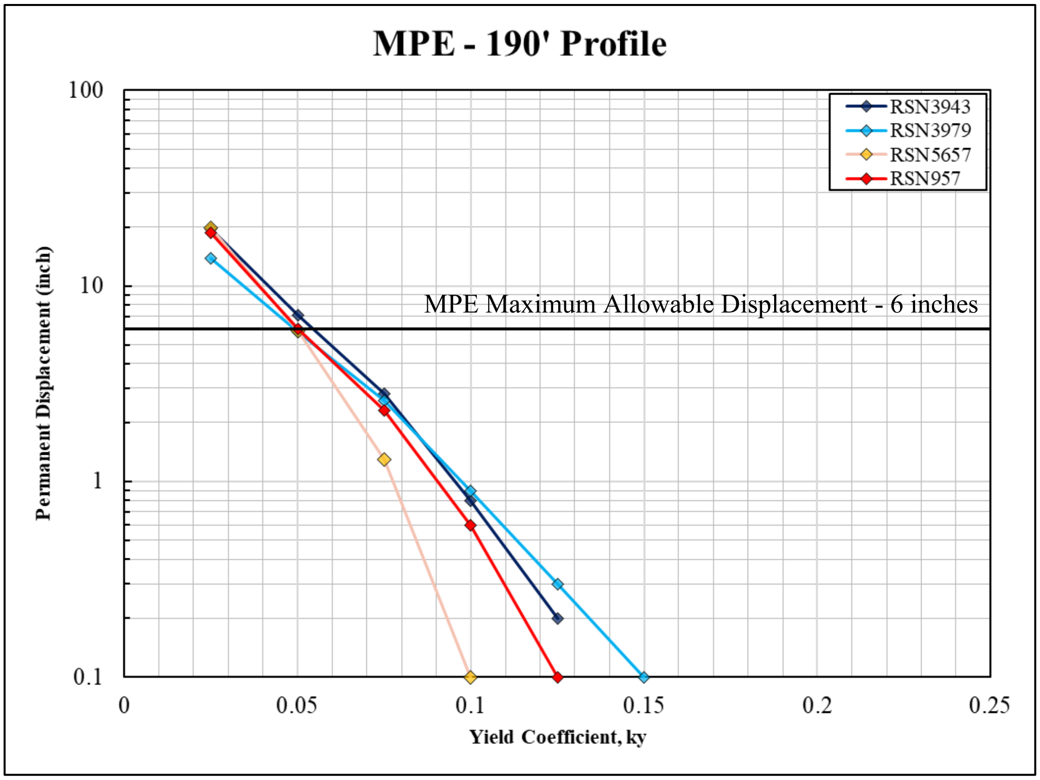


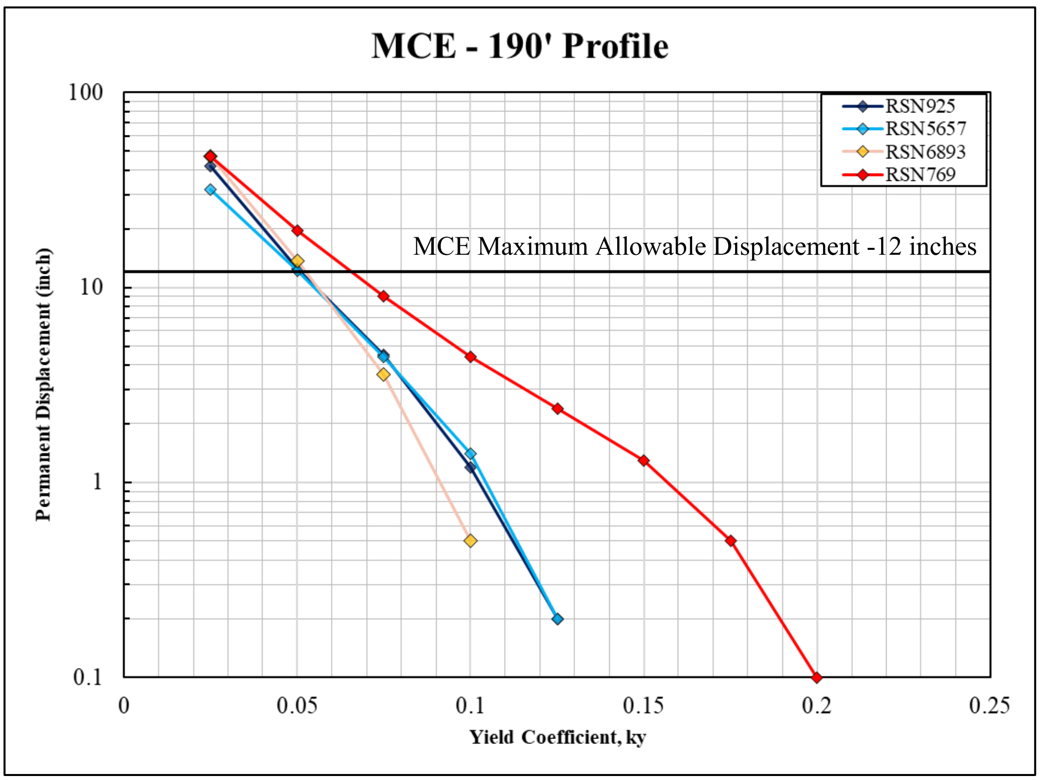


Notes:

1. Plotted displacements are the maximum of the standard and reverse polarity.

MAXIMUM PERMANENT LINER DISPLACEMENT FOR 110 FT PROFILE TAJIGUAS SANITARY LANDFILL SANTA BARBARA COUNTY, CALIFORNIA		
Geosyntec consultants		FIGURE **D1**
PROJECT NO: SC1308	MARCH 2023	





Notes:

1. Plotted displacements are the maximum of the standard and reverse polarity.

MAXIMUM PERMANENT LINER DISPLACEMENT FOR 190 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

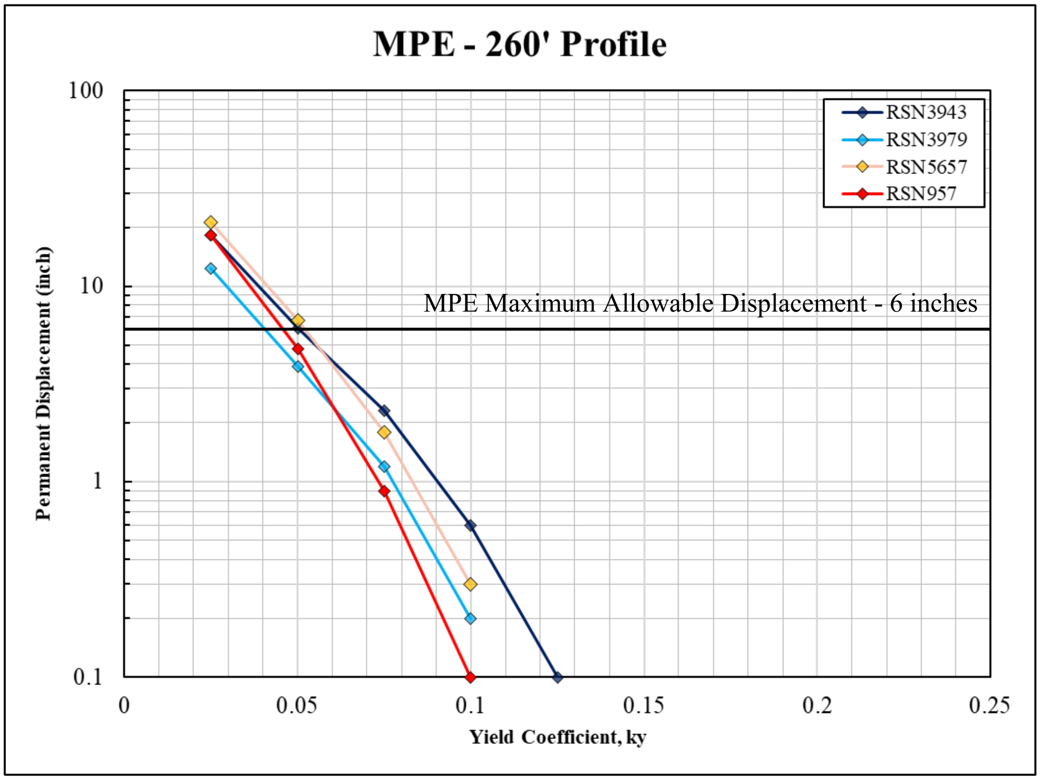
Geosyntec consultants

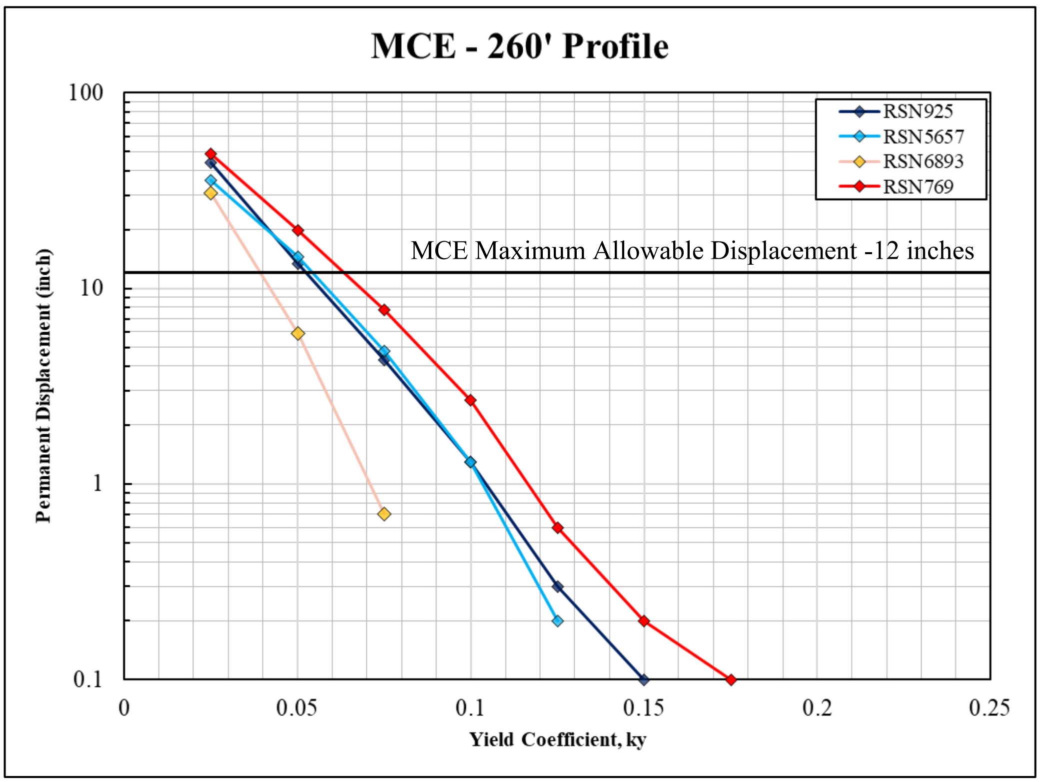
FIGURE

D2

PROJECT NO: SC1308

MARCH 2023





Notes:

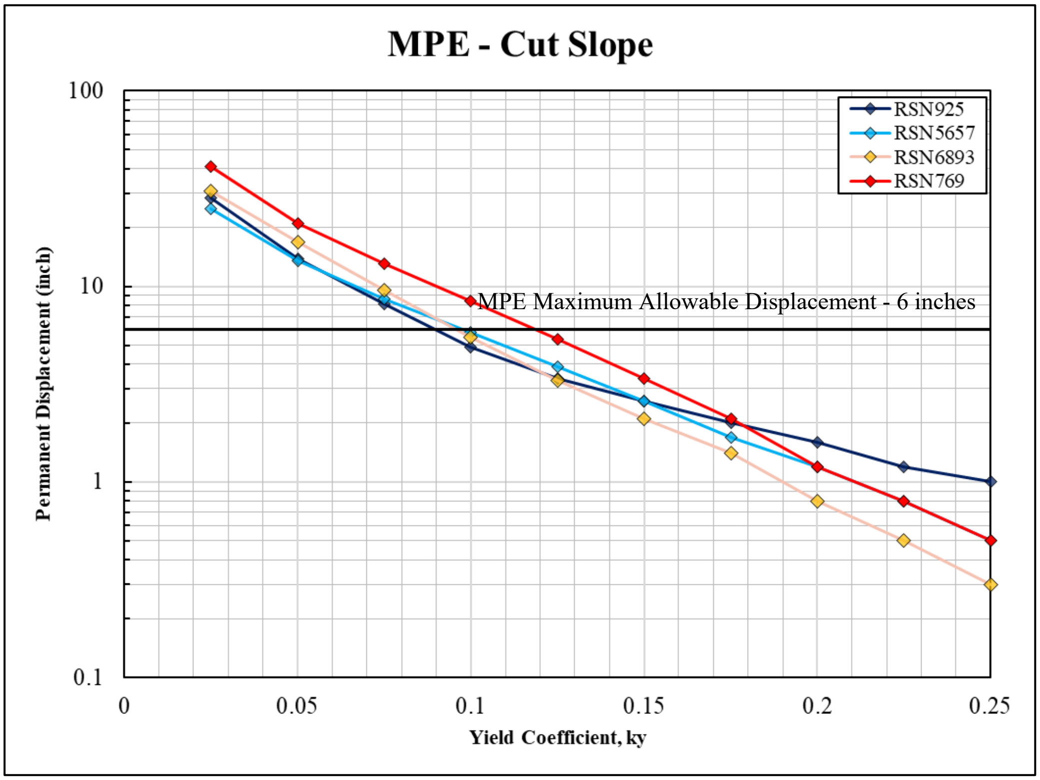
1. Plotted displacements are the maximum of the standard and reverse polarity.

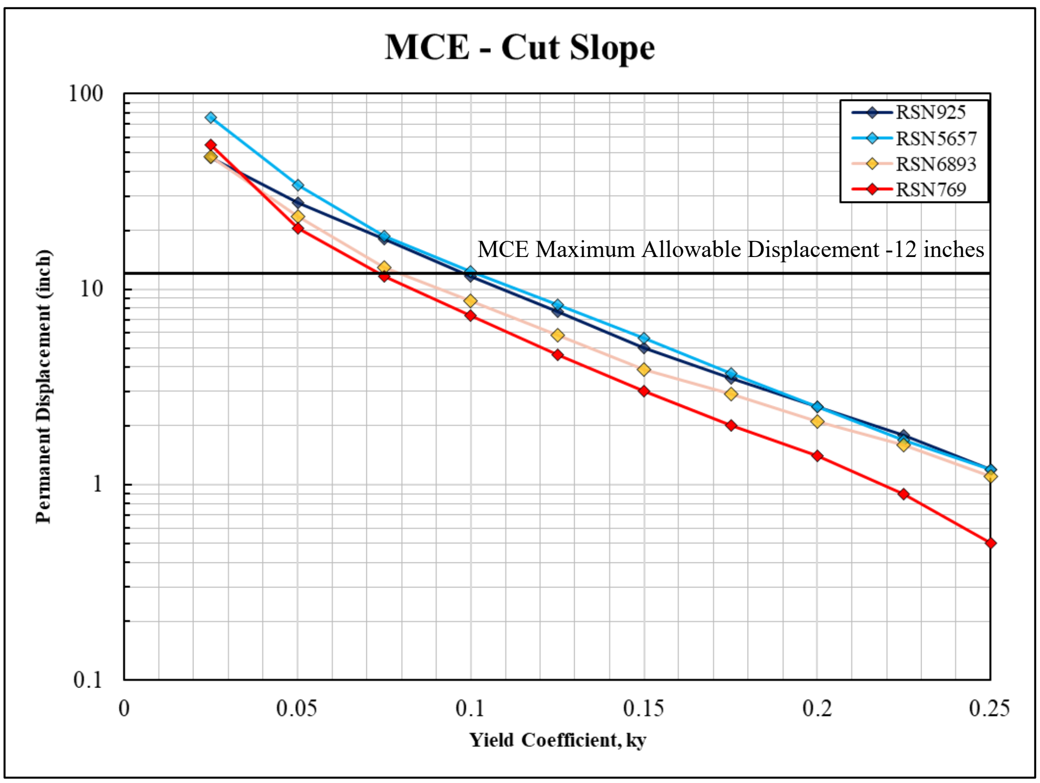
MAXIMUM PERMANENT LINER DISPLACEMENT FOR 260 FT PROFILE
TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

PROJECT NO: SC1308 | MARCH 2023

FIGURE **D3**





Notes:

1. Plotted displacements are the maximum of the standard and reverse polarity.

MAXIMUM PERMANENT DISPLACEMENT FOR CUT SLOPES

TAJIGUAS SANITARY LANDFILL
SANTA BARBARA COUNTY, CALIFORNIA

Geosyntec consultants

FIGURE **D4**

PROJECT NO: SC1308 | MARCH 2023

APPENDIX H

HYDROLOGY AND HYDRAULIC ANALYSIS REPORT

HYDROLOGY AND HYDRAULIC ANALYSIS

TAJIGUAS SANITARY LANDFILL CAPACITY INCREASE PROJECT

March 18, 2023

Prepared by: Mark Seits, P.E., CFM

Introduction

The purpose of this Technical Memorandum (TM) is to document the results of the hydrologic and hydraulic analyses for the proposed capacity increase of the Tajiguas Sanitary Landfill (TSL). The proposed increase would impact both the Existing and Ultimate Condition assumptions as previously analyzed in the Pila Creek at Tajiguas Landfill Project Definition and Feasibility Study (HDR, 2008), the Tajiguas Landfill Interim Hydraulic Analysis Phase IIIA TM (HDR, 2011), the Hydrology and Hydraulic Analysis Report for Tajiguas Resource Recovery Project (HDR, 2013), and the Tajiguas Resource Recovery Project Revised Hydrology TM (HDR, 2017a) and Tajiguas Landfill Revised Ultimate Condition TM (HDR, 2017b).

The County of Santa Barbara (COSB) is proposing to increase the current TSL capacity in order to reach a projected refuse disposal filling date of December 2038 (Project) (Option 5 of the Increased Capacity at the Tajiguas Sanitary Landfill 2023 Report (SWT Technical Memorandum, January 27,2023).. As shown on Figure 1, an approximate 14.25-acre lined area would be excavated for refuse placement and additional filling would occur over the permitted waste footprint. The proposed increased capacity area encroaches upon the existing Pila Creek Inundation Area (PCIA) upstream of the existing Pila Creek flow control structure (flow control structure) so additional grading and modifications to the berm and outflow structure will be required to maintain the requisite storage volume and maximum discharge in Pila Creek. The proposed TSL capacity increase area also encroaches upon the existing North Sedimentation Basin, so the project would result in a reduced upper North Sedimentation Basin and construction of a new Lower North Sedimentation Basin to replace the capacity of the existing basin. (see Figure 2). The proposed grading for the expanded sedimentation basin would encroach into the PCIA, and as such, the Project includes modifications to the flow control structure.

Hydrologic Assessment

The Existing, Interim and Ultimate Condition hydrology was previously modeled in the 2008, 2011 and 2013 studies referenced above. The original conceptual design for the Ultimate Condition PCIA was to construct a concrete lined channel on the west side of the of the Creek fill. This concrete channel would extend the entire length of the Creek realignment. At the southerly end of the Creek realignment, an inlet control structure was proposed to maintain discharge flows downstream. When peak flows from the tributary area to the inlet control structure exceed the inlet capacity, storm water would be temporarily stored north of this control structure before it discharged over the spillway. As part of the sequence development of the landfill, an interim drainage control structure was built approximately 240 feet north of the conceptual location. It was later proposed that this interim inlet control structure be used as the ultimate structure, and an earthen channel will be constructed in lieu of the concrete lined channel with the 42-inch discharge pipe extending to the original proposed location. This revised configuration functions in the same manner as the original conceptual design and allowed for elimination of approximately 240 LF of concrete lined channel. This condition was previously referenced as the Interim Condition (HDR, 2017a), and then later referenced as the Ultimate Condition (HDR, 2017b), but is now considered the Existing Condition for this TM.

Since there are no proposed significant changes to the landcover in the proposed TSL expansion area (i.e., no new impervious area), nor changes in flow direction or concentration (i.e., no diversions), the peak flowrates for the Existing Condition can now be considered the Project Ultimate Condition flowrates.

The Existing and Ultimate (with Project) Condition 100-year peak flowrates are summarized in Table 1.

Table 1 – Comparison of 100-year Peak Discharge (CFS)

Node (see Figure 3)	Existing Condition (HDR, 2017b)	Project Ultimate Condition
N10	493	493
N15	451	451
N20	409	409
N90	187	187

Based on the table, it is evident that the proposed Project has no impacts on the Existing Condition hydrology.

Flows in Pila Creek are also impacted by the existing PCIA within Pila Creek upstream of the existing flow control structure (Node 90). The effects of the PCIA were modeled in the 2013 Report and then revised in the TRRP 2017 Report based on the Existing Condition (previously referred to as the Interim Condition). The key components of the PCIA are the maximum storage volume and the peak outflow. For the existing PCIA, the peak outflow is governed by the existing flow control structure which consists of a concrete berm at the terminus end of the above ground concrete channel, a 42-inch outlet pipe (expanded to a subsurface 48-inch pipeline downstream of the berm) and an overflow spillway at elevation 390.5. The outlet structure was designed to limit the 100-year outflow from the PCIA to 186.6 cubic feet per second (cfs), with a minimum storage volume of 22.3 acre-feet (HDR, 2011). The PCIA outflow of 186.6 cfs included approximately 178 cfs in the 42-inch outlet pipe and 9 cfs overflowing the spillway.

Based on the proposed Project grading within the PCIA (i.e., loss of storage volume), an increased depth of storage would be required to provide the same storage volume. The maximum discharge from the 42-inch pipe could also be impacted by the increase in storage depth (i.e., more hydraulic head at the inlet to the pipe).

Based on the proposed grading plan for the Project, the 22.3 acre-feet of storage in the PCIA would correspond to elevation 393.2 (see Figure 4). In order to limit the outflow from the PCIA, the existing spillway elevation would need to be raised to the same elevation (or higher). The existing 42-inch outlet pipe may also need to be modified to limit the maximum discharge from the basin (see Hydraulic Assessment below). As long as the minimum storage volume of 22.3 acre-feet and maximum outflow of 186.6 cfs are maintained, there would be no impacts to the Ultimate Condition runoff in Table 1.

Hydraulic Assessment

The maximum capacity of the outlet structure is limited by the maximum ponded water surface in the PCIA, which is currently governed by the existing spillway elevation of 390.5. Raising the spillway elevation 2.7 feet to elevation 393.2, could increase the outflow beyond the maximum desired discharge of 186.6 cfs.

Using the culvert design computer program HY-8, the maximum capacity of the existing 42-inch pipe through the flow control structure (based on maximum headwater elevation of 393.5), is approximately 177 cfs (see Figure 5). The remaining 10 cfs would flow over the spillway and be conveyed in the earthen channel to the downstream drop inlet (similar to what currently happens). The result of the proposed spillway raise would be to increase the flow in the pipe from 155 cfs to 177 cfs, with a decrease of flow over the spillway from 32 cfs to 10 cfs. The maximum total discharge from the PCIA is maintained at approximately 186.6 cfs.

Conclusions

A review of the hydrology and hydraulics confirmed that the proposed Project capacity increase, would not alter the hydrologic behavior of the PCIA. With the proposed 2.7-foot raise of the existing spillway elevation (from 390.5 to 393.2), the requisite minimum storage volume of 22.3 acre-feet can be maintained. No further modifications to the outlet structure or downstream earthen channel are required to maintain the maximum 100-year discharge of 186.6 cfs.

As such, the previously documented Ultimate Condition 100-year peak flowrate leaving the PCIA of 186.6 cfs (HDR, 2017b), as well as the 100-year peak flowrate leaving the site (Node 20) of 409 cfs (HDR, 2017b), would remain the same. As such, there would be no adverse impacts to the existing landfill access road, US Highway 101 or railroad culverts.

It should be noted that the proposed Ultimate Condition water surface of 393.5 is 2.6 feet above the Existing Condition water surface elevation of 390.9 (HDR, 2017b). However, water in the PCIA at this level would be infrequent and for a duration on the order of a few hours.

Cumulative Project Impacts

The cumulative impacts discussion of this report is based on a list of other onsite projects that may generate impacts to which the proposed project may also incrementally contribute. Because of the limited watershed area of Pila Creek, no offsite projects have been identified that would contribute to cumulative impacts. The following is a list of other onsite projects that may be implemented at about the same time as the proposed project and their potential to contribute to cumulative impacts.

<u>Landfill Gas to Renewable Natural Gas Project</u>

The Renewable Natural Gas Upgrade System and Compressed Natural Gas Fueling Station would be located on an approximately 2.2-acre graded and surfaced pad (pavement and compacted gravel) south of the MRF. The proposed improvements would result in a 1.38-acre increase in impervious surface (buildings and pavement) contributing to the existing storm drain system adjacent to the site (see Sub-Area PC0301 on Figure 3). The impact of the additional imperviousness would result in a slightly higher runoff coefficient for the site, which would translate to additional runoff. The total PC0301 sub-area is 21.52 acres, so the 1.38-acres represents approximately 6-percent of the sub-area. Assuming a runoff coefficient of 0.60 for the existing condition, and 0.95 for the impervious portion of the proposed condition, the composite runoff coefficient for the proposed condition would be 0.62. This would result in a 3-percent increase in runoff from the sub-area, which is less than 2 CFS for the 100-year event. Translating this increase to the peak flow-rate leaving the site at Node 20, the impact would be less than 0.5-percent of the 409 CFS, which can be considered insignificant.

The Grid Gas Monitoring and Meter Station Assembly equipment would be located at the former Landfill Energy Project site. There is a small (0.17-acre) reduction in impervious area proposed and no diversion of flow; therefore, no adverse impacts are anticipated.

Alternatives Analysis

Two on-site design alternatives (identified as Options 2 and 3 in the SWT January 27, 2023 Report) were also analyzed. These alternatives would not result in impacts to the North Sedimentation basin and do not encroach in the existing PCIA;therefore, no adverse drainage impacts are anticipated.

References

1. HDR Engineering, *Hydrology and Hydraulic Analysis Report for Pila Creek at Tajiguas Landfill*, Project Definition and Feasibility Study, June 2008

2. HDR Engineering, *Tajiguas Landfill Interim Hydraulic Analysis Phase IIIA,* December 12, 2011

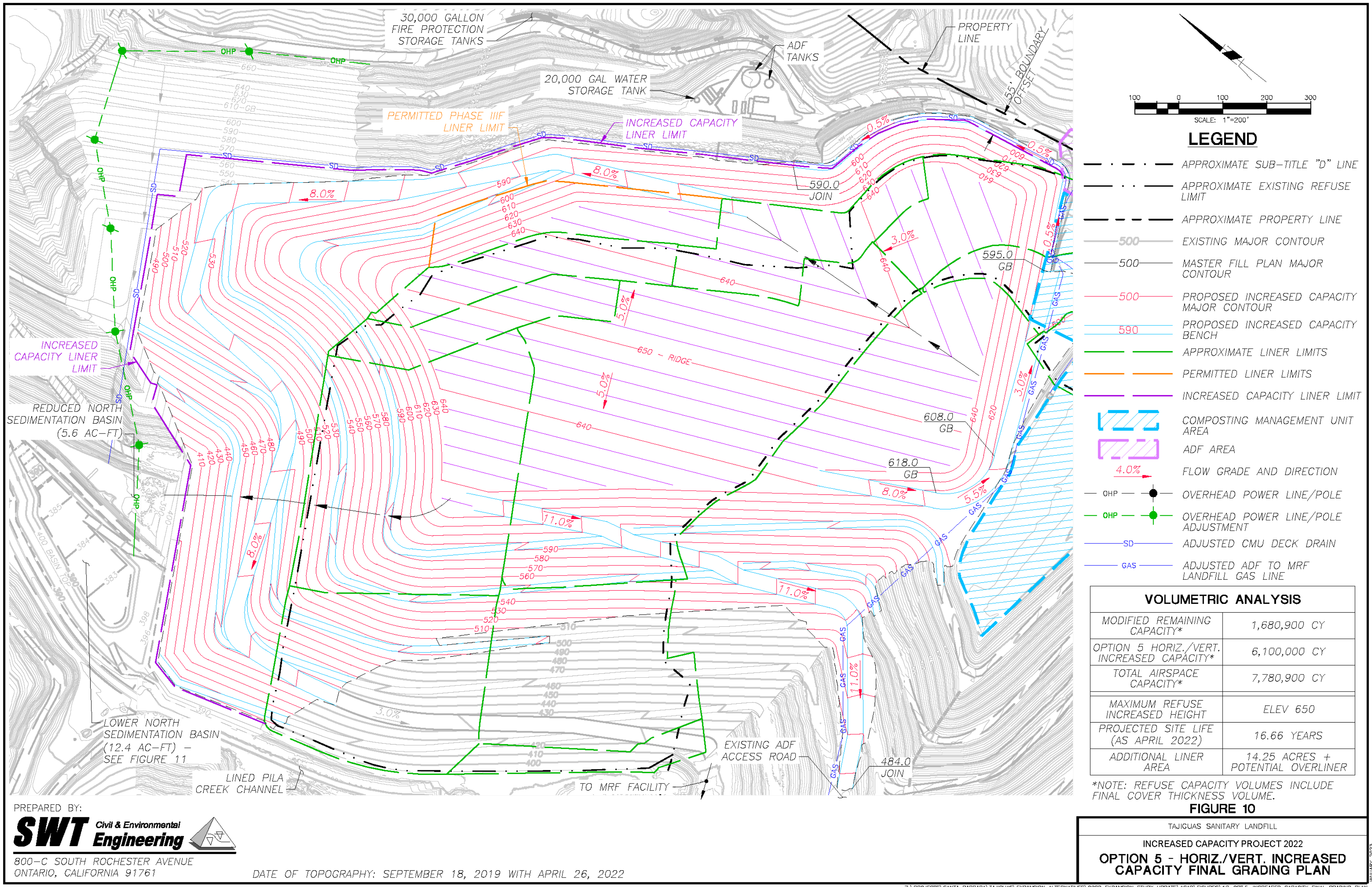
3. HDR Engineering, *Hydrology and Hydraulic Analysis Report Final, Tajiguas Resource Recovery Project*, September 2013

4. HDR Engineering, *Tajiguas Resource Recovery Project Revised Hydrology Technical Memorandum*, June 15, 2017

5. HDR Engineering, *Tajiguas Landfill Revised Ultimate Condition Technical Memorandum*, December 14, 2017

FIGURES

Figure 1 – Proposed TSL Capacity Increase Area (Figure 10 from SWT_Jan 2023)

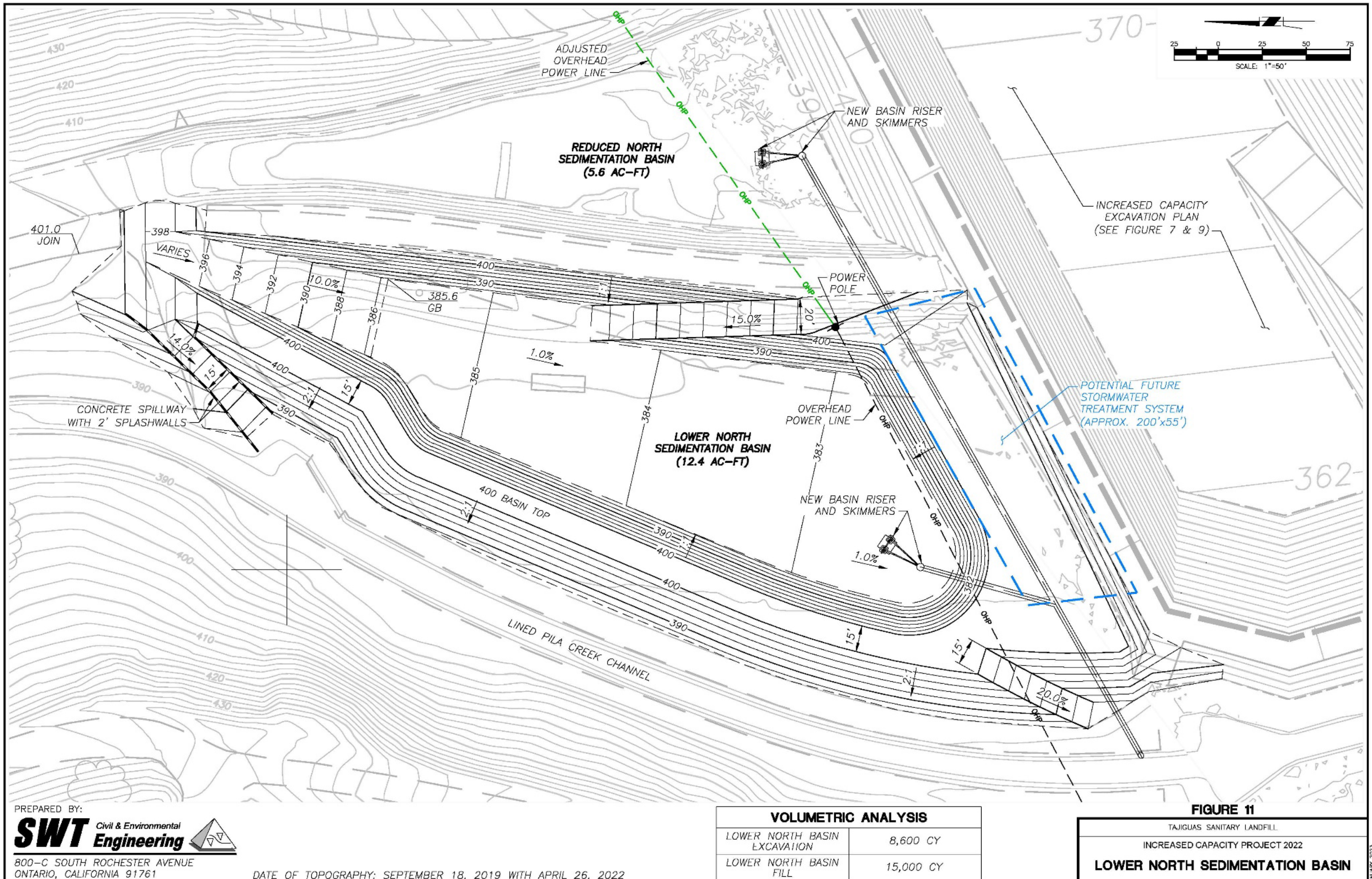


VOLUMETRIC ANALYSIS

MODIFIED REMAINING CAPACITY*	1,680,900 CY
OPTION 5 HORIZ./VERT. INCREASED CAPACITY*	6,100,000 CY
TOTAL AIRSPACE CAPACITY*	7,780,900 CY
MAXIMUM REFUSE INCREASED HEIGHT	ELEV 650
PROJECTED SITE LIFE (AS APRIL 2022)	16.66 YEARS
ADDITIONAL LINER AREA	14.25 ACRES + POTENTIAL OVERLINER

*NOTE: REFUSE CAPACITY VOLUMES INCLUDE FINAL COVER THICKNESS VOLUME.

Figure 2 – Proposed Modifications to North Sedimentation Basin (Figure 11 from TSL Draft Technical PD_Jan 2023)



VOLUMETRIC ANALYSIS	
LOWER NORTH BASIN EXCAVATION	8,600 CY
LOWER NORTH BASIN FILL	15,000 CY

Figure 3 – Hydrology Map

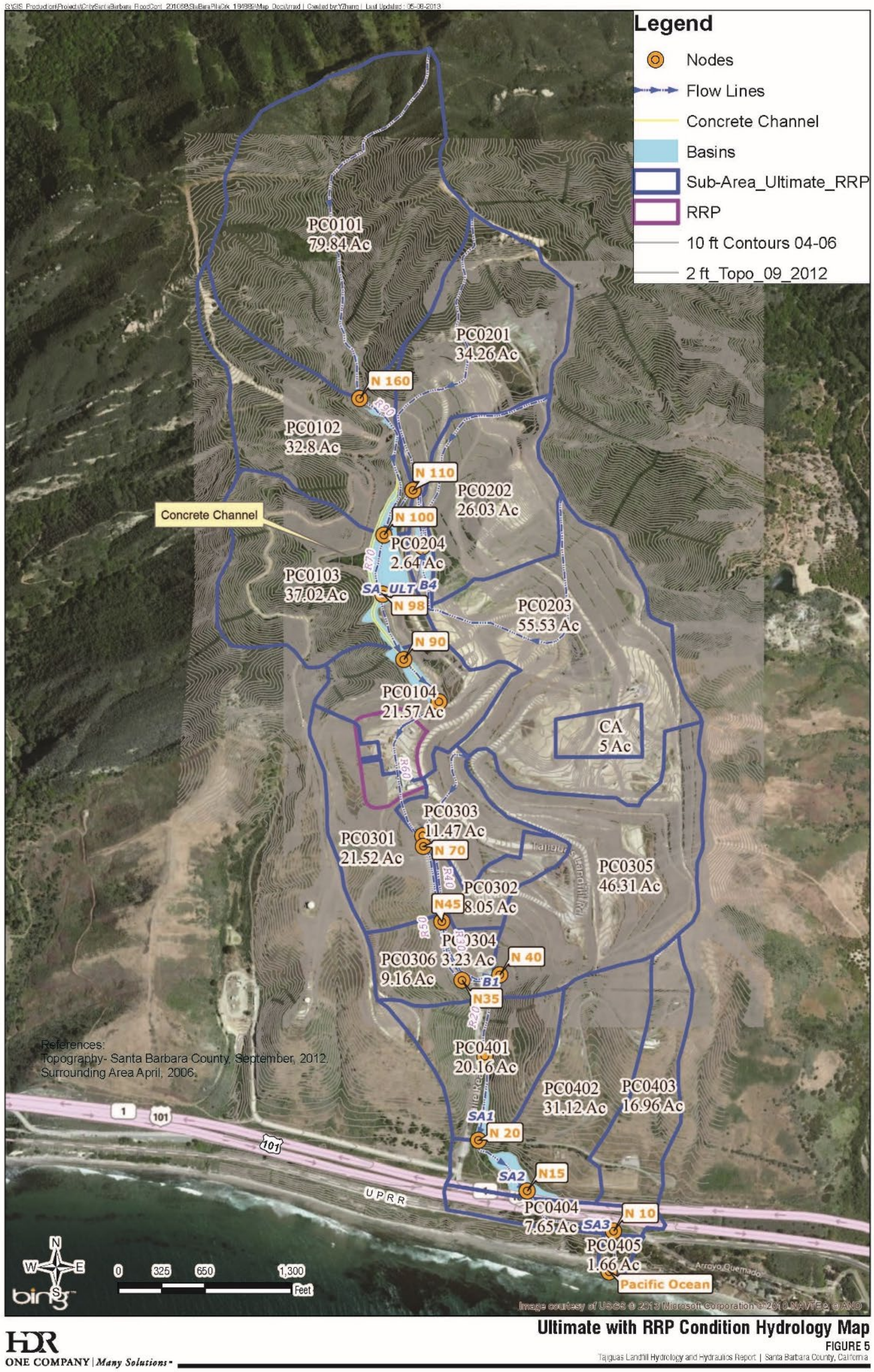


Figure 4 – Pila Creek Inundation Area

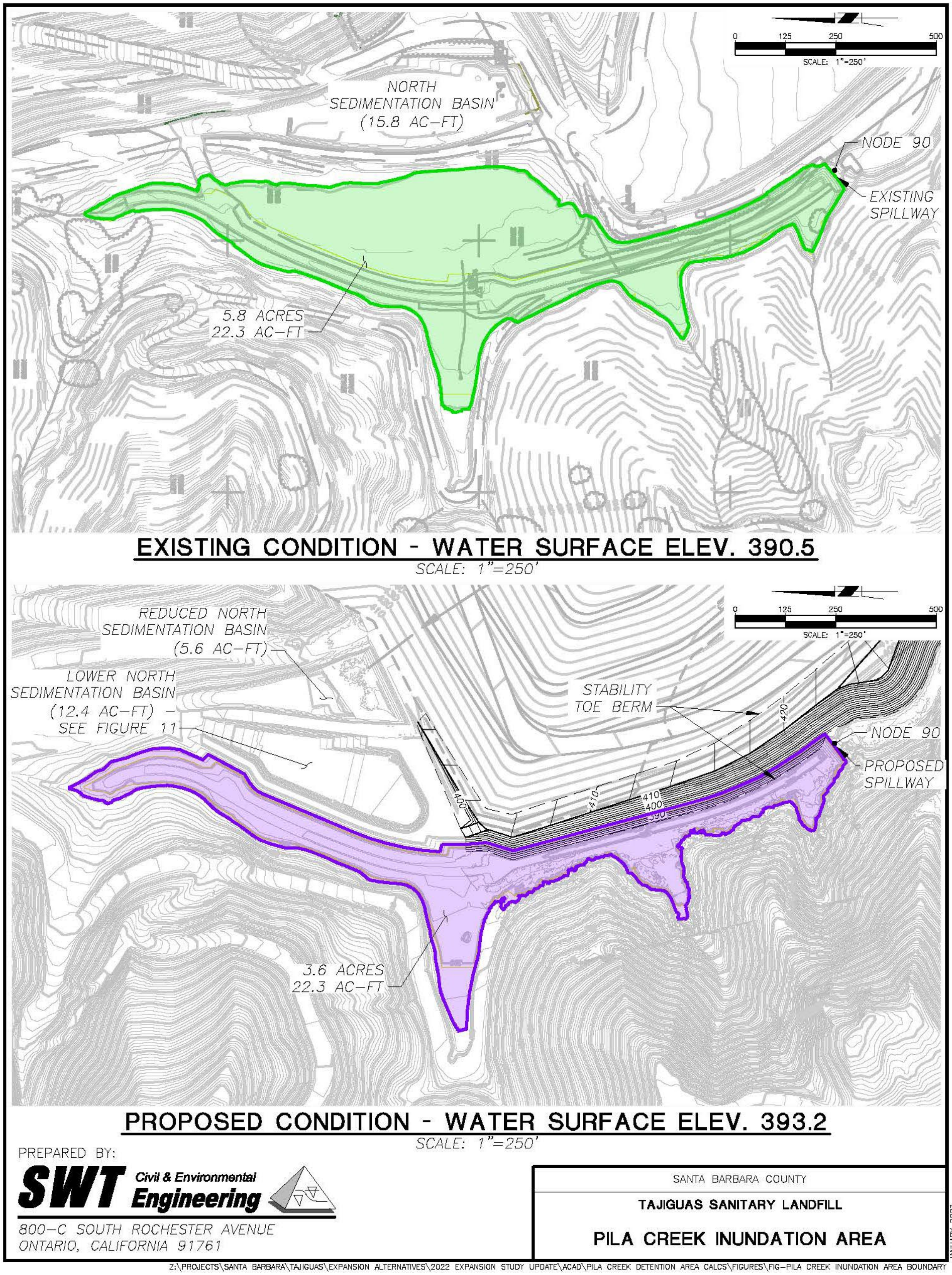


Figure 5 – HY-8 Culvert Analysis

Culvert Summary Table - Culvert 1

Culvert Crossing: 42-inch inlet

Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth(ft)	Outlet Control Depth(ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
185.00	176.93	393.46	16.13	12.75	4-FFf	3.50	3.50	3.50	4.00	18.39	0.00
185.50	176.99	393.47	16.14	12.76	4-FFf	3.50	3.50	3.50	4.00	18.40	0.00
186.00	177.04	393.48	16.15	12.76	4-FFf	3.50	3.50	3.50	4.00	18.40	0.00
186.50	177.10	393.49	16.16	12.77	4-FFf	3.50	3.50	3.50	4.00	18.41	0.00
186.60	177.11	393.49	16.16	12.77	4-FFf	3.50	3.50	3.50	4.00	18.41	0.00
187.50	177.21	393.51	16.18	12.78	4-FFf	3.50	3.50	3.50	4.00	18.42	0.00
188.00	177.26	393.52	16.19	12.79	4-FFf	3.50	3.50	3.50	4.00	18.42	0.00
188.50	177.31	393.53	16.19	12.79	4-FFf	3.50	3.50	3.50	4.00	18.43	0.00
189.00	177.36	393.53	16.20	12.80	4-FFf	3.50	3.50	3.50	4.00	18.43	0.00
189.50	177.42	393.54	16.21	12.80	4-FFf	3.50	3.50	3.50	4.00	18.44	0.00
190.00	177.47	393.55	16.22	12.81	4-FFf	3.50	3.50	3.50	4.00	18.45	0.00

Crossing Summary Table

Culvert Crossing: 42-inch inlet

Headwater Elevation (ft)	Total Discharge (cfs)	Culvert 1 Discharge (cfs)	Roadway Discharge (cfs)	Iterations
393.46	185.00	176.93	8.02	18
393.47	185.50	176.99	8.48	4
393.48	186.00	177.04	8.88	3
393.49	186.50	177.10	9.37	4
393.49	186.60	177.11	9.43	2
393.51	187.50	177.21	10.25	4
393.52	188.00	177.26	10.67	3
393.53	188.50	177.31	11.11	3
393.53	189.00	177.36	11.56	3
393.54	189.50	177.42	12.01	3
393.55	190.00	177.47	12.46	3
393.20	175.31	175.31	0.00	Overtopping

APPENDIX I

HYDROGEOLOGIC AND WATER SUPPLY IMPACT ANALYSIS REPORT

APPENDIX I

HYDROGEOLOGIC AND WATER SUPPLY IMPACT ANALYSIS REPORT

Prepared for:

Santa Barbara County,
Department of Public Works
Resource Recovery & Waste Management Division
130 East Victoria Street, Suite 100
Santa Barbara, CA 93101

Tajiguas Sanitary Landfill
Proposed Increased Capacity Project

HYDROGEOLOGIC AND WATER SUPPLY IMPACT ANALYSIS REPORT

Santa Barbara County
California

Prepared by:

Geosyntec consultants

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Project Number: SB1128

June 5, 2023

TAJIGUAS SANITARY LANDFILL PROPOSED INCREASED CAPACITY PROJECT HYDROGEOLOGIC AND WATER SUPPLY IMPACT ANALYSIS REPORT

SANTA BARBARA COUNTY, CALIFORNIA

Prepared on behalf of the:

County of Santa Barbara

June 5, 2023

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1.0 INTRODUCTION

Geosyntec Consultants (Geosyntec) was retained by the Santa Barbara County Public Works Department, Resource Recovery and Waste Management Division (RRWMD) to prepare this assessment report (report) of hydrogeologic and water supply impacts associated with the proposed Increased Capacity (Project) for the Tajiguas Sanitary Landfill (TSL). The report was prepared to support the analysis of project impacts to water resources as required under the California Environmental Quality Act (CEQA). The proposed Project includes a horizontal and vertical increase of the TSL to the north and east of the existing TSL footprint, totaling an estimated 14.25 acre expansion to the waste footprint. The purpose of the Project is to expand the useful life and operation of the TSL through approximately December 2038. The location of the TSL is shown on **Figure 1** and the proposed location of the Project at the TSL is shown on **Figure 2**.

The hydrogeologic impact analysis for the Project includes a summary of the baseline hydrogeologic and water supply conditions along with analysis of the potential impacts to groundwater resources from the Project and project alternatives. For the purposes of this evaluation it is assumed that the baseline hydrogeologic conditions are those that exist at the time of preparation of this report and include the existing TSL operations. Potential impacts for the Project are evaluated similarly to those previously identified in prior Environmental Impact Reports 01-EIR-05, 08EIR-00000-00007, and 12EIR-00000-00002, where an environmental impact is defined as a project-induced change in the status of physical conditions. In accordance with the prior EIRs, the significance of the hydrogeologic impact for this evaluation was based on State and County CEQA guidelines, requirements of CCR Title 27, and County of Santa Barbara Environmental Thresholds and Guidelines Manual [(Thresholds Manual), 2021]. Although this assessment was conducted in the same manner as prior EIRs, the baseline conditions are slightly different with water demand values updated by RRWMD staff based on current site knowledge and operations data.

In addition to the proposed Project, to meet CEQA requirements two on-site Project design alternatives have been identified as potential alternatives to reduce environmental impacts associated with the capacity increase while meeting most of the basic project objectives and are evaluated in this report. The Project alternatives that were analyzed include:

1. Vertical increased capacity without additional slope liner, and
2. Horizontal increased capacity with final grading plan not above the permitted elevation of 620 feet above mean sea level (amsl).

2.0 SUMMARY OF PROJECT DESCRIPTION

The County of Santa Barbara is proposing to increase the TSL's current capacity and a projected refuse disposal filling date of December 2038. The approximate 14.25-acre capacity increase to waste footprint would provide approximately 6.1 Million Cubic Yards (mcy) of additional airspace (which includes a capacity loss factor, potential disaster cleanup, and final cover volumes) to reach a December 2038 estimated TSL closure date. The permitted maximum elevation of the TSL would increase from 620 feet amsl (per current Solid Waste Facility Permit 42-AA-0015) to 650 feet amsl. The Project is estimated to impact 1.5 acres of previously undisturbed native habitat and 9.3 acres of restored native habitat (prior cut slopes that have been hydroseeded) with a horizontal and vertical increase to the north and east while removing/relocating TSL infrastructure from the current TSL maintenance and storage deck (SWT, 2023).

The TSL would also continue to rely upon infrastructure and environmental control systems in place in association with existing TSL operations and for operation of the ReSource Center. The ReSource Center is comprised of the Materials Recovery Facility (MRF), the Anaerobic Digestion Facility (ADF), and the Composting Management Unit (CMU). The target refuse disposal filling date of the TSL is based on the ReSource Center being fully operational during this time period. The water demand for the ReSource Center is included in **Appendix A**.

Water supply and demand evaluated in this hydrogeologic and water supply impact analysis report includes the baseline water supply at the TSL compared to the projected total water demand per year for:

1) Daily TSL operations,
2) ReSource Center usage, and
3) Construction soil conditioning for the Project.

To establish the baseline water supply and demand, information was provided by RRWMD staff and ReSource Center engineer-provided values. The baseline water demand is estimated from multiple potable and non-potable uses at the TSL, as described in Section 3. The evaluation will assess whether potable water supply from existing onsite wells #5, #6, and #7 is sufficient to meet the estimated potable water demand without resulting in overdraft or affecting streamflow or seeps. Additionally, an evaluation of surface area infiltration loss due to the proposed Project is included. The evaluation will assess safe yield changes to the affected geologic formations and aquifers, which may impact existing and potential future water production.

3.0 HYDROGEOLOGIC AND WATER SUPPLY BASELINE CONDTIONS

3.1 Hydrogeology

The regional setting and existing hydrogeologic conditions for the TSL were analyzed in detail in 01-EIR-05 including information regarding the TSL water demand and supply for the prior Landfill Expansion Project. Water demand and supply was re-evaluated in the *Hydrogeologic Report on the Tajiguas Landfill Reconfiguration* (Geosyntec, 2008), the 12EIR-00000-00002 *Revised Hydrogeologic and Water Supply Impact Analysis Report for the Tajiguas Resource Recovery Project* (Geosyntec, 2017), and again in the *Updated Water Supply Assessment and Hydrogeologic Impact Analysis* (Geosyntec, 2019) based on increased water demand for the Tajiguas Resource Recovery Project (now called ReSource Center).

The TSL and proposed Project are located on the southern slope of the Santa Ynez Mountains. The Project area is underlain by moderately to steeply south-dipping sections of consolidated sedimentary units including from oldest to youngest: Gaviota Formation, Sespe-Alegria Formation, Vaqueros Formation, Rincon Formation, and Monterey Formation (**Figures 3** and **4**). The Gaviota and Vaqueros Formation are consolidated sandstone units, the Sespe-Alegria is an interbedded sandstone and siltstone/claystone unit, and the Rincon and Monterey Formations generally consist of mudstones and shales. A thorough description of these formations is provided in the 01-EIR-05.

Most of the groundwater in these formations is believed to occur in fractures but some intergranular groundwater is also likely to occur in the sandstone units. Groundwater flow direction is generally to the southwest in the TSL area, although local flow deviations likely occur due to the fractured nature of the aquifer units and the fact that the finer-grained formations, such as the Rincon and Monterey, act as hydraulic boundaries.

Locally, the Vaqueros and Gaviota Formations are generally considered to be important groundwater sources. Wells #5 and #7 are installed within the Vaqueros Formation within the TSL watershed. The groundwater yield and quality (dissolved general minerals) is generally higher in these sandstone units compared to the finer-grained Sespe-Alegria, Rincon, and Monterey units. However, the Sespe-Alegria Formation has previously and currently provides an important water source at the TSL (former Well #4 and current Well #6) and some of the water wells at the adjacent Baron Ranch are also completed in the Sespe-Alegria Formation. The Monterey Formation is also a water source for the TSL (Well #3) and the community of Arroyo Quemada located south of the TSL along the coastline. The water quality in the Monterey Formation is generally considered poor. The Total Dissolved Solids (TDS) in Well #3 was measured at 2,500 milligrams per liter (mg/L) in May 2012.

3.2 Tajiguas Landfill Water Supply

The TSL uses on-site groundwater production wells for potable water, daily operations, and construction needs. Groundwater extracted from a groundwater leachate collection recovery system (LCRS) (also referred to as the Groundwater Interceptor Trench (GWIT)), is used only for dust control in lined portions of the TSL where LCRS Environmental Management Systems (EMS) are in-place. Detailed volumes of these waters pumped or collected for TSL water supply are tabulated in **Tables 1a** and **1b**.

Groundwater production at the TSL is limited to four wells located within the TSL watershed. Wells #5 and #7 are completed within the Vaqueros Formation, Well #6 is completed within the Sespe-Alegria Formation, and Well #3 is completed within the Monterey Formation. An additional off-site groundwater pumping well completed within the Vaqueros Formation is located in Cañada de la Huerta, the canyon directly west of the TSL. This well is available for pumping through license agreement between the well owner, Shell Legacy Holdings, LLC., and the County of Santa Barbara. This well is identified in this study as the Shell Well. Wells #3 and #5 currently serve the TSL operation, and the Shell Well is also available for TSL use. Wells #6 and #7 serve the ReSource Center. Proposed Well #8 (approved but not yet permitted or constructed) is also designated for potential use by the ReSource Center. The ReSource Center also collects storm water runoff from the CMU deck and reuses it for composting operations.

On-site TSL EMS collection systems also generate water that is currently allowed for dust control use in lined portions of the TSL, only. The waters generated by these EMS systems are not suitable for domestic water uses, or dust control outside of lined areas of the TSL due to elevated concentrations of total dissolved solids (TDS), volatile organic compounds (VOCs), metals, and minerals in water samples collected and analyzed from them. The EMS that generate waters used for dust control in lined portions of the TSL are listed below:

- LCRS #1 Interceptor Trench, also referred to as the GWIT;
- Groundwater Collection System North of the TSL (Pila Creek in-channel sump pump [ICSP], and
- Leachate collection systems, including:
    - Horizontal Well Dewatering Systems (LCRS #2, #3, and #5), and
    - Vertical dewatering wells (LCRS #4).

Water stored in the north sedimentation basin may also be available for construction projects, however pursuant to the TSL Habitat Conservation Plan and Incidental Take Permit water cannot be stored in the basins before April 1.

Current baseline water supply and demand for the TSL is summarized below and in **Tables 1a** and **1b**. The water demand has been updated from values provided in 12EIR-00000-00002 based on actual recorded use by RRWMD staff in 2022. Based on information obtained from 2022 TSL operations data, an estimated 19.2 acre-feet (AF) of potable water is required per year for the following uses: 1) domestic use, 2) off-landfill un-lined area dust control, 3) ReSource center operations (**Appendix A**[1]), and 4) TSL construction. An estimated total of 6.4 AF of non-potable water is required for TSL daily operations (i.e., dust control). Combined, the 19.2 AF of potable water, and 6.4 AF of non-potable water, total 25.6 AF in required annual water demand.

An estimated total water supply of 41.3 AF is available for use, comprised of:

- 27.3 AF of potable water via wells #5, #6, #7, and the Shell Well, and
- 14.0 AF of non-potable water via GWIT, leachate collection systems, and Well #3[2].

Estimated water supplies exceed water demand by approximately 8.1 AFY of potable water and 7.6 AFY of non-potable water. These estimates are considered the current baseline conditions at the TSL (**Table 1a**). Should Well #8 be installed, additional potable water supply would be available as presented in **Table 1b**.

Based on conversations with Santa Barbara County RRWMD personnel, future water demand associated with the project is expected to be the same as the recorded water use in 2022 through the closure of the TSL in approximately 2038. In future years some reduction in water demand is expected due to reduced number and/or acreage of anticipated TSL construction projects, and implementation of closure and final cover activities which will demand less water for dust control.

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[1] Note that the water budget summary for the ReSource Center indicates water production from approved but not yet installed Well #8. Without the installation of Well #8, the ReSource Center water demand can be achieved via Wells # 6 and #7 as presented in the water production estimates below.

[2] Note that Well #3, while classified as non-potable due to high TDS, may be blended with other potable water for off-landfill dust control and construction.

3.3 Safe Yield and Groundwater Pumping Production Estimates

Safe Yield

This section outlines safe yield estimates for the water-bearing geologic bedrock units present at the TSL. Safe yield estimates are developed and considered for the protection of groundwater resources and users to limit the potential for over-production or overdraft.

As presented in the *Technical Memorandum Updated Water Supply Assessment and Hydrogeologic Impact Analysis* (Water Supply Technical Memorandum) [Geosyntec, 2019], safe yield estimates of the Vaqueros and Sespe-Alegria Formations were calculated for the TSL to provide limitations on annual pumping of existing wells completed within those formations. In accordance with the County's Environmental Thresholds Manual, water-production wells completed in the Vaqueros Formation and located within 800-feet of a watershed boundary will access the Vaqueros Formation yield attributable to the adjacent watershed. Therefore, the safe yield evaluation was conducted to calculate the availability of Vaqueros Formation water in the adjacent Arroyo Quemado (watershed east of the TSL, accessible via Well #5). Note that while Well #7 is located within 800 feet of the watershed boundary with Cañada de la Huerta (watershed west of the TSL), well production from Well #7 is not expected to exceed the TSL and Baron Ranch Vaqueros Formation safe yield and access the Cañada de la Huerta safe yield.

In accordance with methodology outlined in the Thresholds Manual, the safe yield estimates for the bedrock aquifers beneath the TSL and adjacent watersheds was conducted and are presented in **Table 2**. The safe yield of the Vaqueros Formation beneath the TSL and Baron Ranch watersheds is 15.7 AFY and the safe yield beneath the Cañada de la Huerta watershed is 2 AFY. The safe yield estimate for the Sespe-Alegria Formation beneath the TSL is 13 AFY. Note that the safe yield estimate for the Sespe-Alegria Formation is based on exposed surface area, taking into account the projected loss of approximately 14.25 acres from the construction of the proposed Project.

Water Production Estimates

The ReSource Center water demand (12.7 AFY) is expected to be produced from existing Wells #6 and #7. Water demand for the TSL domestic, unlined landfill dust control, and construction activities is expected to be produced from Well #5. Water production estimates for Wells #5 and #7, installed within the Vaqueros Formation, equal 6.5 AFY and 4.1 AFY, respectively. Their collective water production estimate (10.6 AFY) is below the safe yield calculated for the Vaqueros Formation beneath the TSL and Baron Ranch watersheds (15.7 AFY). Water production estimates for Well #6 installed within the Sespe-Alegria Formation is approximately 8.6 AFY, which is below the safe yield calculated for the Sespe-Alegria Formation (13 AFY).

Anticipated groundwater well production values and associated safe yield calculations are presented in **Table 2** by bedrock aquifer unit.

Summary

Water-production well yield may differ from the calculated safe yield. Recent pumping test data obtained from existing Vaqueros and Sespe-Alegria water-production wells support the estimated water production. Additionally, potable water available from the Shell Well and lesser quality water from Well #3 will be available to supplement the water supply if needed. Approved but not yet permitted or installed Well #8 also provides a future option to extract water in combination with Well #6 at volumes up to the safe yield of the Sespe-Alegria Formation.

4.0 PROJECT IMPACT ANALYSIS

The proposed Project is located on the Gaviota Coast of Santa Barbara County, California. Previous assessments of the aquifers located beneath the proposed Project are included in Environmental Impact Reports 01-EIR-05, 08EIR-00000-00007, and 12EIR-00000-00002. The aquifers located beneath the proposed Project are composed of consolidated bedrock. The County Thresholds Manual states the threshold of significance for consolidated rock aquifers is considered the amount of new pumping by a proposed project which would place the aquifer in a state of overdraft. Environmental concerns related to overdraft include degradation of water quality, long-term loss of well yield, well interference and effects on biological resources, i.e. reduced or eliminated spring and base flow. In general accordance with CEQA, CCR Title 27, and the County Thresholds Manual, the water demands of the Project were evaluated to determine the potential impacts on the following:

- TSL water supply;
- Groundwater overdraft (safe yield[3]) in the pumping aquifer;
- Groundwater quality;
- Well interference in existing site wells from pumping groundwater from the new supply well;
- Groundwater pumping impacts to springs, and baseflow; and
- Landfill gas migration.

4.1 TSL Water Supply

The water supply of the TSL has been described in Section 3.2. An analysis of available water supply information along with projected TSL usage is provided in **Tables 1a** and **1b**. The water supply for the TSL includes several groundwater wells, water from groundwater collection systems, and leachate collection systems (EMS).

[3] The County of Santa Barbara Groundwater Thresholds Manual defines safe yield as potential average annual recharge.

The total annual water demand for the TSL operations, the ReSource Center and the Project is estimated to be 25.6 AFY. As outlined in Section 3.2, an estimated 19.2 AF of potable water is required per year for:

1) domestic use,
2) off-landfill un-lined area dust control,
3) ReSource center operations, and
4) TSL construction projects.

A total of 6.4 AF of non-potable water is required for TSL daily operations (i.e., dust control) for a total of 25.6 AF in required annual water use.

An estimated total water supply of 41.3 AF is available for use, comprised of:

- 27.3 AF of potable water via wells #5, #6, #7, and the Shell Well, and
- 14.0 AF of non-potable water via GWIT, leachate collection systems, and Well #3[4].

Estimated water supplies exceed water demand by approximately 8.1 AFY of potable water and 7.6 AFY of non-potable water. These estimates are considered the current baseline conditions at the TSL (**Table 1a**).

4.2 Groundwater Overdraft

As described in the safe yield evaluation presented in Section 3.2 and in the prior *Water Supply Technical Memorandum* [Geosyntec 2019], estimates indicate the safe yield of the Vaqueros and Sespe-Alegria Formations are not likely to be exceeded by planned pumping from existing onsite production wells as described further below[5]. The exposed acreage of the Sespe-Alegria Formation within the Tajiguas Landfill watershed was reduced from 142 acres to 127 acres due to the proposed new lined areas and new upper and lower sedimentation basins. This reduction in exposed watershed area results in a reduction of the safe yield for the Sespe-Alegria Formation beneath the Tajiguas Landfill

[4] Note that Well #3, while classified as non-potable due to high TDS, may be blended with other potable water for off-landfill dust control and construction.

[5] The safe yield for the Monterey Formation was not calculated because of the relatively short duration of the project and the fact that this formation is not generally regarded as an important water source in the region.

from 14.5 AFY to 13.0 AFY. However, the project demand would not exceed the revised safe yield.

To evaluate the safe yield of the Vaqueros Formation, the adjacent eastern Arroyo Quemado watershed was included in the calculation. The reason Arroyo Quemado is included is based on the Well #5 location on the ridgeline and the potential for pumping from this well to access both watersheds. The adjacent western Cañada de la Huerta watershed is not included in the Vaqueros Formation safe yield evaluation for the TSL watershed. Safe Yield estimates for the Shell Well are limited to the Cañada de la Huerta watershed.

Recent pumping data from existing on-site Wells #5, #6, and #7 indicate that well yield and available production values presented in **Tables 1a** and **1b** are accurate. In accordance with the County Thresholds Manual, an analysis of the potential impact to existing wells and groundwater resources was conducted using the estimated pumping rates and additional production volumes presented above. The estimated safe yield analysis indicates there is sufficient annual recharge to the Vaqueros and Sespe-Alegria Formation aquifers to support the proposed project water demand. These groundwater safe yield estimates are developed using available average annual rainfall data to estimate recharge.

The safe yield of the Sespe-Alegria Formation aquifer within the TSL watershed is calculated to be 13 AFY. Assuming pumping of Well #6 within the Sespe-Alegria Formation remains consistent at 8.6 AFY (**Table 2**), then an additional 4.4 AFY remains available to extract via Well #6 and potential future Well #8.

4.3 Well Interference

Groundwater pumping in a well has the potential to drawdown groundwater levels in neighboring wells. If drawdown exceeds recharge, then there is potential to negatively affect pumping or the well could potentially go dry. For this reason, proposed wells must be evaluated whether their location and estimated pumping will affect existing wells within the same bedrock aquifer. Existing on-site wells at the TSL are completed in three unique bedrock aquifers including, the Vaqueros Formation, the Sespe-Alegria Formation, and the Monterey Formation.

Hydraulic connection between the bedrock aquifers in the TSL watershed is generally considered low because of the interlayered shale, mudstone, and claystone layers in the bedrock formations. These interbedded shale and claystone/mudstone layers act as hydraulic boundaries. Wells completed in one bedrock formation or bedrock aquifer typically do not significantly impact groundwater levels in other adjacent formations or aquifers. That is, pumping in Well #6, completed in the Sespe-Alegria Formation, should not significantly impact groundwater levels in the adjacent Vaqueros Formation (Wells #5 and #7) and Monterey Formation (Well #3), and vice versa. A geologic cross-section showing the various bedrock aquifers and the associated well locations is presented on **Figure 4**.

The highest potential for well interference in the TSL Project area is for pumping in any one well to impact groundwater levels in a well installed in the same bedrock aquifer. The bedrock formations/aquifers beneath the Project area are all steeply dipping to the south with east-west strikes (**Figure 4**). The potential for pumping in onsite wells to impact wells located along strike, or to the east and west is discussed below.

For this analysis the potential for well interference was evaluated for proposed pumping in Well #5 and #7 (Vaqueros Formation) and Well #6 and approved but not permitted or installed Well #8 (Sespe-Alegria Formation).

Well Interference within the Vaqueros Formation

Two existing groundwater pumping wells are completed within the Vaqueros Formation in the TSL watershed, Well #5 and #7 (**Figure 3**). Well #7 is located on the western side of the watershed and Well #5 is located near the eastern boundary (ridgeline) of the watershed. Potential impacts from proposed pumping at Wells #5 and #7 are considered insignificant and are described in detail below.

Well #7 production was evaluated to assess potential drawdown in the existing Shell Well in the adjacent western Cañada de la Huerta watershed. Maximum production from Well #7 for ongoing operation of the ReSource Center is estimated at 4.1 AFY, assuming a long-term pumping rate of approximately 2.5 gpm. The Shell Well is located approximately 900 feet to the west (**Figure 3**) and assuming a 15-year pumping timeline the estimated drawdown is approximately 9-feet, as presented in the Water Supply Technical Memorandum [Geosyntec, 2019]. The estimated drawdown is considered insignificant because the Shell Well has approximately 400-feet of water column and the estimated 9-feet of drawdown represents less than 3% of the total water column.

Water from the Shell Well is available through license agreement between Shell Legacy Holdings, LLC. and the County of Santa Barbara. The Shell Well has most recently been utilized for irrigation to support native plant restoration activities conducted in the Cañada de la Huerta canyon in 2015, 2016, and 2017 as stated in Site Restoration Plan [Langan, 2015] and in the recent Annual Restoration Report [Langan, 2018]. Between 2015 and 2018, irrigation as part of the restoration activities was successively reduced in an effort to mimic natural conditions and promote plant adaptation. The location of Well #7 is less than 800-feet east of the Cañada de la Huerta watershed ridgeline and in accordance with the County Thresholds Manual, Well #7 can access the yield attributable to that watershed. However, as outlined in **Tables 1** and **2**, the estimated Well #7 production is within the Vaqueros Formation safe yield for the TSL watershed.

A well record search for the Arroyo Quemado watershed to the east of the TSL indicated existing wells are not completed in the Vaqueros Formation [Geosyntec, 2017]. Therefore, the planned production at Well #5 (6.5 AFY), which is located less than 800-feet from the ridgeline of the Arroyo Quemado watershed, may access and produce water from the Arroyo Quemado watershed without impacting existing wells [Geosyntec, 2019].

In summary, the impacts of the proposed pumping from Wells #5 and #7 on well interference are considered insignificant.

Well Interference within the Sespe-Alegria Formation

Well #6 is the only existing groundwater pumping well completed within the Sespe-Alegria Formation at the TSL watershed. A potential future well (Well #8) is approved to be completed in the Sespe-Alegria Formation. Potential well interference impacts to Well #6 and Well #8 were evaluated and considered insignificant as discussed below.

Maximum proposed production from existing Well #6 and potential future Well #8 is estimated at 13.0 AFY. This equates to a long-term pumping rate of approximately 8.0 gpm. The nearest neighboring Sespe-Alegria Formation wells are located to the east of Well #6 in Arroyo Quemado (Wells A and C; approximately 3,500 feet away, **Figure 3**). No active Sespe-Alegria Formation wells are known to be located west of Well #6 or potential Well #8 within a mile of the Site.

The County Thresholds Manual does not indicate radius of influence for the Sespe-Alegria Formation. To estimate potential effect of the long-term pumping of existing Well #6 and approved Well #8 on nearby Arroyo Quemado wells, an analysis was presented in the Water Supply Technical Memorandum [Geosyntec, 2019]. It is important to note that with reduced TSL production proposed from Sespe-Alegria wells due to reduced safe yield within the TSL watershed, the resulting groundwater level drawdown will be less in adjacent watershed wells. Adjacent Arroyo Quemado Wells A and C have approximately 400 to 500-feet of water-column as indicated in previously prepared documents [Geosyntec, 2017]. The revised evaluation estimates that after 15 years of pumping, well interference (groundwater level drawdown) would be approximately 4.0 feet at the Arroyo Quemado well locations, which represents an insignificant drawdown. These data indicate that an estimated 4.0 feet of drawdown in a 400 to 500-foot water column (approximately 1% of the total water column) will not affect the overall production or water quality of the nearby Arroyo Quemado wells. Other wells are developed in the Sespe-Alegria wells on the Baron Ranch and this assessment is intended to be reflective of the impact to all Sespe-Alegria wells on Baron Ranch. In summary, the impacts of the proposed pumping from Wells #6 and Well #8 on well interference to neighboring Sespe-Alegria wells are considered insignificant.

4.4 Groundwater Quality

Groundwater pumping can potentially degrade groundwater quality if wells are over pumped or if safe yields are exceeded. Over pumping an aquifer can potentially produce groundwater level declines (head loss in the aquifer) that cause deeper saline waters to intrude into fresher portions of the aquifer and, in the case of the Gaviota Coast, sea water intrusion. Based on established production rates from the onsite TSL wells and the water supply demands for the TSL, ReSource Center, and Project, combined with average rainfall and associated recharge, it is not expected that over pumping will occur.

Available water quality data for wells within the Sespe-Alegria and Vaqueros Formations indicate that the salinity or TDS concentrations did not increase significantly during initial pumping of these wells (12EIR-00000-00002). Seawater intrusion into the bedrock aquifers is considered unlikely because the Vaqueros and Sespe-Alegria Formations are not hydraulically connected to the ocean as the formations lie stratigraphically below the Rincon and Monterey Formations which are shale formations that act as hydraulic boundaries to seawater intrusion.

Consequently, the potential for pumping to significantly impact groundwater quality is considered low and potential impacts are considered not significant.

4.5 Well Pumping Impacts on Springs and Streamflow

Former seeps located within Pila Creek were covered with low permeability material and a subdrain was installed to collect this water during the prior TSL Reconfiguration Project. The low permeability material was placed over the entire Vaqueros Formation within Pila Creek and portions of the Sespe-Alegria Formation. No additional seeps or springs are known to exist in Pila Creek within the Vaqueros or Sespe-Alegria Formations. Therefore, groundwater pumping in these formations will not significantly impact spring flow or stream baseflow in the TSL watershed area.

Perennial streams and springs are not identified in the Vaqueros or Sespe-Alegria Formations in the adjacent watersheds to the east (Arroyo Quemado) and west (Cañada de la Huerta) of the TSL, nor within the TSL watershed limits [Anikouchine, 1991 and Dibblee, 1988]. However, perennial springs are documented in the Gaviota Formation located in the headwaters of the Arroyo Quemado watershed, north of the Vaqueros and Sespe-Alegria Formations [Anikouchine, 1991 and Stoecker, 2008]. Arroyo Quemado historically supported steelhead and currently supports Federal and State listed sensitive species. Historically, surface stream flow observed in the Cañada de la Huerta watershed is limited to storm events when rainfall exceeds infiltration rates. These observations are also true for the Arroyo Quemado watershed, in addition to the headwaters where documented perennial springs in the Gaviota Formation discharge water to the creek year-round [Anikouchine, 1991 and Stoecker, 2008].

Water production from Vaqueros and Sespe-Alegria Formation wells in the TSL watershed is not expected to affect the perennial springs identified in the Gaviota Formation [Anikouchine, 1991] in Arroyo Quemado because of the horizontal and vertical distances between the water-bearing formations. The Gaviota Formation springs are identified approximately 2,500 feet north of the Vaqueros and Sespe-Alegria Formations. Groundwater and surface water in the canyon flow south toward the Pacific Ocean and therefore, impact to the northern Gaviota Formation springs, located in the upper canyon, is not anticipated from pumping from the southern Vaqueros and Sespe-Alegria Formations. Additionally, the steeply southern dipping orientation of the bedrock impedes vertical communication between the northern Gaviota Formation springs and the southern Vaqueros and Sespe-Alegria Formations groundwater. The measured depths to groundwater in Vaqueros and Sespe-Alegria Formations wells are up to 100 feet deeper than surface water elevations at the documented Gaviota Formation springs. Therefore, impact to the documented upper canyon springs in the Arroyo Quemado watershed is not anticipated from down canyon groundwater production.

4.6 Landfill Gas Migration

The potential for construction and operation of approved Well #8 to enable landfill gas migration to the groundwater table from the increased waste footprint was evaluated. Landfill gas migration can potentially degrade the groundwater quality of an aquifer via two possible routes: (1) landfill gas diffusing through the vadose zone could interact with the groundwater at the capillary fringe (top of groundwater), causing gas constituents to dissolve, and (2) landfill gas migration from the landfilled waste could occur within the casing of a groundwater well in the event that the top of the well screen is above the water table or within the well borehole annulus where sand filter pack occurs (i.e., the well provides a conduit for landfill gas migration to the groundwater). The potential for the construction and operation of Well #8 to enable landfill gas migration and degrade groundwater quality is considered low based on the following rationale:

- The proposed location of Well #8, **Figure 3**, is situated more than 500 feet to the northwest of the Project's expanded northerly lined portion of the landfill. The landfill liner, where applicable, and landfill gas collection system will reduce the potential for landfill gas to migrate northwestward to the proposed well location.

- Groundwater pumping in the well will decrease groundwater levels, thus increasing the distance from the bottom of the landfill to the top of the groundwater table. Regulation requires a minimum of five feet distance between a landfill liner system and the highest predicted groundwater levels. The increased distance between the groundwater table and the bottom of the landfill will reduce the potential for landfill gas to interact with groundwater.

In order to further reduce the potential for Well #8 to act as a conduit for landfill gas migration to groundwater, the screened portion of the well must be installed below the top of the groundwater table, as is common construction practice for a water supply well, and below the base of the landfill liner system nearest to the well. In addition, the well sanitary seal that is required per California Well Standards [CDWR, 1991], shall be installed through the unsaturated portion of the formation (vadose zone) and below the top of groundwater. With implementation of these well construction measures along with the low potential for Well #8 to provide a landfill gas conduit, the potential impacts of the Project on downward landfill gas migration is considered less than significant.

5.0 CUMULATIVE IMPACT ANALYSIS

Groundwater production for the TSL, ReSource Center and Project use occurs from within the Vaqueros and Sespe-Alegria Formations and is limited to the TSL and adjacent watersheds. This analysis indicates there is no significant impact to the safe yield of the bedrock aquifers by extracting groundwater from existing Wells #5, #6, #7, and approved future Well #8. Based on the location and project description, only one cumulative project (Landfill Gas to Renewable Natural Gas (RNG) Project (21CUP-00000-00013) listed within a three mile radius of existing and proposed TSL/ReSource Center wells will likely extract water from the Vaqueros and Sespe-Alegria bedrock sources. Demand for that project would only occur during construction and as a result of temporary irrigation during landscape installation. Consequently, the project's contribution to cumulative groundwater supply impacts and other associated groundwater pumping impacts are considered to be less than significant.

6.0 PROJECT ALTERNATIVE ANALYSIS

To meet the requirements of the California Environmental Quality Act (CEQA), potential alternatives have been identified. These alternatives include the following:

1. No Project Alternative
2. Vertical increased capacity without additional slope liner, and
3. Horizontal increased capacity with final grading plan not above elevation 620 feet amsl.

6.1 No Project

Under the 'No Project' alternative, waste disposal activities would continue at the TSL as currently conducted with no landfill capacity increase and no additional landfill liner placement. Construction and operational water demand is expected to be similar to existing operations (water supply and demand for the current TSL operations are provided in **Table 1a**) until the TSL reaches capacity in approximately 2026 and a final cover is installed. Under this alternative there would be no impacts to current groundwater recharge thereby resulting in no reduction in the safe yield for the Sespe-Alegria Formation within the TSL. The safe yield for the Sespe-Alegria Formation would remain at 14.5 AFY without the reduction in exposed surface area for groundwater recharge (**Table 2**). Thus, no additional water supply impacts and associated groundwater impacts at the TSL are expected under the 'No Project' alternative.

Consequently, this No Project alternative would not affect the TSL water supply or groundwater conditions.

6.2 Vertical Increased Capacity

Under the 'Vertical Increased Capacity' alternative, waste disposal activities would continue at the TSL as currently conducted with no additional landfill liner placement and a vertical capacity increase to a maximum elevation of 655 feet amsl. Under this alternative, overall TSL capacity would be reached in approximately the year 2031. Construction and operational water demand is expected to be similar to existing operations (water supply and demand for the current TSL operations are provided in **Table 1a**). Under this alternative there would be no impacts to current groundwater recharge thereby resulting in no reduction in the safe yield for the Sespe-Alegria Formation within the TSL. Thus, no additional water supply impacts and associated groundwater impacts at the TSL are expected under the 'Vertical Increased Capacity' alternative.

Consequently, this Vertical Increased Capacity alternative would not significantly affect the TSL water supply or groundwater conditions.

6.3 Horizontal Increased Capacity

Under the 'Horizontal Increased Capacity' alternative, the TSL would be expanded horizontally with placement of additional north slope liner and vertically to a maximum elevation of 620 feet amsl. Under this alternative, overall TSL capacity would be reached in approximately the year 2033. The additional north slope liner for this alternative would be placed on already excavated slopes and no significant Earth work would be necessary requiring additional water demand. Therefore, the construction and operational water demand would be similar to existing TSL operations and the water balance of the TSL would remain roughly the same as outlined in **Table 1a**. Additionally, the loss of recharge area from installation of the liner (4.5 acres of new lined area as compared to 14.25 acres under the proposed project) is reduced from that of the proposed Project, thereby resulting in less impact on the safe yield for the Sespe-Alegria Formation within the TSL.

The Horizontal Increased Capacity alternative would not significantly affect the TSL water supply or groundwater conditions.

Under all of the alternatives water demand for the ReSource Center as outlined in **Table 1a** would continue to at least 2038.

7.0 REFERENCES

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Geosyntec consultants

TABLES

TABLE 1A
YEAR 2022 BASELINE INCLUDING PROJECT AVERAGE ANNUAL WATER USE AND SUPPLY ESTIMATES (WITHOUT WELL #8)
TAJIGUAS LANDFILL OPERATIONS AND CONSTRUCTION

Category		Estimated Quantity (AF/Y)
Projected Potable and Non-Potable Water Use		
Potable Water Use:		
Landfill Domestic[1]		0.1
Off-Landfill Un-Lined Areas Dust Control[2]		3.2
ReSource Center		12.7
Landfill Construction[3]		3.2
Subtotal Potable Water Use		***19.2***
Non-Potable Water Use:		
Landfill Daily Operations		6.4
Subtotal Non-Potable Water Use		***6.4***
Total Estimated Potable and Non-Potable Water Use		**25.6**
Projected Potable and Non-Potable Water Supply		
Potable Water Supply:		
Well #5	Vaqueros Formation	11.6
Well #6[4]	Sespe-Alegria Formation	9.6
Well #7	Vaqueros Formation	4.1
Shell Well	Vaqueros Formation	2.0
Subtotal Potable Water Supply		***27.3***
Non-Potable Water Supply*:		
Groundwater Collection System North of LF (ICSP)		To Be Determined
GLCRS Interceptor Trench (GWIT)[5]		2.6
LCRS Wells #2 - #5[5]		0.6
Well #3[6]	Monterey Formation	10.8
Subtotal Non-Potable Water Supply		***14.0***
Total Estimated Potable and Non-Potable Water Supply		**41.3**
Estimated Water Balance (Water Supply minus Water Use)		**15.7**

Notes

[1] Domestic use is limited to drinking fountains, hand washing, and cleaning facilities for Landfill staff. Numbers provided by Tajiguas Landfill Operations.

[2] Dust Control applied to roads and unlined portions of the Landfill.

[3] Water used for planned construction operations at the Landfill. Estimated volume provided by County of Santa Barbara, October 2022.

[4] Data provided in 2022 indicate Well #6 is pumped at a stable rate of 6 gpm for an annual yield of 9.6 AFY.

[5] Annual totals from RRWMD Pollution Control Systems Reports. Annual totals are the average of past 5 years of data (2018-2022).

[6] Report by Moore and Taber, February 17, 1998, indicates a potential 20-25 gpm long-term sustainable pumping rate based on a short-term aquifer test. Supply shown here provided by RRWMD based on prior usage.

TABLE 1B
YEAR 2022 BASELINE INCLUDING PROJECT AVERAGE ANNUAL WATER USE AND SUPPLY ESTIMATES (WITH WELL #8)
TAJIGUAS LANDFILL OPERATIONS AND CONSTRUCTION

Category			Estimated Quantity (AF/Y)
Projected Potable and Non-Potable Water Use			
Potable Water Use:			
Landfill Domestic[1]			0.1
Off-Landfill Un-Lined Areas Dust Control[2]			3.2
ReSource Center			12.7
Landfill Construction[3]			3.2
Subtotal Potable Water Use			***19.2***
Non-Potable Water Use:			
Landfill Daily Operations			6.4
Subtotal Non-Potable Water Use			***6.4***
Total Estimated Potable and Non-Potable Water Use			**25.6**
Projected Potable and Non-Potable Water Supply			
Potable Water Supply:			
Well #5	Vaqueros Formation		11.6
Well #6[4]	Sespe-Alegria Formation		9.6
Well #7	Vaqueros Formation		4.1
Well #8[4]	Sespe-Alegria Formation	(Approved; Not Installed)	3.4
Shell Well	Vaqueros Formation		2.0
Subtotal Potable Water Supply			***30.7***
Non-Potable Water Supply*:			
Groundwater Collection System North of LF (ICSP)			To Be Determined
GLCRS Interceptor Trench (GWIT)[5]			2.6
LCRS Wells #2 - #5[5]			0.6
Well #3[6]	Monterey Formation		10.8
Subtotal Non-Potable Water Supply			***14.0***
Total Estimated Potable and Non-Potable Water Supply			**44.7**
Estimated Water Balance (Water Supply minus Water Use)			**19.1**

Notes

[1] Domestic use is limited to drinking fountains, hand washing, and cleaning facilities for Landfill staff. Numbers provided by Tajiguas Landfill Operations.

[2] Dust Control applied to roads and unlined portions of the Landfill.

[3] Water used for planned construction operations at the Landfill. Estimated volume provided by County of Santa Barbara, October 2022.

[4] Data provided in 2022 indicate Well #6 is pumped at a stable rate of 6 gpm for an annual yield of 9.6 AFY. Well #8 is an approved but not yet installed well. If installed, the production between Wells #6 and #8 can total the safe yield of the Sespe-Alegria Formation of 13 AFY.

[5] Annual totals from RRWMD Pollution Control Systems Reports. Annual totals are the average of past 5 years of data (2018-2022).

[6] Report by Moore and Taber, February 17, 1998, indicates a potential 20-25 gpm long-term sustainable pumping rate based on a short-term aquifer test. Supply provided here by RRWMD based on prior usage.

TABLE 2
SAFE YIELD ESTIMATES AND WATER PRODUCTION ESTIMATES
TAJIGUAS SANITARY LANDFILL

Bedrock Formation	Watershed Name and Location	Exposed Watershed - Acres	Estimated Safe Yield - AFY	Combined Safe Yield Estimate - AFY	Estimated Production Quantity by Well (AFY)
Vaqueros	Tajiguas	21	4.1	17.7	**10.6** [6.5 (Well #5) & 4.1 (Well #7)]
Vaqueros	Arroyo Quemado	59	11.6		
Vaqueros	Canada de la Huerta	10	2.0		**0.0** (Shell Well)
Sespe-Alegria	Tajiguas	127	13.0	13.0	**8.6** (Well #6)

Notes:

Theoretical Safe Yield = Area of Exposed Formation x Average Rainfall x Infiltration Rate

Average Rainfall = 1.71 feet /year

Infiltration Rate for Vaqueros Formation = 11.5% (Presented in 01-EIR-05)

Infiltration Rate for Sespe-Alegria Formation = 6% [Approximately half Vaqueros rate based on lower transmissivity (COSB P&D, 2015)]

AFY: Acre Feet per Year

The exposed acreage of the Sespe-Alegria Formation within the Tajiguas Landfill watershed was reduced from 142 acres to 127 acres due to the proposed new lined areas and new upper and lower sedimentation basins. This reduction in exposed watershed area results in a reduction of the safe yield for the Sespe-Alegria Formation beneath the Tajiguas Landfill from 14.5 AFY to 13.0 AFY.

FIGURES

Legend

Site Location

Aerial Photo Date: 2020-11-10

N

0 20,000 Feet

Site Location Map
Tajiguas Landfill

County of Santa Barbara
California

Geosyntec consultants

Santa Barbara | February 2023

Figure 1

SantaBarbara: \\santabarbara-01\data\GIS\County of Santa Barbara RRWMD\Projects\RRWMD Tajiguas Expansion\2022 Landfill Expansion Water Supply Analysis\Tajiguas_Landfill_Expansion.aprx\TL_Fig01_Site_Location 2/15/2023 12:17 PM (Daniel.Phillips)

Legend

Permitted Waste Limit Boundary

Proposed Waste Limit Boundary

Permitted Operational Area Boundary

Parcel Boundary

Aerial Photo Date: 2021-09-16

N

0 500 Feet

Site Overview and Capacity Increase Area
Tajiguas Landfill

County of Santa Barbara
California

Geosyntec
consultants

Figure

2

Santa Barbara | February 2023

SantaBarbara: \\santabarbara-01\data\GIS\County of Santa Barbara RRWMD\Projects\RRWMD Tajiguas Expansion\2022 Landfill Expansion Water Supply Analysis\Tajiguas_Landfill_Expansion.aprx\TL_Fig02_Site_Overview 2/15/2023 12:17 PM (Daniel.Phillips)

Legend

- Proposed Well
- Domestic Well
- Former Water Supply Well
- Tm - Monterey Formation Water Supply Well
- Tspa - Sepse and Alegria Formation Water Supply Well
- Tvq - Vaqueros Formation Water Supply Well
- Limits of Exposed Tvq Formation in Canada de la Huerta Watershed
- Limits of Exposed Tvq Formation in Tajiguas Landfill Watershed
- Limits of Exposed Tvq Formation in Baron Ranch Watershed
- Limits of Exposed Tspa Formation in Tajiguas Landfill Watershed
- Arroyo Hondo Watershed
- Baron Ranch Watershed
- Canada de la Huerta Watershed
- Tajiguas Landfill Watershed

Qa: Alluvial Stream Deposits
Qls: Landslide Debris
Qoa: Older Alluvial Sediments
Tm: Monterey Fm.
Tr: Rincon Fm.
Tvq: Vaqueros Fm.
Tspa: Sespe and Alegria Fm.
Tg: Gaviota Fm.
Ts: Sacate Fm.

N

0 1,000 Feet

Notes
-Aerial photos dated April 2017 and November 2017.
-Geology Reference: EMCON, 1994a., Dibblee, 1988.

Site Geology and Water Production Wells Tajiguas Landfill

County of Santa Barbara
California

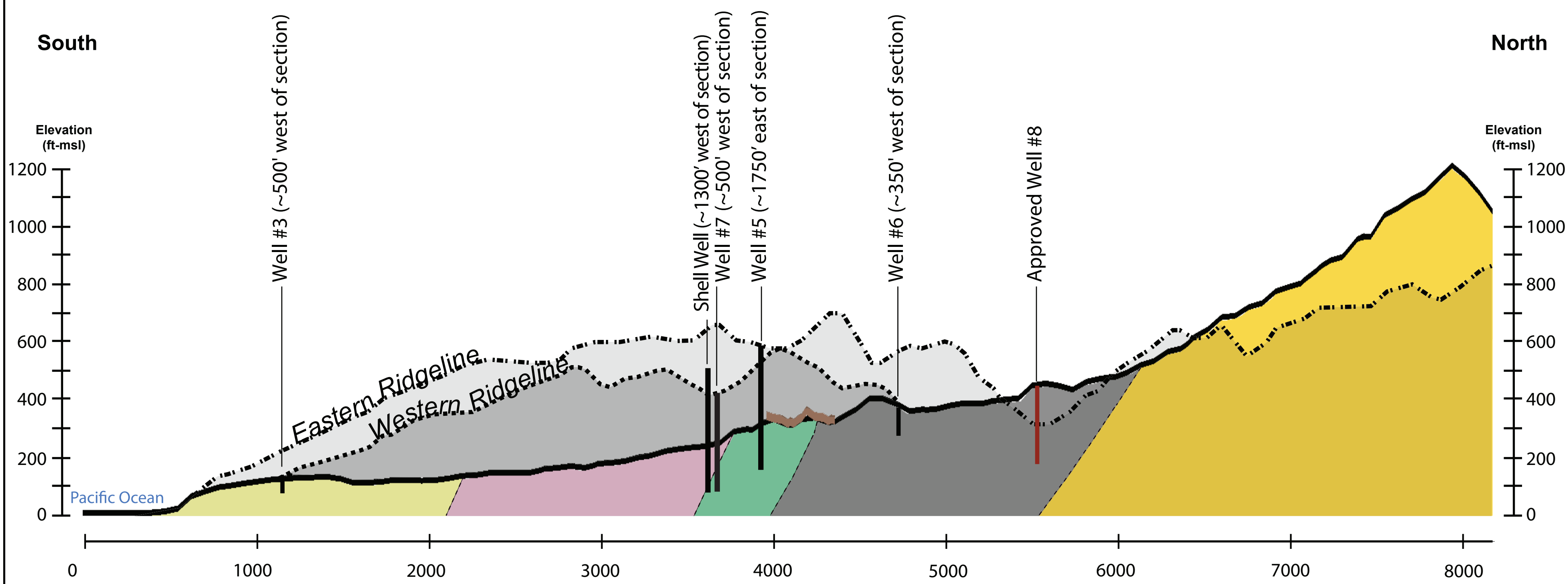
Geosyntec consultants

Figure

3

Santa Barbara	February 2023

SantaBarbara: \\santabarbara-01\data\GIS\County of Santa Barbara RRWMD\Projects\RRWMD Tajiguas Expansion\2022 Landfill Expansion Water Supply Analysis\Tajiguas_Landfill_Expansion.aprx\TL_Fig03_Site_Geology 2/20/2023 2:27 PM (Daniel.Phillips)



Notes:
-Stratigraphy is interpolated using data from Dibblee geologic maps and sparse borehole lithology.
-Lithologic and geologic data used is not comprehensive
-ft-msl = feet above mean sea level
-All locations are approximate

Monterey Formation (Tm)
Rincon Formation (Tr)
Vaqueros Formation (Tvq)
Sespe-Algeria Formation (Tspa)
Gaviota Formation (Tg)

Ground Surface
Known Liner Extent
Projected Ground Surface

Well projected below ground surface
Approved/Uninstalled Well Location
Geologic Formation Contact (Approximate)

Note: Line of cross-section is located approximately in low point of canyon or former Pila Creek channel. Wells are noted with distance and direction from line of section. Approved Well #8 is proposed to be near canyon low point.

0 1,000 Feet

Generalized Cross-Section Schematic

Tajiguas Landfill
Santa Barbara County, California

Geosyntec consultants

Santa Barbara | February 2023

Figure 4

\\santabarbara-01\data\GIS\County of Santa Barbara RRWMD\PDFs\RRWMD Tajiguas Expansion\2022 Landfill Expansion Water Supply Analysis\TL_Fig04_Site_Geology.pdf

APPENDIX A

Appendix A
Water Budget Summary for ReSource Center Use

2023 Projected ReSource Center Use

Area	Purpose	Source of estimate	Water Use (ac-ft)	Source
MRF	Domestic	SCADA	0.92	Well 7
ADF	Domestic	SCADA	0.02	Well 7
ADF	Biofilter	SCADA	1.00	Well 7
ADF	Percolate supplement	1920000	5.89	Wells 7 & 8
CMU	Compost conditioning	JKC Table 1	3.79	Well 6
CMU	Dust Control	JKC Table 2	0.18	Well 6
CMU	Odor Control	ONM Environmental/Mustang	0.92	Well 6
Total			**12.72**	

Comparison of Permitted ReSource Center Water Use* vs. Proposed Use

Well	Water Formation	Sustainable Yield (Geosyntec 2019)	Approved ReSource Center Use (2019)	Proposed ReSource Center Use (2023)	Difference
5	Tvq	12.60	4.80	0.00	-4.80
6	Tspa	9.40	9.40	4.89	-4.51
7	Tvq	3.00	3.00	2.83	-0.17
8 (future)	Tspa	5.00	0.00	5.00	5.00
	Total	30.00	17.20	12.72	-4.48

* Permitted use based on May 2019, 15162 CEQA Determination for PD 2.