SITE CHARACTERIZATION WORK PLAN
FOR
THE RIVERBANK CITY DUMP
(SWIS NO. 39-CR-0029)

SAN JOAQUIN COUNTY

PREPARED FOR:

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JULY 2023 (REVISED SEPTMEBER 2023)

SITE CHARACTERIZATION WORK PLAN
FOR THE RIVERBANK CITY DUMP

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SWT Engineering (SWT) is pleased to present the Site Characterization Work Plan (Work Plan) (dated July 2023, Revised September 2023) to the regulatory agencies identified below in support of a proposed Solar Panel Project on the closed Riverbank City Dump (SWIS No. 39-CR-0029). This Work Plan has been revised to address comments from the San Joaquin County Environmental Health Department, acting as the Local Enforcement Agency (LEA).

Objective: This Work Plan will outline the field work activities to be conducted as part of the investigation to: 1) determine the approximate horizontal and vertical extents of the disposal site, and 2) to characterize the content of the fill (as Resource Conservation and Recovery Act (RCRA) hazardous, California Hazardous, or non-hazardous waste).

Section 4.0 of this Work Plan includes activities to be conducted to characterize site conditions in order to determine the horizontal and vertical extent of waste and the character of wastes present, estimate volume of waste in place, and the levels/extent of contaminated soil, if any.

1.0 BACKGROUND

The entire 657 kW project consists of one 92.365-kW carport that is to be constructed over an area that was not used as a landfill and one 565-kW ballasted ground mount array to be placed on the old landfill area (Figure 1). As part of this proposed solar panel project, there will be no need to remove waste from the site nor disturbance of in-place waste. The entire system would be located on the south end of the City of Riverbank Wastewater Treatment Plant (WWTP) property and potential disposal area (review of records section below), north of the Stanislaus River (Figure 2). The WWTP is owned and operated by the City of Riverbank.

The effected parcel showing the site is listed from the County of San Joaquin Assessor's parcel map register as Assessor's Parcel Number (APN) 247-260-02 (see Appendix A). In addition, the effected property's title report is also included in Appendix A.

The Riverbank City Dump (Site) is a closed solid waste disposal site subject to California Department of Resources Recycling and Recovery (CalRecycle) regulations and is inspected periodically by the San Joaquin County Local Enforcement Agency (LEA) for compliance with applicable State Minimum Standards. The Solar Panel Project will require a Postclosure Land Use (PCLU) Plan to be submitted to the San Joaquin County LEA and the Central Valley Regional Water Quality Control Board (CVRWQCB) for review and approval. Prior to submitting a PCLU Plan, this Site Characterization Work Plan needs to be submitted and approved by the regulatory agencies before moving forward with the intrusive investigation/field work activities.

As part of a meeting held with the LEA in June 2023, the LEA indicated that the first step in this project would be preparation and submittal of a Work Plan to conduct field work activities for Site Characterization of the closed Riverbank City Dump to the regulatory agencies (i.e., LEA, CalRecycle, and CVRWQCB). In late August 2023, the LEA provided comments on the July 2023 Work Plan and as a result, this document has been revised (dated September 2023) and re-submitted to the regulatory agencies with the goal of obtaining approval from each agency.

CalRecycle guidance for site investigations used for this Work Plan include:

- *Young, Glenn, P.E., July 2019, Landfill Development Requirements and Recommendations, CalRecycle, Closed, Illegal, and Abandoned Sites Program.*
- *Former Landfill and Disposal Site Investigations, 2020, California Department of Resources Recycling and Recovery (CalRecycle), Closed, Illegal, and Abandoned Sites Program, Publication #DRRR-2010-008.*

The documents listed above are guidelines and are broad with regard to the age, size, and threat level category of a facility. The Riverbank City Dump was closed in approximately 1968 (well over 50 years ago), very small in size (less than 1 acre for estimated limits of waste, see Section 3.0), and per the LEA Site Identification Form (dated June 2011), the threat posed by the Site was ranked as "**C**", which is a low threat to public health and safety and the environment with minimal action needed to prevent human contact with waste. A copy of the 2011 Site Identification Form is included in Appendix A.

2.0 AVAILABLE RECORDS

SWT reviewed CalRecycle's Solid Waste Information System (SWIS) database and discussed for the site with the LEA. There are very few regulatory records and no documented history or record of previous investigations regarding the Site. LEA inspection reports were reviewed in addition to a completed Site Identification Form, dated June 20, 2011. In addition, SWT inquired about records that may be available through CalRecycle, but based on communications with the LEA, it was confirmed that there are no other documents available. Based on information from the LEA during the June 2023 meeting, it was estimated that the closed landfill operated from approximately 1960 through 1968.

Aerial Photographs: The following available historical aerial photographs were compiled and reviewed from online sources:

Pre-Disposal

- *1957 March University of California at Santa Barbara (UCSB)*
- *1957 July UCSB*

Disposal

- *1963 (Unknown Month) UCSB*

Post-Disposal

- *1969 UCSB*
- *1993 UCSB*
- *2019 UCSB*
- *2023 (May) Google Earth*

Topographic Maps: The following available historical topographic maps were compiled and reviewed from the USGS Topoview website *https:www.ngmdb.usgs.gov/topoview/viewer/#1/-1/-9.:*

Pre-Disposal

- 1916
- 1953

Post-Disposal

- 1969
- 2019
- 2021

Assessor Parcel Information: Assessor Parcel Information was obtained from a Title Report and in the San Joaquin County Assessor Parcel Maps website (https://www.sjgov.org/department/assessor/property-information/homeowners/parcel-maps). As indicated in Section 1.0, the location of the project, which is located on the south end of the City of Riverbank WWTP, falls within APN 247-260-02 (see Appendix A).

3.0 REVIEW OF RECORDS

Aerial photographs included in Appendix A do not indicate a timeframe as to when disposal activities may have occurred or indicate changes in site use and vegetation. The WWTP is present in the 1957 aerial photograph and 1953 topographic map (both pre-disposal), and by 1963 (during disposal) had expanded. Topographic maps indicate a variable shallow slope area with little change in relief (up to 10-15 feet) over time. Topographic maps from 1916 and 1953 (both pre-disposal) show a north-northeast trending trench, which is most likely a former irrigation canal at the west end of the site from 10-15 feet deep that is not present in 1957 (pre-disposal). It is likely that the former canal was filled between 1953 and 1957 (pre-disposal). This former canal appears to be the area of waste fill and is located where the 565-kW ballasted ground mount array is to be placed on the old landfill area. The former canal area extends to the outside limits of the WWTP operations to Jacob Myers Park, which is within the parcel boundary and owned by the City of Riverbank. Figure 3 shows the approximate limits of waste of the disposal site with respect to the proposed Solar array.

Preliminary assumptions concerning the nature, extent, and potential threat to public health and safety environment are that the Riverbank City Dump is shallow (probably <15 feet deep), has limited extent, and poses a very low potential threat to public health and safety and the environment. Figure 2 shows the approximate horizontal extent of the waste (i.e., waste limits) within the property boundary (approximately 0.76 acres). Assuming an average depth of 12 feet, the total estimated volume of waste in-place is approximately 14,800 cubic yards. The waste is likely to be mainly inert debris and land clearing materials (soil and vegetation) associated with WWTP construction activities, with "de minimis" degradable materials that could generate landfill gas or leachate. The LEA Site Identification Form (dated June 20, 2011, see Appendix A) ranked the threat posed by the Site as "**C**", which is a low threat to public health and safety and the environment with minimal action needed to prevent human contact with waste. Current land use is non-irrigated open space and storage and staging activities associated with WWTP operations.

4.0 SITE CHARACTERIZATION WORK PLAN

Based on the available information, potholes and/or trenches 10-15 feet deep are determined to be the most suitable intrusive field investigation method and are being proposed to determine the vertical and horizontal extents of waste fill. Because it is likely that large, resistant materials will be encountered, such as concrete slabs or asphalt, drilling or direct-push equipment are not suitable for the intrusive investigation. This intrusive field investigation (i.e., potholing and trenching) will be performed by sampling and analysis, and document the results of exploration on a topographic drawing for the disposal area which will depict the waste boundary, property lines, structures, and other investigation information. An initial magnetometer (metal detector) or ground penetrating radar (GPR) survey may be conducted to further define the area of potholing and trenching. The proposed excavation locations are shown on Figure 3 and will be marked prior to implementation. The location of pothole test pits and trenches, as shown on Figure 3, may be adjusted based on field conditions. The approximate limits of waste are shown on Figures 2 and 3.

For decades, the LEA has visited and visually surveyed the site during routine quarterly inspections of the closed landfill. As part of the proposed potholing, an additional geophysical visual survey of the disposal site area will be conducted.

In addition to the assessment of historical aerial photograph analysis and topographic maps already included in this Work Plan (Appendix A), the suspected boundary will be further assessed, as needed, using photograph analysis and topographic maps. The most effective methods for determining horizontal and areal extent based on site conditions, e.g., physical properties of geology, development and the fill area, are part of the intrusive investigation/field work activities outlined in this section. Once limits of waste are better defined during this intrusive field work, the estimated volume of waste in-place will be updated from the information provided in Section 3.0.

The types and relative quantities of materials excavated will be characterized visually, a detailed photographic record will be compiled, and cover soil thickness will also be recorded. The LEA will be notified when excavation activities (potholing and trenching) occur to allow them to observe the materials. Soil sampling will occur if soil-stain of the material is observed. Any soil sample(s) will be tested at a laboratory that is certified by the California Environmental Laboratory Accreditation Program (ELAP) for the analyses to be performed. Any excavated material for waste characterization purposes will be transported off-site to a permitted solid waste facility for proper disposal or recycling. Disposal records shall be provided for all waste removed from the site and will be included in the Final Site Characterization Report, discussed below. Clean soil will be used to backfill.

Although hazardous materials are not expected to be present based on the 2011 Category "C" low threat ranking (see Appendix A), the following contingency protocol will be in-place should such materials be identified during excavation. Potential hazardous materials may include, but are not limited to, asbestos, drums containing liquids, and potentially contaminated soils with visual discoloration, or visual presence of burn ash. Any indications of the presence of burn ash, odors, staining, discoloration, or contact with potentially hazardous materials or asbestos, will be recorded.

Excavations will be backfilled with clean material before the end of the workday. It is anticipated that the excavation activities will take up to approximately 2 days to complete

and the site will be secured from public access. Water will be used to mitigate dust, if necessary. When a contractor (consultant) is selected to perform the field work activities, they will prepare a site-specific Health and Safety Plan, which will be reviewed and approved by the LEA prior to commencement of work.

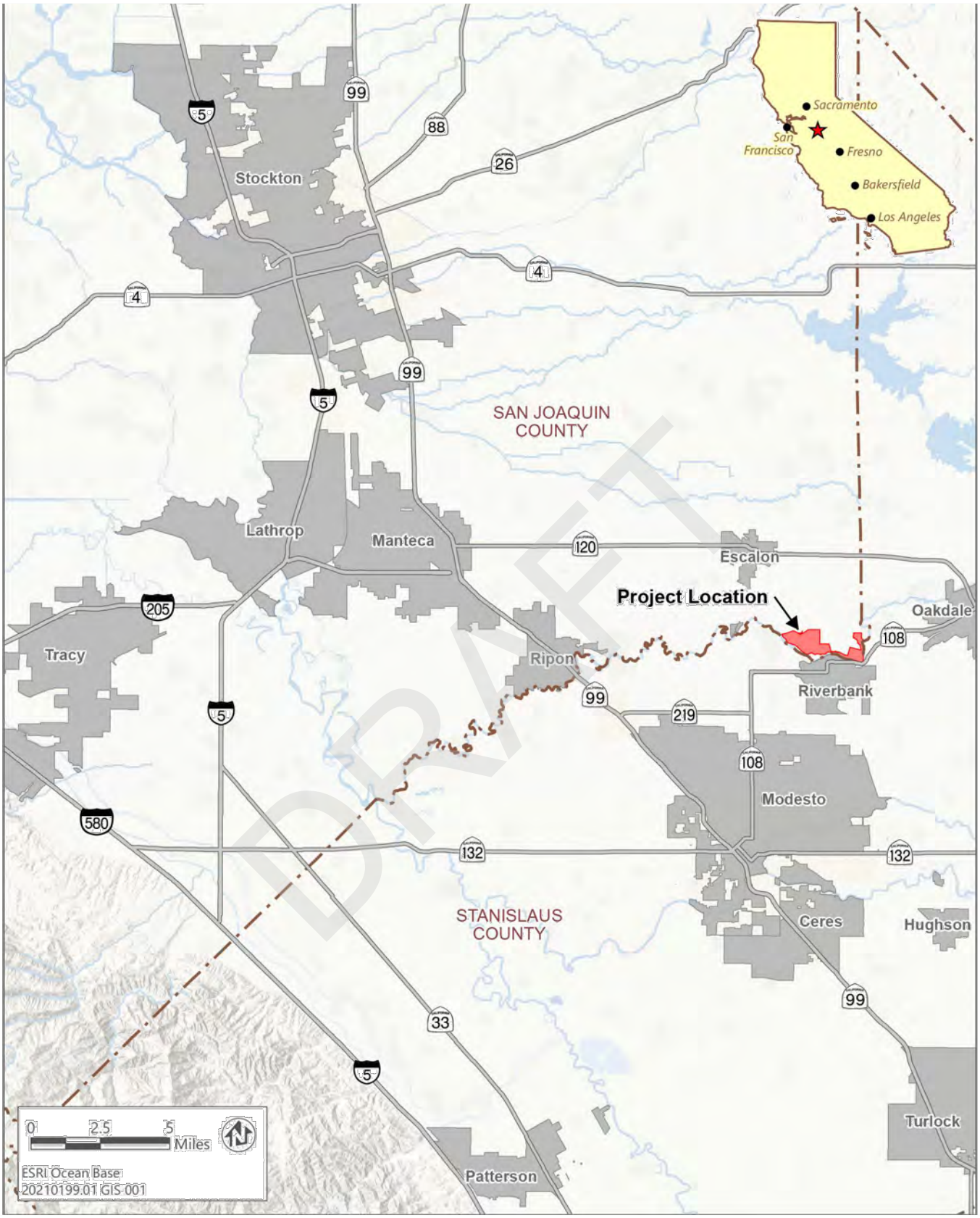
Prior to executing this Work Plan, the proper permits and approvals will be obtained and then included in the Final Site Characterization Report. The Final Site Characterization Report will be prepared to document the site characterization field work activities (along with photographic documentation) and findings, as discussed above. The most recent (available) topographic map showing the results of the characterization observation and findings, and also delineating area(s) of disposal fill will be included in the Final Report. The Final Report will be prepared under the supervision of a California Registered Civil Engineer or Certified Engineering Geologist and submitted to the LEA, CalRecycle, and CVRWQCB to support the PCLU Plan.

5.0 CLOSURE

This Site Characterization Work Plan will be reviewed by the appropriate regulatory agencies for approval. Once approval is gained, the next steps moving forward will be coordinated with the LEA, as discussed above.

Should you have any questions or require additional clarification, please do not hesitate to contact me at 909-390-1328 or via email at mac@swteng.com.

FIGURES



PREPARED BY:

SWT *Civil & Environmental* ***Engineering***

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ONTARIO, CALIFORNIA 91761

FIGURE 1

RIVERBANK CITY DUMP

SITE LOCATION MAP

JULY 2023

Z:\PROJECTS\SITELOGIQ\SITE CHARACTERIZATION WORK PLAN\FIGURES\ACAD\FIG 1 – SITE CHARACTERIZATION WORK PLAN

NOTE:
POTENTIAL LIMITS OF WASTE FILL AREA BASED ON ANALYSIS OF HISTORICAL AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS.

LEGEND

APPROXIMATE WASTE LIMITS

200 0 200 400 600

SCALE: 1"=200'

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ONTARIO, CALIFORNIA 91761

IMAGE SOURCE: GOOGLE EARTH, APRIL 2022

FIGURE 2

RIVERBANK CITY DUMP

POTENTIAL WASTE LIMITS OF DISPOSAL SITE

SEPTEMBER 2023

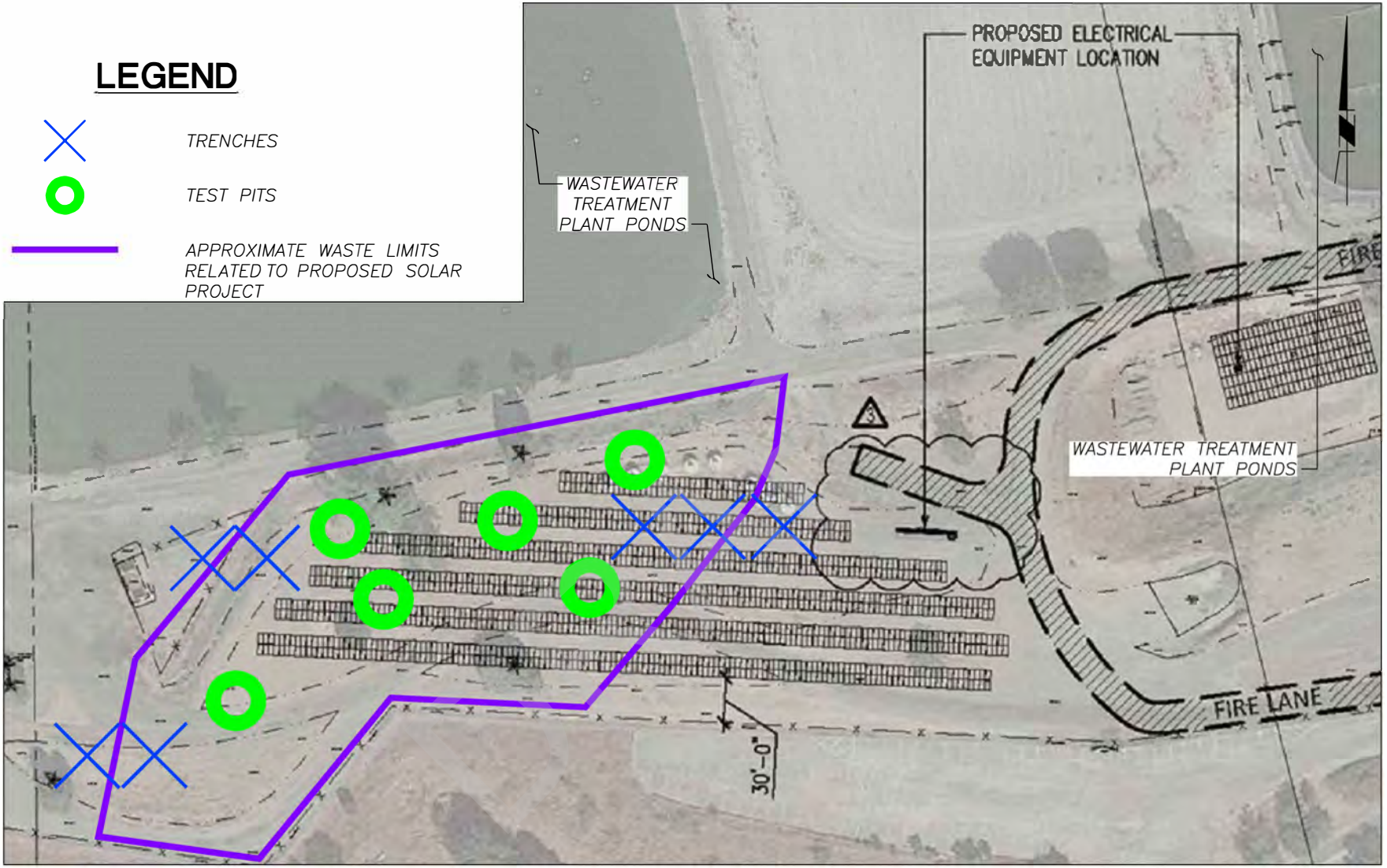
Z:\PROJECTS\SITELOGIQ\SITE CHARACTERIZATION WORK PLAN\FIGURES\ACAD\FIG 2 – POTENTIAL WASTE LIMITS OF DISPOSAL SITE_09132023

LEGEND

TRENCHES

TEST PITS

APPROXIMATE WASTE LIMITS RELATED TO PROPOSED SOLAR PROJECT



NOTE:
THE NUMBER AND LOCATION OF TRENCHES AND/OR TEST PITS MAY BE ADJUSTED IN THE FIELD BASED ON SITE SPECIFIC CONDITIONS.

100 0 100 200 400

SCALE: 1"=100'

PREPARED BY:

SWT Civil & Environmental Engineering

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ONTARIO, CALIFORNIA 91761

IMAGE SOURCE: GOOGLE EARTH, APRIL 2022

FIGURE 3

RIVERBANK CITY DUMP

SOLAR PANEL PROJECT LAYOUT AND PRELIMINARY LOCATIONS OF PROPOSED TEST PITS AND TRENCHES

SEPTEMBER 2023

Z:\PROJECTS\SITELOGIQ\SITE CHARACTERIZATION WORK PLAN\FIGURES\ACAD\FIG 3 – SOLAR PANEL PROJECT LAYOUT AND PRELIMINARY LOCATIONS OF PROPOSED TEST PITS AND TRENCHES_09132023

APPENDIX A

PHOTOGRAPHS AND MAPS

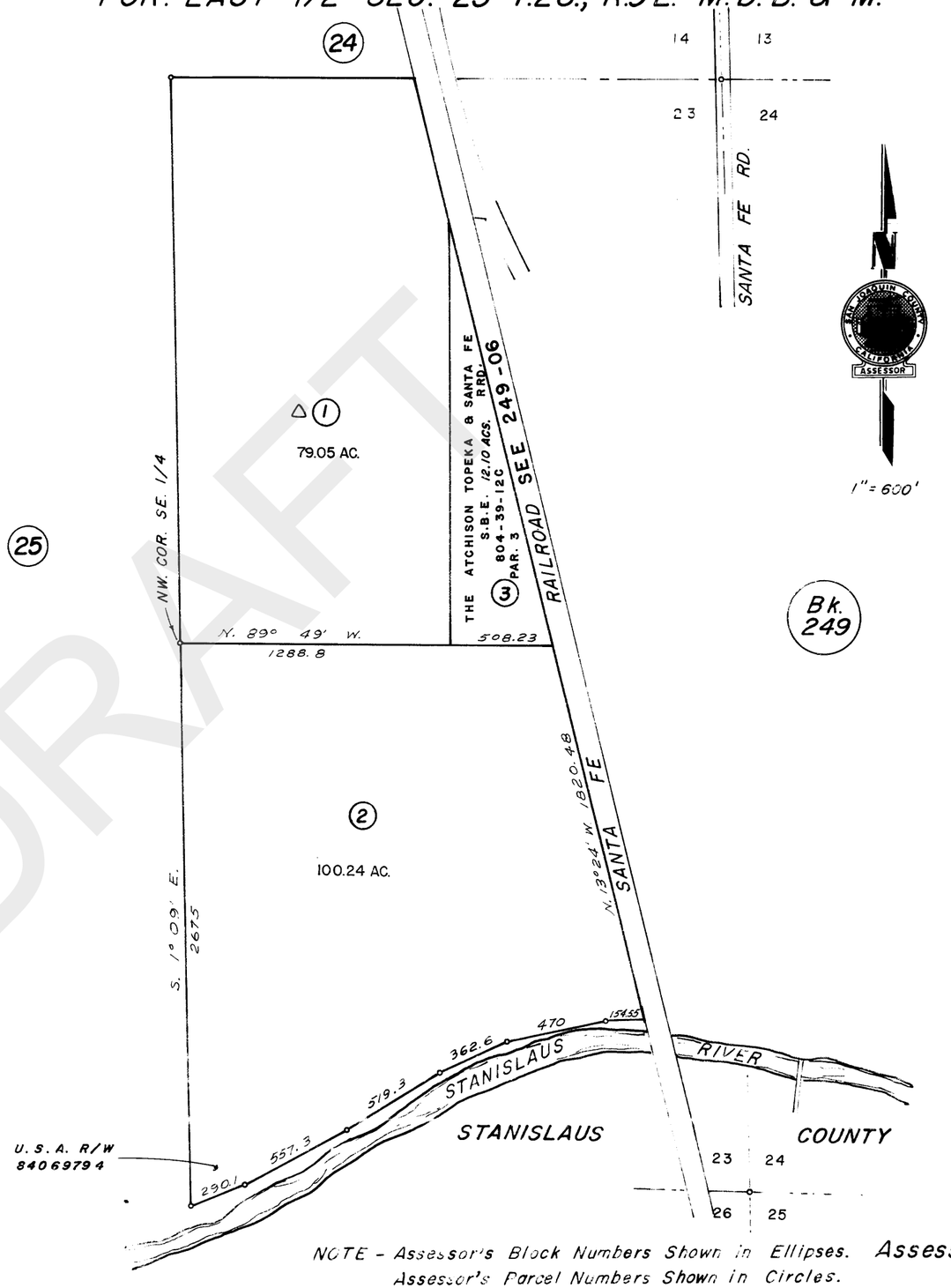
- ASSESSOR PARCEL MAP AND TITLE REPORT
- HISTORICAL AERIAL PHOTOGRAPHS
- TOPOGRAPHIC MAPS
- LEA SITE IDENTIFICATION FORM (JUNE 2011)

ASSESSOR PARCEL MAP AND TITLE REPORT

THIS MAP FOR
ASSESSMENT USE ONLY

POR. EAST 1/2 SEC. 23 T.2S., R.9E. M.D.B. & M.

247-26



NOTE - Assessor's Block Numbers Shown in Ellipses. Assessor's Map Bk. 247 - Pg. 26
Assessor's Parcel Numbers Shown in Circles.

TitlePro247

Property Details Report

Subject Property Location

Report Date: 08/30/2023
Order ID: R125228852

Property Address	23865 SANTA FE RD	Property Use	Miscellaneous (General)
City, State & Zip	ESCALON, CA 95320	Parcel Number	247-260-020-000
County	SAN JOAQUIN COUNTY	Latitude	37.744096
Mailing Address	6707 3RD ST, RIVERBANK, CA 95367-2305	Longitude	-120.94672
Census Tract	0049.05		
Thomas Bros Pg-Grid			

Legal Description Details Brief Description: MAP REF:MB 247 PG 26 Recorder's Map Ref: MB 247 PG 26

Current Ownership Information

**Source of Ownership data: Assessment Data*

Primary Owner Name(s)	RIVERBANK, CITY OF
Vesting	Government

Latest Full Sale Information

Details beyond coverage limitations

Financing Details at Time of Purchase

No financing details available

Property Characteristics

	Bedrooms		Year Built		Living Area (SF)	0
	Bathrooms/Partial		Garage/No. of Cars		Price ($/SF)	
	Total Rooms		Stories/Floors		Lot Size (SF/AC)	4,366,454/100.24
	Construction Type		No. of Units		Fireplace	
	Exterior Walls		No. of Buildings		Pool	
	Roof Material/Type		Basement Type/Area		Heat Type	
	Foundation Type		Style		A/C	
	Property Type	Miscellaneous	View		Elevator	
	Land Use	Miscellaneous (General)			Zoning	

Assessment & Taxes

	Assessment Year	2023	Tax Year	2022	Tax Exemption	
	Total Assessed Value	$29,157	Tax Amount	$359.06	Tax Rate Area	75-025
	Land Value	$29,157	Tax Account ID			
	Improvement Value		Tax Status	No Delinquency Found		
	Improvement Ratio		Delinquent Tax Year			
	Total Value			Market Improvement Value		
	Market Land Value			Market Value Year		

Lien History

Trans. ID	Recording Date	Lender	Amount	Purchase Money

No details available

Loan Officer Insights

No details available

Transaction History Report - Detailed View

Subject Property Location

Report Date: 08/30/2023
Order ID: R125228853

Property Address	23865 SANTA FE RD		
City, State & Zip	ESCALON, CA 95320		
County	SAN JOAQUIN COUNTY	Property Use	Miscellaneous (General)
Mailing Address	6707 3RD ST, RIVERBANK, CA 95367-2305	Parcel Number	247-260-020-000

Transaction Summary

Trans ID	Recording Date	Document Type	Document Description	Sale Price / Loan Amount	Document Number	Buyer / Borrower	Seller
1		Deed					

Transaction History Legend

Transfer | Mortgage | Mortgage Assignment | Foreclosure Activity | Mortgage Release

Transaction Details

Transfer

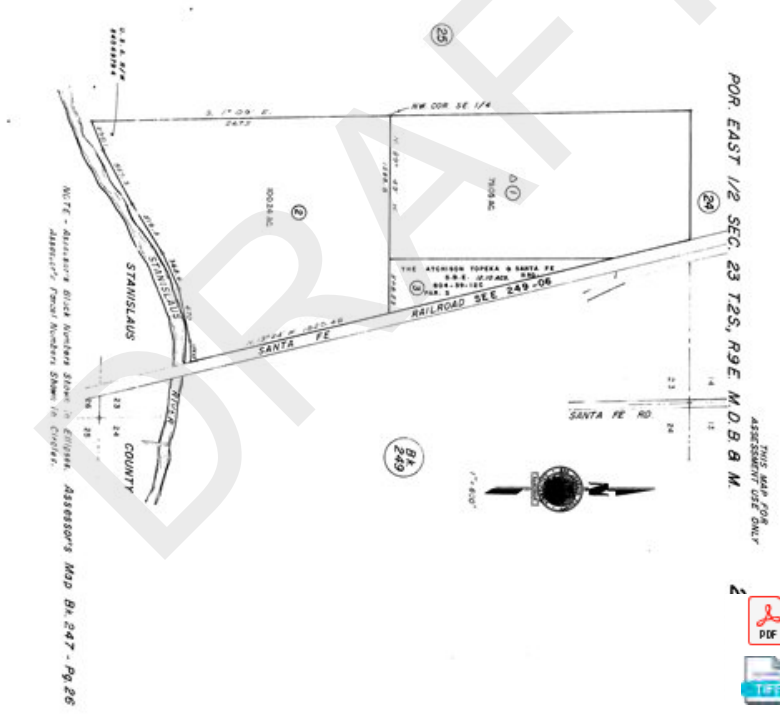
Transaction ID	1	Recorder Doc Number		Partial Interest Transferred	
Transfer Date		Document Type	Deed	Type of Transaction	Per Assessor
Sale Price		Document Description		Multiple APNs on Deed	
Recorder Book/Page		Recording Date		Property Use	Miscellaneous (General)
Buyer 1		Buyer 1 Entity		Buyer Vesting	
Buyer 2		Buyer 2 Entity		Buyer Mailing Address	
Seller 1		Seller 1 Entity		Seller Mailing Address	
Seller 2		Seller 2 Entity		Legal City/ Muni/ Township	
Legal Recorder's Map Ref		Legal Subdivision		Legal Section/ Twn/ Rng/ Mer	
Legal Brief Description/ Unit/ Phase/ Tract				Title Company Name	

Assessor Map Report

Subject Property Location

Report Date: 08/30/2023
Order ID: R125228854

Property Address	23865 SANTA FE RD
City, State & Zip	ESCALON, CA 95320
County	SAN JOAQUIN COUNTY
Parcel Number	247-260-020-000



Download the map in PDF

Download the map in TIFF

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HISTORICAL AERIAL PHOTOGRAPHS

PRE-DISPOSAL

1916

From USGS

1953

From USGS

1957

March

From UCSB

1957

July

From UCSB

DISPOSAL

1963

From UCSB

POST-DISPOSAL

1969

From USGS

1993

From Google Earth/USGS

2019

From Caltopo:

https://caltopo.com/map.html#ll=37.74302,-120.94711&z=17&b=mbh&a=cf10

2021

From USGS

2023

May

From Google Earth

TOPOGRAPHIC MAPS

PRE-DISPOSAL

1916

From USGS

1953

From USGS

POST-DISPOSAL

1969

From USGS

2019

From Caltopo:

https://caltopo.com/map.html#ll=37.74302,-120.94711&z=17&b=mbh&a=cf10

2021

From USGS

LEA SITE IDENTIFICATION FORM (DATED JUNE 2011)

F 510

Site Identification Form (SIP)

(See LEA Advisory No. 3 - for Guidance)

Initial I.D. (Y/N)	Y	Date of Field Visit	5/25/11	Follow-up Investigation (Y/N)	

Site Information:									
Name	Riverbank City Dump				AKA				
County	San Joaquin		Nearest Town/ City		Riverbank				
Site Address	23707 S. Santa Fe Rd.				SWIS #	39-CR-0029			
Zip	95367		APN	24726002					
Latitude:	Degree		Minute		Second				GPS
Longitude:	Degree		Minute		Second				Map

Land Owner Information:						
Land Owner Name	City of Riverbank					
Address	6707 Third St.					
City	Riverbank	State	CA	Zip	95367	
Phone		Fax				

Site Specifications:												
Dates of Operations				Closure Date								
Closure Plan (Y/N)	N	Date of Closure Plan										
Inspection Frequency	Quarterly	Date	6/09/2011									
Inspection Frequency Reduction Request (Y/N)				N	Date of Request							
Tracking System Approved					Date of Approval							
Site Type:		2136		Burn Dump		Illegal Dump Site		Other				
Site Category:		A		B	X	C		D	Category Date			
Surrounding Land Use:		Commercial		Residential		Industrial	X	Other	Wastewater Treatment Plant			

Comments/ Recommendations:

EHD recommends increasing inspection frequency to quarterly in accordance with Title 14 Section 18083 (a) (4).

LEA Staff Name	Benjamin Escotto	**Signature**	Benjamin Escotto	**Date**	6/20/11

CIWMB STAFF ONLY:

Reviewed By		Date		
Enter In To SWIS By		Date		

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