

## EXHIBIT A

### SCOPE OF SERVICES AND COMPENSATION SCHEDULE

Terraphase will provide technical expert support services to the City of San Leandro for San Francisco Bay Regional Water Quality Control Board (SFRWQCB) Waste Discharge Requirements Amendment compliance related tasks. The proposed consulting support will include the following:

#### **Task 1: Site Background Review, Regulatory Review and Flood Research**

Task 1 will include site background review, regulatory review, and flood research. Terraphase will develop existing Site topography and associated exhibits based on available LiDAR data. Landfill records made available by the City of San Leandro and records available through the GeoTracker database will be reviewed to better understand Site constraints, landfill contents, potential contaminants, fill material characteristics, existing utilities, evidence of subsidence and other pertinent data. A Site inspection and photo documentation of existing conditions will be performed. Subsurface groundwater conditions will be characterized by reviewing onsite groundwater well records provided by the City of San Leandro and GeoTracker records of nearby groundwater wells. Current golf course operations and maintenance practices provided by the City of San Leandro will be reviewed. Landfill and drainage regulatory information will be reviewed and summarized.

Flood research will include review of the following references, among others, to better understand estimates of future sea level rise, groundwater rise, and extreme storm events:

- 2018 State of California Sea Level Rise Guidance by Ocean Protection Council
- Current Updated Global and Regional Sea Level Rise Scenarios for the United States by NOAA and others
- San Francisco Bay Shoreline Adaptation Atlas by San Francisco Estuary Institute
- Bay Plan Climate Change Amendment by the Bay Conservation and Development Commission
- Coastal Storm Modeling System by United States Geologic Survey
- Analysis of Impact of Nonstationary Climate on NOAA Atlas 14 Estimates by NOAA
- Alameda County Hydrology & Hydraulics Manual

#### **Task 2: Flood Quantification and Justification**

This task includes conducting an analysis of surface water inundation (flooding) and groundwater elevation rise associated with Sea Level Rise (SLR) scenarios for the years 2050 and 2100. The analysis will be conducted consistent with the Ocean Protection Council (OPC) Guidance (OPC, 2018) using the most recent and best available climate change projections and trajectories presented in “Global and Regional Sea Level Rise Scenarios for the United States” (Sweet et.al. 2022).

For the 2050 and 2100 predictions, the medium-high and extreme risk aversion SLR scenarios will be considered, and a risk scenario will be selected and identified for the 2050 and 2100 conditions. The selected magnitudes of SLR will be superimposed onto the groundwater surface to assess groundwater rise and potential daylighting of groundwater. Quantification of the 100-year storm event will include astronomical tides, storm surge, wave run-up, seasonal effects, and discharge from local tributaries. For the 2100 condition, the impact of climate change on the future 100-year storm event will also be considered.

Terraphase will obtain nearby tidal gauge records, precipitation records, and LiDAR topography for use in the analysis. For each identified scenario, surface water inundation maps will be created using the most updated LiDAR topographic data for the site. Groundwater surfaces for each scenario will be constructed based on the best available data for current conditions with the magnitude of SLR superimposed. These two types of maps will be used together to assess potential future vulnerability to flooding at the site. Terraphase will also use data from the Coastal Storm Modeling System (CoSMoS) project (USGS 2021), which has made predictions of storm-induced coastal flooding, erosion, and cliff failures over large geographic scales.

An interim technical memorandum will be provided to describe the approach to the SLR assessment, justification of SLR scenario selections, and results of our analysis.

### **Task 2 references:**

- California Ocean Protection Council (OPC). 2018. State of California Sea-Level Rise Guidance, 2018 Update.
- Sweet, W.V., B.D. Hamlington, R.E. Kopp, C.P. Weaver, P.L. Barnard, D. Bekaert, W. Brooks, M. Craghan, G.Dusek, T. Frederikse, G. Garner, A.S. Genz, J.P. Krasting, E. Larour, D. Marcy, J.J. Marra, J. Obeysekera, M.Osler, M. Pendleton, D. Roman, L. Schmied, W. Veatch, K.D. White, and C. Zuzak, 2022: Global and Regional Sea Level Rise Scenarios for the United States: Updated Mean Projections and Extreme Water Level Probabilities Along U.S. Coastlines. NOAA Technical Report NOS 01. National Oceanic and Atmospheric Administration, National Ocean Service, Silver Spring, MD, 111 pp.<https://oceanservice.noaa.gov/hazards/sealevelrise/noaa-nos-techrpt01-global-regional-SLR-scenarios-US.pdf>
- United States Geological Survey (USGS). 2021. Projecting climate dependent coastal flood risk with a hybrid statistical dynamical model. DOI 10.1029/2021EF002285. <https://www.usgs.gov/publications/projecting-climate-dependent-coastal-flood-risk-hybrid-statistical-dynamical-model>

### **Task 3: Preparation of Long-Term Flood Protection and Adaptation Plan**

Task 3 will include preparing the Long-Term Flood Protection and Adaptation Plan (Plan) based on previously completed Site background review, flood research, and flood quantification/justification tasks. Preparation of the Long-Term Flood Protection Plan will include developing a draft version for review by the City of San Leandro, revisions, and completion of a final version that addresses City comments.

#### **Task 3A: Vulnerability Assessment**

The vulnerability assessment section of the Plan will identify existing features that may be vulnerable to future flooding extents. Items to be considered include, among others, long-term cap stability, infiltration of water into the landfill waste mass, increase in leachate amounts, leachate and landfill gas migration to other aquifers or surface waters, subsidence, erosion, stability of saturated landfill waste mass, and qualitative structural stability of buildings constructed on top of the landfill.

#### **Task 3B: Adaptation Plan**

The adaptation plan section of the Plan will identify strategies and potential Site improvements which can be implemented over various time periods to improve resilience of the landfill in response to future flooding extents. The adaptation plan will include conceptual descriptions of strategies which may include berms, groundwater containment areas, ponds, subsurface conduits, golf course irrigation/maintenance practices,

and nature-based approaches, among others. Improvements required to increase monitoring efforts, such as methane monitoring, setting survey monuments for settlement monitoring, and installing groundwater piezometers for groundwater monitoring will be recommended in the Plan. A schedule of the recommended strategies and monitoring efforts on a timeline relative to future flooding extents will be developed.

### **Task 3C: Maps**

Approximately six maps will be prepared in order to illustrate the existing and future conditions landfill features, flooding extents, and potential Site mitigation recommendations. Maps will be incorporated into the draft and final versions of the Plan.

### **Task 4: Project Management**

Task 4 will include project management tasks such as project administration and accounting over a period of six months, ongoing meetings and coordination with City of San Leandro, and a meeting with the SFRWQCB to solicit feedback on the Plan.

### **Assumptions**

This proposal and budget include the following assumptions:

- Additional meetings with regulatory agencies outside of those described above are not included.
- No field based topographic or utility surveys or setting of survey monuments are included.
- Purchase or installation of any monitoring devices, wells, or otherwise, is not included.
- Construction documents and detailed engineering design documents for potential Site improvements are not included.
- City of San Leandro will provide Terraphase access to the Site.
- City of San Leandro will provide available Site background information.
- Site flood quantification and justification will be based on methods described under Task 2 above and would not include development of a detailed numerical groundwater model. Existing and projected future groundwater level estimates will utilize currently available information to characterize groundwater elevations at the Site. Initial groundwater elevations and rise estimates will rely on either currently available leachate collection well data (if deemed suitable) and/or other adjacent groundwater elevation data (available from GeoTracker or other sources).
- Future development of on-site groundwater piezometers would be recommended as near-term future actions in the Plan. In the future, after new on-site piezometers are installed, groundwater elevations and associated rise estimates would be updated with the new data as necessary.

### **Cost Estimate**

The total estimated cost for the proposed scope of work shall not exceed \$37,290.

The work shall be completed on a time-and-materials basis, according to the below schedule.

Table 1 - Time and Materials Cost Estimate  
 City of San Leandro  
 Tony Lema Landfill Long-Term Flood Protection Plan

Category	Units	2022 Standard Rate	Discount	Rate	Task 1: Site Background Review, Regulatory Flood Research		Task 2: Flood Quantification and Justification		Task 3A: Vulnerability Assessment		Task 3B: Adaptation Plan		Task 3C: Maps		Task 4: Project Management		TOTALS		
					Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	Qty	Cost	
<b>Labor</b>																			
Principal	hour	\$ 264.00	10%	\$ 237.60	14	\$ 3,326	8	\$ 1,901	8	\$ 1,901	8	\$ 1,901	0	\$ -	16	\$ 3,802	54	\$ 12,830	
Senior Associate	hour	\$ 244.00	10%	\$ 219.60	10	\$ 2,196	18	\$ 3,953	14	\$ 3,074	0	\$ -	0	\$ -	0	\$ -	42	\$ 9,223	
Associate	hour	\$ 224.00	10%	\$ 201.60	6	\$ 1,210	4	\$ 806	8	\$ 1,613	8	\$ 1,613	0	\$ -	0	\$ -	26	\$ 5,242	
Senior Project	hour	\$ 211.00	10%	\$ 189.90	8	\$ 1,519	4	\$ 760	8	\$ 1,519	8	\$ 1,519	0	\$ -	0	\$ -	28	\$ 5,317	
Project	hour	\$ 198.00	10%	\$ 178.20	0	\$ -	0	\$ -	0	\$ -	0	\$ -	24	\$ 4,277	0	\$ -	24	\$ 4,277	
Senior Staff	hour	\$ 179.00	10%	\$ 161.10	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
Staff II	hour	\$ 151.00	10%	\$ 135.90	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
Staff I	hour	\$ 124.00	10%	\$ 111.60	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
Technician II	hour	\$ 121.00	10%	\$ 108.90	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
Technician I	hour	\$ 84.00	10%	\$ 75.60	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
GIS Technician II	hour	\$ 110.00	10%	\$ 99.00	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
GIS Technician I	hour	\$ 89.00	10%	\$ 80.10	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	
Administrator	hour	\$ 89.00	10%	\$ 80.10	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	5	\$ 401	5	\$ 401	
<b>Total Terraphase Labor</b>						\$ 8,251		\$ 7,420		\$ 8,107		\$ 5,033		\$ 4,277		\$ 4,202		\$ 37,290	
<b>Total Estimated Project Unit Costs</b>						\$ 8,251		\$ 7,420		\$ 8,107		\$ 5,033		\$ 4,277		\$ 4,202		\$ 37,290	

Labor Classification	Standard Hourly Rate	Hourly Rate with 10% Discount
Principal Engineer/Scientist	\$264	\$237.50
Senior Associate Engineer/Scientist	\$244	\$219.60
Associate Engineer/Scientist	\$224	\$201.60
Senior Project Engineer/Scientist	\$211	\$189.90
Project Engineer/Scientist	\$198	\$178.20
Senior Staff Engineer/Scientist	\$179	\$161.10
Staff 2 Engineer/Scientist	\$151	\$135.90
Staff 1 Engineer/Scientist	\$124	\$111.60
Technician 2	\$121	\$108.90
Technician 1	\$84	\$75.60
GIS Technician 2	\$110	\$99.00
GIS Technician 1	\$89	\$80.10
Administrator	\$89	\$80.10

**Labor Charges**

All time will be recorded and charged to nearest 0.1 hour. Expert testimony at trials, hearings and depositions will be billed at 150% of the standard hourly rate. For each day when testimony is provided, a minimum of 8 hours will be billed. Preparatory time will be billed at standard rates.

**Expenses**

Subcontractor fees and other direct costs, such as air travel, project supplies and rental equipment, etc. will be itemized and billed at cost plus a ten percent handling charge (standard handling charge is fifteen percent). Vehicle mileage when itemized is billed at the standard government rate in effect at the time of travel ([www.gsa.gov/mileage](http://www.gsa.gov/mileage)).

**Payment**

Payment is to be made to Terraphase Engineering Inc. as follows:

**Check Payments:**

Terraphase Engineering Inc.  
P.O. Box 102399  
Pasadena, CA 91189-2399

**Wire/ACH Payments:**

Terraphase Engineering Inc.  
JPMorgan Chase Bank  
Account Number 217693099  
Routing Number 322271627

Payment is due within 30 days of receipt of invoice.