

**Mitigation Monitoring and Reporting Program
and
Project Design Features**

for

Tequesquite Landfill Photovoltaic System

Prepared for

**City of Riverside Public Utilities Department
3901 Orange Street
Riverside, CA 92501**

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INTRODUCTION

The Tequesquite Landfill Photovoltaic System includes the following main components: installation of photovoltaic (PV) solar arrays, electrical conduits, and appurtenant facilities on the top surface of the closed Landfill; construction of an approximately 1,800-square foot Electric Equipment Building (EEB) east of the existing Landfill Gas Treatment Facility to contain the electrical inverters and other equipment necessary to distribute the electricity to the Riverside Public Utilities' (RPU) power grid; distribution of the generated power to RPU's power grid via existing, and in some cases upgraded, aboveground and underground facilities; periodic maintenance of the PV array; and potential execution of a Power Purchase Agreement (PPA) between the City and a third-party vendor. Collectively these items are referred to as the Project.

The proposed Project will be constructed in two or more phases. The first phase will consist of a 1 megawatt (MW) to 5 MW PV system that will serve as a pilot program for RPU. The 1 MW system will occupy a small northwestern portion of the overall Landfill. Second and potential subsequent phases will consist of up to a 9 MW PV generation system that will occupy approximately 40 acres of the entire northern half of the Landfill cover. Operation of the PV system does not require water except for periodic maintenance (i.e., washing) of the PV panels that will occur approximately twice per year. Water will be supplied to the Landfill site via tank trucks; therefore, the Project does not include water facilities.

Design and construction features (set forth below) have been incorporated into the Project, which help to reduce the impacts to the environment. Because these design features have been or will be incorporated into the design of the proposed Project, or are required by law, they are not considered to be mitigation measures. In addition, mitigation measures were incorporated into the Project to reduce environmental impacts identified in the Project initial study to below the level of significance.

The Mitigation Monitoring and Report Program for the Project commences on page 6 of this document.

PROJECT DESIGN FEATURES

The proposed Project will include design features, stated below, which will avoid significant impacts to the environment. Because these design features are incorporated into the design of the proposed Project, or are required by law, they are not considered to be mitigation measures.

General Measures

- The Project will comply with applicable federal, state, and City ordinances, standards, and procedures for public utility design, construction, maintenance, and operation.
- The Project will comply with the requirements of Title 27 of the Code of California Regulations (CCR) Section 21190.
- No Project –component shall be located so as to limit access to the condensate sumps shown as C-31, C-32, C-33, C-34, C-36, C-37, and C-38 on the exhibit entitled Tequesquite Landfill Constraint Exhibit.
- The Project will comply with all requirements to notify utility companies of impending construction, obtain relevant information regarding existing subsurface utilities, and consult with the affected utility companies regarding the preservation or relocation of such utilities, if necessary.
- If any solid waste material is encountered during Project construction, all work will immediately cease and the County of Riverside Department of Environmental Health (the Local Enforcement Agency) and the Department of Resources Recycling and Recovery (CalRecycle) will be notified.

Aesthetics

- All Project-related security lighting will be shielded away from adjacent properties and directed downward and onto the Project site.

Air Quality

- The Project will comply with the South Coast Air Quality Management District (SCAQMD) Rule 403, “Fugitive Dust Requirements for Control of Fine Particulate Matter (PM₁₀),” which requires implementation of feasible measures to reduce and control fugitive dust emissions, including, but not limited to: watering on site, using soil stabilizers, utilizing wheel washers for exiting vehicles, and reducing vehicle speeds.
- The Project will comply with the requirements of SCAQMD Permit to Operate F72428¹ or any subsequent Permit to Operate issued by the SCAQMD that supersedes Permit to Operate F72428.
- Construction equipment and vehicles will be maintained and operated so as to minimize exhaust emissions. Further, during construction, trucks and vehicles on the Project site will be parked with their engines off to reduce vehicle emissions.

Biological Resources

- The Project will comply with the requirements of the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP), by completing the Joint Project Review (JPR) process and required focused surveys for burrowing owls and narrow endemic plant species.

¹ Permit to Operate F72428 was issued by SCAQMD for the operation of the landfill gas and collection system.

- The Project will utilize BMPs, including those required through the National Pollutant Discharge Elimination System (NPDES), to ensure that the quantity and quality of runoff discharged to the MSHCP Conservation Area is not altered in an adverse way when compared with existing conditions. BMPs will be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area.
- Storm water systems will be designed to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm biological resources or ecosystem processes within the MSHCP Conservation Area. Regular maintenance will occur to ensure effective operations of runoff control systems.
- Any night lighting will be directed away from the MSHCP Conservation Area to protect species from direct nighttime lighting. If nighttime lighting is required, shielding will be incorporated in the design to ensure ambient nighttime lighting is not increased in the MSHCP Conservation Area.

Geology and Soils

- All work on the Landfill Surface will be conducted in compliance with the requirements of the *Landfill Closure Plan*.
- Structures will be designed to accommodate continued settlement of the underlying Landfill material and differential settlement of the Landfill surface. Adjustable foundation connections may be utilized to achieve this.

- Periodic visual inspections will be performed to determine areas affected by settlement and other potentially adverse conditions.
- A maximum allowable foundation pressure of 1,000 pounds per square foot (psf) will be used for the surface of the Landfill.
- A maximum allowable lateral sliding coefficient of 0.20 will be utilized for the surface of the Landfill.
- Site preparation for the EEB will require:
 - A representative of the geotechnical engineer shall be present for all site clearing and grading activities in connection with the EEB.
 - The area to be graded for the EEB shall be stripped of any deleterious materials, which will be removed from the site for disposal.
 - Any existing utility lines will be traced, removed, and rerouted from the area to be graded.
 - All fill within the area of the EEB will be completely removed, cleaned of significant deleterious materials, and the bottom of the excavation observed by the engineering geologist.
 - The bottom will be brought to near optimum moisture content to a depth of approximately 12 inches and recompacted to at least 90 percent relative compaction prior to refilling the excavation to grade as properly compacted fill.
 - Fill to be spread in near-horizontal layers, approximately 8 inches in thickness, unless otherwise approved by the geotechnical engineer.

- Subexcavation to remove all undocumented fills and loose soils to remove all existing fill and extend to at least two feet below foundation levels and five feet laterally beyond all foundations and slabs-on-grade.
- A maximum allowable foundation pressure of 2,000 psf and a lateral bearing of 150 psf per foot of depth below natural grade will be used for the EEB.
- An allowable coefficient of friction of 0.25 will be utilized for the EEB.
- The building materials, design, and construction methods will conform to the California Building Code (CBC), Uniform Building Code (UBC), and local building and construction standards.

Hazards

- Hazardous materials will be handled in accordance with federal, state, and City requirements.

Hydrology and Water Quality

- Prior to approval of the final design for any portion of the PV arrays, the spacing of the facilities shall be reviewed by the City to ensure that the arrays are sited in such a manner as to not increase the amount of sheet flow relative to any of the existing V-ditches.
- Prior to approval of the final design for the first phase (i.e., the 1 MW to 5 MW system) and any subsequent phases, a Storm Water Pollution Prevention Plan (SWPPP) shall be prepared and submitted to the City and Regional Water Quality Control Board for approval. The SWPPP shall be implemented during installation of the PV arrays and construction of the DROs in compliance with the requirements of the General Construction Permit, Santa Ana Region, issued by the

State Water Resources Control Board. The SWPPP shall identify BMPs to reduce or eliminate pollutants in stormwater discharges and authorized non-stormwater discharges for the portion of the Project under construction. A copy of the SWPPP shall be held by the construction contractor.

- Typical BMPs for erosion control will be implemented during construction of the Project pursuant to any applicable NPDES requirements. These BMPs may include, but would not be limited to, the use of mulch, erosion control blankets, or gravel bags to control erosion. The Landfill surface will not require grading; however, small amounts of soil, from the existing stockpile on the Landfill site, may be used to smooth the surface, i.e., fill in any depressions, prior to placement of the arrays.
- At no time during the installation or operation of the Project, will the existing drainage structures on the top of the Landfill (V-ditches) be blocked or relocated.

Noise

- During Project-related construction activities, Construction Contractor(s) will make sure that all fixed and mobile construction equipment is equipped with properly operating and maintained mufflers, consistent with manufacturers' standards.
- Construction Contractor(s) will place all stationary construction equipment so that emitted noise is directed away from noise-sensitive receptors nearest the Project site.

Transportation/Circulation

- Construction traffic, including material deliveries and construction workers' vehicles, will use existing roads to access the Landfill site and the locations at which new overhead wires, replacement power poles (if necessary), and new underground cable will be installed.
- Project construction hours will comply with Section 7.35.010 of the Riverside Municipal Code and be limited to the hours between 7:00 a.m. and 7:00 p.m. on weekdays and 8:00 a.m. and 5:00 p.m. on Saturdays. No construction will take place on Sundays or federal holidays.

The Mitigation Monitoring and Reporting Program commences on the next page.

MITIGATION MONITORING AND REPORTING PROGRAM

A written monitoring report has been compiled to verify implementation of adopted mitigation measures. The following table provides a summary format for the written report, including identification of the various mitigation measures, applicable implementation stage, identification of the responsible monitoring party, and verification of implementation of each mitigation measure.

The following clarifies the meaning of each column in the following table:

Impact Category:	Identifies potentially affected resource/environmental condition.
Mitigation Measure:	Those measures that will be implemented to minimize possible significant environmental impacts.
Implementation Timing:	The phase of the project in which implementation and compliance will be monitored.
Responsible Monitoring Party:	Entity responsible for monitoring implementation of the mitigation measure.
Monitoring/Reporting Method:	Identifies mechanism by which implementation will be verified.
Compliance Verification:	To be signed and dated by the City of Riverside Public Utilities Department upon receipt of written verification of each mitigation measure.

Impact Category	Mitigation Measure	Implementation Timing	Responsible Monitoring Party	Monitoring/ Reporting Method	Compliance Verification
Biological Resources	<p>MM Biological 1: All mowing associated with the construction and maintenance of the PV system shall be conducted outside of the nesting season (February 1 through August 31), to the extent feasible. If these activities must be conducted during the nesting season, a qualified biologist will first conduct a nesting bird survey. Surveys will be conducted no more than three (3) days prior to scheduled activities. If active nests are identified, the biologist will establish buffers around the active nest (500 feet for raptors and 200 feet for non raptors). The active nest will not be removed and no grading will occur within the established buffer until a qualified biologist has determined that the nest is no longer active (i.e., the juveniles are surviving independent from the nest). If clearing is not conducted within three days of a negative survey, the nesting survey must be repeated to confirm the absence of nesting birds.</p>	<p>Prior to any construction-related or maintenance-related mowing between February 1 and August 31</p>	<p>Riverside Public Utilities Department, construction contractor and qualified biologist, if necessary</p>	<p>Project Schedule and Pre-construction Nesting Bird Survey Report, if necessary</p>	
Biological Resources	<p>MM Biological 2: No more than 30 days prior to ground disturbance associated with clearing, grading, etc., a qualified biologist will conduct a pre-construction burrowing owl survey to satisfy Objective Number 6 of the MSHCP species-specific objectives for the burrowing owl. If burrowing owls are detected within the Landfill site, the owls will be relocated from the site following accepted protocols. In order to avoid the disruption of breeding owls, active nests will be avoided and relocations will be conducted outside of the nesting season, identified as ranging from February 1 through August 31.</p>	<p>Prior to ground disturbance</p>	<p>Riverside Public Utilities Department, construction contractor and qualified biologist</p>	<p>Project Schedule and Pre-construction Burrowing Owl Survey Report, if necessary</p>	

Impact Category	Mitigation Measure	Implementation Timing	Responsible Monitoring Party	Monitoring/ Reporting Method	Compliance Verification
Biological Resources	MM Biological 3: To avoid any potential indirect impacts on special-status wildlife species associated with the Santa Ana River adjacent to the site, a 300-foot buffer from the adjacent riparian habitats will be maintained for construction activities during the period of March 15 to August 31.	During construction between March 15 to August 31	Riverside Public Utilities Department and construction contractor	Project Schedule and site plan showing distance between solar arrays and riparian habitat	
Cultural Resources	MM Cultural 1: Should any cultural and/or archaeological resources be accidentally discovered during construction, construction activities in the vicinity of the find shall be halted and construction shall be moved to other parts of the Project site until a qualified archaeologist (or cultural resources professional approved by the City Historic Preservation Officer) retained by the City (or its designee), determines the significance of these resources. If the find is determined to be a historical or unique archaeological resource as defined in Section 15064.5 of the California Code of Regulations (State <i>CEQA Guidelines</i>), avoidance or other appropriate measures shall be implemented; as recommended by the archaeologist (or cultural resources professional).	During construction	Riverside Public Utilities Department, construction contractor and qualified archaeologist	Cultural Resources Report, if needed	
Cultural Resources	MM Cultural 2: Should construction activities uncover paleontological resources, work in the vicinity of the find shall be halted and construction shall be moved to other parts of the Project site until a qualified paleontologist retained by the City (or its designee) determine the significance of these resources. If the find is determined to be significant, avoidance or other appropriate measures shall be implemented. Appropriate measures would include that a qualified paleontologist be permitted to recover, evaluate, and curate the find(s) in accordance with current standards and guidelines.	During construction	Riverside Public Utilities Department, construction contractor and qualified paleontologist, if necessary	Paleontological Resources Report, if needed	

Impact Category	Mitigation Measure	Implementation Timing	Responsible Monitoring Party	Monitoring/Reporting Method	Compliance Verification
Geology and Soils	<p>MM Geology 1: As part of the final Project design and siting of the EEB, a design-level geotechnical study shall be prepared to identify the specific location of any underground methane gas collection lines and to identify the specific design parameters for the foundation system for the EEB and the specific site preparation requirements. The recommendations of the design-level geotechnical study relative to final siting, foundation, and materials, shall be incorporated into the EEB.</p>	Design of the EEB	Riverside Public Utilities Department or construction contractor	Riverside Public Utilities Department through approval of the final site plan for the EEB prior to construction	
Geology and Soils	<p>MM Geology 2: The City Public Works Department shall review the final design of the PV arrays, including, but not limited to: a) the location and spacing of the PV arrays, b) the area covered by the ballasts, and c) the angle at which the panels will be installed, to ensure that the maintenance and compliance monitoring activities identified in the <i>Landfill Closure Plan</i>, and the existing drainage pattern of the Landfill site, will not be impaired. The recommendations of the Public Works Department relative to the design of the PV arrays shall be taken into consideration by the City Public Utilities Department when approving the final design.</p>	Design of the PV arrays	Riverside Public Works Department and Riverside Public Utilities Department	Receipt of review comments from Riverside Public Works Department and review and approval of final plans by Riverside Public Works Department	

ACRONYMS

The following acronyms are used in the MMRP and Project Design Features:

CBC	California Building Code
DROs	Distribution Route Options
EEB	Electrical Equipment Building
JPR	Joint Project Review
MSHCP	Western Riverside County Multiple Species Habitat Conservation Plan
NPDES	National Pollutant Discharge Elimination System
UBC	Uniform Building Code
SWPPP	Storm Water Pollution Prevention Plan
psf	Pounds per square foot
PV	Photovoltaic
SCAQMD	South Coast Air Quality Management District