

QUARTERLY STATUS REPORT

Quarterly Status Reports are required per contract terms. If no work was done during the reporting period, the CONTRACTOR must provide an explanation of the circumstances.

Project Title: Keokea Gulch Riparian Corridor Rehabilitation Project Phase II

Project Start/Completion Date: March 17th, 2022 – February 28th, 2023

Estimated % of Project Completed: 95%

Estimated % of Grant Funds Previously Requested: ____35____%

Quarterly Status Report Number: __4____

Name, telephone number, and e-mail of person to be contacted for questions regarding this report: Michael Reyes, 808-866-8619, mreyes@mauienvironmentalconsulting.com

Please provide the following information for this reporting period. Additional sheets may be attached:

This Quarterly Status Report is for the period indicated below (**check only one and insert year**):

- ☐ January 1 – March 31, _____ (Due April 15th)
- ☐ April 1- June 30, _____ (Due July 15th)
- ☐ July 1 – September 30, _____ (Due October 15th)
- ☒ October 1 – December 31, 2022 _____ (Due January 15th)

Quarterly Status Report Number: 4

Please provide the following information for this quarter. Additional sheets may be attached.

1. Tasks started and/or completed as outlined in the Scope of Services during the **current** reporting period.

A. Summary of work completed (list all tasks and deliverables)

Task/Deliverable	Date Completed/Submitted
Michael Reyes and Katie Woodbury - install irrigation emitters, Weekly Monitoring	10/7/2022
Katie Woodbury - Q3 reporting	10/10/2022
Katie Woodbury - Plant pick-up	10/27/2022
Michael Reyes and Katie Woodbury - Plant 100 plants, Weekly Monitoring	10/28/2022
Katie Woodbury - Plant pick-up	11/3/2022
Michael Reyes and Katie Woodbury - Plant 100 plants, Weekly Monitoring	11/4/2022
Katie Woodbury - Plant pick-up	11/9/2022
Michael Reyes and Katie Woodbury - Plant 100 plants, Weekly Monitoring	11/10/2022
Michael Reyes and Katie Woodbury - Plant 100 plants, Weekly Monitoring	11/18/2022
Michael Reyes and Katie Woodbury - Plant 100 plants, Weekly Monitoring	11/23/2022
Katie Woodbury - Plant pick-up	12/1/2022
Michael Reyes and Katie Woodbury - plant 200 plants, Weekly Monitoring	12/2/2022
Katie Woodbury - Plant pick-up	12/15/2022
Micheal Reyes - damage assessment from 12/18 rain event	12/19/2022
Michael Reyes and Katie Woodbury - plant 200 plants, Weekly Monitoring	12/23/2022
Michael Reyes and Katie Woodbury - Q3 Progress Monitoring, Weekly Monitoring	12/30/2022

B. Pollutant load reductions for the **current** reporting period

Pollutant	Estimated Load Reduction from BMPs	Estimated Load Reduction from R-1 Usage in Pounds
Nitrogen (lbs/quarter)	7.95	15.58
Phosphorous (lbs/quarter)	1.4	5.99
Sediment (tons/quarter)	0.85	3.07 (pounds)

C. Outreach and education for the **current** reporting period

Event or Activity	Date	Number of Participants/Attendees	Number of Volunteer Hours (if applicable)
Haleakala Ranch personnel volunteered at each planting day.	10/28/2022, 11/04/2022, 11/18/2022, 12/02/2022	4 volunteers	202
Graduate student from Western Washington University volunteered to plant.	12/02/2022	1	6

2. Narrative Progress Report

A. Description of project progress for the **current** reporting period.

Irrigation installation was completed at the beginning of this quarter. Efforts were then focused on planting. 700 native plants have been planted thus far. Volunteers from Haleakala Ranch were present at each planting session contributing over 200 hours of volunteer time. A final planting event is planned for February to include staff members from NRCS and students from the Water Resource Management Course at UHMC.

Using STEPL, the Central Maui Soil and Water Conservation District estimates the installed fencing infrastructure alone results in pollutant load reductions for both sediment and nutrients as listed above. In addition, this riparian corridor rehabilitation project provides critically needed habitat for native plant and animal species. Wetlands in South Maui have been highly impacted by development and this rehabilitation effort will ensure the stream continues to function hydrologically as well as ecologically.

This project continues to use R-1 water from the nearby Kihei Wastewater Treatment Facility. The Countywide WWRF Land Treatment Study conducted by Brown and Caldwell for the County of Maui Department of Environmental Management in May of 2018 lists the following effluent pollutant concentrations:

Parameter	Average Concentration	Removal from October to December in pounds based on 930,075.9 liters used in total (13 weeks times 71,544.3 liters per week)
BOD	4.2mg/L	8.61
TSS	1.5 mg/L	3.07
Ammonia-N	1.0 mg/L	2.05
Nitrate-N	6.2 mg/L	12.71
Total N	7.6 mg/L	15.58
Total P	2.8 mg/L	5.99

Currently, the Keokea Riparian Rehabilitation Project uses approximately 18,900 gallons of R-1 water a week (or 71,544.3 liters per week). This amounts to approximately 15.58 pounds of Nitrogen and 5.99 pounds of Phosphorus being diverted from the injection wells and placed instead at the base of native plants via drip line infrastructure for this quarter.

- B. Description of any major challenges or problems (e.g., weather, personnel, equipment, etc.) encountered and/or resolved that may have affected the CONTRACTOR's ability to complete the project as required. *If there is a material change in the Project Timeline or Budget because of these issues, please contact the Procurement Officer for more information about modifying the contract.*

No major challenges or problems presented themselves during this quarter. Heavy rainfall on December 18th caused Keokea Stream to flow, however, no damages were inflicted on fencing or irrigation infrastructure.

- C. Description of any significant findings, results, or conclusions.

Planting during the wetter winter months has been favorable. There has been a decrease in mortality compared to Phase I when planting was conducted during the summer months. Plantings for future projects will be scheduled accordingly.

In Phase I, irrigation lines and vegetation were installed parallel to Keokea Stream. Channelization of water was observed at several locations during heavy rainfall events. To prevent this, irrigation lines and plants were installed to run perpendicular to the stream for Phase II. We believe this will create a stronger buffer against stormwater by slowing the flow of water and trapping more sediment along the way.

December rain events that caused Keokea Stream to flow continued to highlight the importance of riparian rehabilitation. All plants remained in place, their roots locking in soils and reducing erosion potential.

3. Based on the Scope of Services and Project Timeline, a brief description of tasks expected to be completed in the next reporting period.

Phase II of this riparian rehabilitation project is in its final stages. One more planting event will complete the Project. By design, this Project should be self-sustaining into the future, however, monitoring will continue and maintenance will be conducted as necessary.