



2.4 ‘Ewa Development Plan (amended 2020), City and County of Honolulu

The Quarry site is located within the ‘Ewa Development Plan (DP) area, recently amended in 2020. The DP’s purpose is as follows:

“These principles of sustainability are intended to promote the long-term health of O‘ahu, its people, and its community resources for current and future generations:

- Protect lands designated for agriculture, physical and biological resources, and where appropriate, open spaces and view planes.
- Use resources so they are not depleted, permanently damaged or destroyed.
- Encourage planning, development, and construction technologies that minimize negative environmental impacts.
- Respect the cultural, social and physical resources that shape and reinforce residents’ sense of community and quality of life.
- Guide the process of change. Strive to make decisions based on an understanding of the effects such decision will have on the land and community resources.
- Strive for balance between economic prosperity, social and community well-being, and environmental stewardship.
- As an integral part of the planning process, consider the long-term impact of proposed actions and prepare plans that can accommodate the needs of future generations accordingly.”

The Quarry is designated on the slopes of Pu‘u Makakilo. Pu‘u Makakilo is included in the 2020 ‘Ewa DP’s “‘Ewa Open Space and Greenways Network,” listed among the Mountain and Agricultural Areas in the ‘Ewa District. Pu‘u Makakilo is also listed as one of “‘Ewa’s Historic and Cultural Resources” in the ‘Ewa DP.

Quarry activities and operations are conducted to minimize visual impacts and have no impacts on historic and cultural resources. The work is being done in conformance with approved view plane studies, grading schemes and renaturalization strategies. As Pu‘u Makakilo is central and visible to the Kapolei community, care will be taken to ensure a respectful rehabilitation of the site after Quarry operations have ceased.

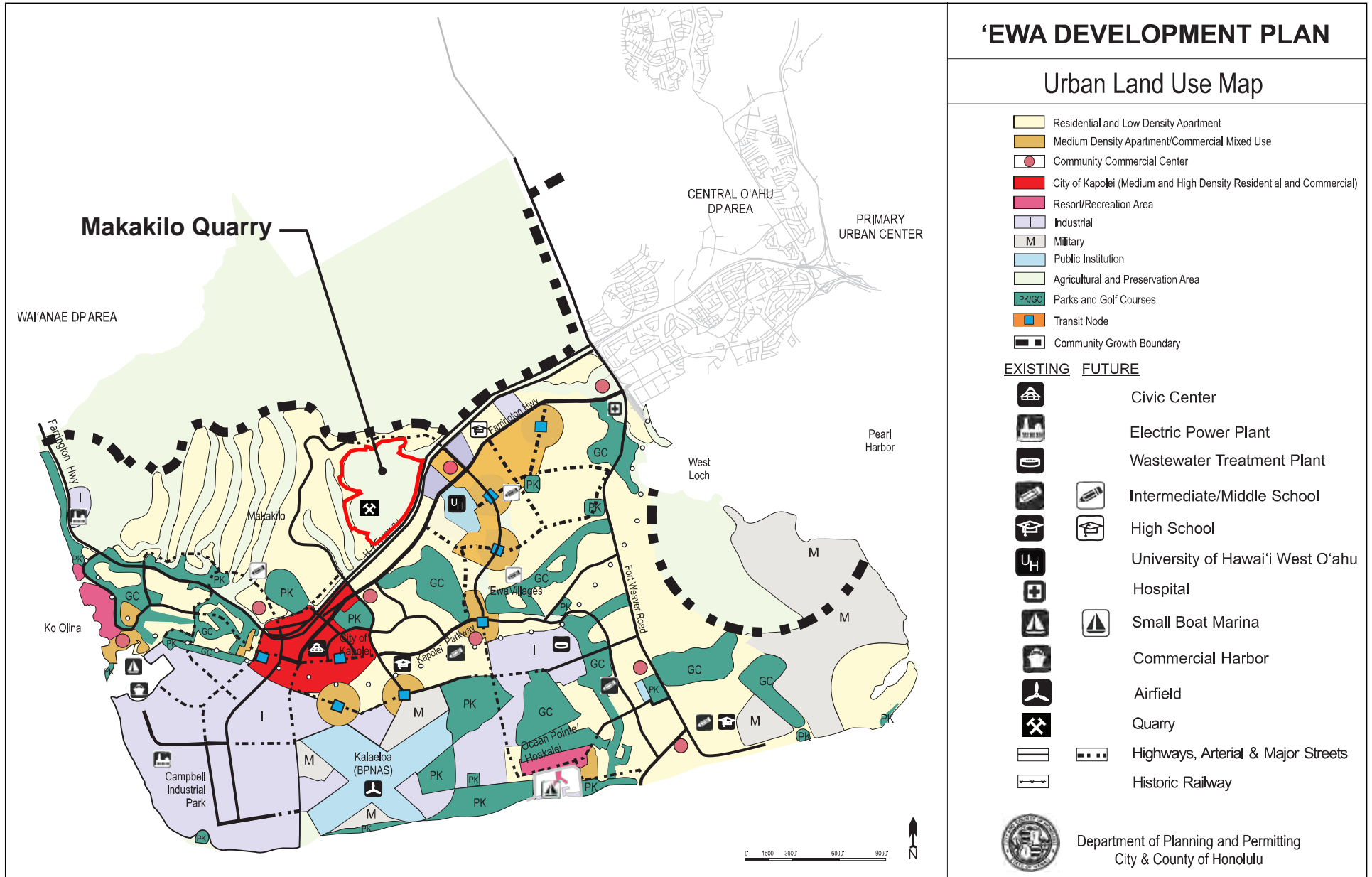


Figure 7
Makakilo Quarry in relation to the 'Ewa Development Plan and Urban Growth Boundary

2.5 East Kapolei Transit-Oriented Development Plan (2020)

The Project Site sits outside of the designated East Kapolei Transit-Oriented Development (TOD) area, but substantial changes in land use and zoning have occurred in the vicinity of the three East Kapolei rail transit stations. Over the last 10 years, East Kapolei has transformed due, in large part, to several major developments and new facilities such as the Salvation Army Kroc Center, the University of Hawai‘i West O‘ahu (UHWO) campus, the Ho‘opili master-planned community, the Ko‘oloa‘ula Residential Apartments, the Department of Hawaiian Home Lands (DHHL) Kānehili residential community, the Ka Makana Ali‘i Shopping Center, Increment IIB of Ka‘uluokaha‘i (DHHL East Kapolei II), the site of the Special Olympics Hawai‘i, the Keahumoa Place Residential Apartments, and the Honouliuli Middle School.

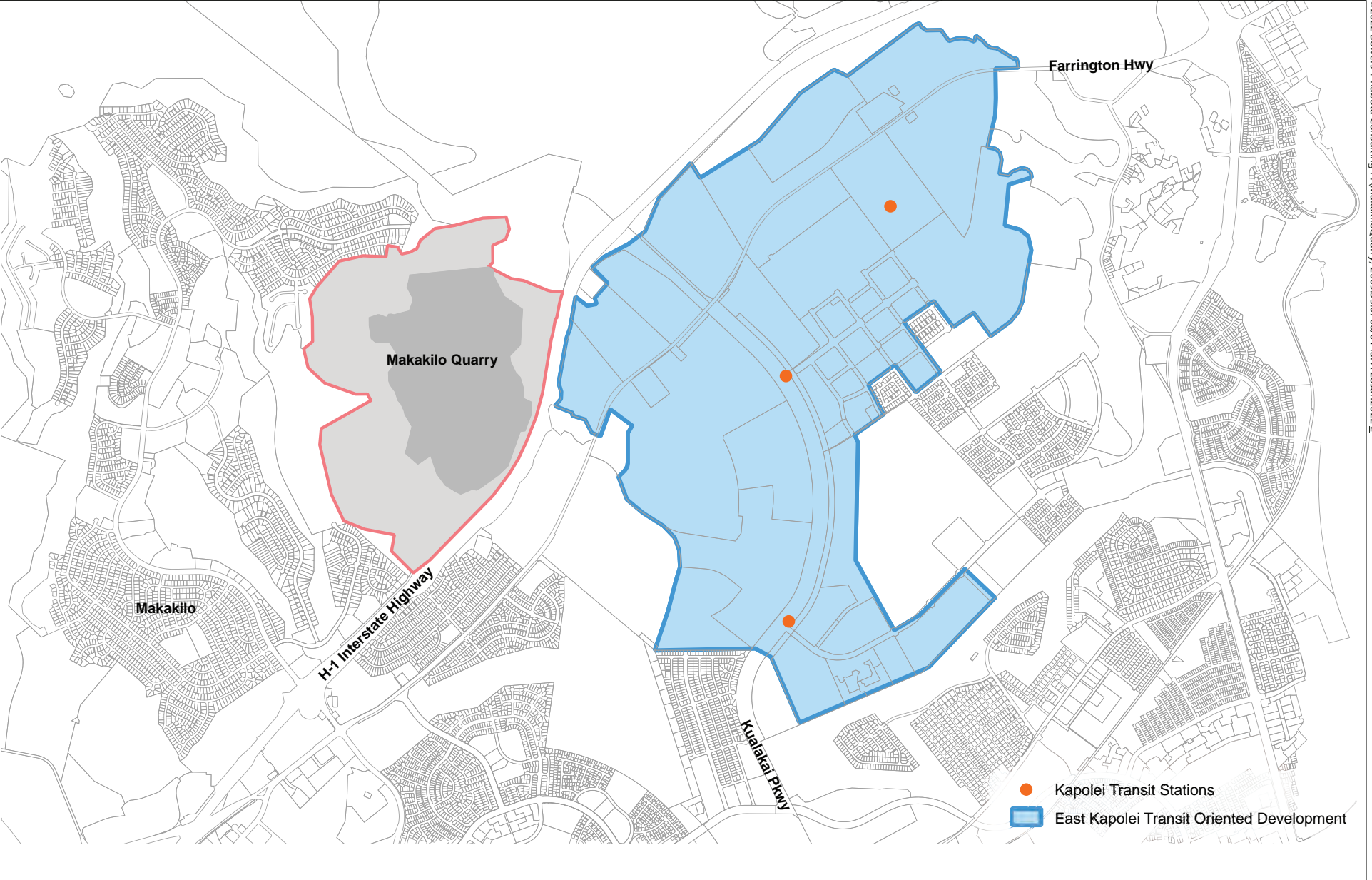
The area also experienced major transportation infrastructure investment including the completion of Kualaka‘i Parkway, the connection of Kapolei Parkway between ‘Ewa Beach and Kapolei, the planning and programming of widening Farrington Highway, and the construction of the Honolulu Rail Transit Project (H RTP).


The East Kapolei TOD Plan covers the areas surrounding the Honouliuli/Ho‘opili, Keone‘ae/UHWO, and Kualaka‘i/East Kapolei rail transit stations. Each of the rail transit station areas will provide for unique development opportunities and the TOD Plan aims to give each station its own identity based on the local conditions and development needs.

The Honouliuli rail transit station will service a community with an integrated mix of uses for residences and employment. The Keone‘ae rail transit station will facilitate UHWO’s “town and gown” university village, which envisions a different mix of uses focused on students and campus life. The Keone‘ae rail transit station also enhances the Department of Land and Natural Resources’ (DLNR) vision for its landholdings, primarily to create jobs, provide affordable housing opportunities, and to support its natural, cultural and recreational resource management and protection programs. The Kualaka‘i rail transit station area will include the Salvation Army Kroc Center, residential and commercial uses on the properties owned by the DHHL, the Ko‘oloa‘ula affordable rental housing complex, housing provided by the University of Hawaii (UH) with its development partners, and a mixed-use center near the station.

While Pu‘u Makakilo does not fall into the TOD areas or East Kapolei Neighborhood stations, it is listed as an important view or vista from these areas. Lands surrounding the three rail transit stations are predominantly flat. The closest natural landmarks are Pu‘u Kapolei, Pu‘u Pālailai, Pu‘u Makakilo, and the Honouliuli, Kalo‘i, and Hunehune Gulches. One of the intents of the TOD Plan to preserve and enhance scenic views and natural landmarks in the rail transit station areas.

Quarry activities will continue to adhere to approved permits and plans and will not affect the visual resources of these planning areas.



 **Figure 8**
Makakilo Quarry in relation to East Kapolei Transit Oriented Development

2.6 Compliance Objectives

In consideration of the site's opportunities and constraints, and the conditions of the SUP and CUP, alternatives were developed as described below. The Estate of James Campbell, owner of the Quarry site from 1973 through 2009, did not refine their vision for the end use of the site because they were primarily concerned about maintaining the visual appearance of Pu'u Makakilo. In presenting the proposed Quarry expansion to the Makakilo/Kapolei/Honokai Hale Neighborhood Board in July and November of 2006, Grace Pacific representatives noted that the Mayor's Commission on Landfill Siting had ruled out Makakilo because it sits within the underground injection control (UIC) zone. The residents were strongly opposed using the site as a landfill. Grace Pacific remains in compliance with all current conditions of the CUP and SUP. Grace Pacific has a potential interest to integrate and extend quarry activities for additional years beyond 2032 and intends to submit applications for these major modifications to the Director of Department of Planning and Permitting.

2.6.1 Closure Grading Plan

The Closure Grading Plan, attached to this updated Plan as Exhibit 4, illustrates the final topography at permit expiration in 2032. Resource extraction and land-forming that will occur between 2022 and 2032 are directed at achieving this end-state, with the objective of conforming the land to match the general contours of Pu'u Makakilo. When observed from the H-1 Interstate Highway, Farrington Highway, or surrounding communities, one would observe a continuous slope from the H-1 to the top of Pu'u Makakilo.

Exhibits 11 and 12 measure progress through 2022 towards achieving the Closure Grading Plan.

2.6.2 Renaturalization Plan

The Renaturalization Plan is complementary to the Closure Grading Plan and is included within this updated Plan as Exhibit 5. The Renaturalization Plan describes actions to be taken to revegetate areas exposed as a result of quarrying activities. The objective of the Renaturalization Plan is to introduce plant material that reflect the current character of Pu'u Makakilo. Plant material is to be drought-tolerant and native to Hawai'i. The plan has not been approved by DPP and the extent and method of naturalizing the buffer zone is awaiting resolution.

2.6.3 Grading and Drainage

The May 2008 Engineering Report prepared by Belt Collins is attached to this updated Plan as Exhibit 6. The Engineering Report addresses grading, drainage and revegetation of the land disturbed by quarrying. The Closure Grading Plan with cross sections and profiles, dated June 5, 2008, are attached to this Plan as Exhibit 5.

Further, included within Exhibit 8 is a plan view depiction of the naturalization phasing. Exhibit 9 includes a plan view depiction of the excavation phasing, and Exhibit 10 includes the designation of areas and acreage. An illustration, dated August 18, 2008, of Pu'u Makakilo and Makakilo Quarry in 2008 and 2032 is included as Exhibit 6 and was also included as Exhibit 34 of the Planning Commission's record.

2.6.4 Environmental Assessment

Ongoing compliance with Federal and State environmental regulations, such as the implementation of Best Management Practices, is expected to minimize the potential for contaminated soils arising from quarry operations.

During the final closure process in 2032, the site will be assessed to determine possible hazards to human health and the environment. The scope of the assessment will depend on the nature of the anticipated use of the property after quarry closure (i.e., commercial/industrial, residential, etc.), but will likely include subsurface sampling of the soil and groundwater for contaminants of potential concern. The environmental assessment, and any remedial activities (if required) will conform to all applicable Federal, State, and Local requirements.

3.0 Factors Considered for Beneficial Re-Use of the Makakilo Quarry

When determining appropriate re-use alternatives for the Quarry after the extraction phase is complete, Grace Pacific LLC considered the following factors:

- **Site Description.** The “pit” area which is the focus of this Beneficial Re-Use Plan, comprises approximately 98.4 acres.
- **Storm Water Runoff Detention Basins.** Two storm water detention basins are proposed to handle site runoff. The Basins are located at the makai end of the “pit” area at the lowest point of the of the excavated portion of the Quarry.
- **Buffer Areas.** Buffer areas will be renaturalized consistent with the surrounding terrain.
- **Location.** The Quarry is located next to existing transportation facilities, and includes the H-1 Interstate Highway, Farrington Highway, and Kalaeloa Harbor. The CCH recently adopted a TOD plan for the area adjacent to the site to maximize use of the light rail station that is proposed for that area.
- **Topography.** The current site is comprised of highly sloped lands as a result of quarrying activities. However, the “pit” is remains a relatively flat area that is physically suitable for a range of uses. Slopes of surrounding terrain range from 11%-40% incline.
- **Limited Water Allocation.** The site has an allocation of 0.250 mgd. Water on-site has thus far only been used for non-potable purposes.
- **Air Movement.** Site ventilation is limited by gradient and relationship to the buffer area.
- **Limited Access.** The property does not currently facilitate other site uses. The existing 50-foot wide road has one entry point from an unnamed private road located in part within and access easement. If the site is to be redeveloped in a way that would increase vehicular traffic, the access roadway will need to be improved.
- **Makakilo Road Extension.** Makakilo Road Extension is planned, but has an undetermined timeline and is currently unfunded. Makakilo Road Extension will be considered in the creation of our final Beneficial Reuse Plan.
- **Bike/pedestrian access.** Bike/pedestrian access across the top of the quarry site is required, and as such, will be considered in the creation of our final Beneficial Reuse Plan.
- **Electrical Services.** The project site currently has a small, dedicated electrical sub-station on the makai side of the H-1 Interstate Highway for the Quarry operations only. Additionally, the utility easement and tunnel connecting the upper/lower quarry parcels contains the electrical infrastructure.
- **Wastewater Service.** The project site does not have wastewater infrastructure. The Project Site is located within the Underground Injection Control zone, which will need to be considered for future wastewater handling practices.
- **Renaturalization Funding.** Grace Pacific LLC will use funding from accruals and operations to accomplish the renaturalization of the site at the close of Quarry operations.

4.0 Re-Use Plan Alternatives

Alternative concept land use plans were developed for the re-use of the “pit,” recognizing the beneficial re-use opportunities, constraints, and conditions of the SUP and CUP permits granting authorization for the use of the Quarry. The following is a summary of the alternatives including estimated costs associated with development. Each of the five alternatives involves the implementation of public access to the site from the proposed Makakilo Drive Extension project. The access, however, will not be open for public use until 2032 after Quarry operations cease.

4.1 Scenario One: Re-Use Based on Existing Land Use

State land use, ‘Ewa Development Plan land use, and zoning for the Quarry are all agricultural designations. The ‘Ewa DP however notes that the site is within the Urban Growth Boundary as shown in, but the AG-2 zoning applied to the Quarry dictates the use on the site.

AG-2 zoning permits many typically agricultural uses. For the purposes of this scenario, the following uses are most relevant:

"Crop production" means agricultural and horticultural uses, including production of grains, field crops, and indoor and outdoor nursery crops, vegetables, fruits, tree nuts, flower fields and seed production, ornamental crops, tree and sod farms, associated crop preparation services and harvesting activities.

“Open land” means land which may be improved, but which contains no structures, and which is set aside, designated or reserved for public or private recreational use or enjoyment, including but not limited to picnic grounds, beaches, beach accesses, greenways and areas for hiking, fishing, hunting, and other scenic interests.

"Open space" means any portion of a zoning lot essentially free of structures that serves the purpose of visual relief and buffering from building and structural mass. These areas may be privately or publicly owned, and may or may not be accessible to the general public. Open space includes but is not limited to parks, playgrounds, playfields, plazas, outdoor dining areas, botanical gardens, fountains, reflecting pools and other bodies of water, walkways and nonbuildable easements. Simple structures which contribute to the enjoyment of the area may be permitted, including stages for performances, street furniture, sculpture, umbrellas, and other similar features...

Open Space, Public. "Public open space" means open space that is accessible to the public at all times, not including required yards, except where permitted. It adjoins a public street, public way, pedestrian easement or public open space such as a park, playground or shoreline area, for at least 20 percent of its perimeter at an elevation not more than three feet above the adjoining sidewalk. A minimum of 50 percent of its total area is landscaped (see Figure 21-10.5).

The basis for this re-use scenario is to promote uses allowed in the AG-2 zone. Five alternative versions of this scenario for potential re-use are outlined in the following sections.

4.1.1 Alternative One: Renaturalization

This alternative focuses on renaturalization of the site, and will provide for the introduction of drought tolerant, native vegetation on the cut areas and benches as shown in Figure 9. The public will be able to access the site via Quarry Access Road. Plant materials selected are described in the planting plan in the Renaturalization Plan.

The estimated cost of renaturalization in 2022: \$4.1 million dollars.

Costs include: Construction of a roadway, parking lot and landscaping.

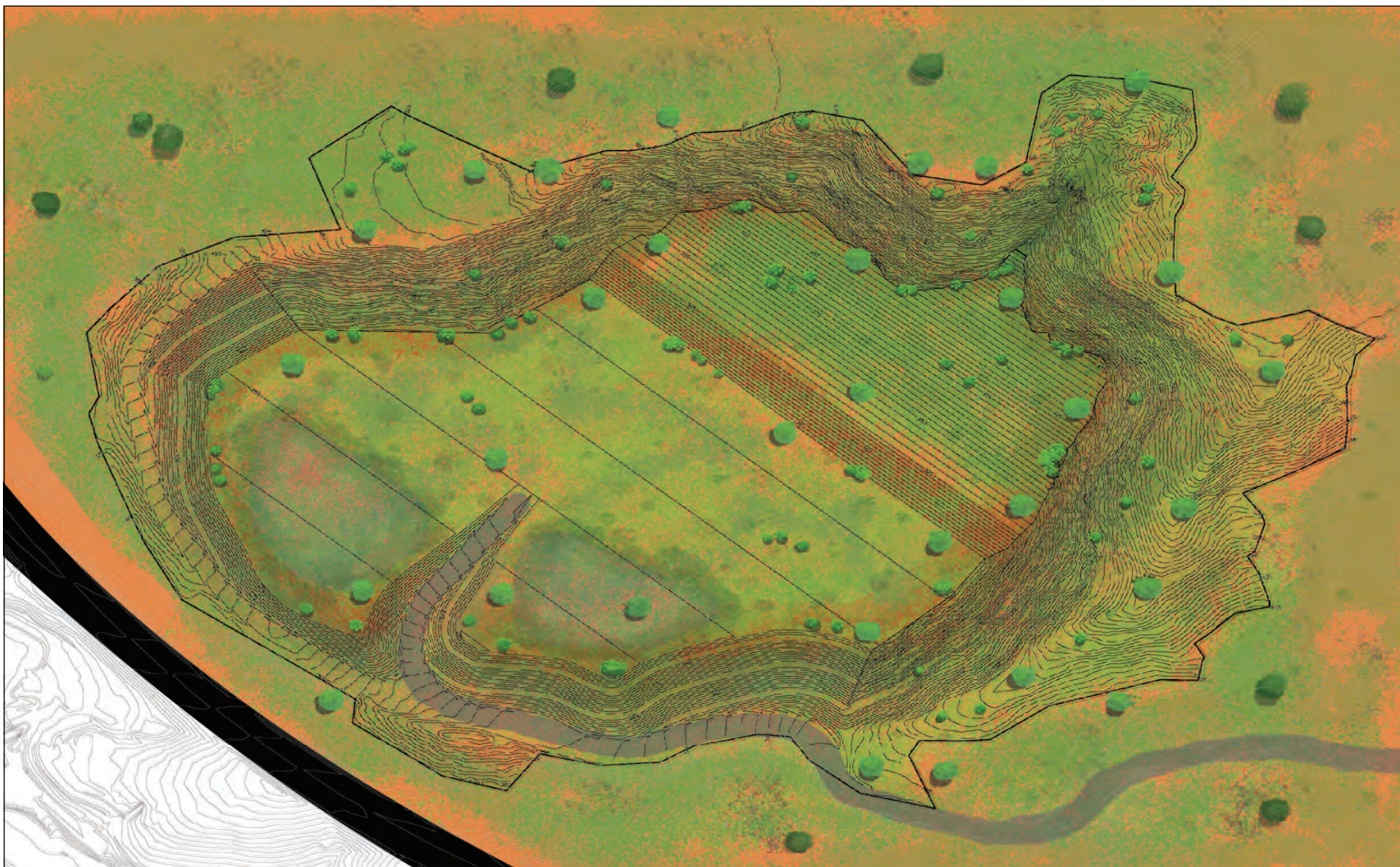


Figure 9
Renaturalization Beneficial Reuse Plan for Makakilo Quarry

4.1.2 Alternative Two: Active and Passive Recreation

This alternative can facilitate the creation an open space passive recreation oasis utilizing the benches and the “pit” area with little or minimal land forming to avoid additional grading. Impervious surfaces will be kept to a minimum. For a conceptual example of how this alternative will look, see Figure 10.

In addition, this alternative can facilitate the creation of an active recreational area that could be used by organizations and individuals. The space will utilize the benches and the “pit” area and will subdivide it into activity venues.

The estimated 2022 cost of passive or active recreation use: \$13.5 million dollars. Costs include: Construction of a roadway, intersection, improvements and fill. This alternative does not include power.

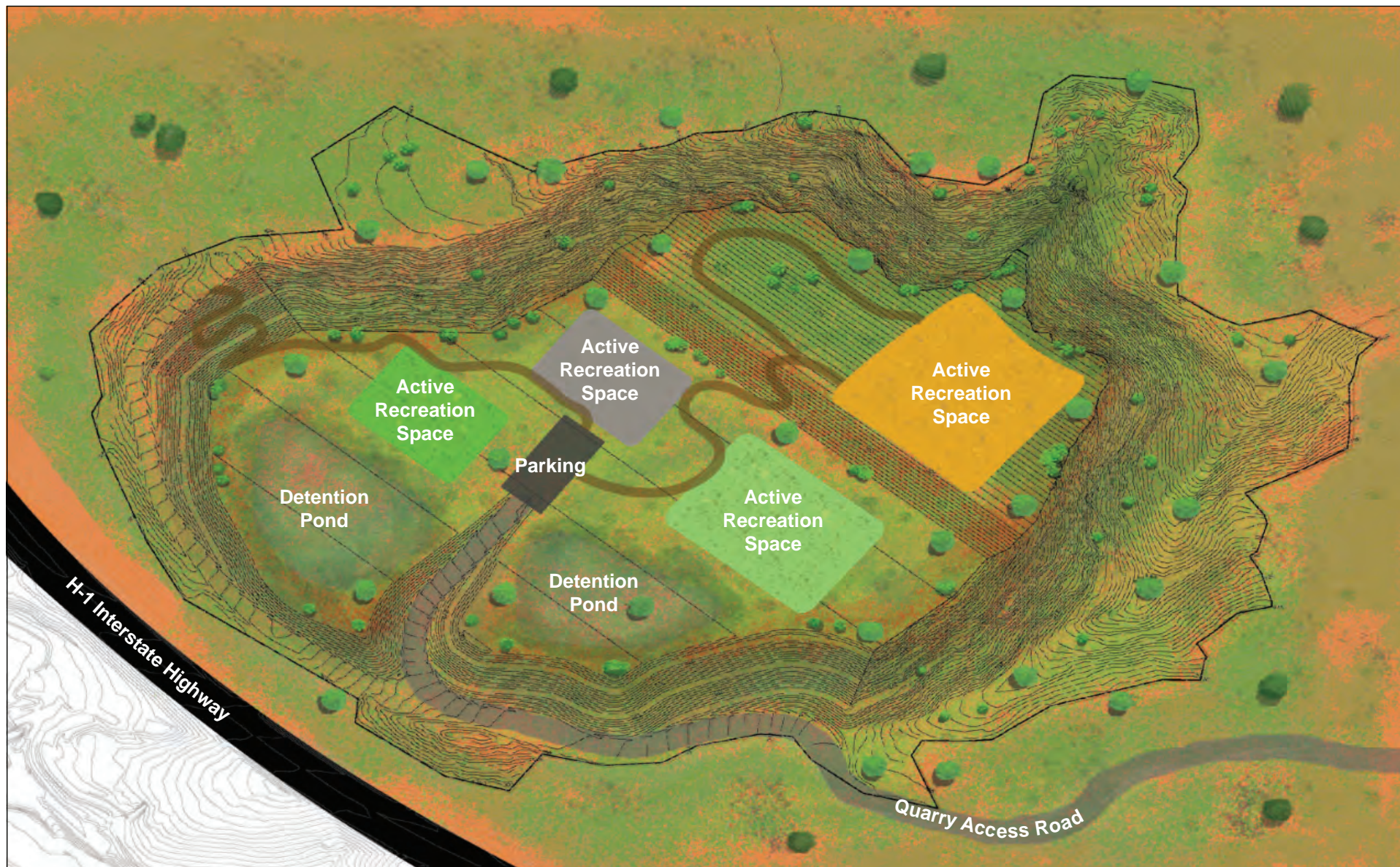


Figure 10
Recreation Beneficial Reuse Plan for Makakilo Quarry

4.1.3 Alternative Three: Agriculture

The objective of this alternative is to use the site for agricultural purposes. There is a possibility for the “pit” to be subdivided into areas for establishing cultivar, grow-out areas, open and covered plant nurseries, storage areas, research plots, and post-harvest production areas. Future water availability for the site will require additional research. See Figure 11.

The estimated 2022 cost of agriculture use: \$15.1 million dollars.

Costs include: Construction of a roadway, sewer pump station, sewer force main, gravity line, fill, and other site improvements.

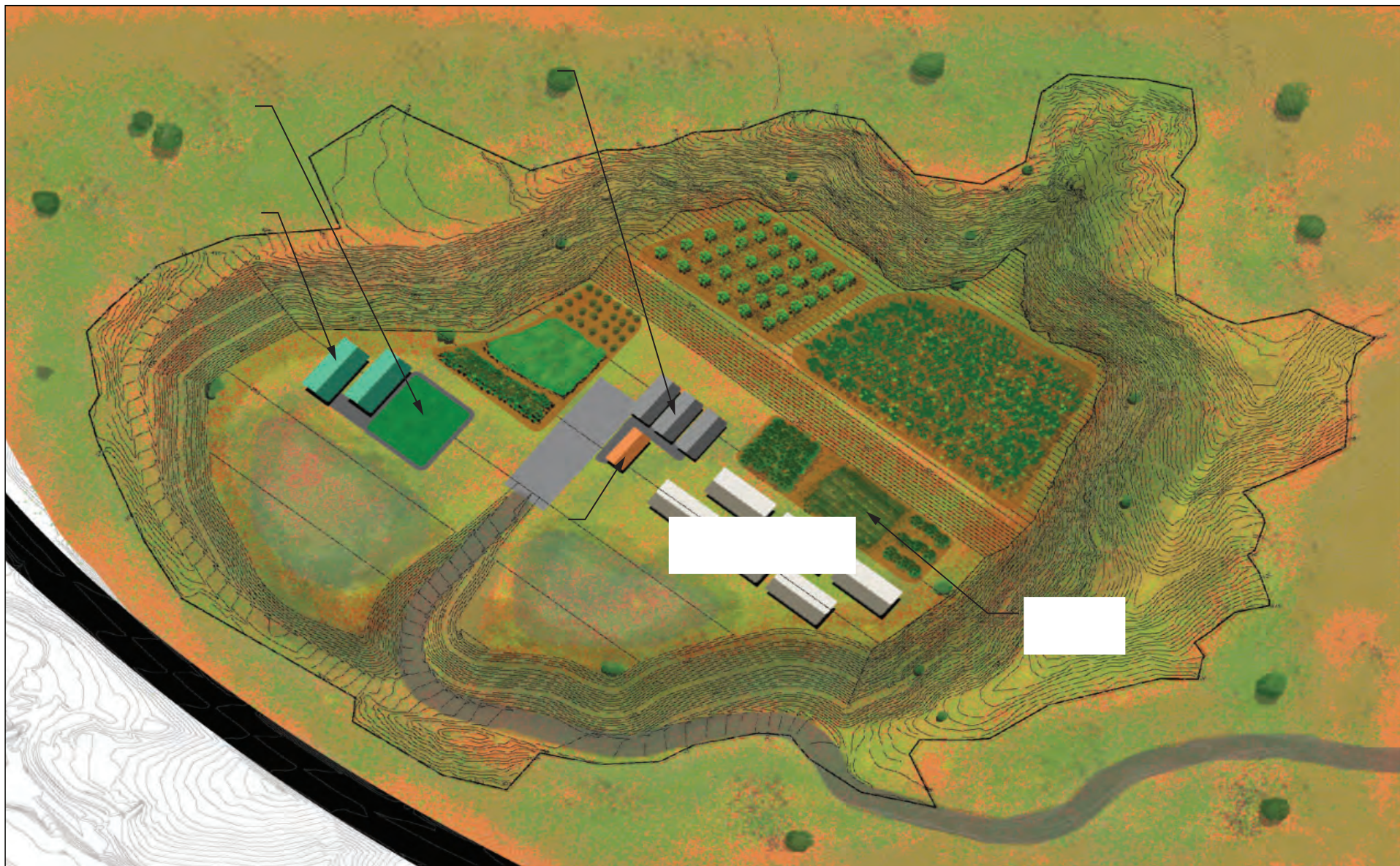


Figure 11
Agricultural Beneficial Resuse Plan for Makakilo Quarry

4.1.4 Alternative Four: Energy Facility – Photovoltaic (PV) Farm

The objective of this alternative is to offer the approximately 98.4-acre “pit” area (and possibly portions of the benches) for lease to an energy entrepreneur for energy production, such as a PV utility grade production facility. The site has the potential of generating 12+ megawatts (MW) of power (estimate based on the 10 acre La Ola Solar Farm on the island of Lāna‘i, which produces 1.5 MW). The site has the advantage of a south to southwest solar orientation. Visual impacts and integration into the Hawaiian Electric Company’s (HECO) grid is yet to be determined. See Figure 12 for a potential layout of the solar array.

Note: PV farms are not outright permitted in the Ag-2 zone, but they may be permitted as either a conditional use minor or subject to the conditions of article 5 of the LUO depending on the size of the installation.

The estimated cost of an energy facility use: \$4.1 million dollars Costs include: Construction of a roadway and other site improvements, excluding PV improvements. Does not include power.

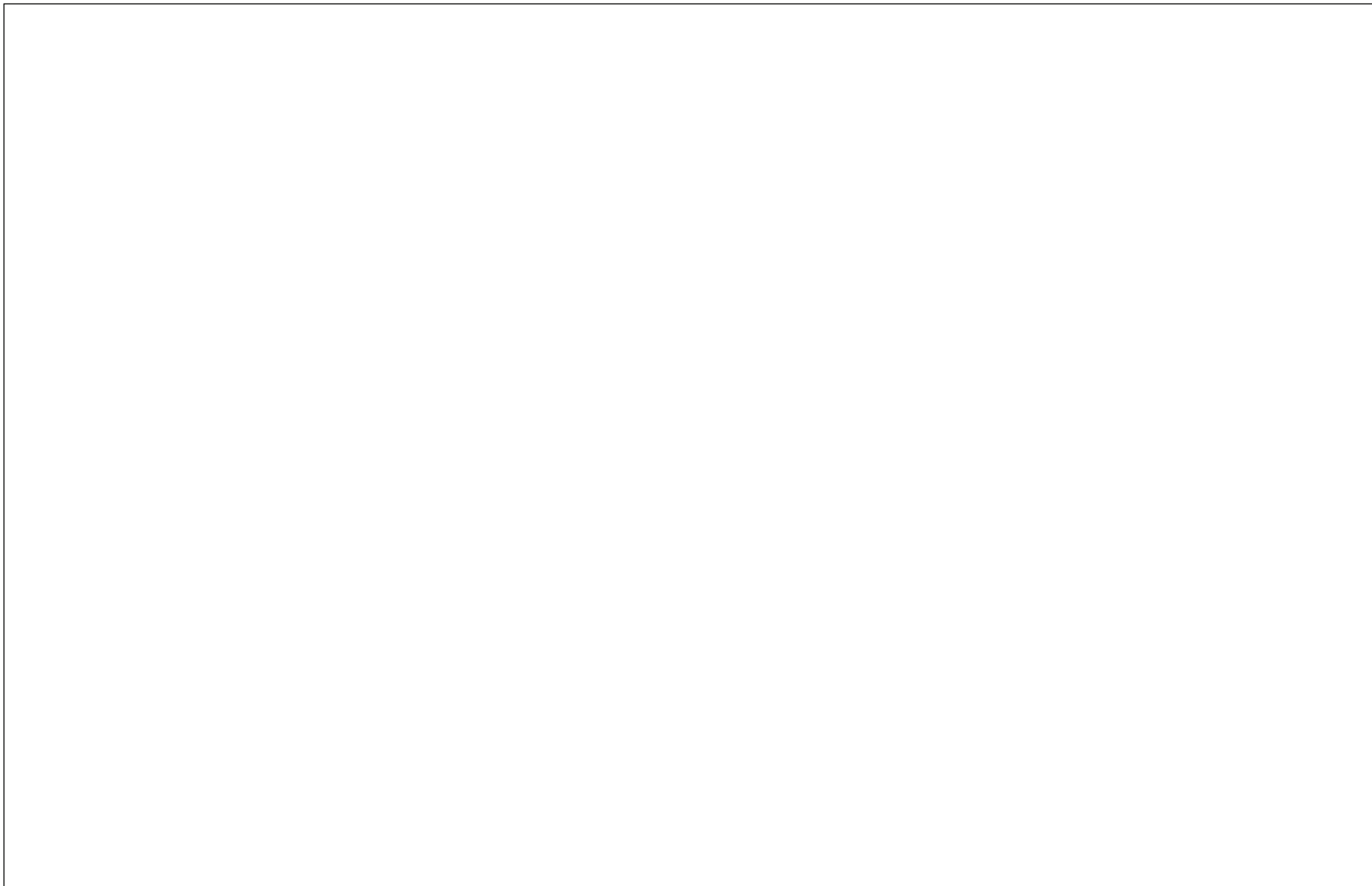


Figure 10
Solar Beneficial Reuse Plan for Makakilo Quarry

4.2 Scenario Two: Re-Use Based on Change in Land Use Entitlements

This alternative reuse scenario is based on a hypothetical future change in State and County land use entitlements from agriculture to an urban use, allowing for residential, commercial, or industrial uses. Grace Pacific LLC currently does not have definitive plans for an urban beneficial re-use development. For the purposes of this analysis, if the site were to be redeveloped as an urban use, it is assumed that the 'Ewa DP amendment will include a change in land use from agricultural designation to an urban land use designation consistent with adjacent uses. The 'Ewa DP amendment process requires community input and adoption by the City Council.

Following the redesignation of the state land use and the 'Ewa DP amendment, a zoning change would also be required. The specific zoning to be sought remains undetermined because a viable use for the Quarry's beneficial re-use has not been determined.

4.2.1 Alternative Five: Potential Urban Use Consistent with Adjacent TOD

Several factors point to the long-term potential for some form of urban use at the property. The property is situated in close proximity to existing and planned urban development, including the existing residential neighborhoods of Makakilo, the master planned community of Ho'opili and the UHWO.

UHWO currently has plans for commercial development, campus expansion, agricultural use and solar farms on lands near the current campus and on lands mauka of the H-1 Interstate Highway, near the existing Quarry. Ho'opili has plans for a large new mixed-use residential community.

The planned Makakilo Drive Extension will provide connectivity for the region and enhance access to the property. While infrastructure improvements would be required to serve the property, the improvements would build upon existing infrastructure. As noted previously, the site is situated within the 'Ewa DP's identified urban growth boundary, a recognition of the site's suitability for and proximity to existing and planned urban development.

These and other factors point to the potential for some form of urban type use at the property. Grace Pacific LLC will monitor development plans within the region and continue to assess potential re-use alternatives as the quarry term nears. Any proposed urban use will be thoroughly vetted with community stakeholders.

5.0 Potential Funding Strategies

The recommended alternatives beneficial re-use of the Quarry will be costly and each will require a different set of steps to accomplish them. There are a variety of private funding sources available for the recommended alternatives and Grace Pacific LLC is examining available sources in preparation for future Quarry closure.

Depending on the eventual scenario selected for the beneficial re-use of the Makakilo Quarry, a variety of financing strategies exist, including private development, public/private partnerships and public funding.

Exhibits

1. Special Use Permit, Docket Number SP73-146
2. Conditional Use Permit, File Number 2007/CUP-91
3. Permits and Approvals for the Operation of Makakilo Quarry
4. Closure Grading Plan
5. Renaturalization Plan Submittal
6. Engineering Report
7. DPP Exhibit 24 Comments
8. DPP Exhibit 28 Cross-Section
9. View of ‘Ewa
10. Prior Re-use Plan
11. Summary of Resource Extraction to Date
12. Makakilo Quarry Excavation and Renaturalization Areas
13. Closure Grading Plan (Cross-Sections)