

Hale Kula Elementary School Outdoor Classroom Schofield Barracks, HI

The Hale Kula Elementary School Outdoor Classroom was completed in October 2011 and includes a 3,000 gallon cistern for rainwater harvesting, raised seat planters with native Hawaiian plants, a rain garden for the cistern overflow, drip irrigation system and shade fabric structure. The cistern was installed to store rainwater collected from the classroom roof to irrigate nearby plants.

The project was a collaborative effort by US Army Garrison, Hawaii and Island Palm Communities (IPC), partially funded by a \$10,000 grant awarded to IPC. Additional materials and labor were provided by both the Army and IPC as well as donations from several, local businesses, including Hawaiian Earth Products, Kona Irrigation Supply Limited, Irritrol, Performance Landscapes, Clean Sewer Lines Hawaii, Inc., Home Depot Pearl City and Sutton Construction Company, Inc.

The outdoor classroom demonstrates sustainable landscape practices through the establishment of native Hawaiian plants, installed with a mulch cover, and the rainwater harvesting and drip irrigation system. Rainwater harvesting conserves both potable water and the energy it takes to treat and transport the water from an off-site location as well as preventing pollution that may be present in the environment from reaching State Waters. The rain garden will infiltrate excess water from the cistern and includes a 12" layer of 3/4"-diameter, washed gravel under 18" of Hawaiian Earth Products' "Greens Blend" (33% Menehune "MAGIC" compost, 33% Screened Soil and 33% Dune Sand) under mulch.





3,000 Gallon Cistern

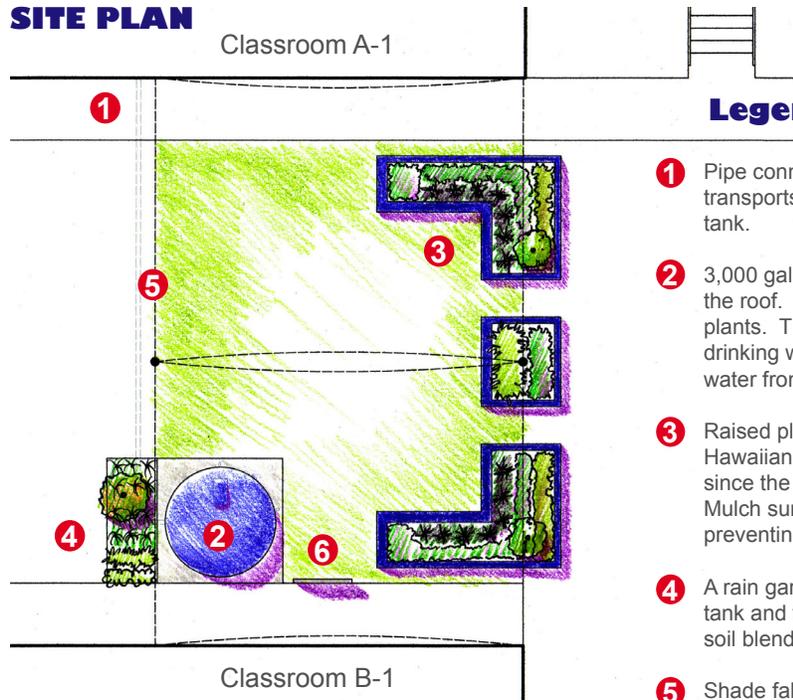


Installing gravel storage layer in rain garden



Installing native Hawaiian plants in Hawaiian Earth Products' locally supplied compost. Plants shown include 'Akulikuli, Naio, 'Uki'uki and 'Ilie'e

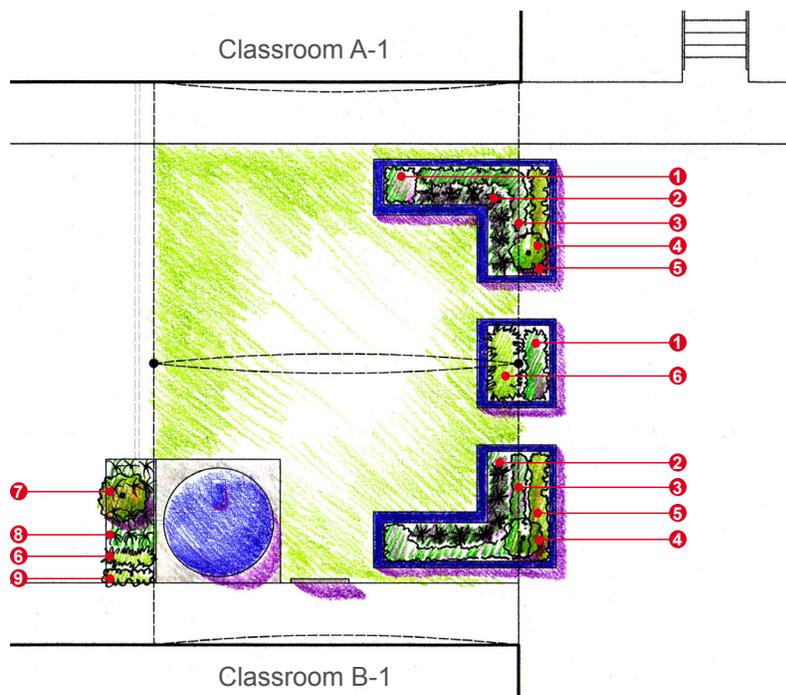
SITE PLAN



Legend

- 1 Pipe connected to the classroom building's roof transports rainwater that falls on the roof to the storage tank.
- 2 3,000 gallon storage tank stores rainwater that falls on the roof. Collected rainwater is used to water nearby plants. Through rainwater harvesting we are conserving drinking water and the energy required to transport the water from its underground source.
- 3 Raised planters provide seating and an area for native Hawaiian plants to grow. Native plants conserve water since the plants are adapted to the local environment. Mulch surrounds the plants to further conserve water by preventing moisture in the soil from evaporating.
- 4 A rain garden receives excess rainwater from the storage tank and filters the water through the plants, local sandy soil blend and gravel layer.
- 5 Shade fabric covers the classroom to keep us cool.
- 6 Bulletin board.

PLANTING PLAN



Legend

- 1 Pohuehue (*Ipomea pes-caprae*)
Native Hawaiian Beach Morning Glory. Hardy, ground cover that thrives in full sun. Traditionally, roots and leaves were pounded into a paste to treat wounds, sores and broken bones and slapped on the surface of the ocean to encourage large surf. Bell-shaped purple with white flowers.
- 2 'Uki'uki (*Dianella sandwicensis*)
Native Hawaiian Lily. Purple berries traditionally used to make dye.
- 3 'Ilie'e (*Plumbago zeylanica*)
Native Hawaiian ground cover. Traditionally, roots, stems and seeds were used for medicines to treat swelling and sores. Small, blue-white flowers.
- 4 Naio (*Myoporum sandwicense*)
Native Hawaiian sweet-scented shrub to small tree. Tiny white to pink flowers.
- 5 'Akulikuli (*Sesuvium portulacastrum*)
Native Hawaiian ground cover. Purple-pink flowers.
- 6 Palapalai (*Microlepia strigosa*)
Native Hawaiian fern.
- 7 Pualoalo (*Hibiscus amottianus*)
Native Hawaiian shrub. Large, white flowers.
- 8 Carex (*Carex wahuensis*)
Native Hawaiian grass. Leaves can be used in lei making.
- 9 'Ihi'ihii (*Marsilea villosa*)
Native Hawaiian fern. Extremely rare, endangered species. Resembles 4-leaf clovers.

October 20, 2011

Dear Outdoor Classroom Team,

We really appreciate the spectacular outdoor classroom. I know we will have a lot of fun out there. You guys have great work and ideas. Especially with the Water Reservoir. The reason I say that is because you recycle rain water. When you came up with the idea about having the flower pots that you sat on, that was an amazing idea. Another idea that you had was the white container that has a bulletin board in it. That was an amazing idea too. Thank you so much for all of your hard work.

Sincerely,

Chloe
Chitwood



"Thank you" note from Chloe Chitwood, Hale Kula Elementary School 5th grade student

Prepared by Directorate of Public Works Environmental Division Clean Water Program
US Army Garrison, Hawaii