



Green Infrastructure & Stormwater Management CASE STUDY

Habitat for Humanity Anchorage 12-unit Condominium Development

Location: Anchorage, AK

Client: Habitat for Humanity Anchorage

Design Firm(s): Friends for H4H, LLC.

Landscape architect/Project contact: Tamas Deak, ASLA

Email: tdeak@kpbarchitects.com

ASLA Chapter: Alaska

Project Specifications

Project Description: The project is a zero runoff project in the Fish Creek watershed that includes natural open space, raingardens and 3 courtyards with designed for full infiltration. The most unusual aspect of the project is the courtyard design that employs permeable pavement systems for infiltration. It is the first porous concrete and PICP installation in Alaska. One of the stated goals of the installation is establishment of a track record for using these systems in the subarctic and proving their ability to perform when properly used in green infrastructure projects.

Project Type:

Multi-family residential

Part of a new development

Design features: rain garden, porous pavers, and on-site storage in spring during breakup in the natural open space area.

This project was designed to meet the following specific requirements or mandates: The project was not driven by mandates. It was the product of strong collaboration of interested stakeholder entities, most importantly Habitat for Humanity, Anchorage.

Impervious area managed: 5,000 sq/ft to 1 acre

Amount of existing green space/open space conserved or preserved for managing stormwater on site: Less than 5,000 sq/ft

The regulatory environment and regulator was unreceptive/hostile to the project.

Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements? We developed the project in collaboration with the client leading the charge for discovery of the most appropriate green methods that deal with the stormwater management issues. No good project design provides singular solutions to design problems. The project design integrates functional, aesthetic and environmental considerations.

Cost & Jobs Analysis

Estimated Cost of Stormwater Project: \$100,000-\$500,000 (Public funding: Federal, state, local. The project enjoyed support from various grant funding sources that support watershed level preservation of permeable surfaces.)

Related Information: The overall cost of the installation is about \$110,000.

Materials:

- \$4,347.80 - Porous Concrete Mix delivered
- \$3,415.15 - E Chips Delivered
- \$520.08 - F Chips Delivered
- ~\$15,500 - PICP cost (Rima, Eco-Stone, VS-5 Drain)

Equipment/Shipping:

- ~\$3,100 - PICP shipping from Tacoma

Labor was provided by a mix of civil contractor, concrete contractor, landscape contractors, Habitat staff and volunteers.

Was a green vs. grey cost analysis performed? No. There is a higher initial cost for this type of porous pavement projects in Alaska compared to the current industry standard pervious pavement systems.

Cost impact of conserving green/open space to the overall costs of the site

design/development project: Preserving green space added site hydrology benefits as well as open space benefits to the project. This is a green infrastructure project in the sense that it maintains the hydrological functionality of a development site. The full project area is removed from the conveyance based stormwater management of this watershed. Allowing groundwater recharge contributes to the preservation of the baseflow of Fish Creek.

Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)? Slightly reduced costs (1-9% savings). Using a conveyance system would have increased the storm system length with slight cost impact.

Number of jobs created: ~10, design and construction jobs for the duration

Job hours devoted to project:

Planning and Design: 200

Construction: 1600

Annual Maintenance: 26

Performance Measures

Stormwater reduction performance analysis:

This project is designed as a zero runoff project and functions accordingly. Municipal permitting required connection to public storm sewer system as overflow. This overflow has not been used to date.

Community & economic benefits that have resulted from the project: The project has been a showcase project for the discussions the various agencies have about the appropriate policies that govern stormwater management. It also raised the profile of green solutions to problems related to increased housing density and diminishing environmental quality and livability.

Project Recognition

The project has been a study project for local, state and federal agencies to aid their work in crafting stormwater management policies.

Additional Information

Links to images: Currently not available

A USFWS sponsored follow-up project report is available through the Region 10 USFWS office. It is called Cold Climate Performance Evaluation of Permeable Interlocking Concrete Pavement and Porous Concrete Pavement Systems, 12 Units Condominium Development, Habitat for Humanity Anchorage