Action Plan for Retrofitting Structural BMPs

State of Hawaii, Department of Transportation
Highways Division, Oahu District
SWMPP, February 2022

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STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION, OAHU DISTRICT

STORM WATER MANAGEMENT PROGRAM

ACTION PLAN FOR RETROFITTING STRUCTURAL BMPS

MS4 NPDES Permit No. HI S000001

State of Hawaii, Department of Transportation
Highways Division, Oahu District
727 Kakoi Street, Honolulu, Hawaii 96819

February 2022
Version: Final

RECORD OF REVISION

Revision No.	Revision Date	Description	Sections Affected
Original Document	February 2022	Original	N/A

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LIST OF ACRONYMS AND ABBREVIATIONS

BMP	Best Management Practice
CWA	Clean Water Act
DOT-HWYS	State of Hawaii Department of Transportation, Highways Division, Oahu District
MS4	Municipal Separate Storm Sewer System
NO_2	Nitrite
NO_3	Nitrate
NPDES	National Pollutant Discharge Elimination System
PID	Point Identification Number
ROW	Rights-of-Way
TBD	To Be Determined
TMDL	Total Maximum Daily Load
TN	Total Nitrogen
TP	Total Phosphorous
TSS	Total Suspended Solids
WLA	Waste Load Allocation

1. INTRODUCTION

The State of Hawaii, Department of Transportation Highways Division, Oahu District (DOT-HWYS) is required by the Municipal Separate Storm Sewer System (MS4), National Pollutant Discharge Elimination System (NPDES) Permit No. HI S000001 (hereinafter MS4 NPDES Permit), effective September 1, 2020, in compliance with Part D.1.f.(1)(iv), to continue to annually update the *Action Plan for Retrofitting Structural Best Management Practices* (BMPs) in the existing MS4.

The MS4 NPDES Permit Part D.1.f.(1)(iv) requirements are as follows:

> *"Action Plan for Retrofitting Structural BMPs* — The Permittee shall continue to update the *Action Plan for Retrofitting Structural BMPs* yearly to include additional retrofit projects with water quality protection measures. The annual updates to the implementation schedule shall be included in the Annual Report with a description of the project's status. The Action Plan may include, but not be limited to projects in compliance with any TMDL implementation and monitoring plan."

2. SELECTION OF RETROFIT SITES

The purpose of the *Action Plan for Retrofitting Structural BMPs* is to reduce, to the Maximum Extent Practicable, the discharge of pollutants by designing and constructing storm water treatment BMPs (retrofits) in strategic locations and structures within the existing MS4. As required by MS4 NPDES Permit Part D.1.f.(1)(iv), the *Action Plan for Retrofitting Structural BMPs* is annually updated with additional retrofit projects. Evaluation of the existing MS4 for retrofit opportunities is ongoing through data collected during routine MS4 monitoring and maintenance activities.

The evaluation criteria for the selection of potential sites for retrofit BMPs include the following:

- Verification as a structure or feature of the DOT-HWYS MS4;
- Location within the DOT-HWYS rights-of-way (ROW), or known to have an access easement, and have readily available construction and maintenance access;
- Location in a Total Maximum Daily Load (TMDL) or Clean Water Act (CWA) Section 303(d) listed watershed; and
- Significant catchment of runoff from the DOT-HWYS roadways and/or ROW.

3. SUMMARY OF RETROFIT PROJECTS

Through the evaluation process described above, twelve sites throughout DOT-HWYS MS4 were selected for design and construction of storm water treatment retrofits at the start of the current permit term. Table 1 provides a summary of the proposed retrofit projects along with their anticipated implementation schedule. The implementation year is the fiscal year in which the proposed retrofit is scheduled to be completed; however, this schedule is subject to change due to funding availability, permitting delays, or other unforeseen circumstances. Sites with an implementation year of "TBD" (to be determined) are in the preliminary stages of assessment and design and are anticipated to be completed during the permit term. The implementation year for these sites will be updated, along with any other changes to the implementation schedule, and provided in the Annual Report. Additional potential retrofit sites will be annually evaluated and added to the implementation schedule.

Site-specific retrofit methods and technologies are chosen based on an evaluation of existing MS4 structures, construction access, maintenance requirements and pollutants of concern at each location. Appendix A provides additional information, including general location maps of the proposed retrofit sites.

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Table 1. Proposed Retrofit Sites and Implementation Schedule.

Retrofit Site	Retrofit Structure PID or Location	Retrofit Type	Watershed	WLA/TMDL	CWA Section 303(d) Listed	Drainage Areas (Acres)	Impervious Drainage Area (Acres)	Implementation Year (Fiscal Year)
1	112774	Downspout Filter Box	Waimalu	N/A	Turbidity	0.41	0.41	2021
2	113098	Downspout Filter Box	Waimalu	N/A	Turbidity	0.36	0.36	2021
3	112773	Downspout Filter Box	Waimalu	N/A	Turbidity	0.40	0.40	2021
4	113099	Downspout Filter Box	Waimalu	N/A	Turbidity	0.28	0.28	2021
5	112775	Downspout Filter Box	Waimalu	N/A	Turbidity	0.28	0.28	2021
6	113097	Downspout Filter Box	Waimalu	N/A	Turbidity	0.25	0.25	2021
7	Pearl City Baseyard	Source Control and Drainage Improvements	Waimalu	N/A	Turbidity	N/A	N/A	2021
8	505421	Nutrient Separating Baffle Box	Kaneohe	TSS, TN, TP	Turbidity	10.09	5.02	2021
9	Keehi Baseyard	Trench Drain with Filter	Moanalua	N/A	TN, Turbidity, Trash	TBD	TBD	2023
10	Keehi Baseyard	Source Control and Drainage Improvements	Moanalua	N/A	TN, Turbidity, Trash	TBD	TBD	2023
11	103066	Bioretention Swale	Kaelepulu	In development	TN, NO_3+NO_2, TP, Turbidity	~2	~2	TBD
12	202989	TBD	Kaelepulu	In development	TN, NO_3+NO_2, TP, Turbidity	~1.5	~1.5	TBD

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Appendix A

Location Maps and Information of Proposed Retrofit Sites

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Pearl City Baseyard Retrofits

Associated PID(s): 112774, 113098, 112773, 113099, 112775, 113097

Retrofit Site(s): 1-7

Receiving Water Body: Waiau Stream

TMDL/WLA: N/A

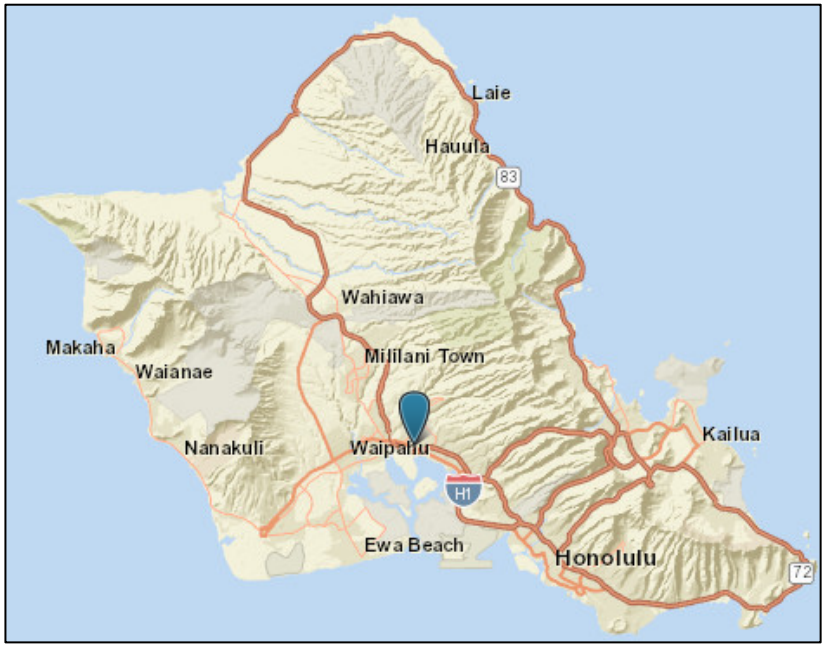
303(d) Listings: Turbidity

Drainage Area: 1.98 acres

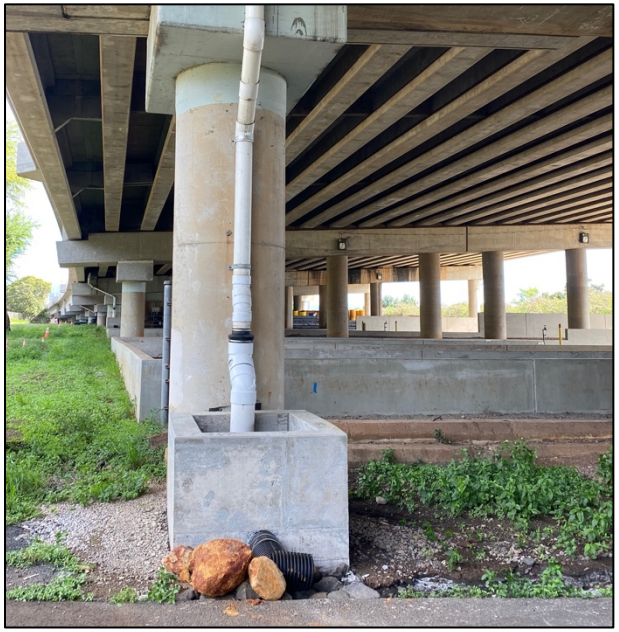
Impervious Area: 1.98 acres

Proposed Retrofit(s): Downspout Filter Boxes and Source Control and Drainage Improvements

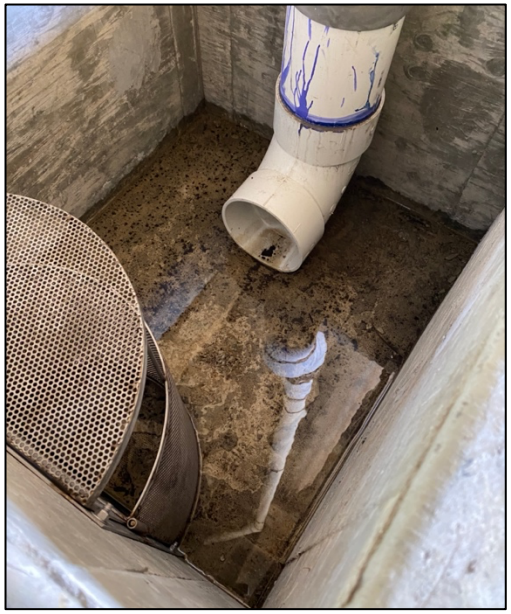
The Pearl City Baseyard is located beneath the H-1 freeway in Pearl City. The majority of the site is located under the cover of the freeway viaduct, and therefore, is not exposed to rainfall. However, stormwater runoff can flow through the property from several downspouts that drain surface runoff from the H-1 viaduct. The proposed baseyard retrofits will provide treatment for this stormwater runoff prior to its discharge offsite.



Location Map



Newly Constructed Downspout Filter Box



Newly Constructed Downspout Filter Box

Kaneohe Retrofit Site

Associated PID(s): 505421

Retrofit Site(s): 8

Receiving Water Body: Kaneohe Stream

TMDL/WLA: TSS, TN, TP

303(d) Listings: Turbidity

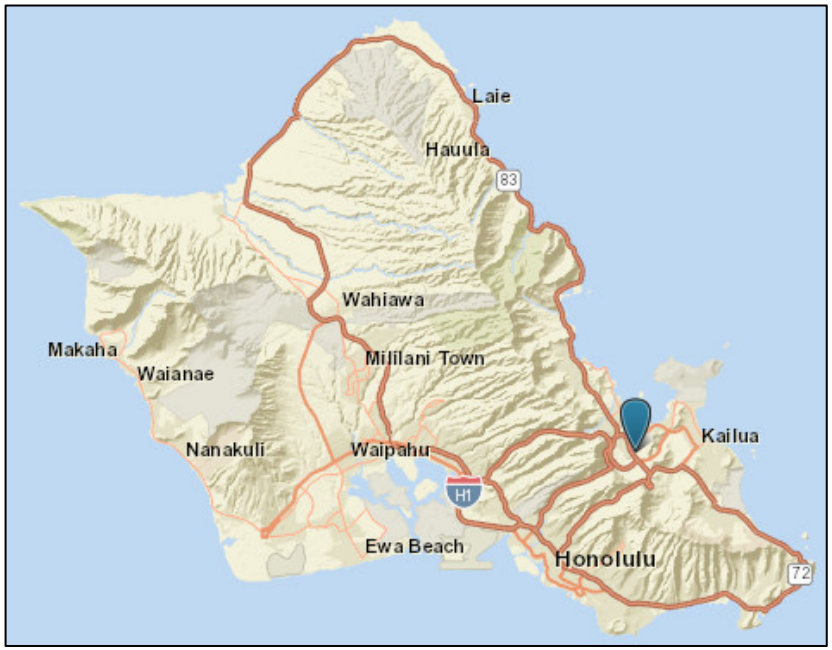
Drainage Area: 10.09 acres

Impervious Area: 5.02 acres

Proposed Retrofit(s): Nutrient Separating Baffle Box

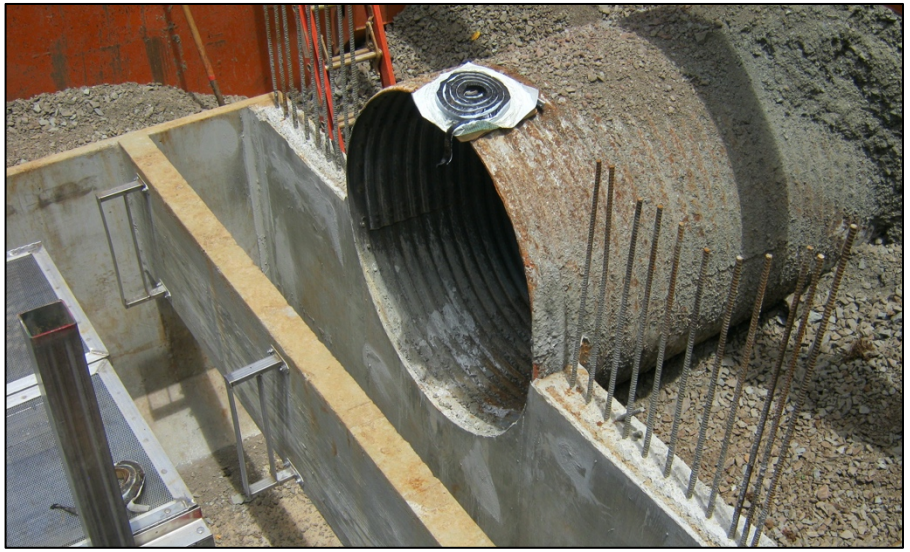
The Kaneohe Nutrient Separating Baffle Box is located in the grassy area bounded by the on-ramp from Kamehameha Highway northbound to H-3 westbound.

The NSBB provides treatment for stormwater runoff collected by the adjacent westbound lanes of H-3 and nearby areas by filtering debris and settling sediment.



Location Map

Nutrient Separating Baffle Box during Construction



Nutrient Separating Baffle Box during construction

Keehi Baseyard Retrofits

Associated PID(s): 600678

Retrofit Site(s): 9-10

Receiving Water Body: Moanalua Stream

TMDL/WLA: N/A

303(d) Listings: TN, Turbidity, Trash

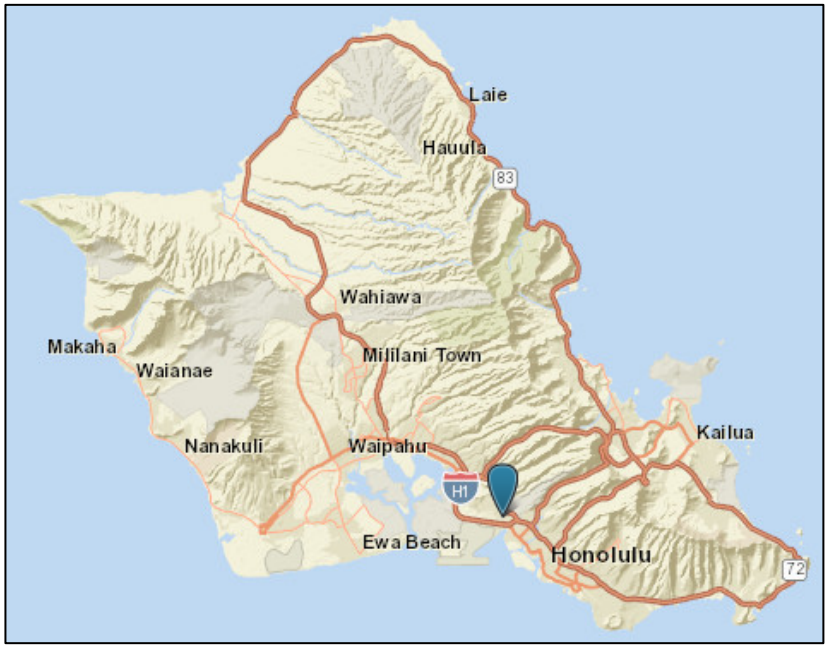
Drainage Area: TBD

Impervious Area: TBD

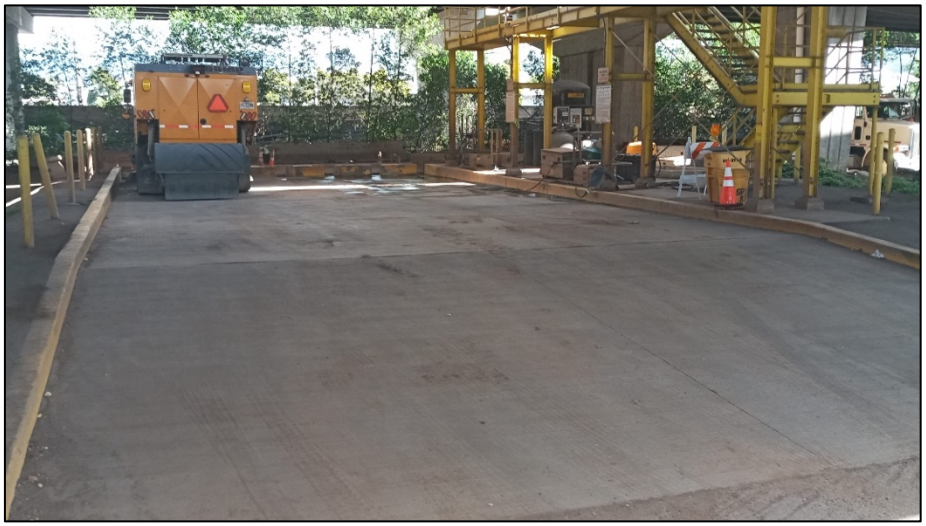
Proposed Retrofit(s): Trench Drain with Filter and Source Control and Drainage Improvements

Keehi Baseyard is located at the Keehi viaduct, beneath the H-1 freeway in the south-central area of Oahu. The baseyard includes the covered area that is bordered on the east side by the Moanalua Stream and on the north and south sides by the westbound and eastbound lanes of Nimitz Highway, respectively.

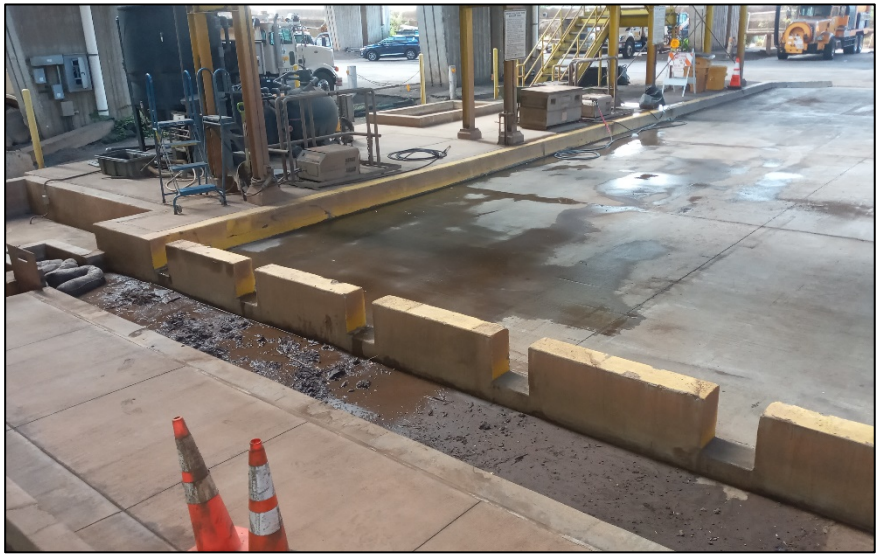
The proposed Trench Drain with Filter will be constructed around an existing wash pad foundation, providing runoff treatment before entering the existing sediment trench.



Location Map



Proposed Trench Drain with Filter Location



Proposed Trench Drain with Filter Location

Kaelepulu Retrofit Site

Associated PID(s): 103066, 202989

Retrofit Site(s): 11-12

Receiving Water Body: Kaelepulu Stream

TMDL/WLA: In development

303(d) Listings: TN, NO3+NO2, TP, Turbidity

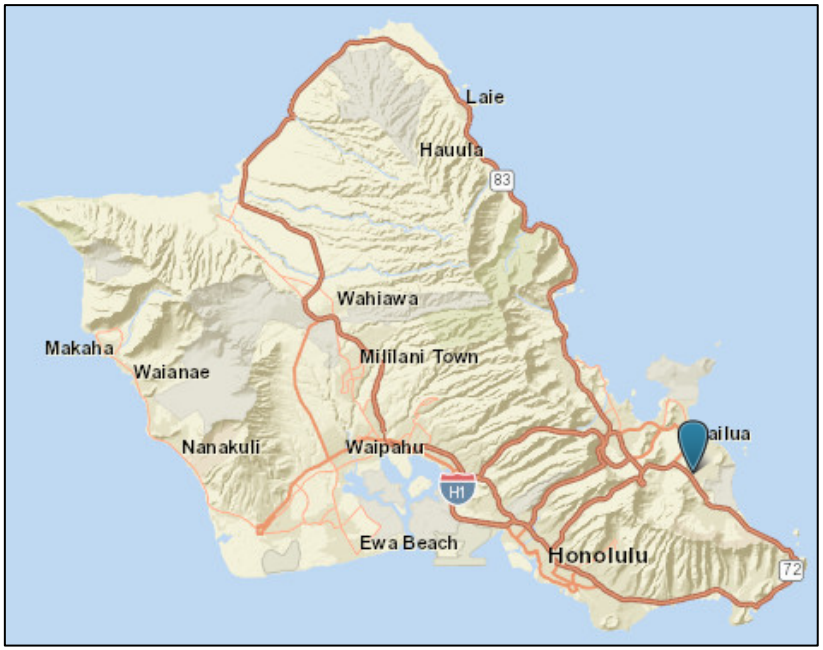
Drainage Area: ~2 acres

Impervious Area: ~2 acres

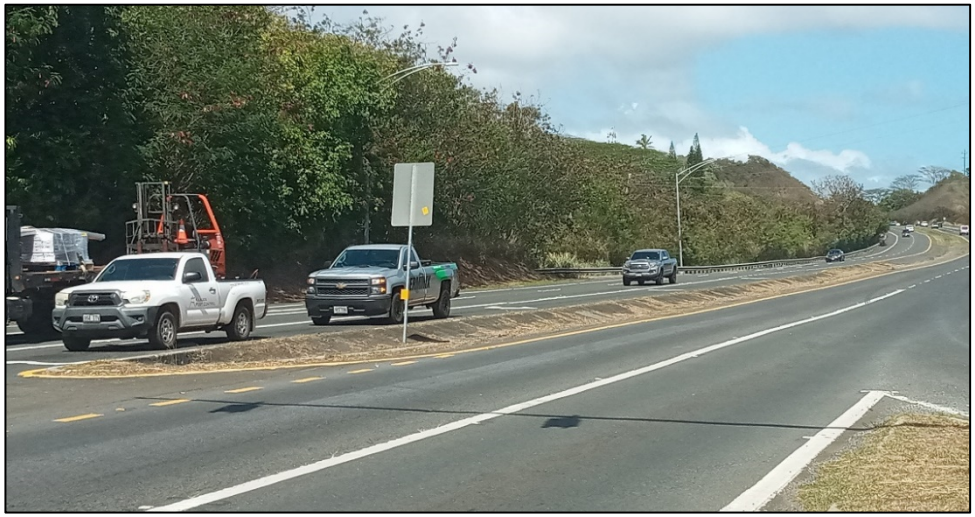
Proposed Retrofit(s): Bioretention Swale

The Kaelepulu Retrofit site is located in the median of Kalanianaole Highway between opposing lanes of traffic, extending northwest from the intersection of Keolu Dr. An existing asphalt swale collects runoff from Kalanianaole Highway and conveys it into the DOT's MS4 system via grated drop inlets located along the swale.

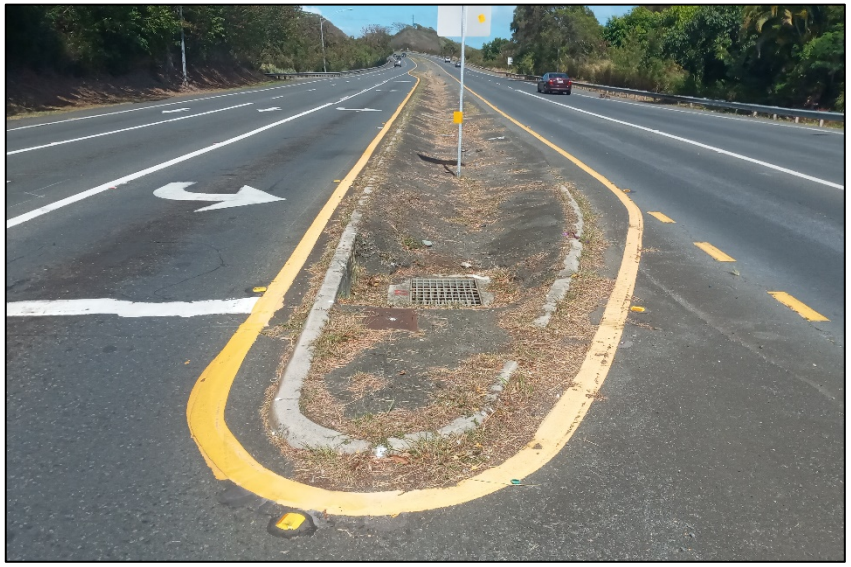
The proposed Bioretention Swale would provide added permeability and treatment for stormwater runoff collected by the adjacent lanes of Kalanianaole Highway.



Location Map



Proposed Bioretention Swale Location



Proposed Bioretention Swale Location