



STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. BOX 621
HONOLULU, HAWAII 96809

STAFF SUBMITTAL

for the meeting of the
COMMISSION ON WATER RESOURCE MANAGEMENT

September 24, 2009
Honolulu, Hawaii

Application for a Stream Channel Alteration Permit (SCAP.2410.2)
Kaumualii Highway Widening and Installation of a New Drainage Culvert
Tributary to Puali Stream, Lihue, Kauai
TMKs: (4) 3-3-002, 003 and 007:999; 3-4-005, 007:999; and 3-8-005, 016:999

APPLICANT:

Mr. Glenn M Yasui, Administrator
State Department of Transportation
869 Punchbowl Street
Honolulu, HI 96813

LANDOWNER:

Same

SUMMARY OF REQUEST:

Application for a Stream Channel Alteration Permit (SCAP.2410.2) for the State Department of Transportation's (DOT) Kaumualii Highway widening and installation of a new drainage culvert, tributary to Puali Stream, in Lihue, Kauai at TMKs: (4) 3-3-002, 003 and 007:999; 3-4-005, 007:999; and 3-8-005, 016:999

LOCATION: See Exhibit 1.

BACKGROUND:

The State DOT Highways Division will widen a 1.8 mile portion of Kaumualii Highway from two to four lanes between Koloa and Lihue, and the existing drainage system will be modified in a tributary to Puali Stream. The new drain line will be approximately 18 feet wide by 200 feet long and be used to convey water under the widened highway to prevent roadway flooding. New highway lighting, traffic signals and waterline will be installed as well as metal guard rails, curbs, gutters and sidewalks. The highway crosses over a tributary to Puali Stream, and the crossing will be lengthened, improved and straightened.

Approved by Commission on
Water Resource Management
at the meeting held on

The project area was historically used for sugar cane farming and is presently bordered by Grove Farm property and Kauai Community College. The tributary to Puali Stream is a perennial, non-tidal stream that flows under Kaumualii Highway in a culvert. The stream banks are covered with vegetation, and the project area generally contains silty clay soil. The stream is elevated relative to the nearby Puali Stream and appears to be fed by a plantation-era irrigation ditch.

DESCRIPTION:

Work will occur during two separate phases of the project, coinciding with construction on the mauka and makai sides of the highway. The first phase (Phase 9 in the overall project phasing) will begin in 2010 and take 43 working days. The second phase (Phase 12 of the overall project phasing) will begin in 2011 and take 48 working days. There are about 72 days between the two phases, and the total working time in the stream is expected to take place over approximately four-and-a-half months.

The total amount of excavation will be approximately 4,700 cubic yards of silt, vegetation and rock which will be disposed of at an approved upland disposal site and will not be reused in the project. "Soft" materials under the new drainage structure will be removed and replaced with rock to mitigate and reduce settlement of the proposed drainage box culvert and roadway above. Geotextile fabric will be used under and around the rock material. A pre-cast box culvert and inlet and outlet structures will be placed using a crane; rock will be placed in the stream and be grouted by hand. A small volume of concrete will be poured, and eight upright steel pipes will be placed in concrete above the inlet to catch debris coming downstream. The total fill material is approximately 4,635 cubic yards plus the geotextile fabric and the eight steel pipes.

The first phase will occur on the mauka (upstream) side. Sheet piles will be installed along the western stream bank, and soil within the sheet piles will be excavated to create a new channel to divert the stream flow temporarily. The new channel will be connected to a temporary 48-inch, pre-cast concrete or high density polyethylene (HDPE) pipe that will be installed under the highway and connect to the existing culvert. The stream diversion will isolate the work area from the stream to allow a new drain line, inlet and grouted rubble paving (GRP) apron to be installed under the highway on the mauka side.

The second phase will occur on the makai (downstream) side. Sheet piles will also be placed along the western stream bank, and the soil within the sheet pile will be excavated to create a new downstream channel to divert the stream flow temporarily. A new retaining wall along the highway will be constructed in phases, and the remainder of the drain line and a riprap basin and apron will be installed on the makai side of the highway.

Stream flow will be re-directed back to the new channel and culvert once construction work has been completed. The temporary sheet piles will be removed and backfilled, and the temporary 48-inch drain pipe and existing culvert on the makai side will be filled with concrete and left in place. All disturbed areas will be restored, and once vegetation is in place, all silt fences will be removed.

ANALYSIS:

Agency Review:

The U.S. Fish and Wildlife Service (USFWS) commented that they did not receive a pre-construction notification from the U.S. Army Corps of Engineers for this project that would provide the federal nexus for USFWS' engagement in this review, and it appeared that the proposed project will not have any substantial impacts on aquatic resources provided that best management practices (BMPs) are implemented.

The U.S. Army Corps of Engineers commented that the project is authorized under the Corps Nationwide Permit (NWP) authority on May 20, 2009, that the Office of Coastal Zone Management issued their

conditional verification of consistency determination of the proposed activity on May 11, 2007, and the Department of Health (DOH) Clean Water Branch issued their Water Quality Certification on May 20, 2009.

The DOH Clean Water Branch commented that the project is subject to Section 401 Water Quality Certification (WQC) and Section 402 National Pollutant Discharge Elimination System (NPDES) Permit.

The Office of Hawaiian Affairs (OHA) made the following comments:

- If any significant cultural deposits or human skeletal remains are encountered, work shall stop in the immediate vicinity, and the State Historic Preservation Division shall be consulted.
- If native diadromous species are present in the area, the project should accommodate them via aquatic pathways to facilitate their migration during and after construction.
- The project should be landscaped with drought tolerant native or indigenous species that are common to the area, and any invasive species should be removed. Trees and landscape planting to shade the stream bank will be beneficial to instream biota.

Kauai County Department of Public Works had no objections to the rehabilitation/replacement of the subject culvert because the work will not increase the flow nor will it change the original hydraulic design for the flow that enters Puali Stream.

Engineering Division made the following comments:

- The project site is located in Flood Zone X and AE (floodway) (AEF) according to the Flood Insurance Rate Map (FIRM) and that the National Flood Insurance Program (NFIP) does not have any regulations for developments within Flood Zone X but does regulate developments within Zone AEF.
- The project must comply with the rules and regulations of the NFIP.
- Because a portion of this project is being constructed in a flood zone designated AEF, strict adherence to the NFIP regulations must be followed.

The Land Division had no permitting issues with the application because all work will not extend beyond DOT's land.

The State Parks and Forestry and Wildlife had no objections to the project.

The University of Hawaii Environmental Center, Department of Hawaiian Home Lands, Division of Aquatic Resources and Historic Preservation did not submit comments as of the date of preparation of this submittal.

Staff Review:

The State Department of Transportation prepared a Final Environmental Assessment (FEA) for the "Improvements to Kaumualii Highway, Lihue to West of Maluhia Road" which was evaluated independently by the Federal Highway Administration (FHWA). On August 1, 2009, the FHWA determined that the build alternative would have no significant impact on the environment (Finding of No Significant Impact, FONSI).

As part of the FEA, DOT hired Park Engineering to conduct an aquatic species survey and biological assessment of the streams that intersected Kaumualii Highway to address the concerns raised by USFWS about possible negative impacts on populations of native stream species resulting from the highway improvements. Three streams, Puali, Papakolea and Huleia, and their tributaries, were found to intersect Kaumualii Highway within the project area and were surveyed for the presence of aquatic species. The

survey found that these streams were physically and biologically degraded in the reaches where they intersected the highway. Nearly all these locations exhibited excessive sedimentation and bank erosion. No native macro-faunal species were observed or collected in any of these locations, and alien species were present in very low abundances.

Native macro-faunal species were found in stream segments several miles downstream of Kaumualii Highway. The presence of natives in the lower reaches suggested that some limited, low-level recruitment was occurring into these urban Lihue stream segments despite severely degraded conditions in many locations. However, the spatial and temporal extent to which native macro-fauna migrate into the upper reaches of the streams could not be determined because of the limited data generated by the study.

RECOMMENDATION:

That the Commission approve a Stream Channel Alteration Permit (SCAP.2410.2) for the State Department of Transportation's (DOT) Kaumualii Highway widening and installation of a new drainage culvert, tributary to Puali Stream, in Lihue, Kauai at TMKs: (4) 3-3-002, 003 and 007:999; 3-4-005, 007:999; and 3-8-005, 016:999 subject to the standard conditions in Exhibit 6.

Respectfully submitted,



KEN C. KAWAHARA, P.E.
Deputy Director

- Exhibits:
1. Location Map
 2. Drainage Plan and Profile
 3. Construction Phasing Plan
 4. BMP Notes and Erosion Control Details
 5. Photos of Streambank and Existing Culvert
 6. Standard Stream Channel Alteration Permit Conditions

APPROVED FOR SUBMITTAL:



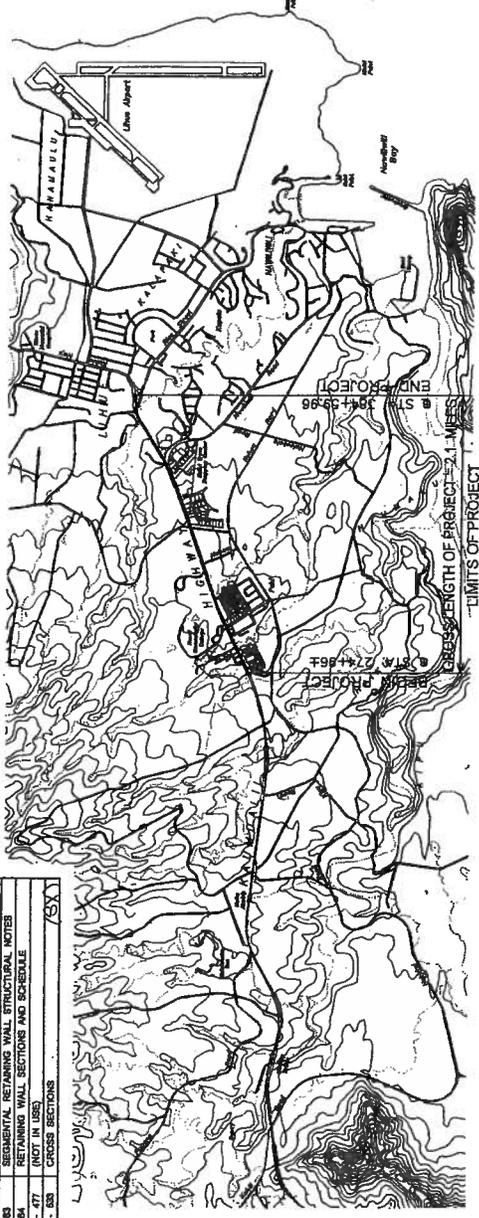
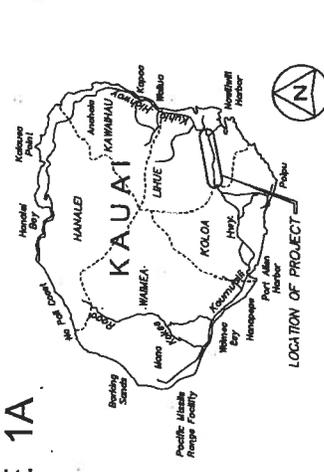
LAURA H. THIELEN
Chairperson

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	STANDARD PLANS SUMMARY
3 - 8	NOTES AND VARIOUS DETAILS
9	LEGEND & ABBREVIATIONS
10 - 18	TYPICAL SECTIONS
19 - 29	MISCELLANEOUS DETAILS
30	GENERAL SITE PLAN
31 - 41	CONSTRUCTION PLANS
42 - 54	CONSTRUCTION DETAILS
55	SUPERSEDED PLAN
56	GRADE CONTROL LINE LAYOUT DIAGRAM
57 - 65	FINISH GRADE PROFILES
66 - 77	INTERSECTION PLANS
78 - 87	P.C.C. PAVEMENT JOINTING PLANS
88 - 108	CURB RAMP DETAILS AND PLANS
109 - 121	GRADING PLANS
122 - 132	RETAINING WALL PLANS, PROFILES & SECTIONS
133 - 168	DRAINAGE PLANS
169 - 180	SHOWING "Z" DETAILS
181 - 189	OPEN LINE PROFILES
190 - 199	OPEN LINE NOTES, PLANS & DETAILS
200 - 221	STRIPING LINE NOTES, PLANS & DETAILS
222 - 244	STRIPING NOTES, PLANS & DETAILS
245 - 253	GUARDRAIL DETAILS
254 - 274	CONSTRUCTION PHASING PLANS
275 - 308	BORING LOGS, LEGEND, NOTES & LOCATION PLAN
309 - 315	GEOTECHNICAL DETAILS
316 - 317	ELECTRICAL NOTES, LEGEND, SYMBOLS & PLAN
318 - 333	ELECTRICAL PLANS
334 - 347	TRAFFIC SIGNAL & STREET LIGHTING PLANS
348 - 358	ELECTRICAL MISCELLANEOUS DETAILS
359 - 359	INDEX TO STRUCTURAL DRAWINGS
360 - 443	STRUCTURAL PLANS
444 - 462	SEWERAGE RETAINING WALL STRUCTURAL NOTES
463 - 477	RETAINING WALL SECTIONS AND SCHEDULE
(NOT IN USE)	
478 - 533	CROSS SECTIONS

FED. ROAD DIST. NO.	STATE HWY.	FED. AID PROJ. NO.	STATE HWY.	FISCAL YEAR	PROJECT YEAR	TOTAL SHEETS
100	50	100	50	2007	2007	33



STATE OF HAWAII
 DEPARTMENT OF TRANSPORTATION
 HIGHWAYS DIVISION
 HONOLULU, HAWAII
 PLANS FOR
KAUMUALII HIGHWAY WIDENING, PHASE 1A
 VICINITY OF ANONUJI STREET TO LIHUE
 FEDERAL-AID PROJECT NO. NH-050-1(31)
 DISTRICT OF LIHUE
 ISLAND OF KAUAI



VICINITY MAP
 NOT TO SCALE
 SCALE IN MILES
 M.P. 2.1 to M.P. 0.0

DESIGNATION	Maui Road to Puhi Road	Puhi Road to Newhihi Road	Newhihi Road to Kuhio Hwy.
CURRENT ADT	25,100	28,800	27,400
DESIGN ADT (2028)	33,100	38,000	36,200
DHV	2,810	3,040	3,080
D	6040	5545	5545
T	3.5%	4.6%	4.5%
V	55 MPH	45 MPH	35 MPH

DEPARTMENT OF TRANSPORTATION
 STATE OF HAWAII
 APPROVED: _____
 DIR. OF TRANSPORTATION
 DATE _____

2000 0 2000 4000
 SCALE IN FEET
 LOCATION PLAN

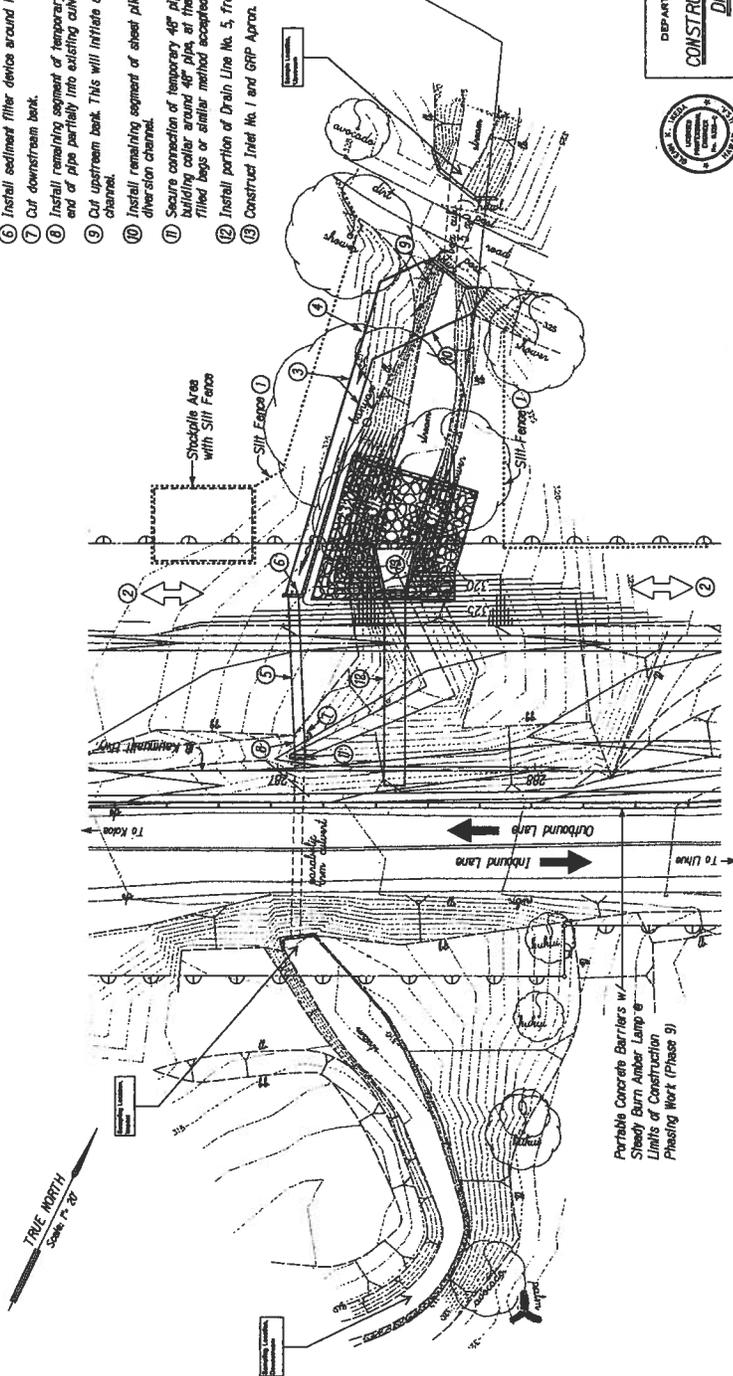
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	HF-506-(D)	2008	302	428

Phasing of Drain Line No. 5 Installation Work

1. Install Silt Fence
2. Construct truck access routes to work area.
3. Install sheet piling as follows: Install west-side, completely as shown; install east-side of diversion, stopping short of blocking stream.
4. Excavate soil from within sheet pile diversion, without cutting bank of stream.
5. Install temporary 48" pipe to the extent possible.
6. Install sediment filter device around inlet of temporary 48" pipe.
7. Cut downstream bank.
8. Install remaining segment of temporary 48" pipe. Extend downstream end of pipe partially into existing culvert.
9. Cut upstream bank. This will initiate stream flow through diversion channel.
10. Install remaining segment of sheet piling on upstream, east-side of diversion channel.
11. Secure connection of temporary 48" pipe to existing culvert by building collar around 48" pipe, at the connection point, with sand-filled bags or similar method accepted by the Engineer.
12. Install portion of Drain Line No. 5, from Station 0+60 to 1+31.6.
13. Construct Inlet No. 1 and GRP Apron.

General Notes

1. Install and maintain erosion control measures in accordance with Section 205 of the Specifications.
2. Coordinate Drainline No. 5 Installation with other work in Construction Phases 9 as shown on Sheet CP23.
3. The cost for temporary stream diversion shall be paid for under Item No. 2052100 - Installation, Maintenance, Monitoring and Removal of BMP.



Perforate Concrete Barriers w/ Shred Barn Amber Lamp @ Limits of Construction Phasing Work (Phase 9)

TRUE NORTH
Scale 1" = 20'

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAY DIVISION

CONSTRUCTION PHASING PLAN
DRAIN LINE No. 5

KAUAI HAWAII HIGHWAY IMPROVING
West of Kona Street to Mouth of Lihua Mill Bridge
FEDERAL-AID PROJECT NO. HF-506-(D)

Scale 1" = 20' Date: 03/20/08
SHEET No. CP20 OF CP22 SHEETS



CONSTRUCTION PHASING FOR INSTALLATION OF DRAIN LINE No. 5
Scale: 1" = 20'

DATE	BY	REVISION

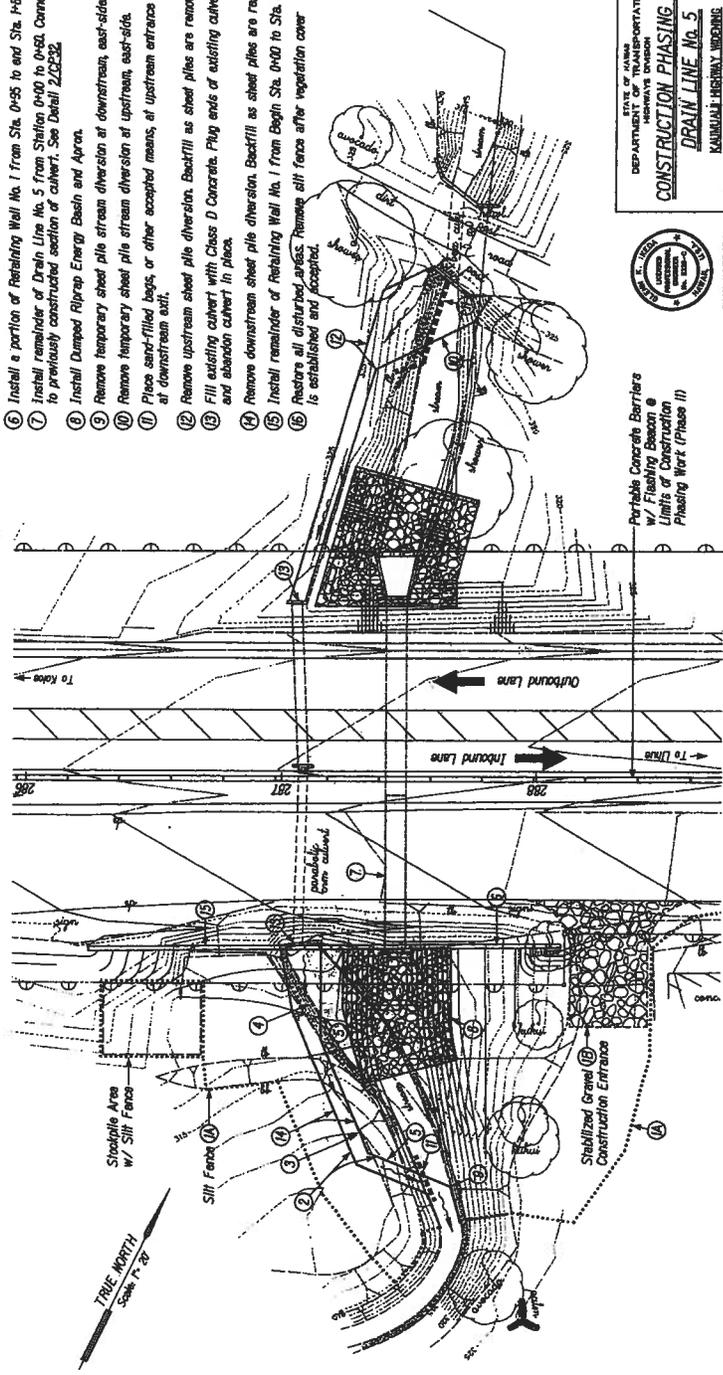
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	HAWAII	HI-500-1(1)	2000	303	438

Phasing of Drain Line No. 5 Installation Work

1. Install and maintain erosion control measures in accordance with Section 208 of the Specifications.
 2. Coordinate Drainline No. 5 Installation with other work in Construction Phase 12 as shown on Sheet CP26.
 3. The cost for temporary stream diversion shall be paid for under Item No. 205U000 - Installation, Maintenance, Monitoring and Removal of BMP.
1. Install Silt Fences
 2. Construct truck access routes to work area.
 3. Install sheet piles as follows. Install west-side completely as shown. Install east-side of diversion, stopping short of blocking stream.
 4. Excavate soil from within sheet pile diversion, without cutting upstream bank. Cuffing of downstream bank is allowed.
 5. Cut upstream bank. This will initiate stream flow through diversion channel.
 6. Install remaining segments of east-side sheet piles on upstream and downstream ends.
 7. Install a portion of Retaining Wall No. 1 from Sta. 0+95 to end Sta. 1+05.
 8. Install remainder of Drain Line No. 5 from Station 0+00 to 0+90. Connect to previously constructed section of culvert. See Detail 222C36.
 9. Install Dumped Riprap Energy Basin and Apron.
 10. Remove temporary sheet pile stream diversion at downstream, east-side.
 11. Remove temporary sheet pile stream diversion at upstream, east-side.
 12. Place sand-filled bags, or other accepted means, at upstream entrance and at downstream exit.
 13. Remove upstream sheet pile diversion. Backfill as sheet piles are removed.
 14. Fill existing culvert with Class D Concrete. Plug ends of existing culvert and abandon culvert in place.
 15. Install remainder of Retaining Wall No. 1 from Station 0+00 to Sta. 0+95.
 16. Restore all disturbed areas. Remove all fence after vegetation cover is established and accepted.

General Notes

1. Install and maintain erosion control measures in accordance with Section 208 of the Specifications.
2. Coordinate Drainline No. 5 Installation with other work in Construction Phase 12 as shown on Sheet CP26.
3. The cost for temporary stream diversion shall be paid for under Item No. 205U000 - Installation, Maintenance, Monitoring and Removal of BMP.



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION PHASING PLAN
DRAIN LINE No. 5

MAUNALOAH HIGHWAY WIDENING
Vicinity of Approx. Station to Vicinity of Union Hill Station
FEDERAL-AID PROJECT NO. HI-500-1(1)

Scale: 1" = 30'
Date: FEB. 2009

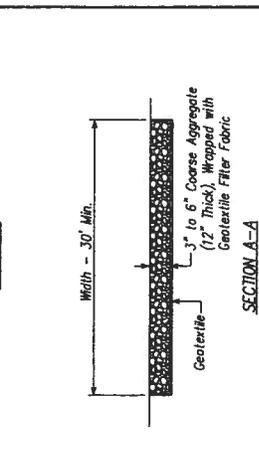
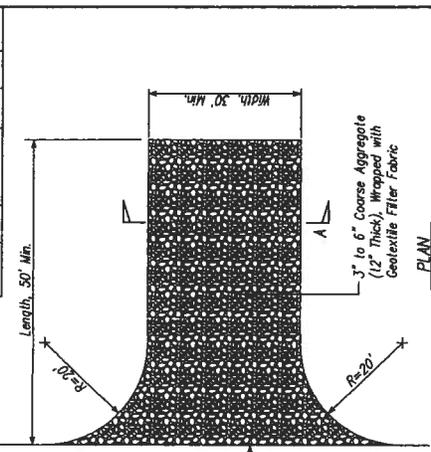


CONSTRUCTION PHASING FOR INSTALLATION OF DRAIN LINE No. 5

Scale: 1" = 30'

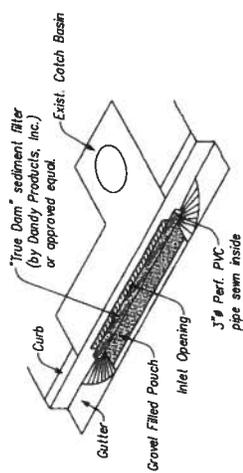
DATE	BY	REVISION

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	PROJ. YEAR	SHEET NO.	TOTAL SHEETS
	MD	10-001-101	2000	8	428
HAZARD	MARK	MS-001-101			

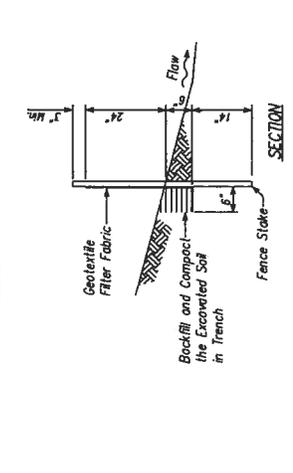


TYPICAL STABILIZED CONSTRUCTION ENTRANCE
Not to Scale

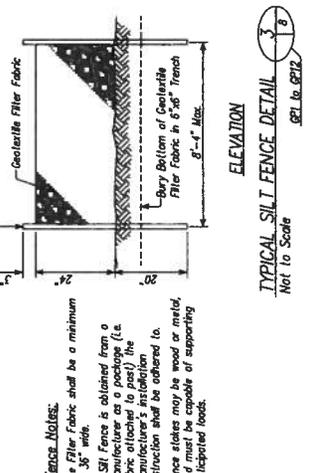
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION
BMP NOTES & EROSION CONTROL DETAILS
MANUAL HIGHWAY WORKS
Modify of Annual Sheet to Match of Local Mill Bridges
FEDERAL-AID PROJECT NO. MD-001-101
Scale: None
Date: FEB. 2000
SHEET No. 1 OF 2 SHEETS



SEDIMENT CONTROL FILTER AT CATCH BASIN
Not to Scale



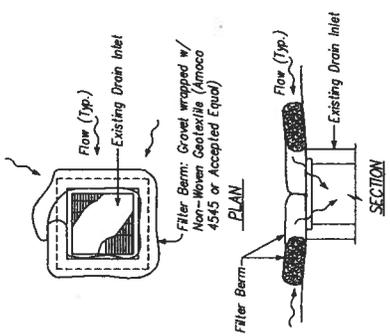
SECTION



TYPICAL SILT FENCE DETAIL
Not to Scale

BEST MANAGEMENT PRACTICES (BMP's) NOTES:

- The Contractor shall install the erosion control measures at the locations shown, or as directed by the Engineer, as soon practicable.
- The construction ingress and egress shall be constructed with a 12" thick coarse aggregate (3" to 6" aggregate) layer to the dimensions and at the locations shown on the plans. Should the Contractor require an ingress and egress other than what is shown on the plan, the Contractor shall be responsible to obtain all necessary approvals, including relocating the crushed rock area as required.
- Slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grading has been completed. Grading to final grade shall be continuous and any area within which work has been interrupted or delayed shall be planted.
- All Best Management Practices (BMP's) shall not be removed until all permanent erosion control controls are in place and established, and all disturbed areas are fully restored and established.
- The Contractor shall cover the openings to all existing and proposed storm drain inlets with a filter system ("Tire-Dam" by Dandy Products or accepted equal) until permanent ground cover is established. Maintenance of the inlet filters by the Contractor shall be included for the duration of the project.
- At the ending of grading operations, existing storm drain inlets and manholes surrounding the project site shall be inspected and any accumulated sediment and debris found in the drain structures shall be removed. Flushing into the inlets and manholes is prohibited.



TYPICAL GRATED INLET FILTER
Not to Scale

DATE	BY	DESCRIPTION



Banks on mauka side of proposed drain line 5.JPG



Existing culvert at proposed drain line 5.JPG

EXHIBIT 5



Makai side, facing makai at proposed drain line 5.JPG

STANDARD STREAM CHANNEL ALTERATION PERMIT CONDITIONS
(Revised 9/19/07)

1. The permit application and staff submittal approved by the Commission at its meeting on September 24, 2009, shall be incorporated herein by reference.
2. The applicant shall comply with all other applicable statutes, ordinances, and regulations of the Federal, State and county governments.
3. The applicant, his successors, assigns, officers, employees, contractors, agents, and representatives, shall indemnify, defend, and hold the State of Hawaii harmless from and against any claim or demand for loss, liability, or damage including claims for property damage, personal injury, or death arising out of any act or omission of the applicant or his successors, assigns, officers, employees, contractors, and agents under this permit or related to the granting of this permit.
4. The applicant shall notify the Commission, by letter, of the actual dates of project initiation and completion. The applicant shall submit a set of as-built plans and photos of the completed work to the Commission upon completion of this project. This permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The proposed work under this stream channel alteration permit shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Commission upon showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Commission no later than three (3) months prior to the date the permit expires. If the commencement or completion date is not met, the Commission may revoke the permit after giving the permittee notice of the proposed action and an opportunity to be heard.
5. Before proceeding with any work authorized by the Commission, the applicant shall submit one set of construction plans and specifications to determine consistency with the conditions of the permit and the declarations set forth in the permit application.
6. *The applicant shall develop site-specific, construction best management practices (BMPs) that are designed, implemented, operated, and maintained by the applicant and its contractor to properly isolate and confine construction activities and to contain and prevent any potential pollutant(s) discharges from adversely impacting state waters. BMPs shall control erosion and dust during construction and schedule construction activities during periods of low stream flow.*
7. *The applicant shall protect and preserve the natural character of the stream bank and stream bed to the greatest extent possible. The applicant shall plant or cover lands denuded of vegetation as quickly as possible to prevent erosion and use native plant species common to riparian environments to improve the habitat quality of the stream environment.*
8. In the event that subsurface cultural remains such as artifacts, burials or deposits of shells or charcoal are encountered during excavation work, the applicant shall stop work in the area of the find and contact the Department's Historic Preservation Division immediately. Work may commence only after written concurrence by the State Historic Preservation Division.