

DRAINAGE SUMMARY

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	19J-01-02	2004	15	40

UNDERDRAIN PIPE SCHEDULE

ITEM NO.		605	605
		1100	1200
UNIT USED		LF	LF
STATION (From)	STATION (To)	6-Inch Perforated Underdrain Pipe	6-Inch Non-Perforated Underdrain Pipe
144+23 Lt.	144+28 Lt.		5
144+28 Lt.	144+40 Lt.		20
144+40 Lt.	146+50 Lt.	210	3
146+50 Lt.	148+50 Lt.	200	3
148+50 Lt.	150+50 Lt.	200	33
150+50 Lt.	152+50 Lt.	200	3
152+50 Lt.	153+55 Lt.	110	3
153+55 Lt.	153+65 Lt.	30	6
153+82 Lt.	154+02 Lt.	40	6
154+02 Lt.	154+50 Lt.	55	3
154+50 Lt.	156+75 Lt.	225	3
156+75 Lt.	159+00 Lt.	225	3
144+32 Rt.	144+40 Rt.		25
144+40 Rt.	146+50 Rt.	210	3
146+50 Rt.	148+50 Rt.	200	3
148+50 Rt.	150+50 Rt.	200	33
150+50 Rt.	152+50 Rt.	200	3
152+50 Rt.	153+71 Rt.	130	3
153+71 Rt.	153+96 Rt.		25
153+96 Rt.	154+50 Rt.	60	6
154+50 Rt.	156+75 Rt.	225	3
156+75 Rt.	159+00 Rt.	225	3
TOTAL		2945	198

CLEANOUTS AND UNDERDRAIN OUTLET SCHEDULE

ITEM NO.	605	605
	3000	4000
UNIT USED	EA	EA
STATION	Cleanout	Underdrain Outlet Structure
144+23 Lt.		1
144+28 Lt.	1	
144+40 Lt.	1	
146+50 Lt.	1	
148+46 Lt.	1	
150+50 Lt.	1	
152+50 Lt.	1	
153+65 Lt.	1	
153+82 Lt.	1	
154+50 Lt.	1	
156+75 Lt.	1	
159+00 Lt.	1	
144+32 Rt.		1
144+40 Rt.	1	
146+50 Rt.	1	
148+46 Rt.	1	
150+50 Rt.	1	
152+50 Rt.	1	
153+71 Rt.	1	
154+50 Rt.	1	
156+75 Rt.	1	
159+00 Rt.	1	
TOTAL	20	2

DRAINAGE STRUCTURES AND CULVERT SCHEDULE

ITEM NO.		206 2020	503 2000	603 0010	603 1010	603 1020	603 5000	604 0100	604 1000	604 2000	604 3000	612 1000
UNIT USED		CY	LF	CY	LF	LF	EA	EA	EA	EA	EA	CY
STATION	STRUCTURE	Structure Excavation for Drainage System	4'x3' Reinforced Concrete Box Culvert	Bed Course Material for Culverts	24-Inch RCP, Cl. III	36-Inch CMP, 11"= 0.109 Inch	Reinforced Concrete Collar	Concrete Headwall	Type 61614P GDI 3.00 ft. to 3.99 ft.	Type 61614P GDI 4.00 ft. to 4.99 ft.	Type 1" Outlet Structure	GRP Slope Protection
148+43 Rt.	Concrete Headwall	11		3		9		1				
148+50 Lt.	153+15 Lt.											
153+55 Lt.	61614P GDI	4		1	3		1		1			
154+04 o/s 67.5' Rt.	Type 1" Outlet Struct.	39	21	6							1	
154+02 Lt.	61614P GDI	15	8	2						1		
155+68 Lt.	GRP											7
156+97 Lt.	GRP											10
TOTAL		69	29	12	3	9	1	1	1	1	1	17

DRAINAGE NOTES:

1. Existing drainage systems will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to accomplish maintenance of flow. The cost shall be incidental to the various Contract Items.
2. The Contractor shall verify the locations of all existing culverts and utilities in the field. Any existing culverts and utilities damaged during construction shall be repaired or replaced by the Contractor at no cost to the State.
3. Only non-pneumatic type of drill as accepted by the engineer will be permitted for drilling holes in concrete. Where indicated on the plans, the approximate diameter of drilled holes for installation of dowels shall be $\frac{5}{8}$ " and voids after installing dowels shall be filled with epoxy. the cost shall be incidental to the various Contract Items.
4. The following work shall not be paid for separately, but shall be considered incidental to the various contract items:
 - a. Demolishing, removing and disposing of existing drainage structures.
 - b. Connecting underdrain pipes to Grated Drop Inlets at Sta. 153+55 Lt. and Sta. 154+02 Lt.
 - c. Connecting underdrain pipes to Concrete Box Culvert at Sta. 153+96 Lt.
5. For Details of Cleanout, see Sheet No. H5.
6. For details of underdrain connections to GDI and Concrete Box Culvert, see Sheet No. H5.
7. For Details of Underdrain Outlet Structure, see Sheet No. H6.
8. For Details of Reinforced Concrete Collar, see Sheet No. H10.
9. For Details of Culvert Trench and Pavement Restoration, see Sheet No. H6.
10. For Details of 4'x3' Concrete Box Culvert, see Sheet No. H7.
11. For Details of 61614P Steel Frame & Grates, see Sheet No. H9.

ORIGINAL PLAN	SURVEY PLOTTED BY _____	DATE _____
	DRAWN BY <i>ABC</i>	<i>6/2/03</i>
	TRACED BY _____	
	NOTE BOOK _____	
	DESIGNED BY <i>CM</i>	
	QUANTITIES BY _____	
	CHECKED BY _____	

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

DRAINAGE SUMMARY

HAWAII BELT ROAD
Traffic Operational Improvements
At Kulaimano Road
Project No. 19J-01-02

Date: Sep, 2003

SHEET No. *HI* OF *10* SHEETS