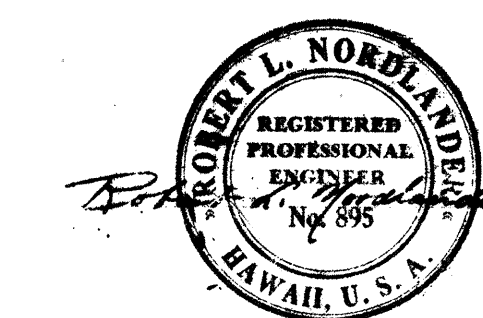


NOTE:
FOR CATCH BASIN DETAILS
SEE STANDARD DETAILS

SUMMARY OF DRAINAGE PIPE ALTERNATES											
FROM	TO	LENGTH	ALTERNATE A REIN. CONC. PIPE	ALTERNATE B METAL PIPE	FROM	TO	LENGTH	ALTERNATE A REIN. CONC. PIPE	ALTERNATE B METAL PIPE	FROM	TO
CB 42	CB 41	48'	24" E.F.	24" -14 ga.	MH 30	MH 31	81.5'	24" E.F.	24" -14 ga.		
STREAM	CB 41	83'	36" S.S.	42" -12 ga.	MH 31	CB 44	136'	24" E.F.	24" -14 ga.		
CB 41	MH 21	171'	36" S.S.	42" -12 ga.	CB 63	CB 64	60'	24" E.F.	24" -14 ga.		
MH 21	CB 44	105'	36" E.F.	42" -12 ga.	CB 64	CB 65	44.2'	24" E.F.	24" -14 ga.		
CB 43	CB 44	42.7'	24" E.F.	24" -14 ga.	CB 65	MH 20	224.8'	24" E.F.	24" -14 ga.		
CB 44	CB 45	240'	36" E.F.	36" -12 ga.	MH 20	CDI 7	13'	24" S.S.	24" -14 ga.		
CB 46	CB 45	43.5'	24" E.F.	24" -14 ga.	MH 20	CB 50	41'	24" E.F.	24" -14 ga.		
CB 49	CB 47	270.3'	30" S.S.	36" -12 ga.	CB 64	CB 58	22.5'	24" E.F.	30" -14 ga.		
CB 48	CB 47	43'	24" E.F.	24" -14 ga.	CB 57	CB 58	44.2'	24" E.F.	24" -14 ga.		
CB 47	MH 22	148.47'	30" E.F.	36" -12 ga.	CB 58	MH 27	28.6'	24" S.S.	24" -14 ga.		
CB 40	MH 22	22.5'	24" S.S.	24" -14 ga.	MH 27	CB 56	44.2'	24" S.S.	24" -14 ga.		
MH 22	CB 50	21'	30" S.S.	36" -12 ga.	CB 56	MH 28	20'	24" E.F.	24" -14 ga.		
CDI 5	CB 50	22'	18" S.S.	18" -16 ga.	MH 28	CB 55	60'	24" S.S.	24" -14 ga.		
CB 50	MH 23	234.6'	24" E.F.	30" -14 ga.	MH 27	CB 54	0.8'	24" S.S.	24" -14 ga.		
CB 51	MH 23	19'	24" E.F.	24" -14 ga.	CB 54	MH 26	18.1'	24" S.S.	24" -14 ga.		
MH 23	MH 24	115'	24" E.F.	30" -14 ga.	MH 26	CB 52	108.2'	24" E.F.	24" -14 ga.		
MH 24	CB 53	160'	24" S.S.	30" -14 ga.	CB 54	CB 53	45.2'	24" E.F.	24" -14 ga.		
CB 53	MH 40	49'	24" S.S.	30" -14 ga.	CB 53	MH 25	50.2'	24" E.F.	24" -14 ga.		
MH 40	MH 41	75'	24" S.S.	30" -14 ga.	MH 25	CDI 6	50.1'	24" S.S.	24" -14 ga.		
MH 41	CB 56	85'	24" S.S.	30" -14 ga.	CB 64	CB 67	180'	36" S.S.	36" -12 ga.		
CB 56	MH 42	60'	24" S.S.	24" -14 ga.	CB 67	CB 68	44.2'	24" E.F.	24" -14 ga.		
MH 42	CB 58	143'	24" S.S.	24" -14 ga.	CB 68	CB 69	54'	24" E.F.	24" -14 ga.		
CB 58	MH 43	192'	24" S.S.	24" -14 ga.	CB 68	CB 66	75'	24" E.F.	24" -14 ga.		
CB 50	MH 43	60'	24" E.F.	24" -14 ga.	CB 67	MH 34	125.4'	36" S.S.	36" -12 ga.		
MH 43	CB 70	75'	24" S.S.	24" -14 ga.	MH 34	CB 70	43'	24" E.F.	24" -14 ga.		
CB 70	CB 71	31'	24" E.F.	24" -14 ga.	MH 34	CB 71	42.1'	36" S.S.	36" -12 ga.		
CB 72	CB 71	27'	24" E.F.	24" -14 ga.	CB 71	CB 72	15'	24" E.F.	24" -14 ga.		
CB 71	MH 44	70'	24" S.S.	24" -14 ga.	CB 71	CB 73	202.5'	36" S.S.	42" -12 ga.		
MH 44	CB 73	90'	24" S.S.	24" -14 ga.	CB 73	CB 74	68'	24" E.F.	24" -14 ga.		
CB 73	CB 74	106'	24" S.S.	24" -14 ga.	CB 73	DITCH	205.3'	36" S.S.	42" -12 ga.		
CB 74	CB 75	102'	24" E.F.	24" -14 ga.	CDI 1 (TEMP. CONC.)	MH 35	254'	24" E.F.	24" -14 ga.		
CB 75	CB 76	134.5'	24" S.S.	24" -14 ga.	CDI 2 (TEMP. CONC.)	MH 36	100'	18" E.F.	18" -16 ga.		
CB 76	MH 33	150'	24" S.S.	24" -14 ga.	CB 61	Expt. MH	122.5'	24" E.F.	24" -14 ga.		
CB 83	MH 30	115'	24" S.S.	24" -14 ga.	CB 82	MH 38	39.2'	24" E.F.	24" -14 ga.		
MH 30	CB 60	70.2'	24" E.F.	24" -14 ga.	CB 61	MH 31	13.5'	24" S.S.	24" -14 ga.		
CB 60	MH 30	107.4'	24" S.S.	24" -14 ga.							
MH 30	MH 32	72.5'	24" S.S.	24" -14 ga.							
MH 32	MH 33	80'	24" S.S.	24" -14 ga.							
CB 62	MH 33	32.1'	24" S.S.	24" -14 ga.							

NOTE:
See Sheets No.
5983.2E & 5984.21



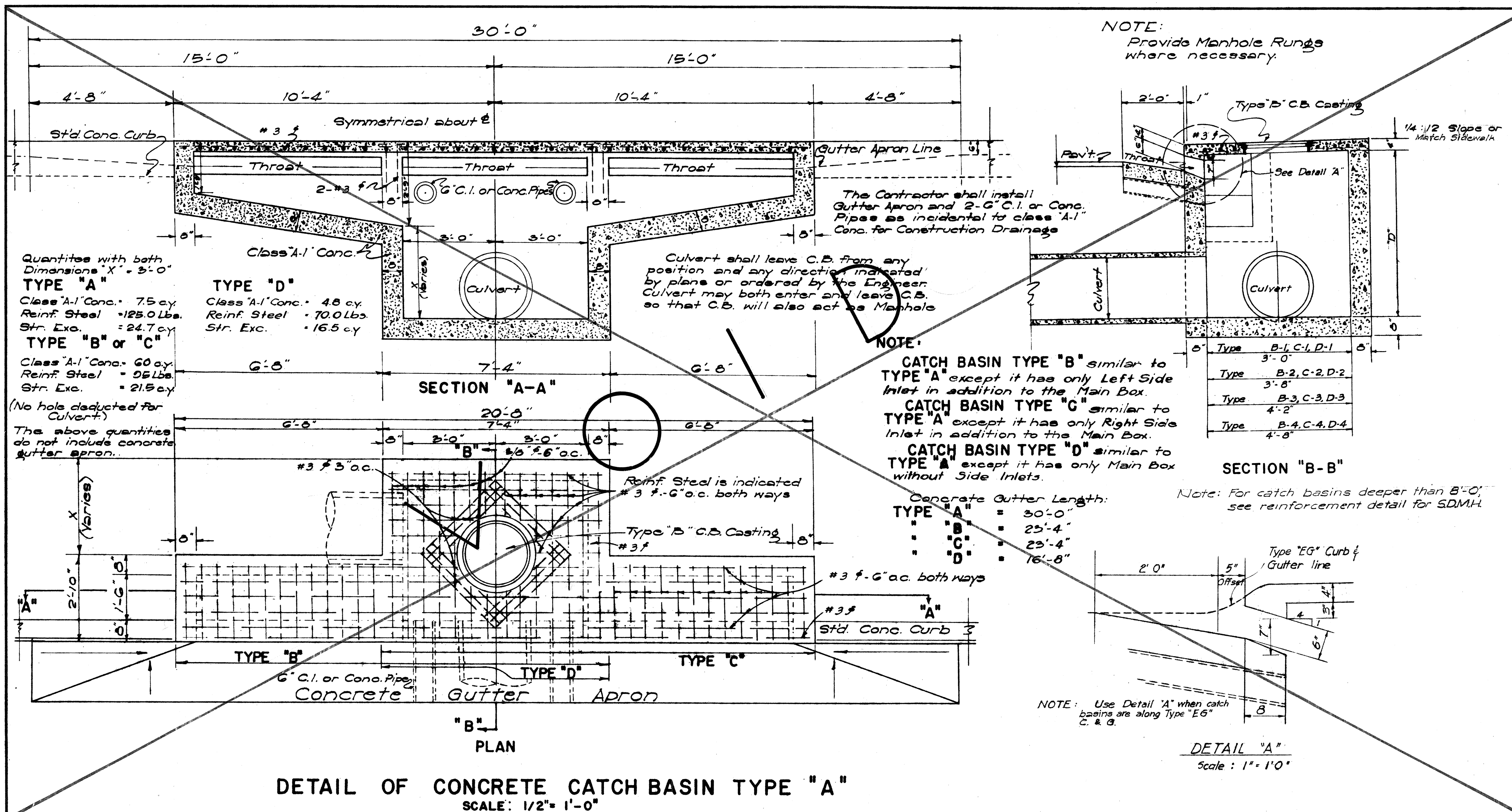
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Civil and Structural Engineers

TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
STORM DRAIN DETAILS
CATCH BASINS

LUNALILO FREEWAY U-072-1(7) UNIT 3
KALIHI STREET US0630(2)

SHEET NO. 1 OF 3 SHEETS

5983.26 5984.33

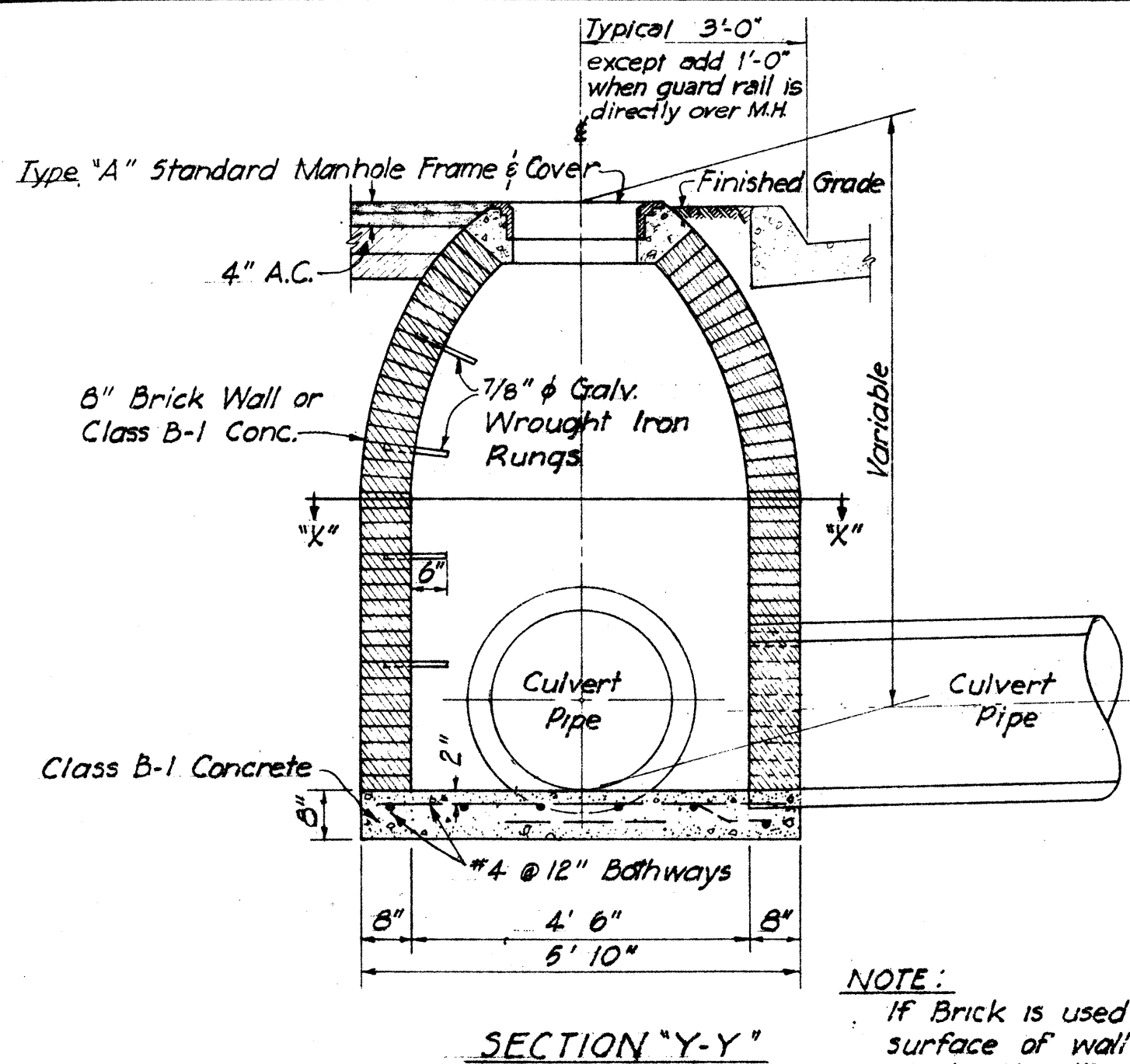


DETAIL OF CONCRETE CATCH BASIN TYPE "A"
SCALE: 1/2" = 1'-0"

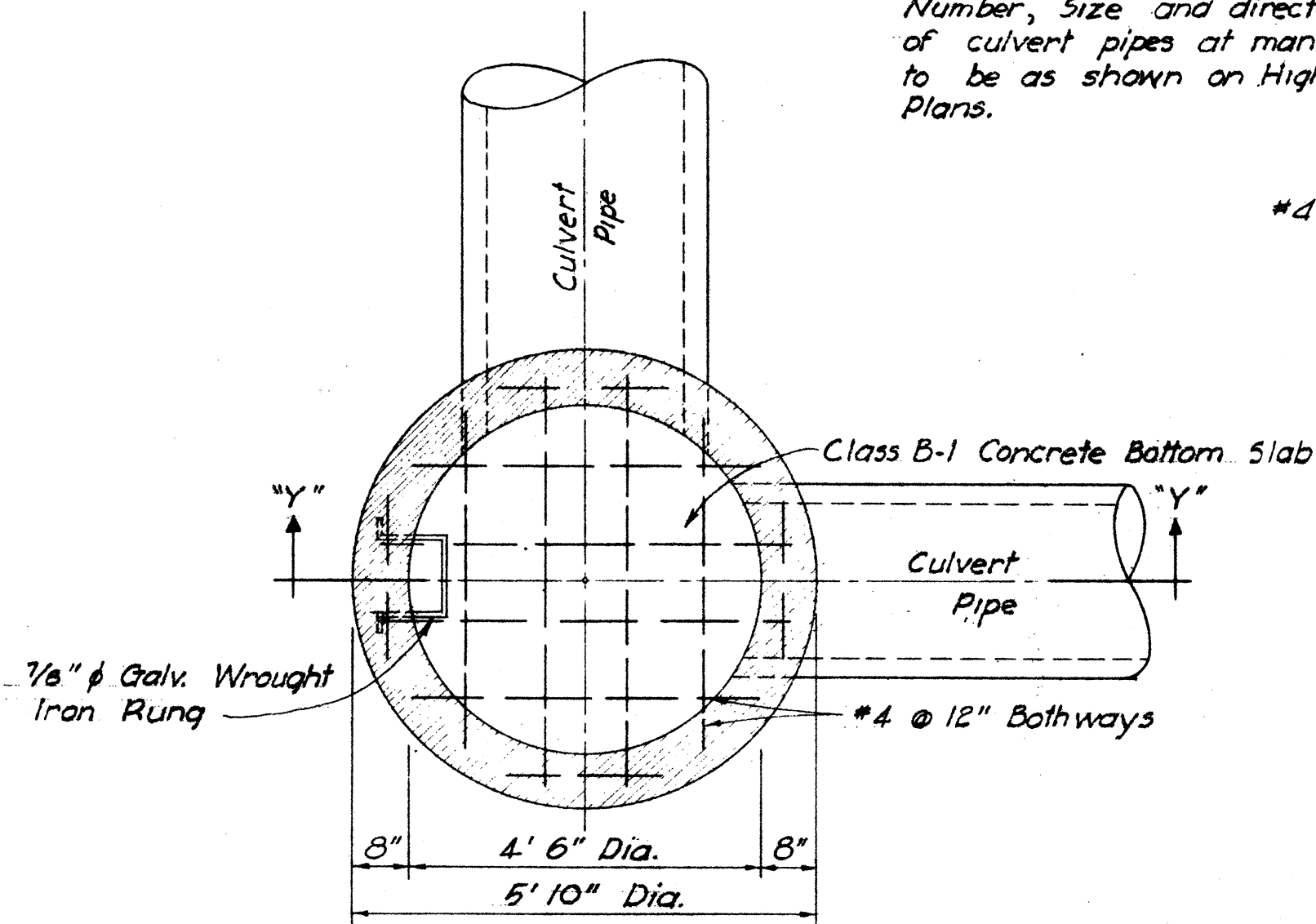
C.B. No.	TYPE	D. ft.	ESTIMATED QUANTITIES			C.B. No.	TYPE	D. ft.	ESTIMATED QUANTITIES			C.B. No.	TYPE	D. ft.	ESTIMATED QUANTITIES		
			CL. A-1 CONC. C.Y.	REINF. STEEL lbs.	STR. EXC. C.Y.				CL. A-1 CONC. C.Y.	REINF. STEEL lbs.	STR. EXC. C.Y.				CL. A-1 CONC. C.Y.	REINF. STEEL lbs.	STR. EXC. C.Y.
						49	B-1	4.40	4.4	85	15.9	73	C-3	7.42	6.1	96	29.6
						50	C-2	8.66	6.8	205	27.1	74	C-1	5.33	4.9	85	17.9
						51	C-1	4.83	4.6	85	16.8						
						52	C-2	5.00	5.0	88	18.2						
						53	C-1	5.33	4.7	85	17.9						
						54	C-2	6.21	5.5	88	21.1						
						55	D-1	4.50	3.3	60	11.1						
						56	D-1	5.44	3.6	60	13.2						
						57	C-1	5.33	4.8	85	17.9						
						58	C-2	6.41	5.6	88	21.6						
						59	D-1	5.44	3.7	60	13.2						
						60	D-2	5.34	3.9	63	14.0						
						61	D-2	5.00	3.8	63	13.2						
						62	D-2	4.99	3.9	63	13.2						
						63	D-1	4.07	3.0	60	11.3						
						64	B-4	7.46	6.4	96	26.5						
						65	C-2	5.37	5.1	88	19.1						
						66	D-2	6.17	4.5	63	16.0						
						67	C-3	7.43	5.9	96	25.3						
						68	C-2	6.61	5.6	88	21.6						
						69	D-1	5.33	3.7	60	12.9						
						70	D-1	5.33	3.7	60	12.9						
						71	C-3	7.43	6.2	96	25.2						
						72	C-1	5.33	4.9	85	17.9						
41	B-4	13.16	10.5		42.0							82	D-1	4.92	3.4	60	12.0
42	B-1	5.33	4.8	85	17.9							83	C-2	5.16	5.0	88	18.6
43	B-1	4.97	4.7	85	17.1							84	D-2	5.00	3.5	63	13.1
44	B-4	6.00	5.7	96	22.5							85	D-2	5.33	3.9	63	14.0
45	B-3	6.53	5.8	91	22.9							86	C-2	5.29	5.1	88	18.9
46	B-1	5.33	4.8	85	17.9							87	D-2	5.33	4.0	63	14.0
47	B-3	6.53	5.8	91	22.9							88	C-2	5.26	5.1	88	18.8
48	B-1	5.33	4.8	85	17.9							89	D-1	5.45	3.7	60	13.2
												90	C-2	5.99	5.5	88	20.6
												91	C-2	7.63	6.2	88	24.5
												92	D-1	9.61	5.9	151	22.2
												93	C-2	5.02	4.9	88	18.3
												94	C-2	7.29	6.2	88	23.7
												95	D-1	5.29	3.6	60	12.9
												*G-1	*D-2	4.00	5.3	71	12.5

NOTE: Provide Type "B" Catch Basin Castings for all C.B.'s except Sp. Type C.B. #15 for which Type "A" Manhole Casting is used.

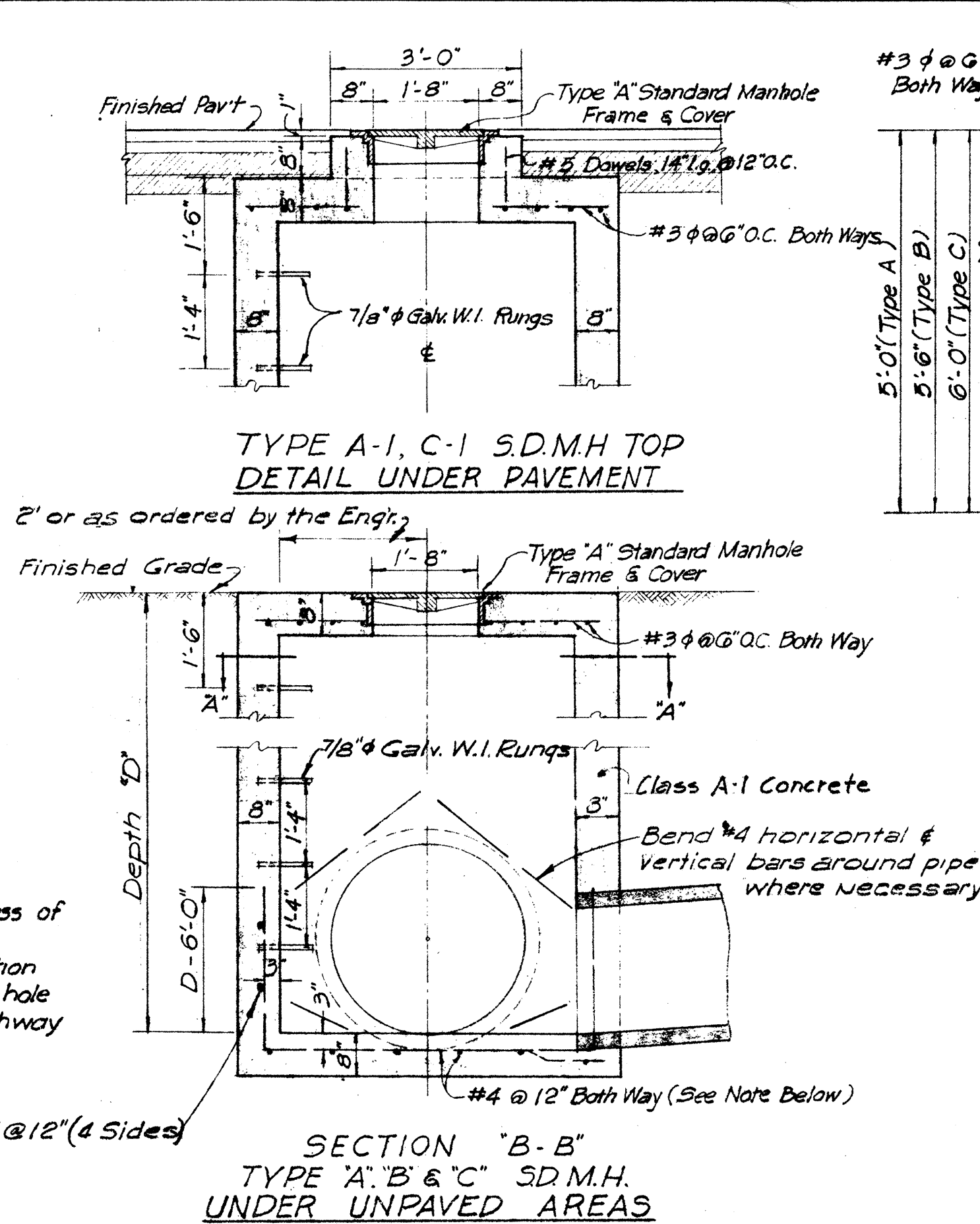
* C.B. Type B-2 except that overall length shall be 10'-0" with intermediate support at throat.



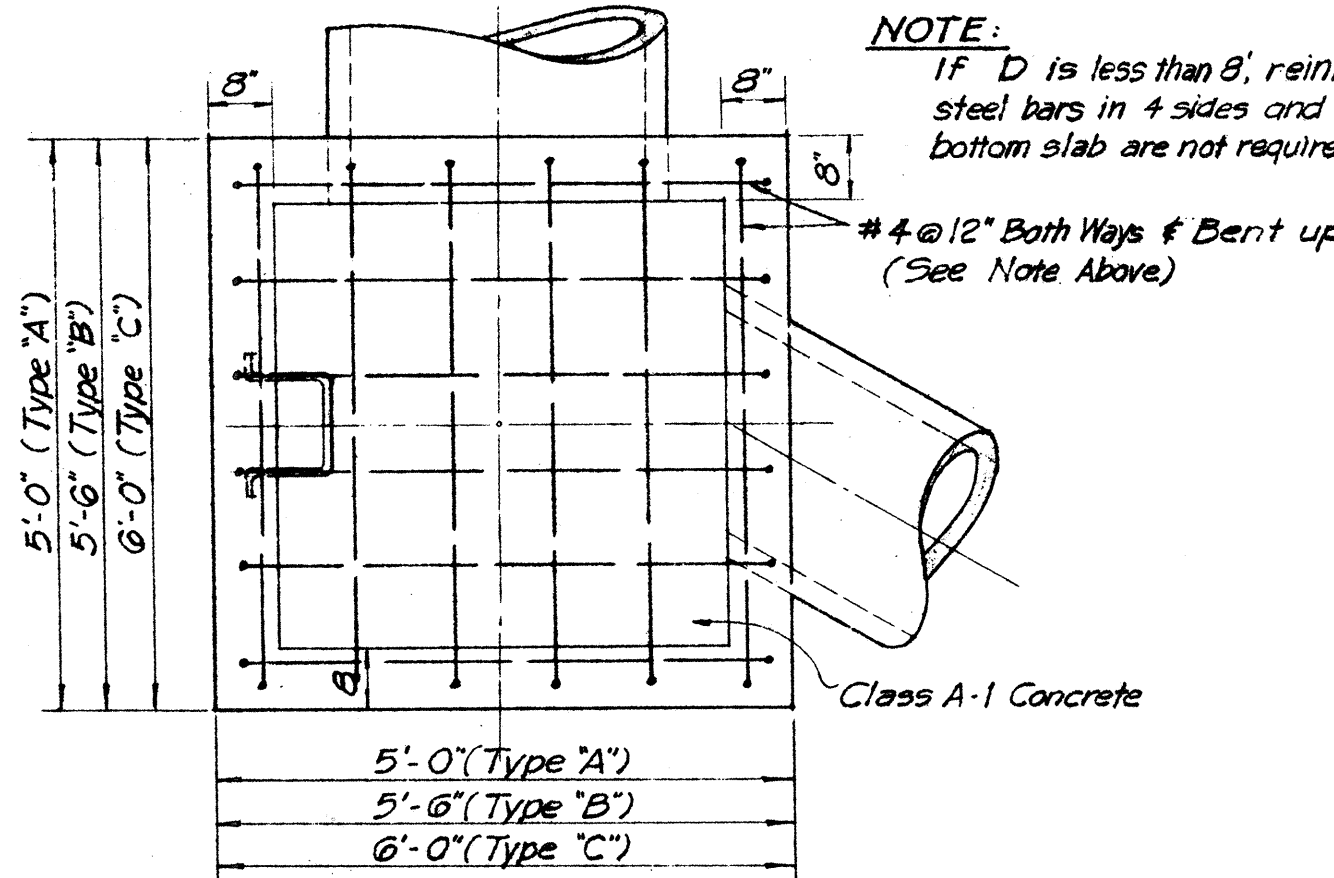
NOTE:
If Brick is used, exterior surface of wall shall be plastered with 1" thickness of 1:2 Cement Mortar.
Number, Size and direction of culvert pipes at manhole to be as shown on Highway Plans.



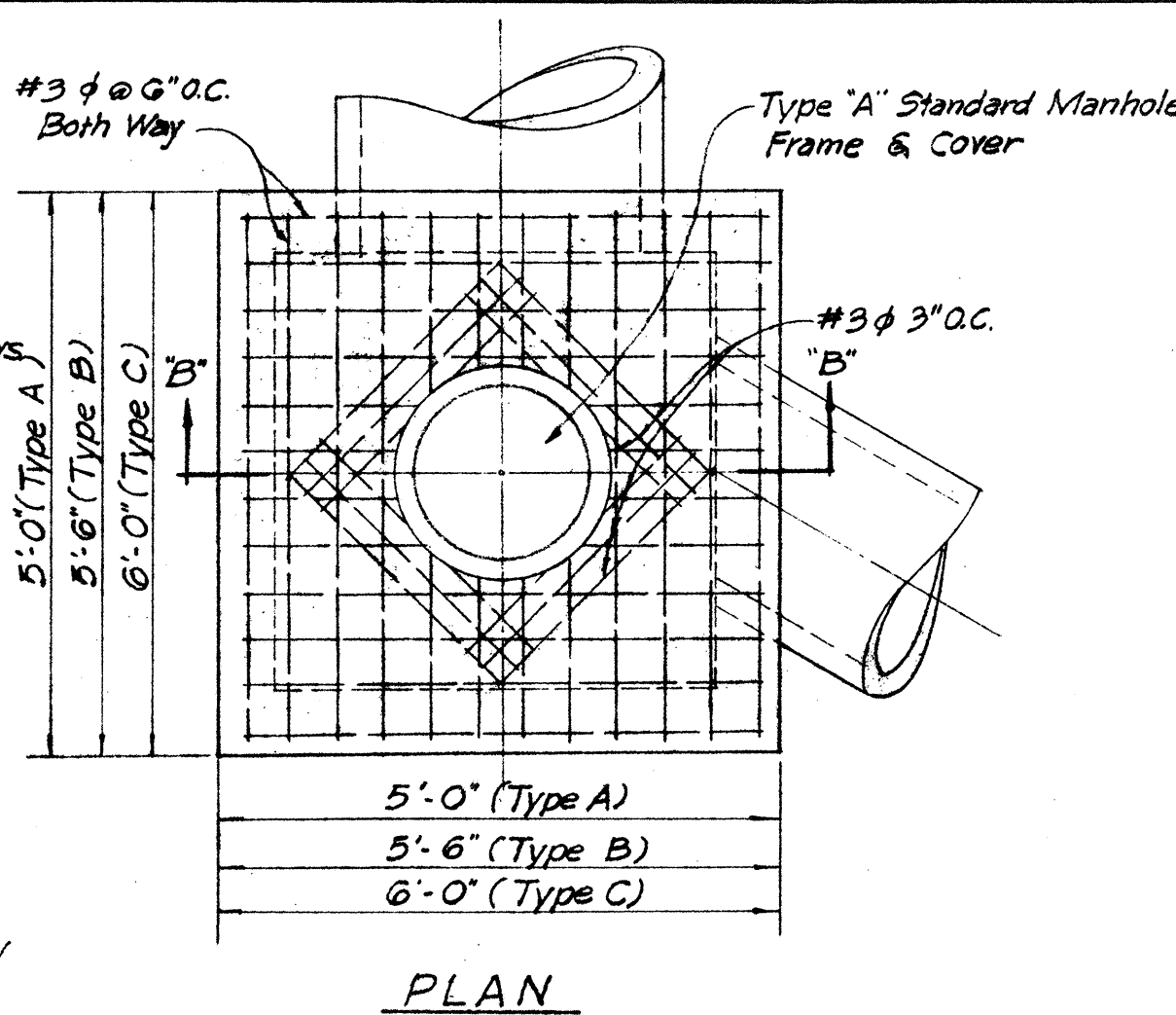
SECTION "X-X"
TYPE "D" STORM DRAIN MANHOLE
Scale: 1/2" = 1'-0"



NOTE:
If D is less than 8', reinf. steel bars in 4 sides and bottom slab are not required.



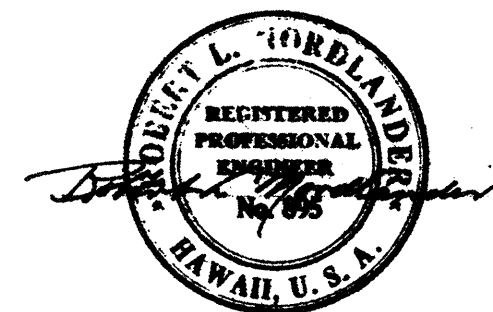
SECTION "A-A"
TYPE "A", "B" & "C" S.D. MANHOLE
Scale: 1/8" = 1'-0"



TABULATION OF SDMH

SDMH No.	TYPE	D ft.	ESTIMATED QUANTITIES			
			CL A-1 CONC. C.Y.	CL B-1 CONC. C.Y.	REINF. STEEL lbs.	STR. EXC. C.Y.
21	C	9.66	6.0		158	24.8
22	B	8.64	4.6		160	17.1
23	D	6.59		0.7	32	13.4
24	D	5.08		0.7	32	10.3
25	D	5.33		0.7	32	10.7
26	D	7.97		0.7	32	15.8
27	D	6.19		0.7	32	12.2
28	D	5.33		0.7	32	10.7
29	D	6.44		0.7	32	12.6
30	D	5.00		0.7	32	10.1
31	D	5.33		0.7	32	10.8
32	A	8.60	4.4		150	16.7
33	A	7.89	3.9		45	15.7
34	B	7.43	4.1		95	16.8
38	D	5.00		0.7	32	10.1
39	D	5.24		0.7	32	10.5
40	D	4.79		0.7	32	9.7
41	D	4.87		0.7	32	9.9
42	D	5.33		0.7	32	10.7
43	A	8.67	4.3		122	16.7
44	A	5.27	3.5		45	13.7
4-1	D	4.0±		0.7	32	8.1

NOTE: 1-Provide Type "A" Standard Manhole Frames & Covers for all Manholes in above Tabulation
2-For Quantities of Temporary Drainage System at Houghtailing St, See Sht. No. 24



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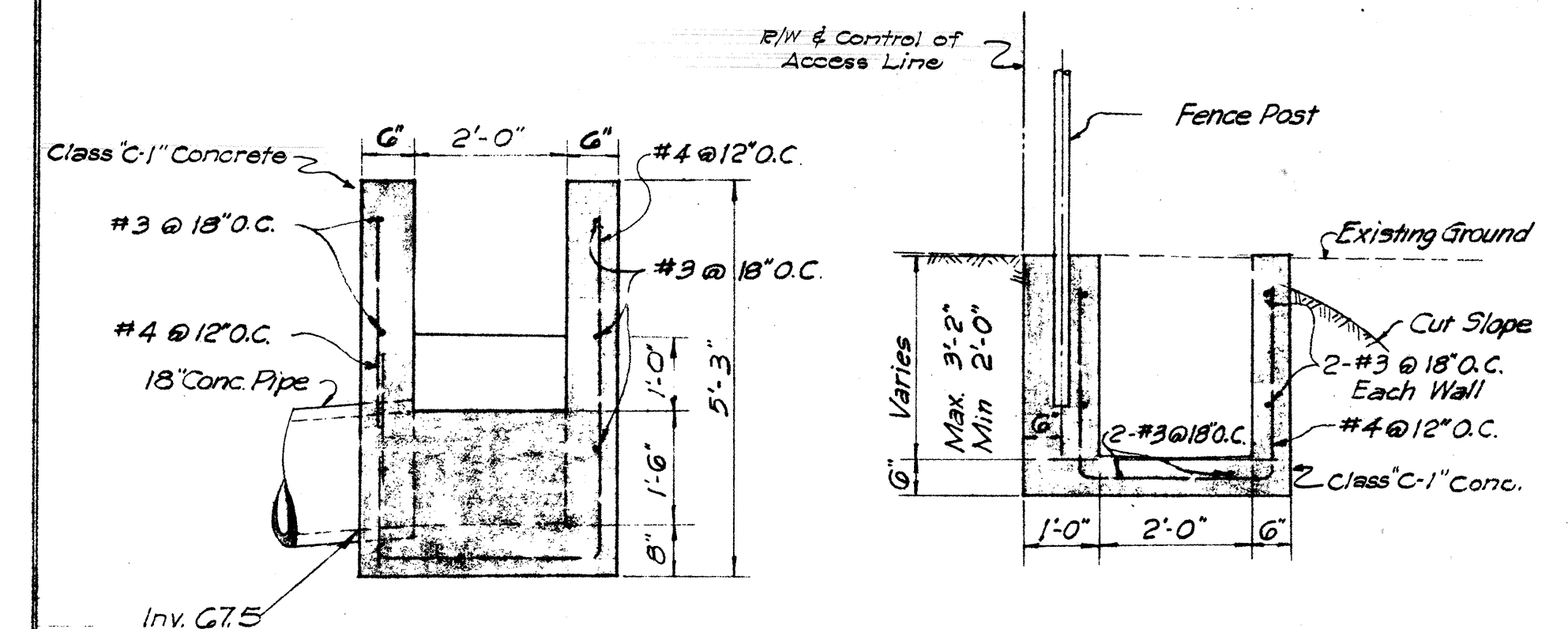
TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII

STORM DRAIN MANHOLE DETAILS

LUNALILO FREEWAY U-072-1(7) UNIT 3
KALIHI STREET US0630(2)

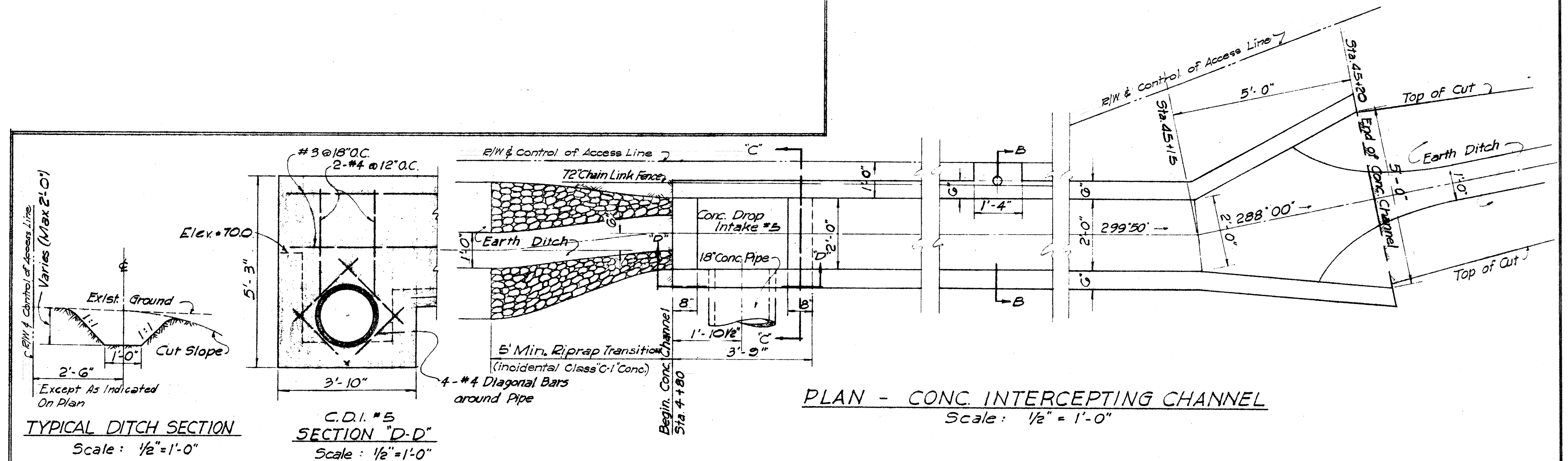
SHEET NO. 2 OF 3 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	U-072-1(7) UNIT 3	1958	28	80
		US0630(2)	1958	35	103

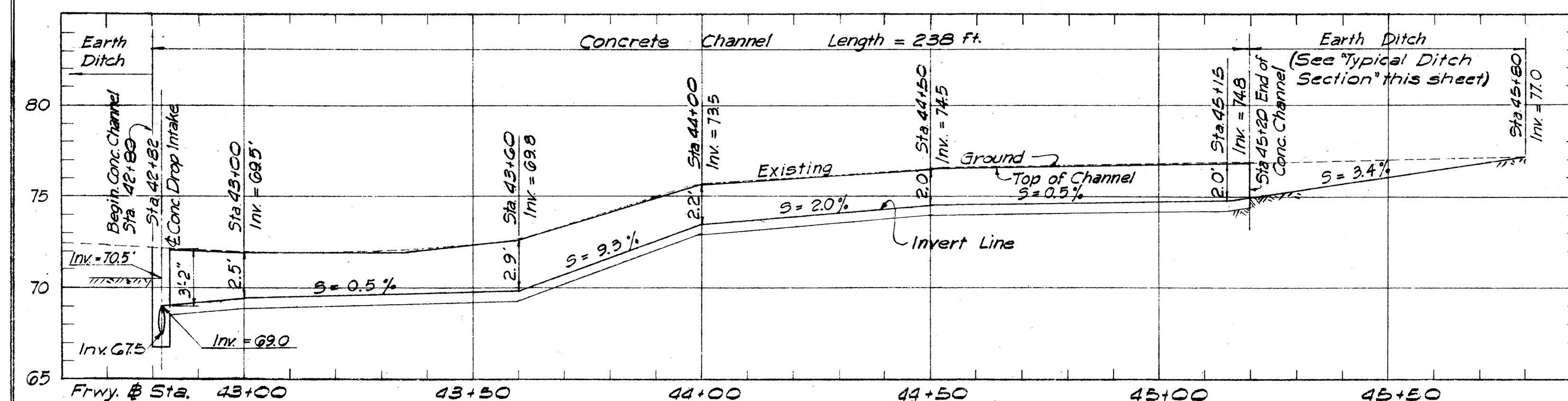


C.D.I. #5
SECTION "C-C"
Scale: 1/2" = 1'-0"

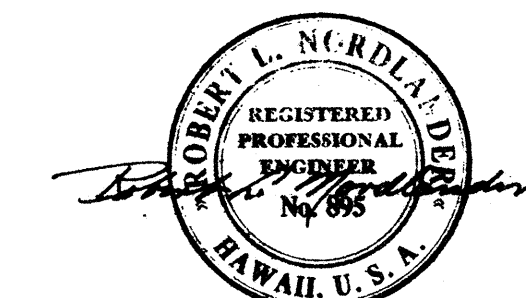
SECTION "B-B"
Scale: 1/2" = 1'-0"



PLAN - CONC. INTERCEPTING CHANNEL
Scale: 1/2" = 1'-0"



PROFILE - CONC. INTERCEPTING CHANNEL (FRWK # STA 42+82 TO STA 45+20)
Scale: Hor: 1" = 20'-0"
Ver: 1" = 5'-0"



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TERRITORIAL HIGHWAY DEPARTMENT
TERRITORY OF HAWAII
DRAINAGE CHANNEL DETAILS

LUNALILO FREEWAY U-072-1(7) UNIT 3
KALIHI STREET US0630 (2)

SHEET No. 3 OF 3 SHEETS

5983.28 5984.35

ORIGINAL PLAN	DATE
DESIGNED BY	12-56
DRAWN BY	12-56
CHECKED BY	
NOTE BOOK	
QUANTITIES CHECKED BY	
CHECKED BY	
No.	