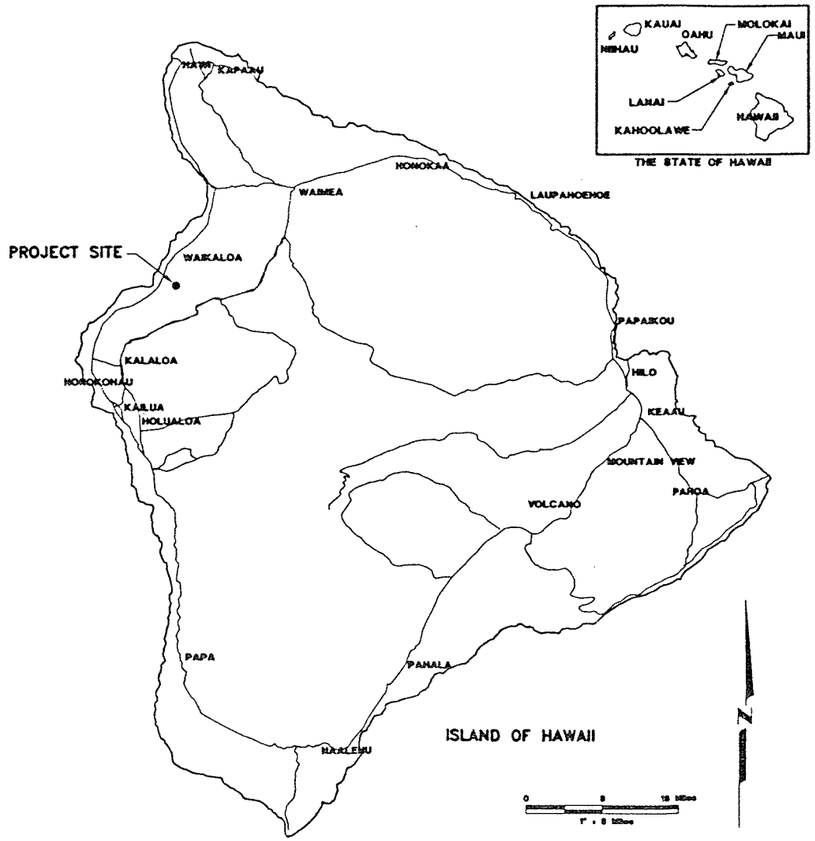
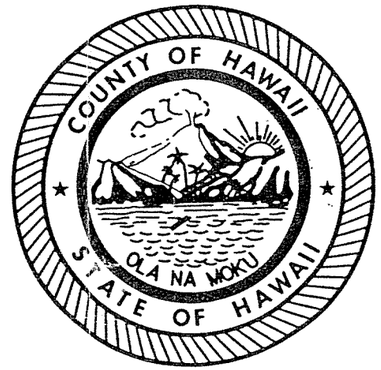
WEST HAWAII SANITARY LANDFILL





AUGUST 1993

Thomas E. Cuigenni Date 8-25-93
Tom Arizumi, Chief Environmental Management Division
State of Hawaii, Department of Health

Donna Fay K. Kiyosaki Date 8-23-93
Donna Fay K. Kiyosaki, P.E., Chief Engineer
County of Hawaii, Department of Public Works

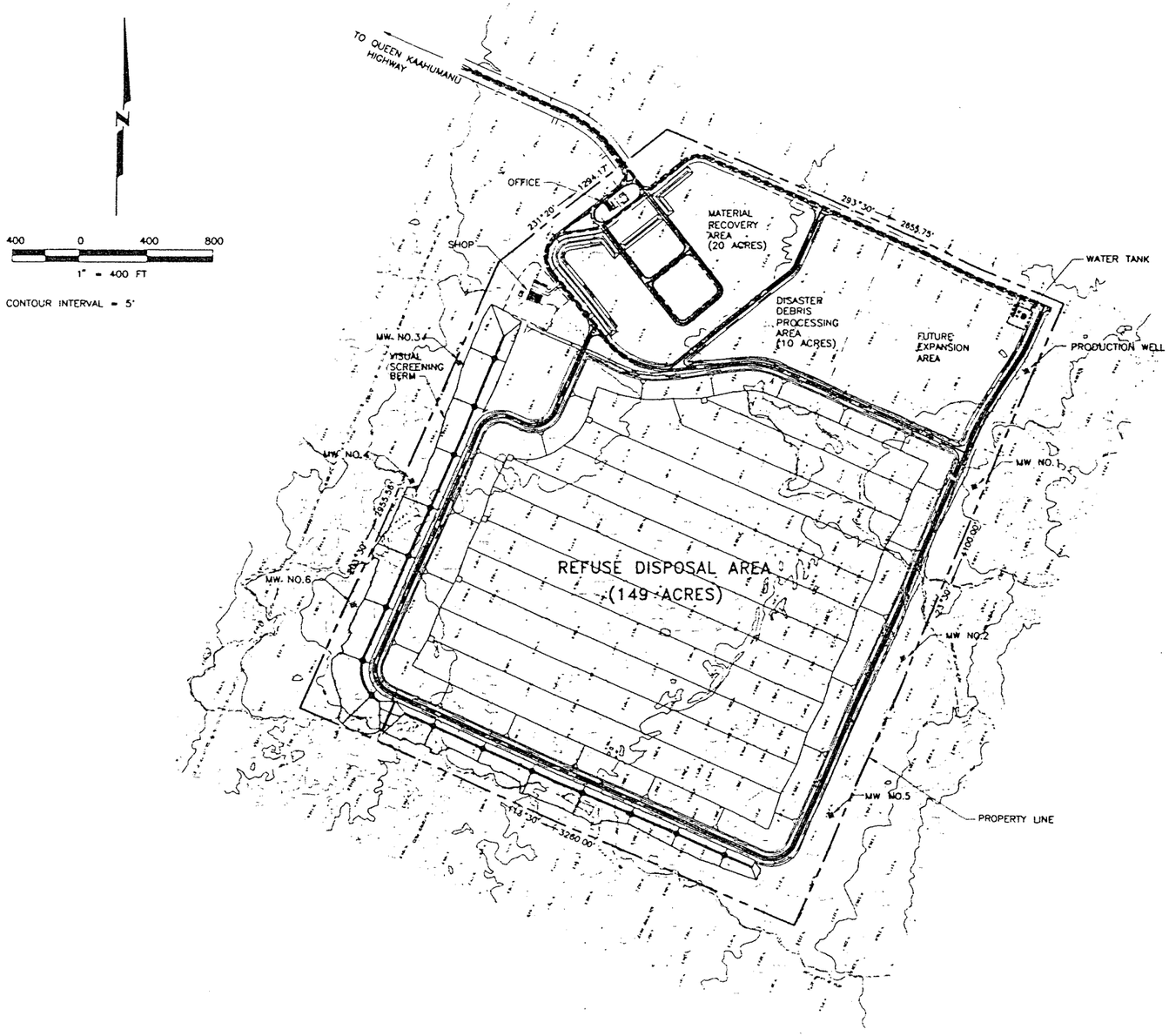
Ray A. Rossetti Date 8-18-93
Ray A. Rossetti, Division President & General Manager
Waste Management of Hawaii, Inc.

Prepared By:

Harding Lawson Associates
235 Pearlridge Center, Phase 1
98-1005 Moanalua Road
Aiea, Hawaii 96701
Phone: (808) 486-6009
Fax: (808) 486-7184

Prepared For:

Waste Management of Hawaii, Inc.
92-460 Farrington Highway
Ewa Beach, Hawaii 96707
Phone: (808) 668-2985
Fax: (808) 668-1366



SITE PLAN

DRAWING LIST

SHEET NO.	TITLE	DRAWING NO.
1	COVER SHEET	
2	SITE PLAN/DRAWING LIST/GENERAL NOTES	G-1
3	BASE GRADE PLAN	C-1
4	LEACHATE COLLECTION SYSTEM PLAN	C-2
5	LANDFILL PHASING PLAN	C-3
6	FINAL GRADING PLAN	C-4
7	LANDFILL CROSS-SECTIONS	C-5
8	PERIMETER ROAD PROFILE	C-6
9	LINER SECTIONS AND DETAILS	C-7
10	LEACHATE COLLECTION SYSTEM DETAILS	C-8
11	MISCELLANEOUS DETAILS	C-9

GENERAL NOTES:

1. DATA FOR THIS MAP OBTAINED FROM R.M.TOWILL CORP. PHOTOGRAMMETRY DEPARTMENT 6/28/93. COMPILED FROM PHOTOS TAKEN ON 4/23/84 AND 6/9/89
2. DEVELOPMENT OF FUTURE EXPANSION AREA, DISASTER DEBRIS PROCESSING AREA AND MATERIALS RECOVERY AREA ARE NOT INCLUDED IN WASTE MANAGEMENT OF HAWAII INC. CONTRACT WITH THE COUNTY OF HAWAII.
3. MONITORING WELLS SHOWN ARE FOR ILLUSTRATION PURPOSES ONLY. A SURVEY WILL BE PERFORMED AFTER INSTALLATION TO DETERMINE THEIR FINAL LOCATION.

GERALD A. FRIESEN
LICENSED PROFESSIONAL ENGINEER
No. 7477-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

DATE: 8/12/93

REVISION	BY	DATE
A		

Harding Lawson Associates
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Fax: 808/486-7184

B

DESIGNED MLK/JRL
DRAWN JRL
CHECKED GF

C

SUBMITTED [signature] DATE 8/12/93
APPROVED [signature] DATE 8-18-93
APPROVED _____ DATE _____

D

SCALE 1"=400'
DATE 08/12/93
JOB NO. 24789.204

E

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

F

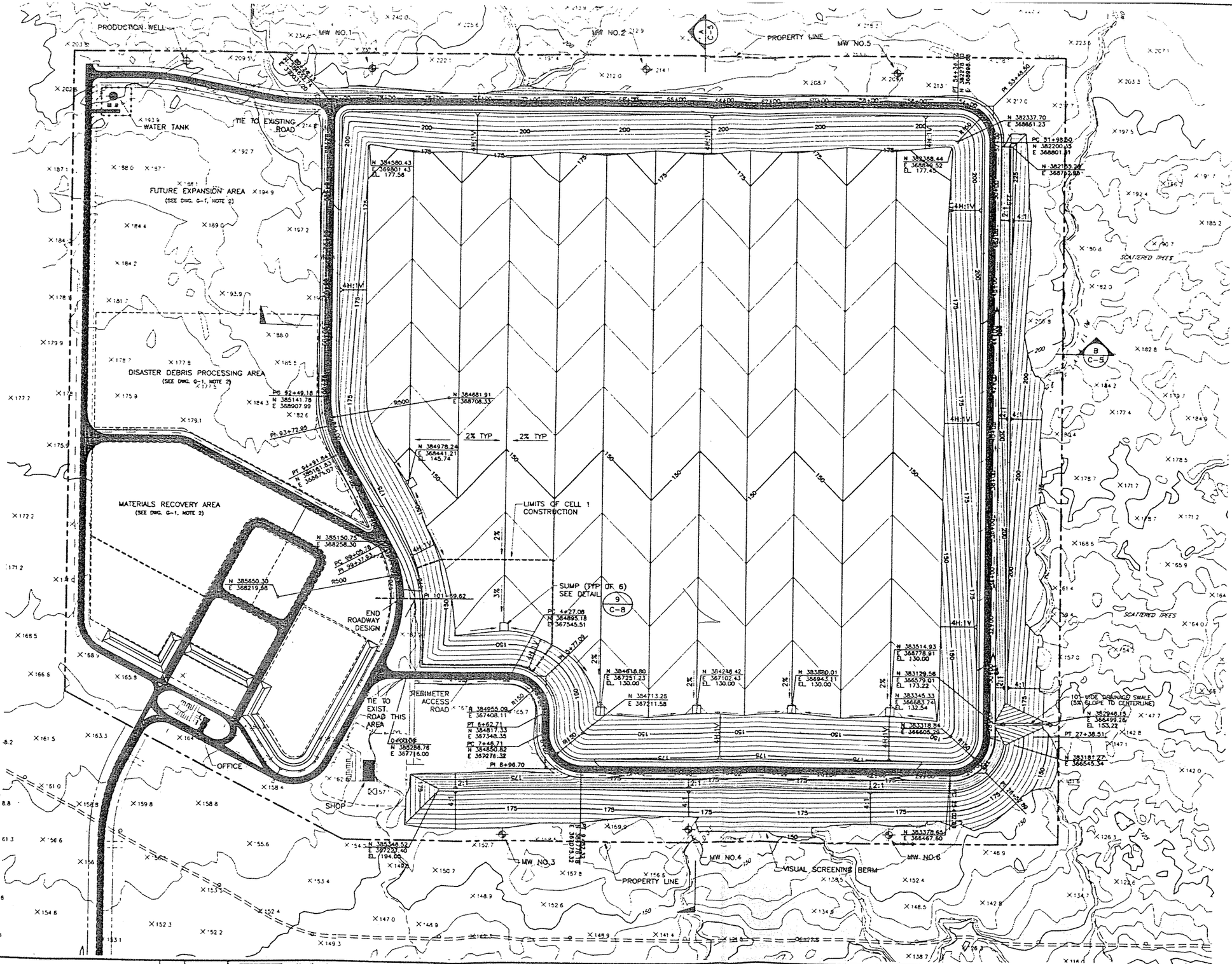
WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

G

SITE PLAN/DRAWING LIST/ GENERAL NOTES

H

DRAWING G-1
SHEET 2 OF 11



NOTES:

1. FOR VERTICAL ALIGNMENT OF PERIMETER ROAD, SEE DRAWING C-6.
2. SCREENING BERM SHALL BE CONSTRUCTED UTILIZING SURPLUS MATERIALS GENERATED DURING THE EXCAVATION FOR CELLS SUBSEQUENT TO CELL 1.

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DESIGNED MLK
DRAWN MLK
CHECKED GF

C

SUBMITTED [signature] DATE 8/12/93
APPROVED [signature] DATE 8-18-93
APPROVED _____ DATE _____

D

SCALE 1"=200'
DATE 08/12/93
JOB NO. 24789.204

E

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

F

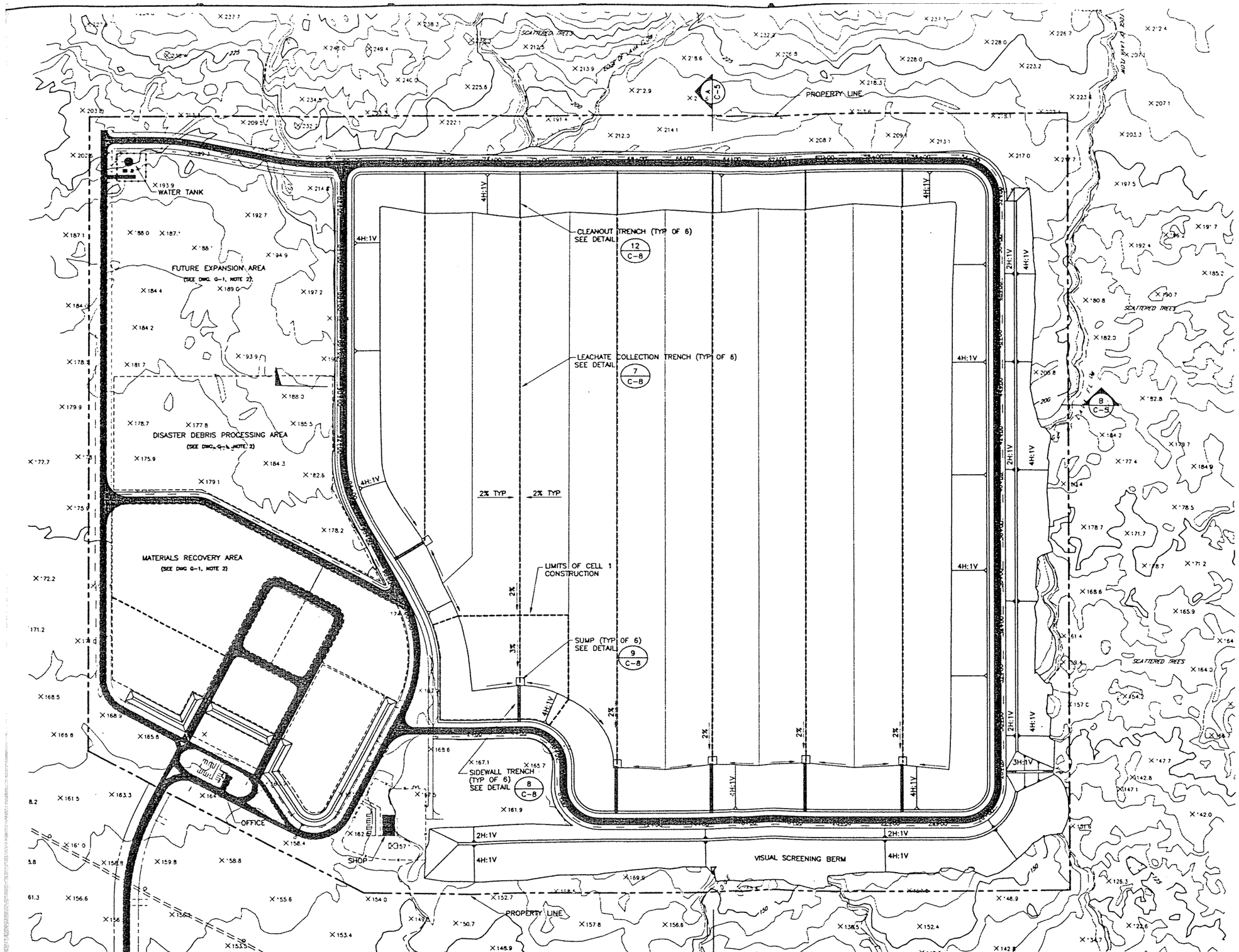
WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

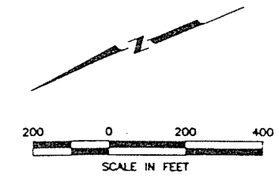
G

BASE GRADE PLAN

H

DRAWING C-1
SHEET 3 OF 11





LEGEND

PERFORATED PIPE

NONPERFORATED PIPE

GERALD A. FRIESEN
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No. 7477-C
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DATE: 8/12/93

NO.	REVISION	BY	DATE

HLA
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Fax: 808/486-7184

DESIGNED MLK
DRAWN MLK
CHECKED GF

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Kay A. Russell DATE 8-18-93
APPROVED DATE

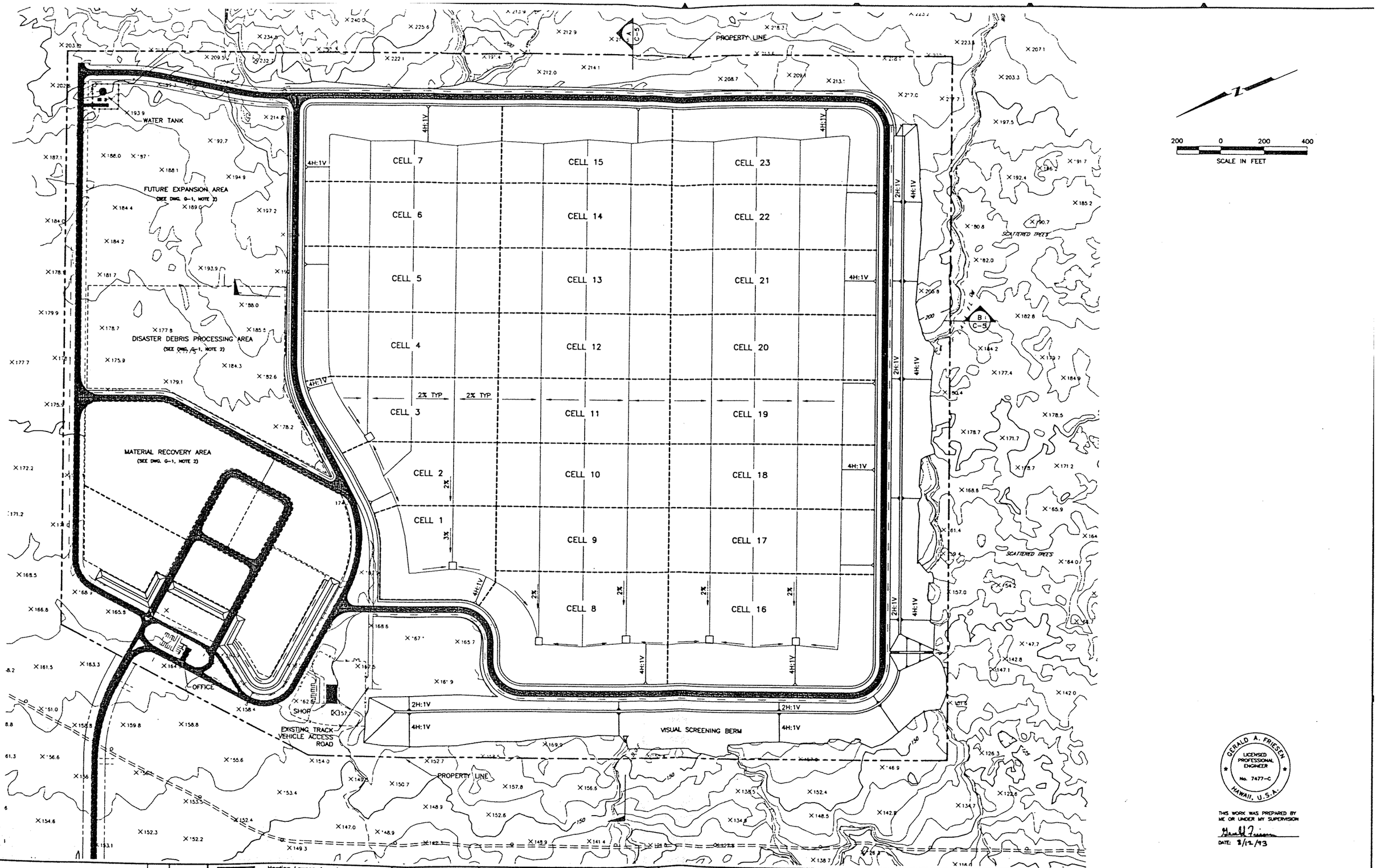
SCALE 1"=200'
DATE 08/12/93
JOB NO. 24789.204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

LEACHATE COLLECTION SYSTEM PLAN

DRAWING C-2
SHEET 4 OF 11



GERALD A. FRIESEN
LICENSED PROFESSIONAL ENGINEER
No. 7477-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

Gerald Friesen

DATE: 8/12/93

REVISION	BY	DATE

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DESIGNED MLK
DRAWN MLK
CHECKED GF

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Roy A. Roosett DATE 8-18-93
APPROVED DATE

SCALE 1"=200'
DATE 08/12/93
JOB NO. 24789.204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

LANDFILL PHASING PLAN

DRAWING C-3

SHEET 5 OF 11

PROPERTY LINE

WATER TANK

FUTURE EXPANSION AREA
(SEE DWG. G-1, NOTE 2)

DISASTER DEBRIS PROCESSING AREA
(SEE DWG. G-1, NOTE 2)

MATERIALS RECOVERY AREA
(SEE DWG. G-1, NOTE 2)

OFFICE

SHOP

10% SLOPE

5% SLOPE

TOP OF LANDFILL - EL. 262.0

32' WIDE LANDFILL
ACCESS ROAD (MAX 10.0% SLOPE)

VISUAL SCREENING BERM

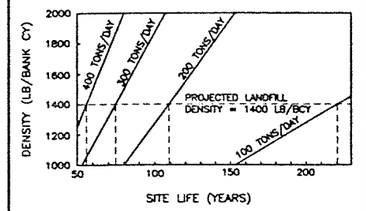
SCATTERED TREES

200 0 200 400
SCALE IN FEET

VOLUME CALCULATIONS

LANDFILL EXCAVATION	7,678,000 CY CUT
SCREENING BERM & ROADS	49,000 CY CUT
	576,000 CY FILL
EARTHWORK TOTAL	7,727,000 CY CUT
	576,000 CY FILL
12" CUSHION LAYER	247,000 CY
12" DRAINAGE LAYER	240,000 CY
12" PROTECTIVE LAYER	239,000 CY
LINER SYSTEM TOTAL	726,000 CY
12" EROSION LAYER	252,000 CY
12" CUSHIONING LAYER	248,000 CY
18" INFILTRATION LAYER	406,000 CY
FINAL COVER SYSTEM TOTAL	906,000 CY
GROSS AIRSPACE	14,093,000 CY
DAILY AND INTERMEDIATE COVER	2,348,000 CY
NET AIRSPACE (REFUSE BANK YARDS)	11,744,000 CY

SITE LIFE ESTIMATES



GERALD A. FRIESEN
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

DATE: 8/12/93

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DESIGNED MLK
DRAWN MLK
CHECKED GF

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Roy A. Bennett DATE 8-18-93
APPROVED _____ DATE _____

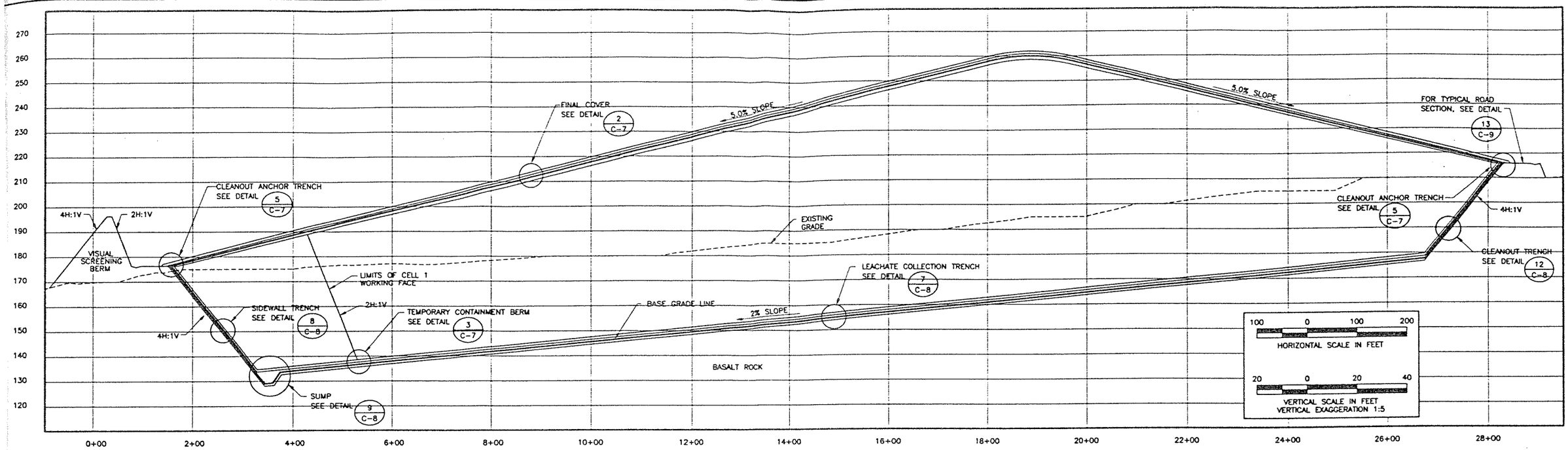
SCALE 1"=200'
DATE 08/12/93
JOB NO. 24789 204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

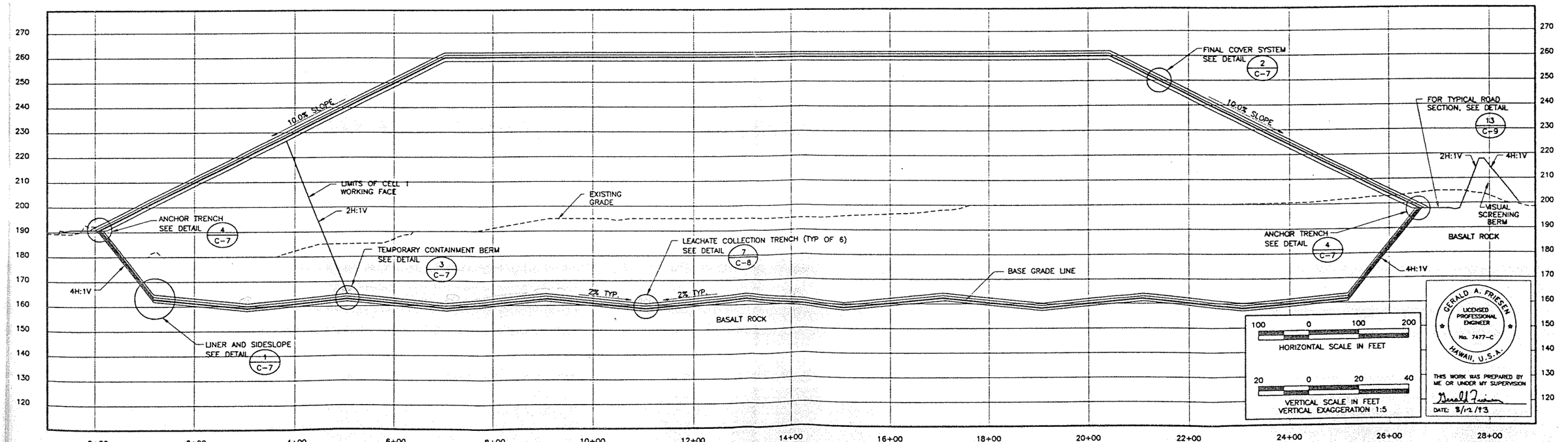
WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

FINAL GRADING PLAN

DRAWING C-4
SHEET 6 OF 11



LANDFILL SECTION A-A (1)



LANDFILL SECTION B-B (2)

NO.	REVISION	BY	DATE
A			

Harding Lawson Associates
235 Peoritridge Center, Phase 1
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DESIGNED MLK
DRAWN MLK
CHECKED GF

C

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Ray A. Barnett DATE 8-18-93
APPROVED _____ DATE _____

D

SCALE AS NOTED
DATE 08/12/93
JOB NO. 24789.204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

E

WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

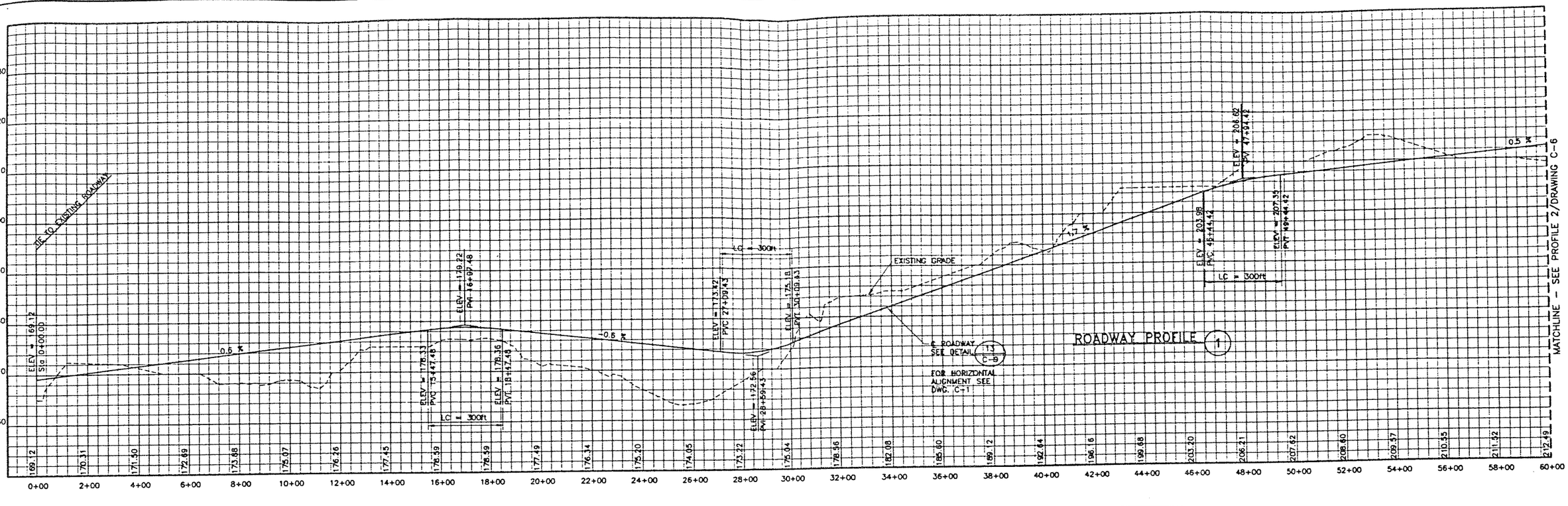
F

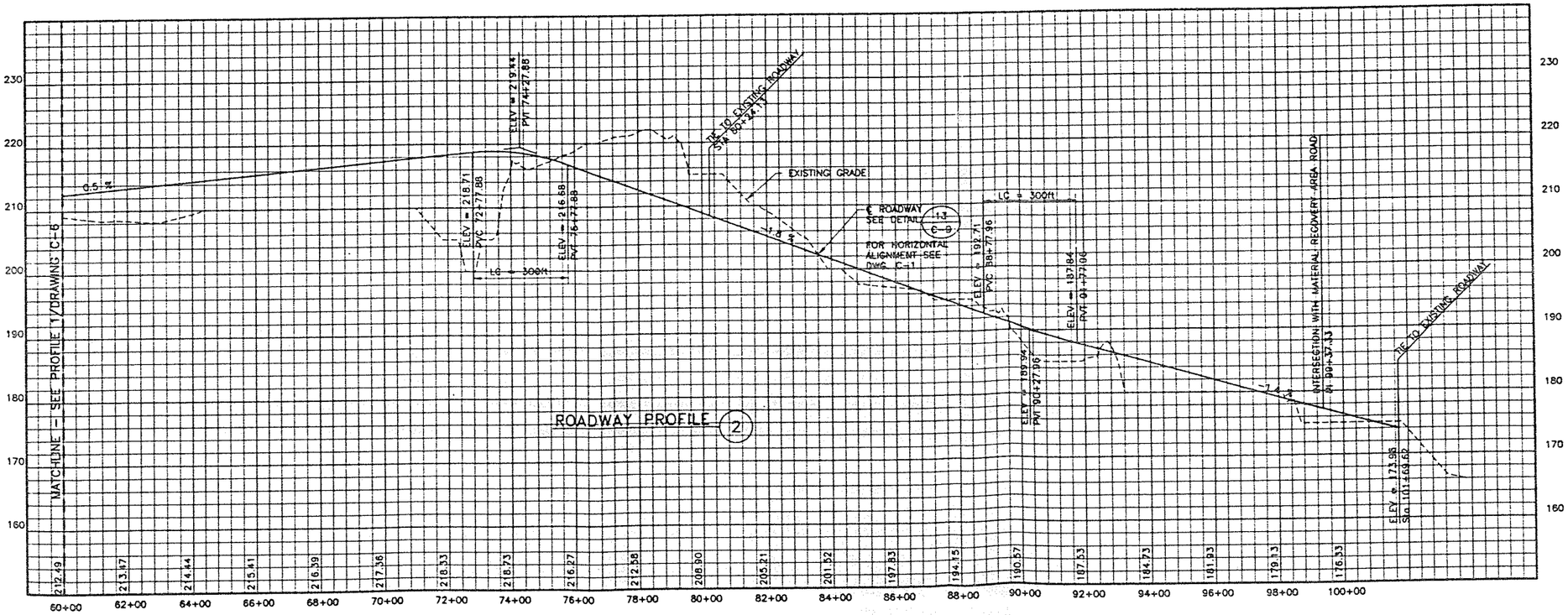
LANDFILL CROSS-SECTIONS

G

DRAWING C-5
SHEET 7 OF 11

H





200 0 200 400
HORIZONTAL SCALE IN FEET

10 0 10 20
VERTICAL SCALE IN FEET
VERTICAL EXAGGERATION: 20:1

GERALD A. FRIESEN
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No. 7477-C
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
Gerald Friesen
DATE: 8/12/93

REVISION	BY	DATE

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DESIGNED MLK
DRAWN MLK
CHECKED GF

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Ray A. Russell DATE 8-18-93
APPROVED _____ DATE _____

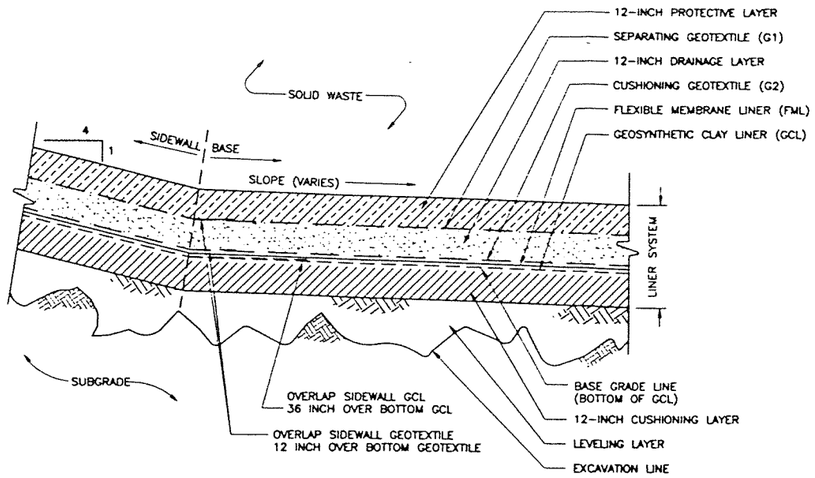
SCALE AS SHOWN
DATE 08/12/93
JOB NO. 24789 204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

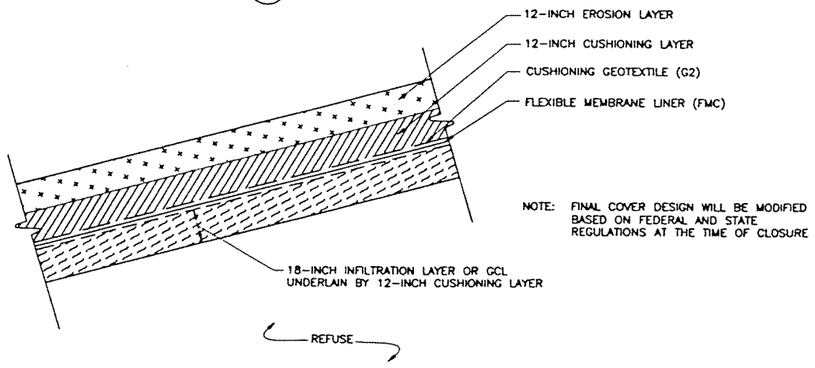
WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

PERIMETER ROAD PROFILE

DRAWING C-6
SHEET 8 OF 11

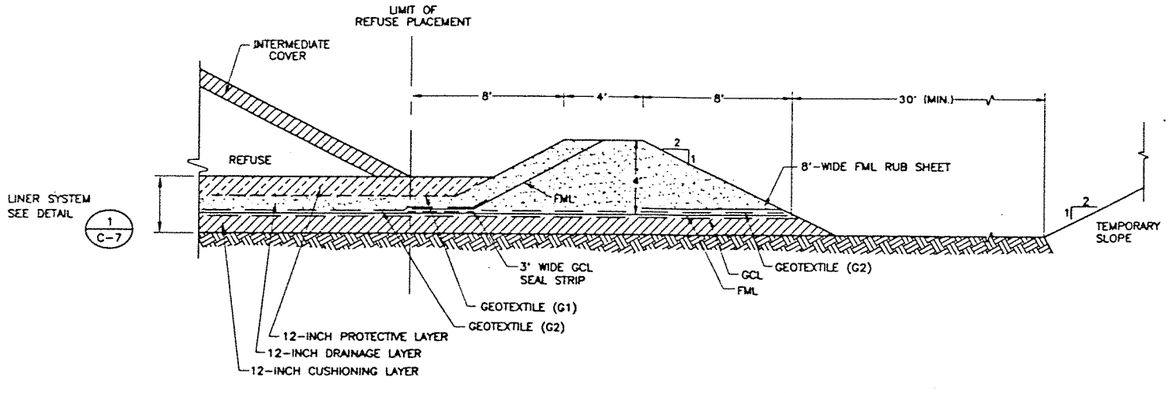


LINER SYSTEM (1)
N.T.S.

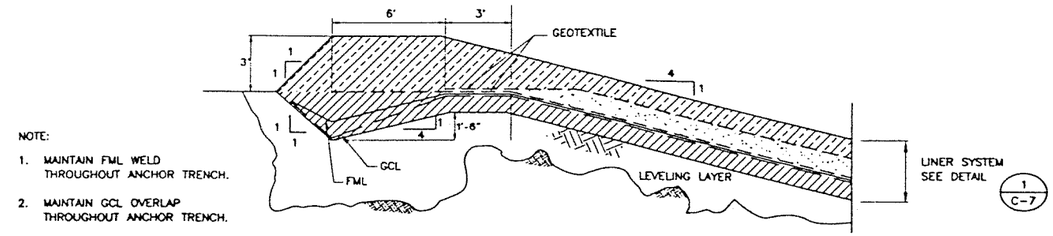


NOTE: FINAL COVER DESIGN WILL BE MODIFIED BASED ON FEDERAL AND STATE REGULATIONS AT THE TIME OF CLOSURE

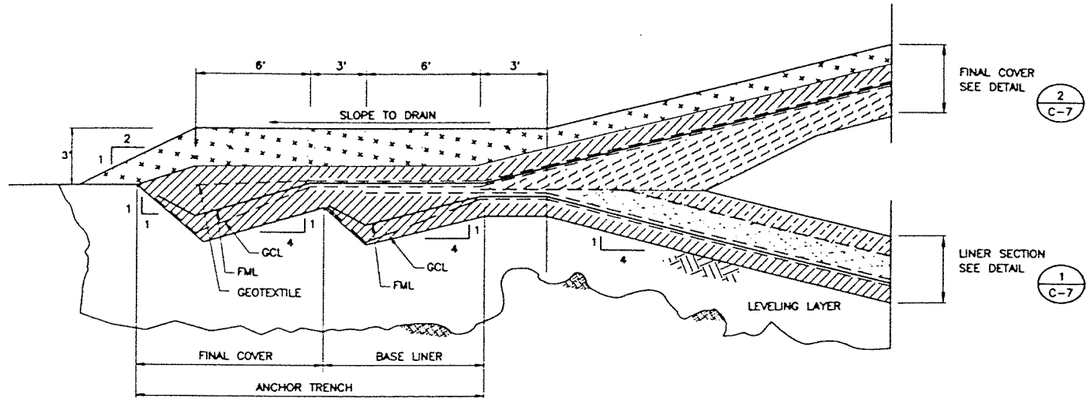
FINAL COVER SYSTEM (2)
N.T.S.



TEMPORARY CONTAINMENT BERM (3)
REVISED 8-25-93
N.T.S.

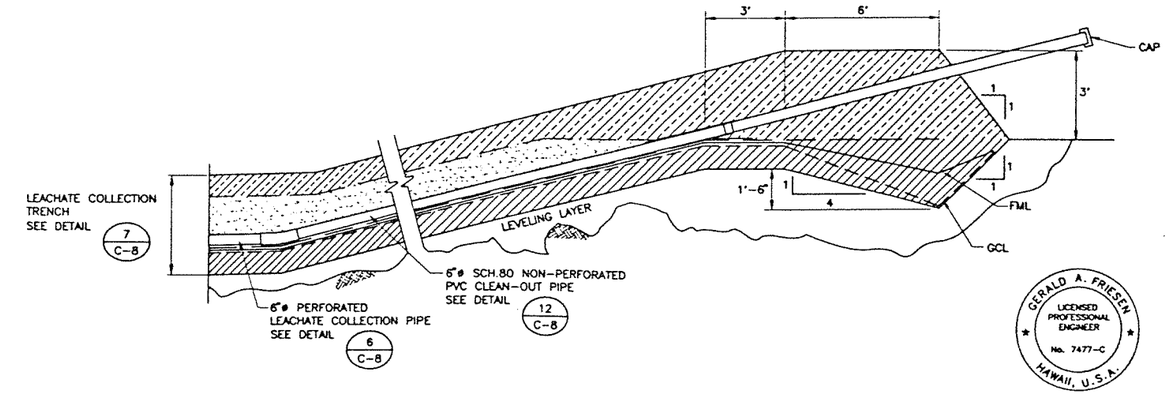


INTERIM ANCHOR TRENCH



FINAL ANCHOR TRENCH

ANCHOR TRENCH (4)
N.T.S.



CLEANOUT ANCHOR TRENCH (5)
N.T.S.

GERALD A. FRIESEN
LICENSED PROFESSIONAL ENGINEER
No. 7477-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
DATE: 9/3/93

NO.	REVISION	BY	DATE
A			

B — Harding Lawson Associates
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Phone: 808/486-6009
Fax: 808/486-7184

C — DESIGNED MLK; DRAWN MLK; CHECKED GF

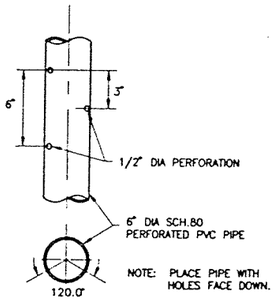
D — SUBMITTED [signature] DATE 9/3/93; APPROVED DATE; APPROVED DATE

E — SCALE AS SHOWN; DATE 08/12/93; JOB NO. 24789.204; ONE INCH AT FULL SCALE; IF NOT ONE INCH SCALE ACCORDINGLY

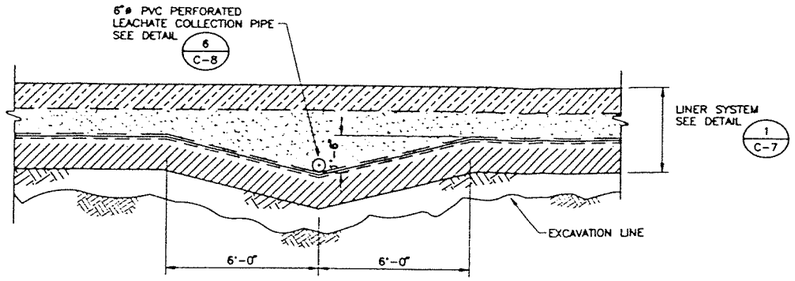
F — WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

G — LINER SECTIONS AND DETAILS

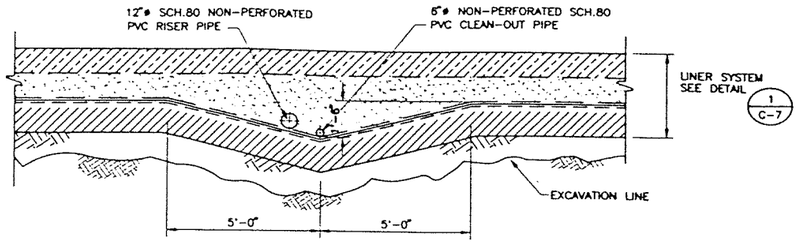
H — DRAWING C-7
SHEET 9 OF 11



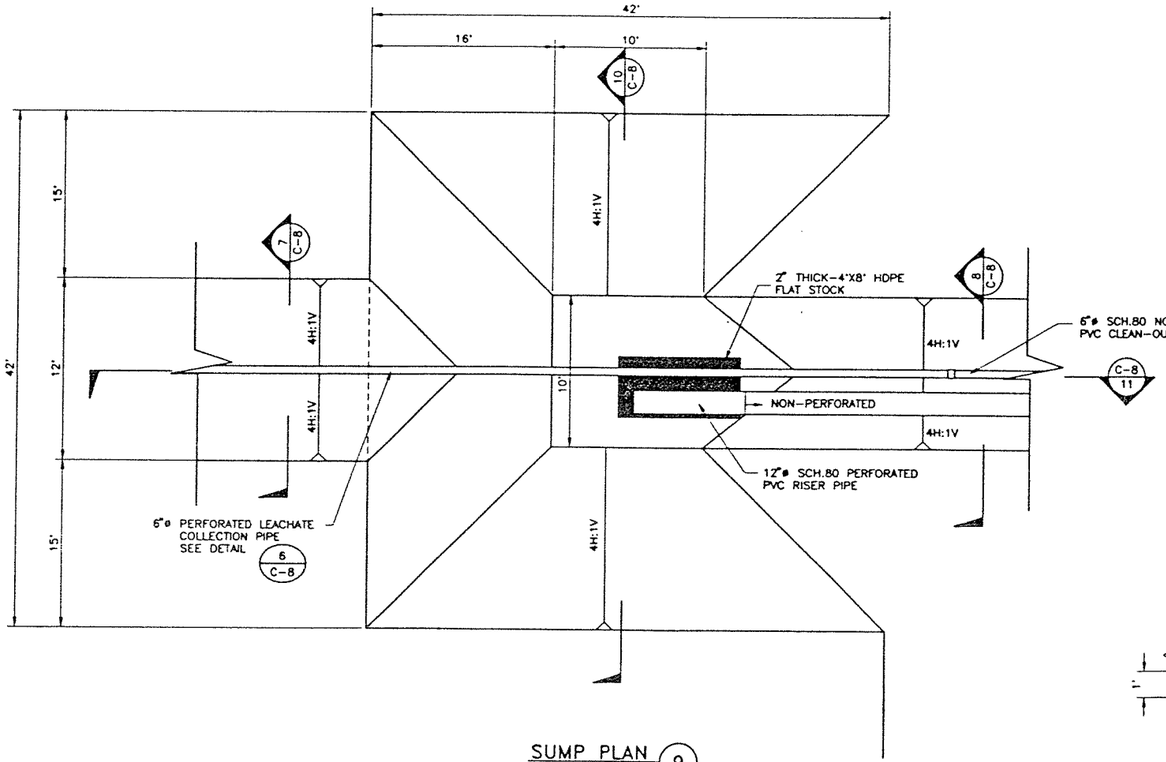
LEACHATE COLLECTION PIPE (6) N.T.S.



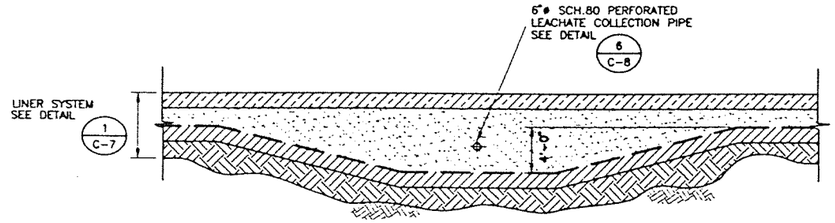
LEACHATE COLLECTION TRENCH (7) N.T.S.



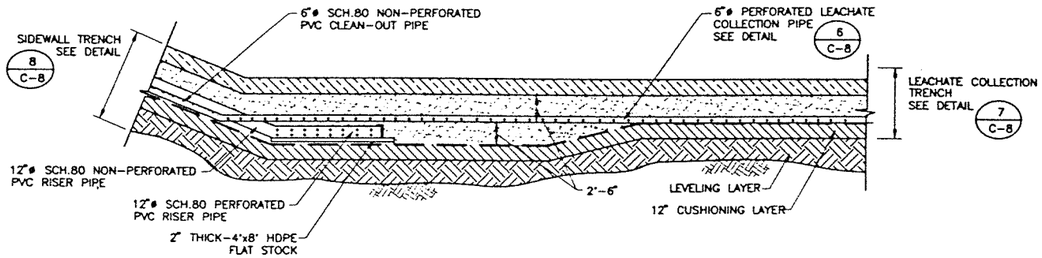
SIDEWALL TRENCH (8) N.T.S.



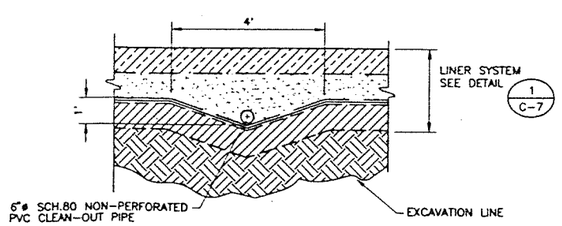
SUMP PLAN (9) N.T.S.



SUMP SECTION (10) N.T.S.



SUMP SECTION (11) N.T.S.



CLEANOUT TRENCH (12) N.T.S.

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No. 7477-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
DATE: 8/12/93

NO.	REVISION	BY	DATE

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235 Peartridge Center, Phase 1
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Aiea, Hawaii 96701
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Fax: 808/486-7184

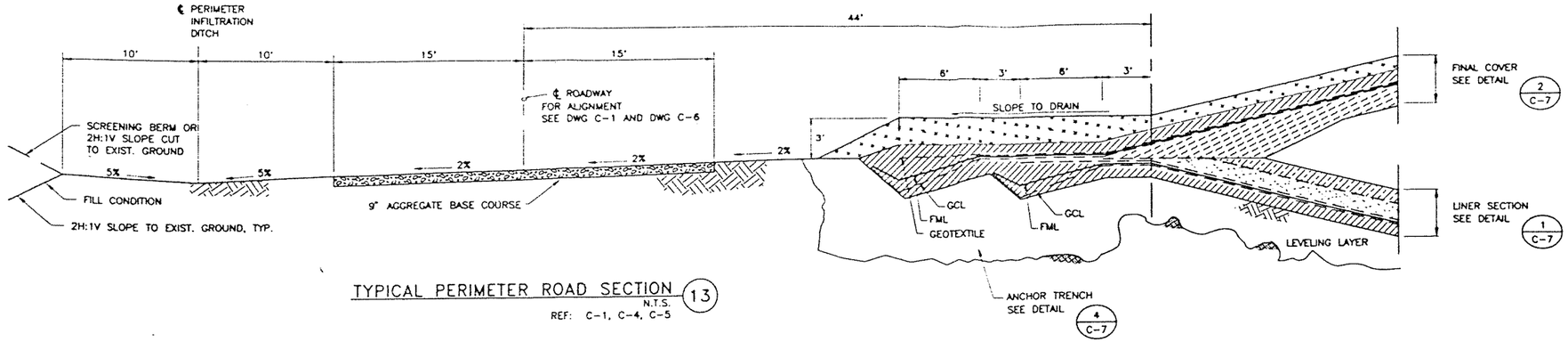
DESIGNED MLK
DRAWN MLK/JRL
CHECKED GF
SUBMITTED [signature] DATE 8/12/93
APPROVED [signature] DATE 8-18-93
APPROVED DATE
SCALE AS NOTED
DATE 08/12/93
JOB NO. 24789.204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

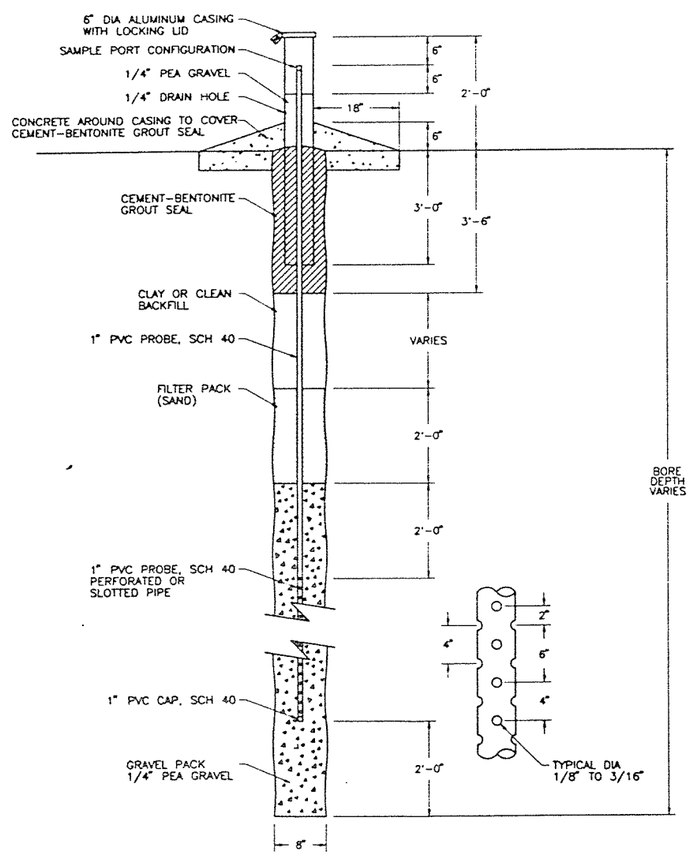
WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

LEACHATE COLLECTION SYSTEM DETAILS

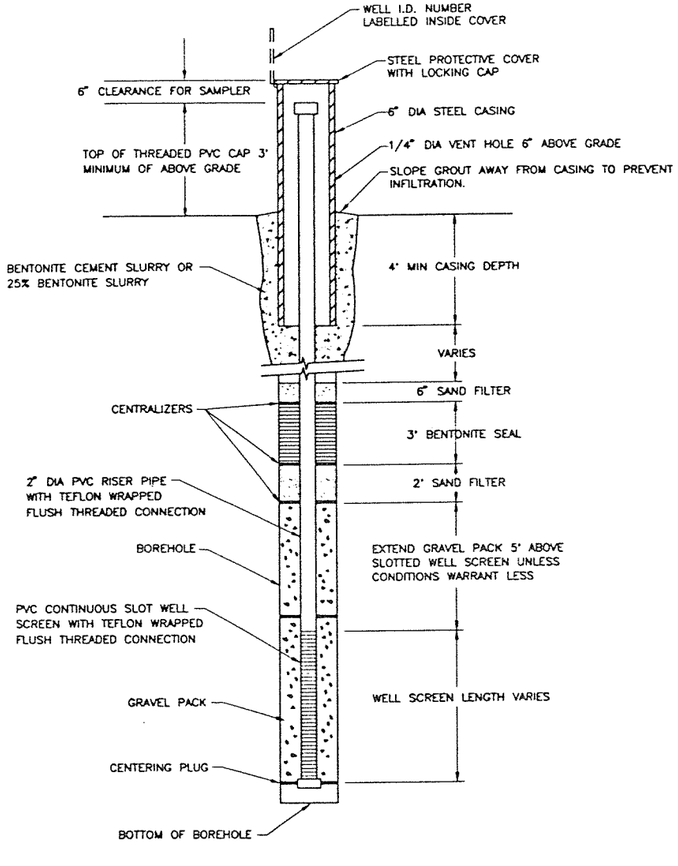
DRAWING C-8
SHEET 10 OF 11



TYPICAL PERIMETER ROAD SECTION (13)
N.T.S.
REF: C-1, C-4, C-5



GAS PROBE DETAIL (14)
N.T.S.



MONITORING WELL DETAIL (15)
N.T.S.

GERALD A. FRIESEN
LICENSED PROFESSIONAL ENGINEER
No. 7477-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION
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Fax: 808/486-7184

DESIGNED MLK
DRAWN MLK
CHECKED GF

SUBMITTED Gerald Friesen DATE 8/12/93
APPROVED Ray A. Russell DATE 8-12-93
APPROVED _____ DATE _____

SCALE AS NOTED
DATE 08/12/93
JOB NO. 24789.204

ONE INCH AT FULL SCALE
IF NOT ONE INCH SCALE ACCORDINGLY

WEST HAWAII SANITARY LANDFILL
Puuanahulu, North Kona, Hawaii

MISCELLANEOUS DETAILS

DRAWING C-9
SHEET 11 OF 11