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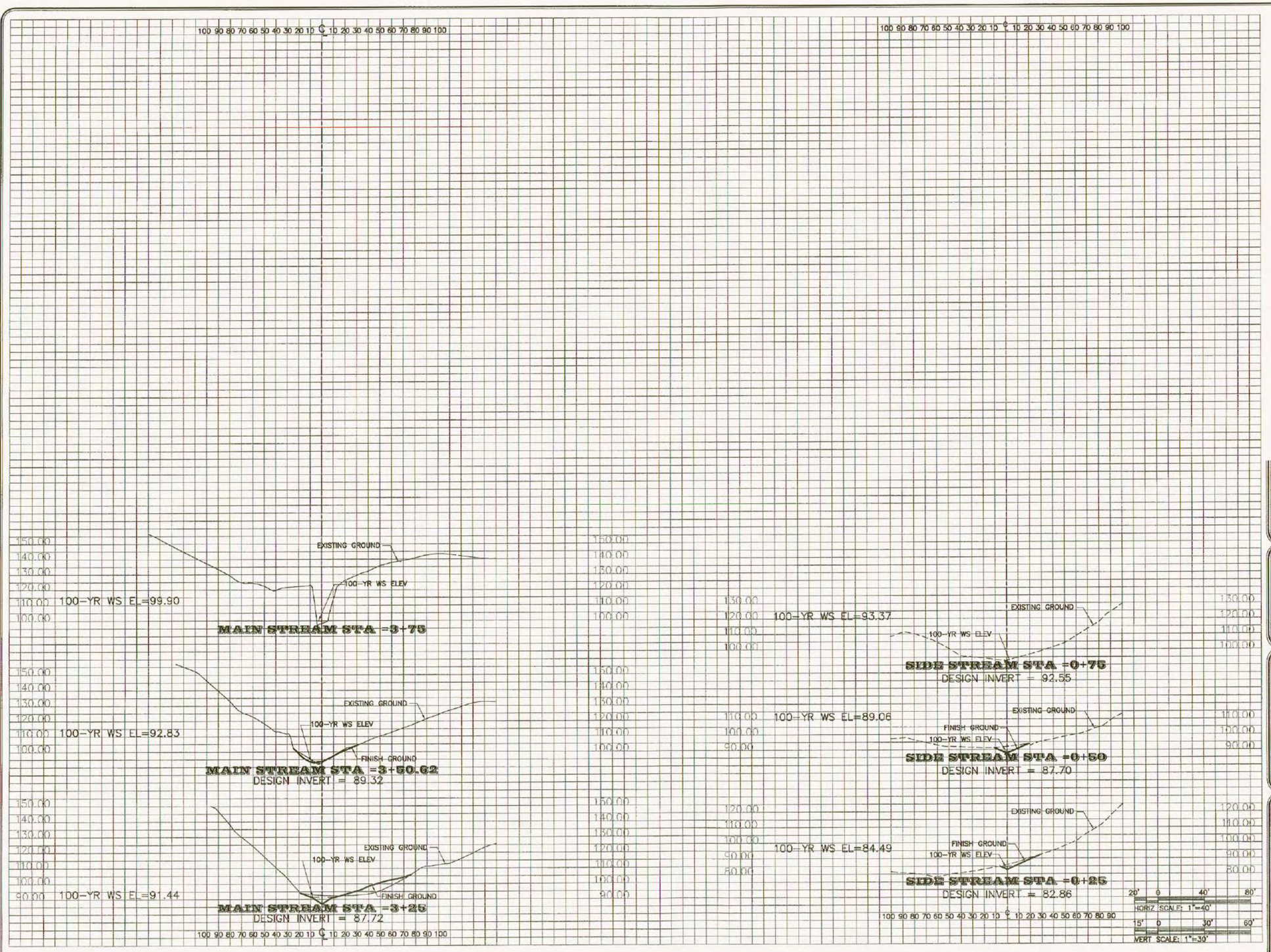
Attorneys for Plaintiff United States of America

IN THE UNITED STATES DISTRICT COURT

FOR THE DISTRICT OF HAWAI`I

UNITED STATES OF AMERICA, and DEPARTMENT OF HEALTH, STATE OF HAWAI`I, Plaintiffs,  v.  JAMES H. PFLUEGER; PFLUEGER PROPERTIES; AND PILA`A 400 LLC, Defendants.	NO. CV 06-00140 BMK FIRST AMENDED CONSENT DECREE; APPENDIX E3



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△		REV. APRIL 15, 2005		
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APRIL 30, 2006
EXPIRATION DATE OF THE LICENSE

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Consultant:

Client:
PILA'A 400, LLC
1450 South Beretania Street
Honolulu, Hawaii 96814

PILA'A 400
REMEDIATION PLAN - PACKAGE 2

GULCH 3
CROSS SECTIONS – 2

Designed By: C.K.L. Drawn By: C.K.L., G.Y.
Project No. 2004.33.1900 Date: MARCH, 2004

Approved By:

Date
Date
Date

FILE	PROJECT	FOLDER	NO.

Trim: 22"x36"

SHEET C-10 of 18 Sheets

HALF SIZE TRIM LINE FOR 11"x17"

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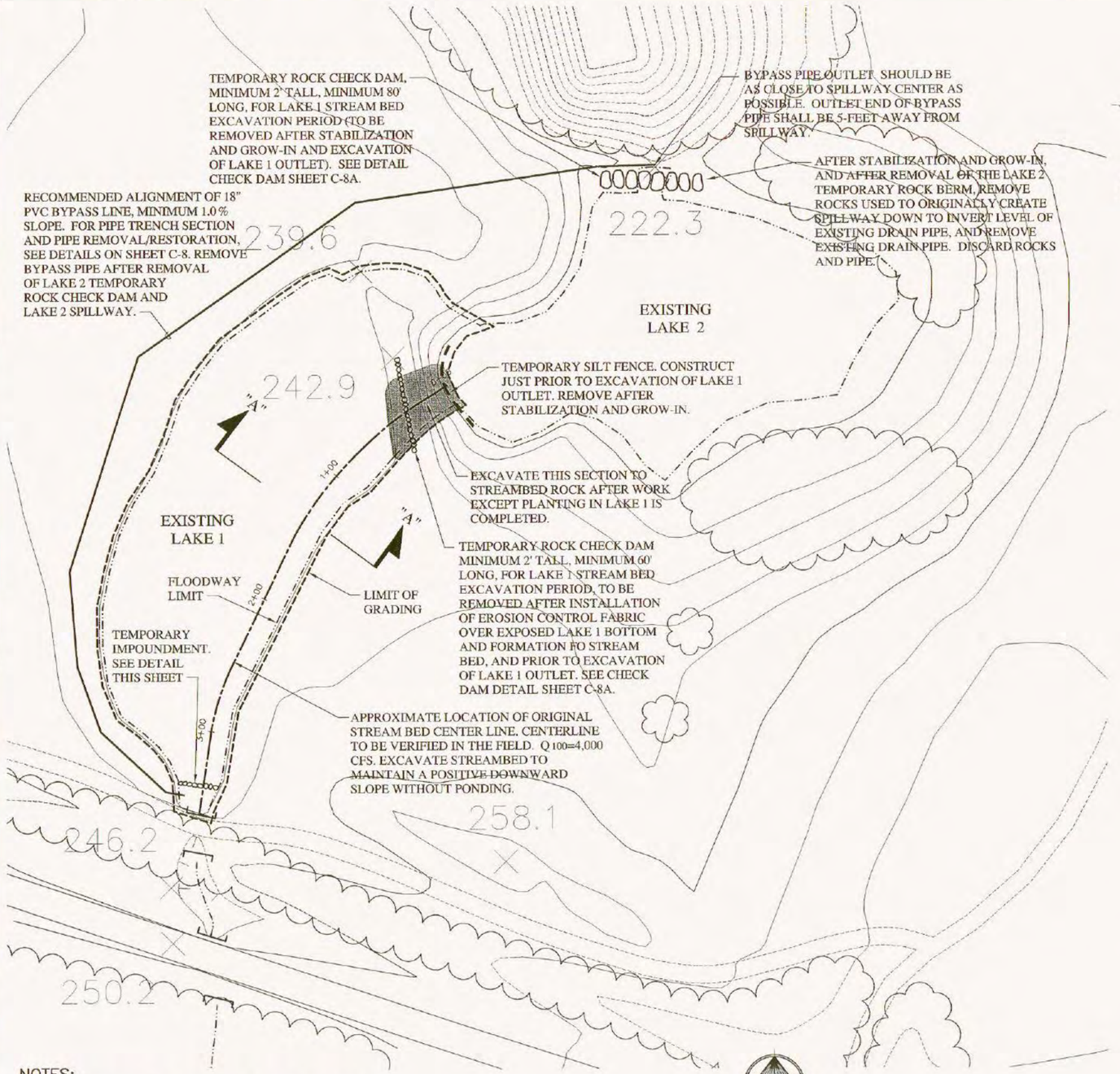

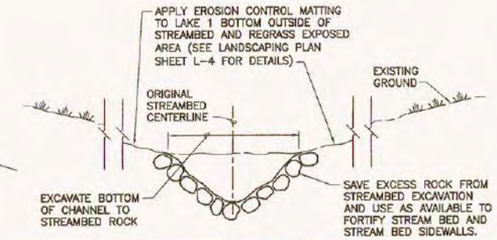

SECTION "A"–"A"

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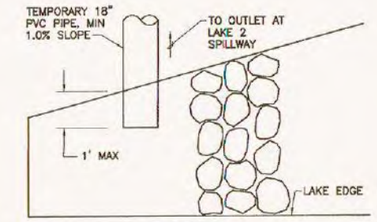
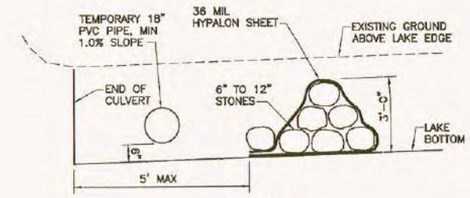


PLAN



ELEVATION

TEMPORARY LAKE 1 IMPOUNDMENT DETAIL

NOT TO SCALE

CONSTRUCTION SEQUENCE AND BEST MANAGEMENT PRACTICES:

1. CONSTRUCT TEMPORARY BYPASS PIPE (EXCEPT INLET).
2. CONSTRUCT TEMPORARY ROCK CHECK DAMS AS INDICATED ON PLAN.
3. CONSTRUCT TEMPORARY IMPOUNDMENT AND BYPASS PIPE INLET.
4. DEWATER AND REMOVE MUCK (DEBRIS/SILT) FROM LAKE 1. INITIALLY DEWATER LAKE 1 WITH A SUBMERSIBLE PUMP. PUMPING WATER INTO A WATER TRUCK. WATER IN THE TRUCK CAN BE DISPOSED OF BY GROUND ABSORPTION DISPERSAL OR DISPOSAL INTO AN EXISTING ON-SITE EROSION CONTROL BASIN. MUCK SHALL BE REMOVED VIA A VACUUM TRUCK AND DISPOSED OF AT AN IMPOUNDMENT CONSTRUCTED AT THE STOCKPILE SITE NEAR THE SOUTHWEST BOUNDARY (SEE SHEET C-3).
5. EXCAVATE STREAMBED CHANNEL IN LAKE 1 AND REMOVE ROCKS IN STREAMBED OF LAKE 1 UNTIL STREAMBED BOTTOM IS REACHED.
6. PLACE EXCESS ROCKS ON STREAMBED BOTTOM AS SHOWN ON SECTION "A"–"A" (THIS SHEET).
7. INSTALL NORTH AMERICAN GREEN C125 EROSION CONTROL MATTING OR APPROVED EQUAL OVER EXPOSED LAKE 1 BOTTOM (EXCEPT STREAMBED), AND APPLY HYDROMULCH/GRASS SEED/FERTILIZER MIXTURE OVER ALL MATTING SURFACES. REAPPLY HYDROMULCH MIXTURE DURING GROW-IN PERIOD AS NEEDED. PROVIDE LANDSCAPE PLANTING. SEE SHEET L-4 FOR PLANTING PLAN AND ADDITIONAL PLANTINGS.
8. REMOVE LAKE 1 ROCK CHECK DAM. CHECK DAM CAN BE REMOVED ONLY AFTER INSTALLATION OF LAKE 1 EROSION CONTROL MATTING. PRIOR TO REMOVAL OF THE TEMPORARY LAKE 1 ROCK CHECK DAM, ENSURE THAT ALL LOOSE DIRT TRAPPED ON THE CHECK DAM FABRIC HAS BEEN REMOVED PRIOR TO CHECK DAM DECONSTRUCTION. ROCK FROM THE CHECK DAM SHALL BE CAREFULLY REMOVED TO PREVENT UNDERLYING SOIL DISTURBANCE. CHECK DAM DECONSTRUCTION SHALL BE CAREFULLY DONE TO PREVENT DEBRIS AND SOIL FROM ENTERING STATE WATERS.
9. INSTALL TEMPORARY SILT FENCE BELOW LAKE 1 OUTLET.
10. EXCAVATE WATERFALL EDGE OF LAKE 1. EXCAVATE BY PULLING UPWARD FROM LAKE 1, PREVENTING DEBRIS AND SOIL FROM FALLING INTO LAKE 2 (STATE WATERS).
11. PRIOR TO REMOVAL OF THE TEMPORARY LAKE 2 ROCK CHECK DAM, ENSURE THAT ALL LOOSE DIRT TRAPPED ON THE CHECK DAM FABRIC HAS BEEN REMOVED PRIOR TO CHECK DAM DECONSTRUCTION. ROCK FROM THE CHECK DAM SHALL BE CAREFULLY REMOVED TO PREVENT UNDERLYING SOIL DISTURBANCE. CHECK DAM DECONSTRUCTION SHALL BE CAREFULLY DONE TO PREVENT DEBRIS AND SOIL FROM ENTERING STATE WATERS.
12. REMOVE TEMPORARY LAKE 2 ROCK CHECK DAM.
13. REMOVE LAKE 2 SPILLWAY AND EXISTING DRAIN PIPE. CAREFULLY DECONSTRUCT SPILLWAY TO PREVENT SOIL DISTURBANCE. IF SOIL MUST BE MOVED, DO NOT ALLOW SOIL TO ENTER STATE WATERS.
14. REMOVE TEMPORARY IMPOUNDMENT AND BYPASS LINE. APPLY HYDROMULCH MIXTURE TO RESTORED PIPE REMOVAL AREA. SEE DETAIL SHEET C-8.

NOTES:

1. GRADING WORK SHALL ONLY BE PERFORMED ON DRY (NON-RAINING) DAYS.
2. THE CONTRACTOR SHALL MAINTAIN THE EROSION CONTROL STRUCTURES UNTIL STABILIZATION HAS OCCURRED (EXCEPT WHERE STRUCTURES ARE SCHEDULED FOR REMOVAL). BEFORE FINAL PROJECT ACCEPTANCE, THE CONTRACTOR SHALL REPAIR EROSION CONTROL STRUCTURES THAT ARE TO REMAIN AFTER STABILIZATION TO THEIR ORIGINAL CONDITIONS.
3. REFER TO PLANTING PLANS, SHEET L-4.

NORTH

LAKE 1

20' 0 40' 80'

SCALE: 1"=40'

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PILA'A 400
REMEDIATION PLAN - PACKAGE 2

LAKE 1 RESTORATION

Designed By: C.K.L. Drawn By: C.K.L., G.Y.
Project No. 2004.33.1900 Date: MARCH, 2004
Approved By:

Date
Date
Date

FILE	POCKET	FOLDER	NO.

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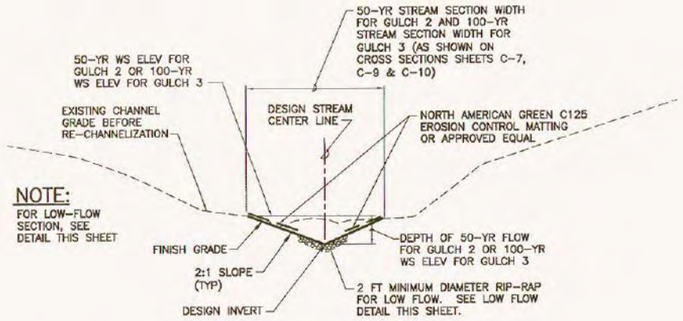
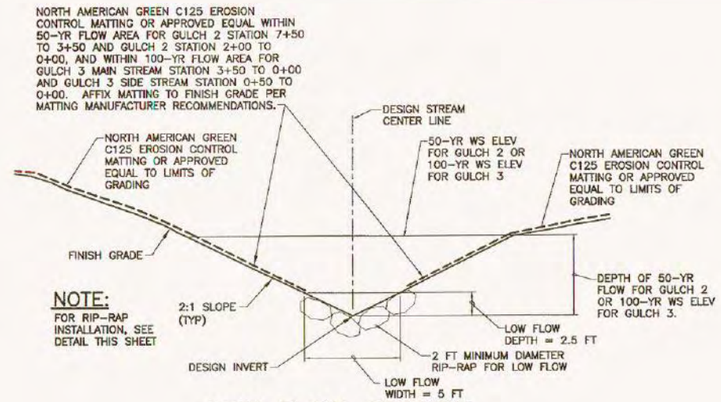
SHEET C-11 of 18 Sheets



TYPICAL SECTION

GULCH 2 STATION 7+50 TO 3+50,
GULCH 2 STATION 2+00 TO 0+00,
GULCH 3 MAIN STREAM STATION 3+50 TO 0+00, AND
GULCH 3 SIDE STREAM STATION 0+50 TO 0+00

NOT TO SCALE



LOW FLOW SECTION

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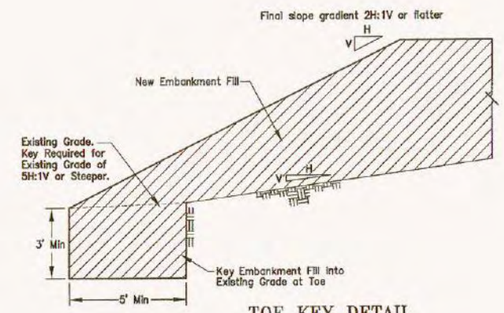

TOE KEY DETAIL

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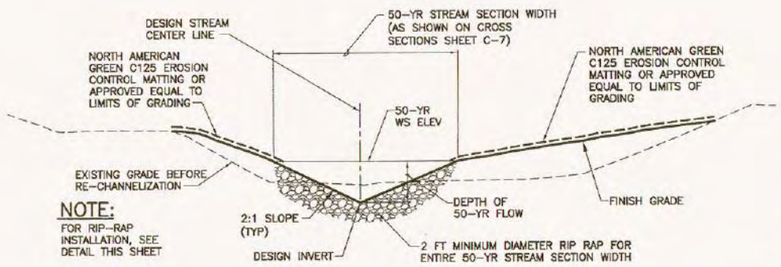
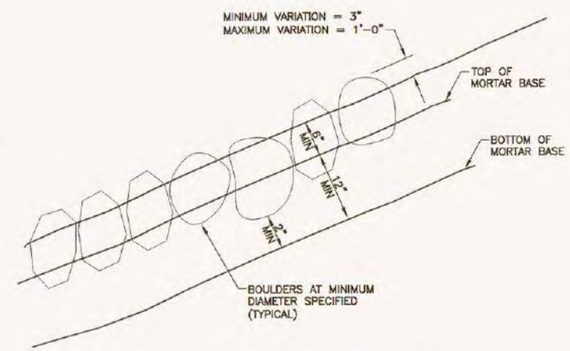


TYPICAL SECTION

GULCH 2 STATION 3+50 TO 2+00

NOT TO SCALE



RIP-RAP INSTALLATION DETAIL

NOT TO SCALE

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PILA'A 400
REMEDIATION PLAN - PACKAGE 2

MISCELLANEOUS DETAILS

Designed By: C.K.L. Drawn By: C.K.Lu, G.Y.
Project No. 2004.33.1900 Date: MARCH, 2004

Approved By:

Date
Date
Date

FILE	PROJECT	FOLDER	NO.

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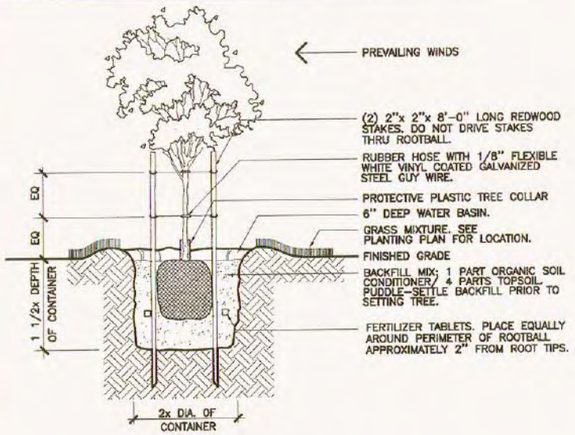
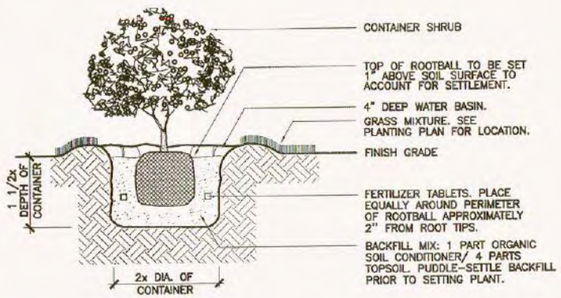


CONTAINER TREE PLANTING & STAKING DETAIL

1 / L-1 NOT TO SCALE



SHRUB PLANTING DETAIL

2 / L-1 NOT TO SCALE

LANDSCAPE MATERIAL LIST FOR GULCH 2 STREAM

Qty		Botanical Name	Common Name	Size	Caliper	Height	Spacing	Remarks
TREES								
22	ea	CORDIA SUBCORDATA	Kou	25 gal.	2"	8'-10' ht.		4' SPREAD
19	ea	PANDANUS ORDORATISSIMUS	Hala	25 gal.		6'-8' ht.		
6	ea	ALEURITES MOLUCCANA	Kukui	15 gal.		4' ht.		
17	ea	ACACIA KOAIA	Koaia	15 gal.		4' ht.		
20	ea	HIBISCUS CLAYII	Hibicus clayii	15 gal.		4' ht.		
25	ea	PISONIA UMBELLIFERA	Papala kepau	15 gal.		4' ht.	.	.
SHRUBS								
35	ea	STREAM ZONE	Stream zone	1 gal.		.	48" o.c.	SEE PLAN FOR PLANT TYPES
115	ea	ZONE 2	Zone 2	1 gal.		.	48" o.c.	SEE PLAN FOR PLANT TYPES
GRASS								
53,650	sf	CYNODON DACTYLON, LOLIUM MULTIFLORUM	Grass Mix (Common Bermuda, & Annual Ryegrass)	Seed				HYDROMULCH GRASS MIX SEE PLANTING NOTES FOR APPLICATION RATE

PLANTING NOTES

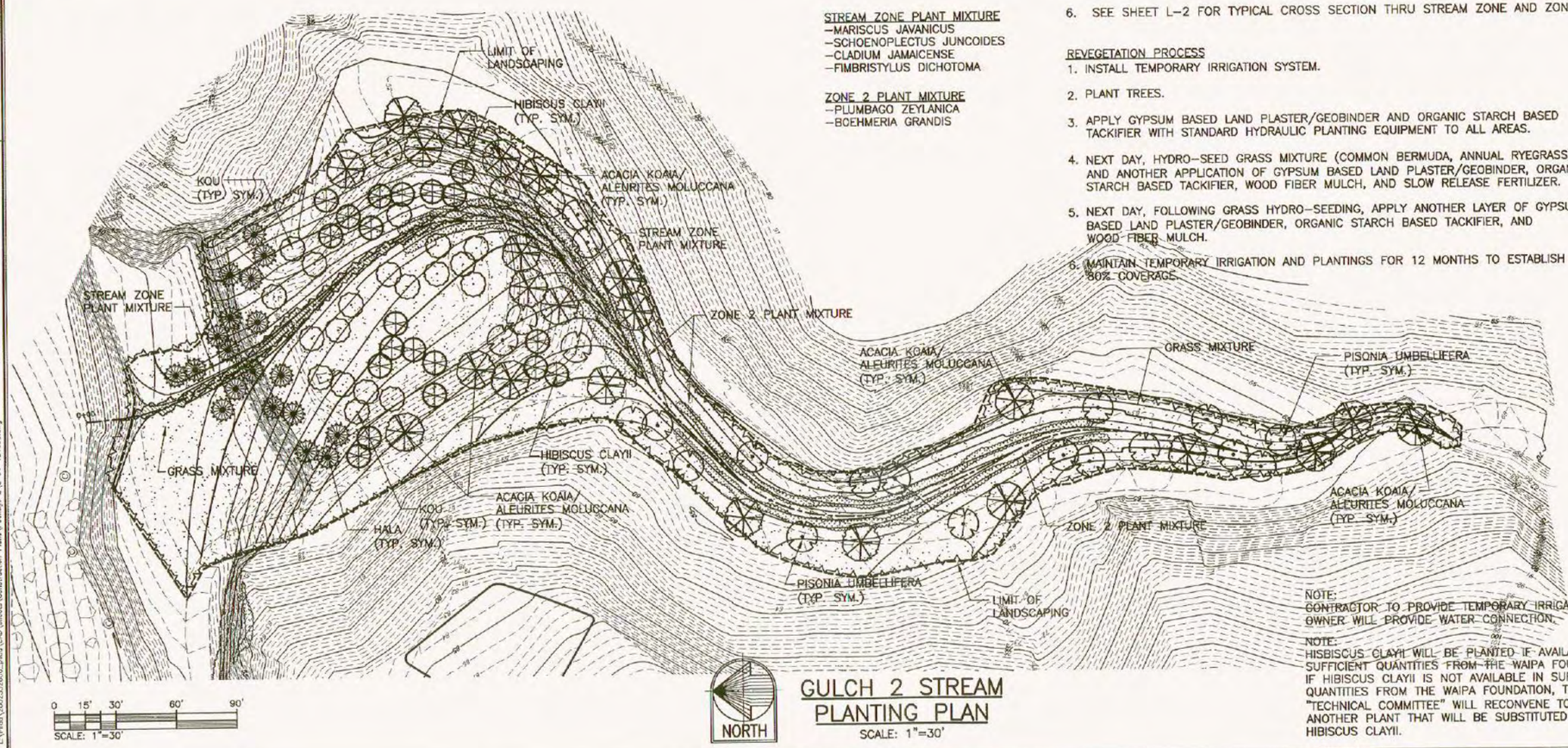
1. GRASS MIXTURE WILL CONSIST OF:
   ANNUAL RYEGRASS 3 LBS. PER 1,000 S.F.
   COMMON BERMUDA 4 LBS. PER 1,000 S.F.
2. HYDRO MULCH GRASS MIXTURE THROUGHOUT LIMIT OF CONSTRUCTION AREAS.
3. REVEGETATE ALL CONSTRUCTION AREAS NOT SHOWN ON PLAN WITH STANDARD HYDROMULCH GRASS MIXTURE.
4. PROVIDE EQUAL QUANTITIES OF 1 GALLON SHRUBS FOR EACH OF THE ZONE PLANTING AREAS.
5. FOR ZONE 2 PLANTING, PLANT 1 GALLON SHRUBS @ 48" O.C. IN A STAGGERED DOUBLE ROW.
6. SEE SHEET L-2 FOR TYPICAL CROSS SECTION THRU STREAM ZONE AND ZONE 2 PLANTING.

REVEGETATION PROCESS

1. INSTALL TEMPORARY IRRIGATION SYSTEM.
2. PLANT TREES.
3. APPLY GYPSUM BASED LAND PLASTER/GEOBINDER AND ORGANIC STARCH BASED TACKIFIER WITH STANDARD HYDRAULIC PLANTING EQUIPMENT TO ALL AREAS.
4. NEXT DAY, HYDRO-SEED GRASS MIXTURE (COMMON BERMUDA, ANNUAL RYEGRASS) AND ANOTHER APPLICATION OF GYPSUM BASED LAND PLASTER/GEOBINDER, ORGANIC STARCH BASED TACKIFIER, WOOD FIBER MULCH, AND SLOW RELEASE FERTILIZER.
5. NEXT DAY, FOLLOWING GRASS HYDRO-SEEDING, APPLY ANOTHER LAYER OF GYPSUM BASED LAND PLASTER/GEOBINDER, ORGANIC STARCH BASED TACKIFIER, AND WOOD FIBER MULCH.
6. MAINTAIN TEMPORARY IRRIGATION AND PLANTINGS FOR 12 MONTHS TO ESTABLISH 80% COVERAGE.

STREAM ZONE PLANT MIXTURE
-MARISCUS JAVANICUS
-SCHOENOPLECTUS JUNCOIDES
-CLADIUM JAMAICENSE
-FIMBRISTYLUS DICHOTOMA

ZONE 2 PLANT MIXTURE
-PLUMBAGO ZEYLANICA
-BOEHMERIA GRANDIS



GULCH 2 STREAM PLANTING PLAN

SCALE: 1"=30'

NOTE:
CONTRACTOR TO PROVIDE TEMPORARY IRRIGATION. OWNER WILL PROVIDE WATER CONNECTION.

NOTE:
HISBISCUS CLAYII WILL BE PLANTED IF AVAILABLE IN SUFFICIENT QUANTITIES FROM THE WAIPA FOUNDATION. IF HIBISCUS CLAYII IS NOT AVAILABLE IN SUFFICIENT QUANTITIES FROM THE WAIPA FOUNDATION, THEN THE "TECHNICAL COMMITTEE" WILL RECONVENE TO CONSIDER ANOTHER PLANT THAT WILL BE SUBSTITUTED FOR THE HIBISCUS CLAYII.

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PILA'A 400
REMEDIATION PLAN - PACKAGE 2
GULCH 2 STREAM
PLANTING PLAN

Designed By: AA
Project No. 2004.33.1900
Drawn By: AA
Date: JUNE 2004 REVISION
Approved By:

Date
Date
Date

FILE	FOLDER	FOLDER	NO.

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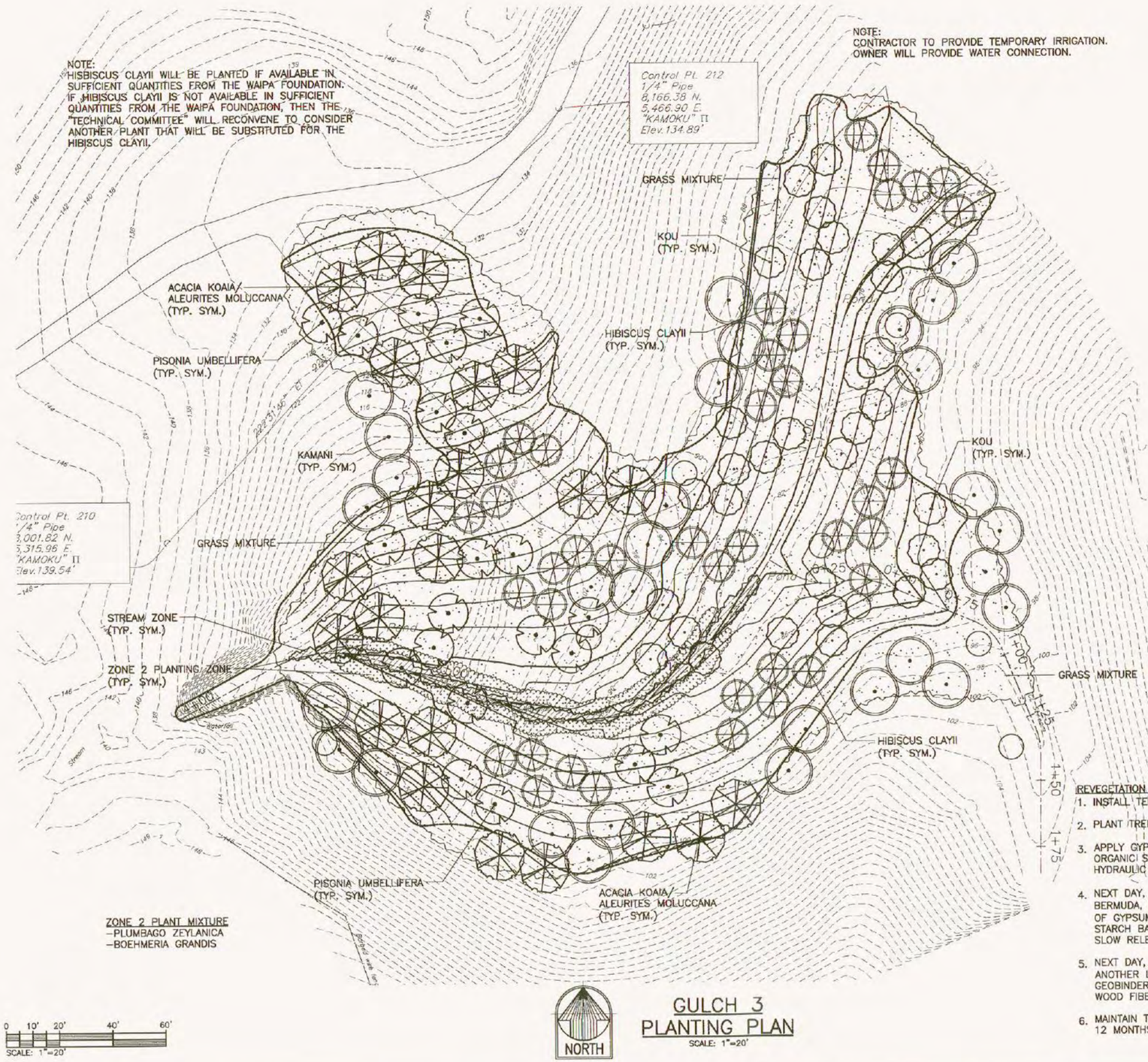
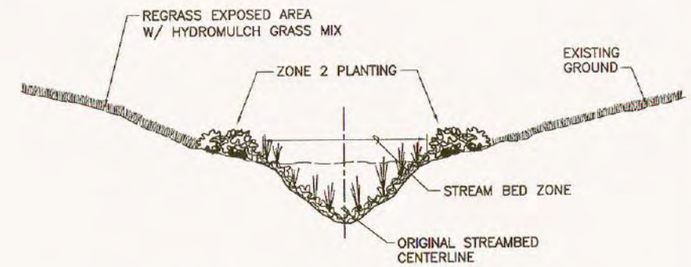


GULCH 3 PLANTING PLAN

SCALE: 1"=20'



TYPICAL STREAM ZONE AND ZONE 2 PLANTING SECTION

NOT TO SCALE

REVEGETATION PROCESS

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2. PLANT TREES.
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PILA'A 400
REMEDIATION PLAN - PACKAGE 2

GULCH 3
PLANTING PLAN

Designed By: AA
Drawn By: AA
Project No. 2004.33.1900
Date: JUNE 2004 REVISION

Approved By:

Date

Date

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