

STATE OF HAWAII
Department of Land and Natural Resources
Engineering Division

APR 25 2014

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Amend Prior Board Action of January 24, 2014, Item L-2, Approval to Execute a Use and Access Agreement with the U.S. Fish and Wildlife Service for the Hanalei Stream Bank Restoration Project, Kauai, Hawaii to Proceed with Construction of the Project Without a Signed Use and Access Agreement

BACKGROUND:

At its meeting on January 24, 2014, under agenda Item L-2, the Board approved and authorized the Chairperson to enter into a Use and Access Agreement (UAA) with the U.S. Fish and Wildlife Service (USFWS). A copy of the submittal is attached as Exhibit 1. The UAA was negotiated in conjunction with the construction of a reinforced earthen berm structure located on State land. The structure would serve to block a diversion of the Hanalei Stream and restore the flow of water into the USFWS Hanalei National Wildlife Refuge. The purpose of the UAA was to place ownership of the reinforced earthen berm structure under USFWS, who would be solely responsible for any repair and maintenance, as the primary beneficiary of the structure. The construction of the improvements was contingent upon USFWS signing and agreeing to the terms of the UAA, by January 31, 2014. As of this writing, the USFWS has refused to sign the UAA.

REMARKS:

Despite the refusal of the USFWS to enter into the UAA, the Board is requested to amend its prior approval requiring the construction of the reinforced earthen berm structure be contingent on the execution of the UAA due to the following considerations. CIP funding from Act 164, SLH 2011, Item D-3, Act 106, SLH 2012, Item D-3, and Act 134, SLH 2013, Item H-5 will be used for the construction of the project. The funds from Act 164, SLH 2011, Item D-3 will lapse at the end of June 2014. The improvements will require working within the Hanalei River therefore, it is imperative that the construction take place during the drier, summer months. The recommended window of construction is from May to September.

Delaying the construction of the project will have the following negative impacts:

- **Increased Sediment Impacts-** Sediment impacts from the breach are quite significant. A topographic survey conducted in 2012, indicates between 28,000 to 35,000 tons of sediment has been eroded and discharged into Hanalei Bay. It is anticipated that between 2,000 to 4,000 tons of sediments per year are going to continue to erode, if the situation is not corrected.
- **Taro Farming-** The Hanalei River is the sole source of irrigation water for the Hanalei commercial taro farms. These taro farms produce about one-third of all taro used to manufacture poi in the State of Hawaii. Loss of more water through the breach could paralyze this important local industry and undermine its cultural significance.
- **Wildlife Habitat Impacts-** The Hanalei National Refuge (NWR) is a habitat for several federally endangered Hawaiian waterfowl species. The operation of taro fields within the refuge provides the necessary open water habitat for these birds. The wildlife and taro ponds rely on a constant supply of irrigation water, which has been adversely affected and reduced by the constant and increasing flow through the breach channel.

ITEM L-1

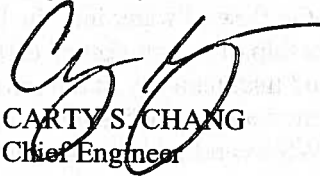
- Economic Impacts- Hanalei's culturally significant taro crops, coral reef, and wildlife habitat significantly contribute to the community's economics. Continued loss of water through the breach channel will adversely impact this economy and the livelihood of the people living in it.
- Public Safety- Many sections of the eroded banks along the breach channel have slopes that are steeper than 0.5 H: 1 V, making them prone to slope failure and scour. As long as flow through the breach channel continues to evolve, the ground near the top of the bank will be unstable, continue to erode, and pose a threat to life and property.

The Department has solicited bids for the project on March 17, 2014. The bids were reviewed and the low bid contractor, Goodfellow Bros, Inc. submitted a bid of \$2,086,010.00, which is within available funds. The Department will continue to discuss and negotiate with the USFWS to resolve the outstanding ownership and maintenance issues.

RECOMMENDATION: That the Board:

1. Amend its prior Board action of January 24, 2014, under agenda item L-2 by allowing the project to start construction without a signed Use and Access Agreement with USFWS.

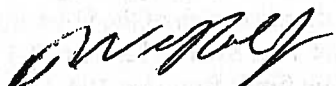
Respectfully submitted,



CARY S. CHANG
Chief Engineer

Exhibit 1

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR., Chairperson
Board of Land and Natural Resources

STATE OF HAWAII
Department of Land and Natural Resources
Engineering Division

January 24, 2014

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

**Approval to Execute a Use and Access Agreement with the
U.S. Fish and Wildlife Services for the Hanalei Stream Bank Restoration Project,
Kauai, Hawaii**

The Engineering Division desires to execute a Use and Access Agreement (UAA) (Exhibit 1), between the Department of Land and Natural Resources (Department) and the United States Fish and Wildlife Service (USFWS).

BACKGROUND:

During a large flood event in November 1995, the Hanalei River breached its left bank and created a split flow condition between the river and breach channel. Downstream of the breach channel, the USFWS maintains an irrigation diversion structure designed to supply water to the Hanalei National Wildlife Refuge. Through subsequent flooding events on the river, the breach channel has captured a larger portion of the flow in the Hanalei River, limiting supply to this diversion structure.

On March 3, 2012, Hanalei Valley was adversely affected by the heavy wind and rains, which caused extreme flooding and subsequent damages to the breached stream bank. The runoff through the breach has created a deep and wide footprint that continues to move laterally towards the adjacent residential buildings, while continuing to wash away valuable groundcover and transporting sediment into Hanalei Bay. Also, the worsened condition of the breach has resulted in substantial loss of water in the main stream where the diversion structure sends needed water to the Hanalei taro farmers and the USFWS refuge grounds.

On March 6, 2012, Governor Neil Abercrombie signed a Proclamation which "determined that a major disaster and catastrophe" occurred on Oahu and Kauai due to heavy rains, high winds, and flooding that started on March 3, 2012. On March 8, 2012 and March 22, 2012, the Governor signed Supplemental Proclamations. The Proclamation and Supplemental Proclamations exempts this project from the State of Hawaii, Hawaii Revised Statutes, Chapter 343.

The Department is currently in the planning and design phase of a project that will repair this portion of the Hanalei River stream bank and plans to advertise and bid the project for construction in January 2014 and start construction in April 2014. CIP funding from Act 164 SLH 2011 D-3, Act 160 SLH 2012 D-3, and Act 134 SLH 2013 H-5 will be used for the construction of the project. The funds from Act 164 SLH 2011 D-3 will lapse at the end of June 2014, thus the importance of awarding a construction contract in early 2014.

ITEM L-2

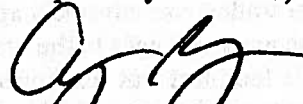
Upon completion of the project, USFWS has verbally agreed to monitor, maintain, and repair this restored portion of the river bank, which is located on state-owned land to prevent future breaching of the bank. A final draft of the UAA was reviewed and approved by the State Attorney General's office. The final UAA was sent to USFWS on December 23, 2013 for their review and signature. The construction of the project is contingent upon USFWS signing and agreeing to the terms in the UAA by January 31, 2014.

The UAA places ownership of the reinforced earthen berm structure under the USFWS, who shall be solely responsible for any repair and maintenance. The USFWS shall also be responsible for conducting regular monitoring of the structure. However, since USFWS personnel do not have any experience with such structures, the Department through its contractor will provide assistance to the USFWS in monitoring the structure for a three year period. Any assistance provided will be done at the sole discretion of the Department and is subject to funds available from Act 134, SLH 2013.

RECOMMENDATION:

1. That the Board authorize the Chairperson, subject to review and approval by the USFWS, to enter into a Use and Access Agreement with the USFWS as it pertains to the project.
2. That the Board authorize the Chairperson, subject to the mutual agreement of terms between the Department and the USFWS and the review and approval by the Department of the Attorney General, to enter into supplemental agreements to the UAA with the USFWS to address unforeseen conditions and sign the necessary documents as it pertains to the project.

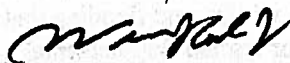
Respectfully submitted,



CARY S. CHANG
Chief Engineer

Exhibit 1

APPROVED FOR SUBMITTAL:



WILLIAM J. AILA, JR., Chairperson
Board of Land and Natural Resources

hereto and made a part hereof (hereinafter referred to as the "Property"); and

WHEREAS, the USFWS desires to enter and use a portion of the Property, as described and delineated on Exhibit "A", Site Access & Staging Plan attached hereto and incorporated herein by reference (hereinafter referred to as the "Premises"), for purposes of maintaining the reinforced earthen berm as described and shown on Exhibit "A", Site Plan and Typical Section sheets, (hereinafter collectively referred to as the "Project"); and

WHEREAS, the Grantor does not object to granting the USFWS use and access rights over the Premises provided the USFWS fully complies with the terms and conditions set forth below.

NOW, THEREFORE, in consideration of the mutual covenants and promises herein made, the parties do hereby agree as follows:

AGREEMENT:

1. **Grant of Use and Access Rights.** The Grantor hereby grants the USFWS the perpetual non-exclusive right to use and access the Premises for the purpose of inspection and maintenance of the Reinforced Earthen Berm structure. The Reinforced Earthen Berm structure shall remain solely the property of the USFWS.
2. **Monitoring, Maintenance and Repair.** Upon completion of the construction of the Reinforced Earthen Berm structure, the Grantor, through its Contractor, shall assist the USFWS in the monitoring of the Reinforced Earthen Berm structure as described

in Exhibit "B". Any actions by the Grantor pursuant to this section shall be:

- 1) Undertaken at its sole discretion;
- 2) Conducted within a period of no longer than three years commencing from the completion of the construction of the Reinforced Earthen Berm Structure, after which the USFWS shall assume full responsibility for the monitoring of the Reinforced Earthen Berm structure; and
- 3) Subject to the availability of funds appropriated from Act 134, Session Law of Hawaii 2013.

Notwithstanding any action undertaken by the Grantor pursuant to this section, the USFWS shall, at its sole cost and expense, inspect and monitor the reinforced earthen berm structure, maintain the structure and assist in keeping the Premises in a safe, clean, sanitary, and orderly condition. The USFWS shall not make or knowingly permit or suffer any waste, strip, spoil, nuisance or unlawful, improper, or offensive use of the Premises, nor damage, undermine or otherwise destroy any portion of the Property and the Premises, including, without limitation, the Reinforced Earthen Berm structure or any of Grantor's improvements situated on or near the Premises or any equipment or appurtenances relating thereto. The USFWS shall, at its sole cost and expense, repair, restore and reconstruct that portion of said Property and Premises so damaged, undermined or

destroyed, including any and all affected improvements, equipment and appurtenances, by the USFWS's use of the Premises. At a minimum, the maintenance and repair work shall include but not be limited to the maintenance and repair plan as described in Exhibit "C".

3. **Reservation of Rights.** The Grantor reserves unto itself the right of full use and enjoyment of the Premises and to grant to others rights and privileges for any and all purposes affecting the Premises, all without charge by and without the consent of the USFWS, provided that such use by the Grantor and/or third parties does not unreasonably interfere with the USFWS's rights to access and use the Premises under this Agreement. The USFWS shall take steps necessary to ensure that the USFWS's exercise of the rights and privileges granted hereunder does not cause any substantial interference with the Grantor's operations in or near the Premises and Property.

4. **USFWS's Responsibility.** The USFWS shall at all times with respect to accessing and using the Premises area use due care for public safety and agrees to indemnify, defend, and hold the Grantor harmless from and against any claim or demand for loss, liability, or damage, including claims for bodily injury, wrongful death, or property damage, arising out of or resulting from: 1) any act or negligent omission on the part of the USFWS relating to the USFWS's use, maintenance, or enjoyment of the

Premises area; and 2) any failure on the part of the USFWS to maintain the Premises and areas adjacent thereto in the USFWS's use and control, and including any accident, fire or nuisance, growing out of or caused by any failure on the part of the USFWS to maintain the Premises in a safe condition; and 3) from and against all actions, suits, damages, and claims by whomsoever brought or made by reason of the USFWS's non-observance or non-performance of any of the terms, covenants, and conditions of this Agreement or the rules, regulations, ordinances, and laws of the federal, state, municipal or county governments.

5. **Work within or Affecting the Premises.** If the Grantor decides to perform work of any kind within, on, over, under, across, near, or affecting the Premises, the Grantor will coordinate such work with the USFWS. The USFWS shall not unreasonably prevent the Grantor from performing such work, provided, however, that the Grantor will take certain protective measures to assure that such work does not unreasonably interfere with the USFWS's use of the Premises.

6. **Assignment.** The USFWS's rights under this Agreement shall not be sold, assigned, conveyed, leased, mortgaged, or otherwise transferred or disposed of, directly or by operation of law, except with the prior written consent of the Grantor.

7. **Default.**

a. **Notice of default.** If the USFWS defaults on or otherwise fails to perform its obligations under this Agreement, the Grantor will issue a written notice of default to the USFWS by hand-delivery or first-class mail.

b. **USFWS to cure defaults.** Any and all defaults or failures to perform contained in such notice of default must be resolved and remedied to the Grantor's reasonable satisfaction within forty-five (45) days of the USFWS's receipt of the Grantor's written notice to the USFWS or such further time as may be authorized by the Grantor in writing; provided, however, that if the nature of such default is such that the cure cannot reasonably be completed within forty-five (45) days or such further time, the USFWS may have such additional time as may be reasonably necessary to cure such default, so long as the USFWS shall have commenced such cure within such forty-five (45) days or additional time period and shall diligently complete such cure. The USFWS's failure to inspect and maintain the Reinforced Earthen Berm structure in accordance with this Agreement shall be deemed a default of this Agreement.

c. **Remedies for failure to cure.** If the USFWS fails to cure said defaults or failures to perform within the required time, the Grantor itself may, but shall not be obligated to, cure or remedy said defaults or failures to perform and charge any

reasonable costs and expenses incurred in performing said cure or remedy to the USFWS, who shall pay said costs and expenses to the Grantor within 60 days after receiving notice from the Grantor. If the USFWS fails to cure said defaults or failures to perform within the required time period, the Grantor may terminate this Agreement and the USFWS's rights under this Agreement to use the Premises. If the USFWS defaults or fails to perform as required under this Agreement, the Grantor shall be entitled to all remedies available under this Agreement and by law, which remedies shall be cumulative and not exclusive.

8. **Termination.** This Agreement may be cancelled in whole or in part at any time by mutual written agreement of the parties hereto.

9. **Hazardous Materials.**

a. **Grantor's pre-approval required.** The USFWS shall not cause or permit the presence, escape, disposal, discharge or release of any hazardous materials except as permitted by law. The USFWS shall not allow the storage or use of such materials in any manner not sanctioned by law or by the highest standards prevailing in the industry for the storage and use of such materials, nor allow to be brought onto and/or into the Premises any such materials except to use in the ordinary course of the USFWS's business, and then only after written notice is given to the Grantor of the identity of such materials and upon the

Grantor's consent, which consent shall not unreasonably be withheld. As used in this paragraph 10, the "presence, escape, disposal, discharge or release of hazardous materials" includes, but is not limited to oil, fuel, PCB spillage or leakage, improper waste oil disposal and pollution of any water attributed to the USFWS's (a) operations and activities on or connected with the Premises or (b) use and access of the Premises.

b. **The USFWS's responsibility.** If any lender or governmental agency shall ever require testing to ascertain whether or not the USFWS has caused or permitted the escape, disposal, discharge or release of hazardous materials, the USFWS shall be responsible for the reasonable costs thereof.

c. **"Hazardous materials" definition.** For the purpose of this Agreement, "hazardous materials" shall mean any pollutant, toxic substance, hazardous waste, hazardous material, hazardous substance, or oil as defined in or pursuant to the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation, and Liability Act, and the Federal Clean Water Act, all as amended, or any other federal, state or local environmental law, regulation, ordinance, rule, or by-law, whether existing as of the date hereof, previously enforced, or subsequently enacted.

d. **USFWS's clean-up obligation.** Except and to the extent caused by the willful misconduct or negligence of the

Grantor or existing on the Premises prior to the effective date of this Agreement, upon termination of this Agreement, the USFWS shall, at its sole cost and expense, if required by law, clean up and decontaminate the Premises and remove all hazardous materials therefrom, including, without limitation, clean-up of surface and ground waters and making the soil free and clear of all such contaminants and hazardous material.

10. **Compliance With Laws.** The USFWS, at all times during the term of this Agreement, shall comply with all of the requirements of the federal, state, and county laws, statutes, ordinances, rules and regulations, now in force or which may hereafter be in force.

11. **Binding Effect.** All provisions contained in this Agreement shall be binding upon and inure to the benefit of the respective parties, their successors and permitted assigns, and officers, agents, and employees.

12. **Singular, Plural.** All words used herein in the singular number shall extend to and include the plural. All words used in any gender shall extend to and include all gender.

13. **Headings.** The headings and captions herein are for convenience of reference only and are not intended to fully describe, define or limit the provisions of this Agreement of which they may pertain.

14. **Attorney's Fees and Expenses.** In case the Grantor

shall, without any fault on its part, be made a party to any litigation commenced by or against the USFWS as a result of this Agreement (other than condemnation proceedings), the USFWS shall pay all costs, including reasonable attorney's fees and expenses incurred by or imposed on the Grantor; furthermore, the USFWS shall pay all costs, including reasonable attorney's fees and expenses, which may be incurred by or paid by the Grantor in enforcing the covenants and conditions of this Agreement, or in the collection of delinquent rental, fees, taxes, and any and all other applicable charges attributed to said Dispersion Channel Areas.

15. **Non-discrimination.** The USFWS covenants, for itself, its successors and assigns, that the use and enjoyment of the land herein granted shall not be in support of any policy which discriminates against anyone based upon race, creed, sex, color, national origin, religion, marital status, familial status, ancestry, physical handicap, disability, age or HIV (human immunodeficiency virus) infection.

16. **Time Is Of The Essence.** Time is of the essence in this Agreement and if the USFWS shall abandon the Premises, or if this Agreement and Premises shall be attached or taken by operation of law, or if any assignment is made of the USFWS's property for the benefit of creditors, or if USFWS shall fail to observe and perform any of the covenants, terms, and conditions contained in this Agreement and on its part to be observed and performed, and

this failure shall continue for a period of more than sixty (60) calendar days after delivery by the Grantor of a written notice of breach or default, by personal service, registered mail or certified mail to the USFWS at its last known address and to each mortgagee or holder of record having a security interest in the Premises, the Grantor may, subject to the provisions of section 171-21, Hawaii Revised Statutes, at once re-enter the Premises, or any part, and upon or without the entry, at its option, terminate this Agreement without prejudice to any other remedy or right of action for any preceding or other breach of contract; and in the event of termination, at the option of Grantor, all improvements shall remain and become the property of the Grantor or shall be removed by USFWS.

17. **Withdrawal.** The Grantor reserves the right to withdraw the Reinforced Earthen Berm structure for public use or purposes, at any time during this Agreement upon the giving of reasonable notice by the Grantor and without compensation.

18. **No Mortgage.** The USFWS shall not mortgage or pledge the Premises, any portion, or any interest in this Reinforced Earthen Berm structure without the prior written approval of the Chairperson of the Board of Land and Natural Resources and any mortgage or pledge without such approval shall be null and void.

19. **Environmental Impact Regulations.** The USFWS shall comply with all applicable federal and state environmental impact regulations.

20. **Pollution And Contamination Control Measures.** The USFWS shall maintain and employ debris, pollution and contamination control measures, safeguards and techniques to prevent debris, pollution or contamination to the ocean waters, streams or waterways resulting from the USFWS's, its invitee's, or its agent's use, maintenance, repair and operation of the Reinforced Earthen Berm structure, and shall take immediate corrective action in the event of such pollution or contamination to immediately remove the cause of such pollution or contamination, and shall immediately clean the Premises area and its surrounding waters of such pollutant or contaminant and restore to the Grantor's satisfaction the areas affected by such pollution or contamination, all at the USFWS's own cost and expense.

21. **No Rent.** The Grantor shall not charge the USFWS any rent or other fee in connection with the USFWS's access and use of the Premises under this Agreement.

22. **Amendment.** This Agreement may not be amended except in writing and signed by both parties.

23. **Governing Law.** The laws of the State of Hawaii shall govern this Agreement and the relationship between the parties.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the day and year first above written.

STATE OF HAWAII

APPROVED AS TO FORM:

W. J. Aila, Jr.
Deputy Attorney General

Dated: 12-9-13

Approved by the Board of
Land and Natural Resources
at its meetings held on

By _____
Name: William J. Aila, Jr.
Title: Chairperson, Board of
Land and Natural Resources

**THE UNITED STATES FISH AND
WILDLIFE SERVICE**

**APPROVED AS TO FORM
AND LEGALITY:**

Deputy Corporation Counsel

Dated: _____

By _____
Name: _____
Title: Director

[Empty rectangular box for additional signatures or stamps]

STATE OF HAWAII

)

USFWS

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SS.

)

On this _____ day of _____, 20____,

before me appeared _____,

to me personally known, who, being by me duly sworn, did say that _____ is the Director of The United States Fish and Wildlife Service, and that the seal affixed to the foregoing instrument is the corporate seal of said corporation, and that the foregoing instrument was signed and sealed in behalf of said corporation, and said _____ acknowledged said instrument to be the free act and deed of said corporation.

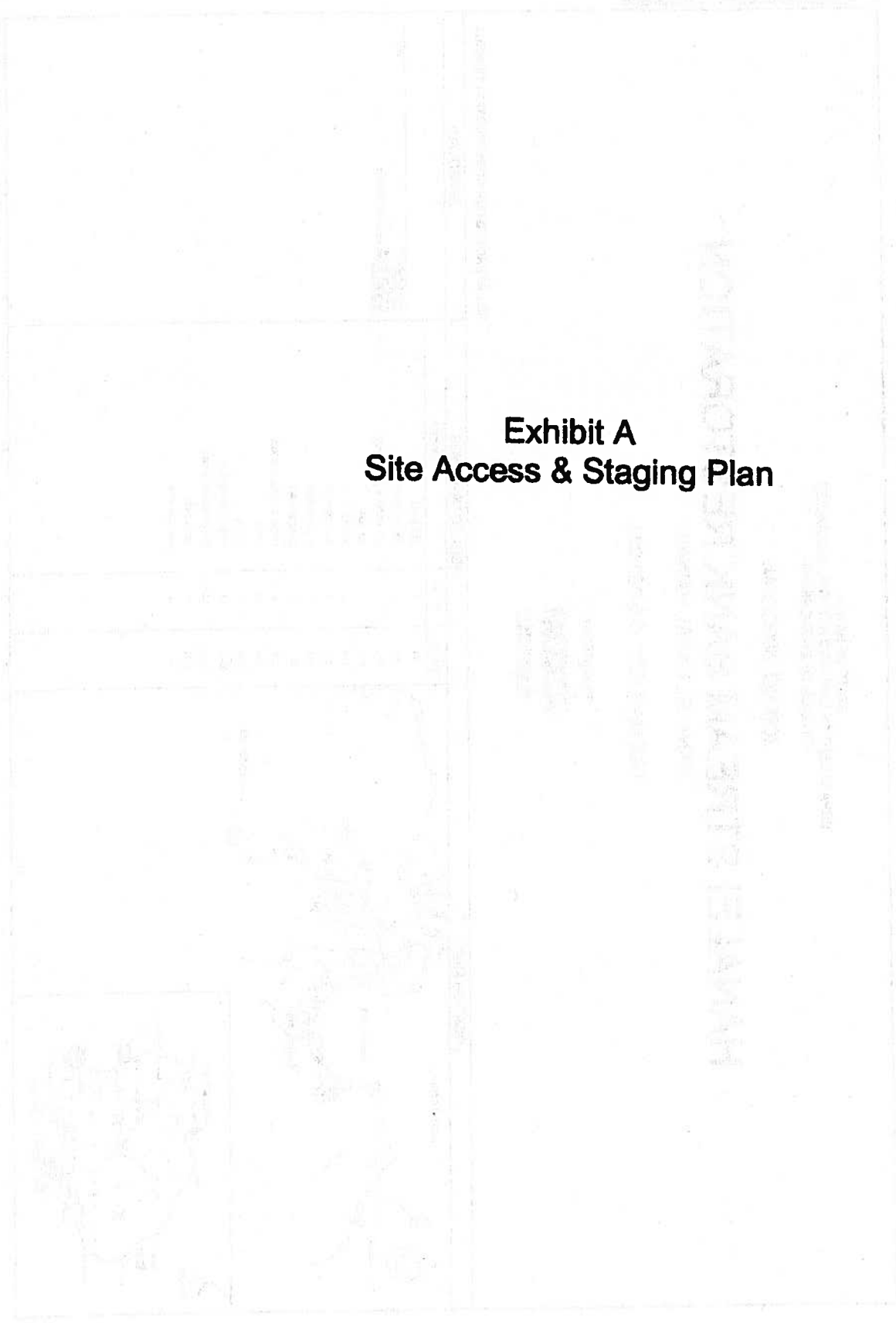
 Notary Public, State of Hawaii

My commission expires: _____

Doc. Date: _____	#Pages: _____
Notary Name: _____	Circuit _____
Doc. Description: _____	

Notary Signature _____	Date _____

Exhibit A
Site Access & Staging Plan



STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF ENGINEERING

JOB NO. 500CK54A

HANAIEI STREAM BANK RESTORATION

HANAIEI, KAUAI, HAWAII

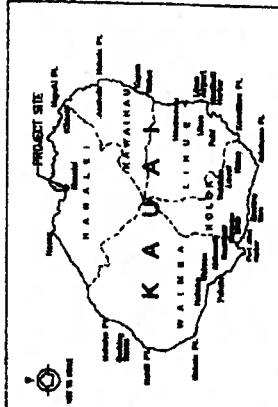
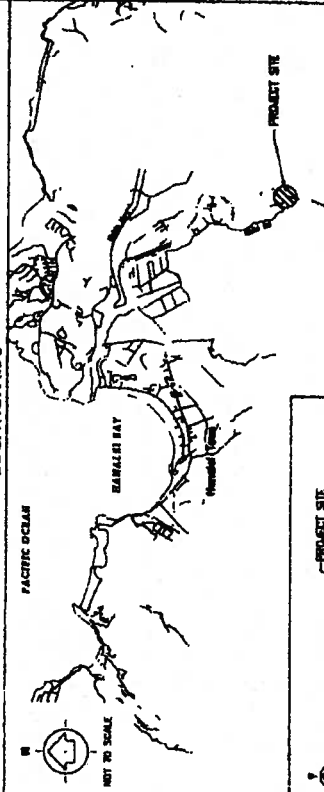
TAX MAP KEY 4-5-002:034

PREPARED BY:



NOT APPROVED FOR CONSTRUCTION 12/4/2013

LOCATION MAP



INDEX TO DRAWINGS

DWG NO.	DWT NO.	DESCRIPTION
T-1	1	TITLE SHEET
C-1	2	GENERAL NOTES
C-2	3	SITE ACCESS & EROSION PLAN
C-3	4	SITE PLAN
C-4	5	PROFILES
C-5	6	CROSS SECTIONS
C-6	7	CROSS SECTIONS
C-7	8	TYPICAL SECTIONS & DETAILS
C-8	9	DETAILS
C-9	10	DETAILS
C-10	11	EROSION CONTROL PLAN
C-11	12	EROSION CONTROL DETAILS
C-12	13	EROSION CONTROL DETAILS
C-13	14	BRIDGE LIDS
L-1	15	LANDSCAPE PLAN

APPROVALS

DATE: _____
 BY: _____
 TITLE: _____
 ORGANIZATION: _____
 PROJECT NO.: _____
 SHEET NO.: _____

NOTES FOR GENERAL CONSTRUCTION

- 1. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE COUNTY ENGINEER AND THE STATE DEPARTMENT OF PUBLIC HEALTH...
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...
3. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

HISTORICAL PRESERVATION NOTES

- 1. SHOULD HISTORIC REMAINS BE FOUND AT ANY TIME, THE CONTRACTOR SHALL IMMEDIATELY STOP WORK AND NOTIFY THE COUNTY ENGINEER AND THE STATE DEPARTMENT OF PUBLIC HEALTH...
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

WATER POLLUTION AND EROSION CONTROL NOTES

- 1. GENERAL:
A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE COUNTY ENGINEER AND THE STATE DEPARTMENT OF PUBLIC HEALTH...
2. EROSION CONTROL:
A. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

- 3. EROSION AND SEDIMENT CONTROL MEASURES AND MAINTENANCE PROCEDURES:
A. ALL CONTROL MEASURES SHALL BE INSTALLED AS EARLY AS POSSIBLE...
B. ALL MEASURES SHALL BE MAINTAINED IN GOOD WORKING ORDER...
4. TEMPORARY EROSION CONTROL MEASURES FOR GRADING:
A. TEMPORARY VEGETATION COVERS SHALL BE PLANTED WITHIN A PERIOD OF 30 DAYS...

TEMPORARY EROSION CONTROL MEASURES FOR GRADING

- 1. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...
2. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

ENVIRONMENTAL NOTES

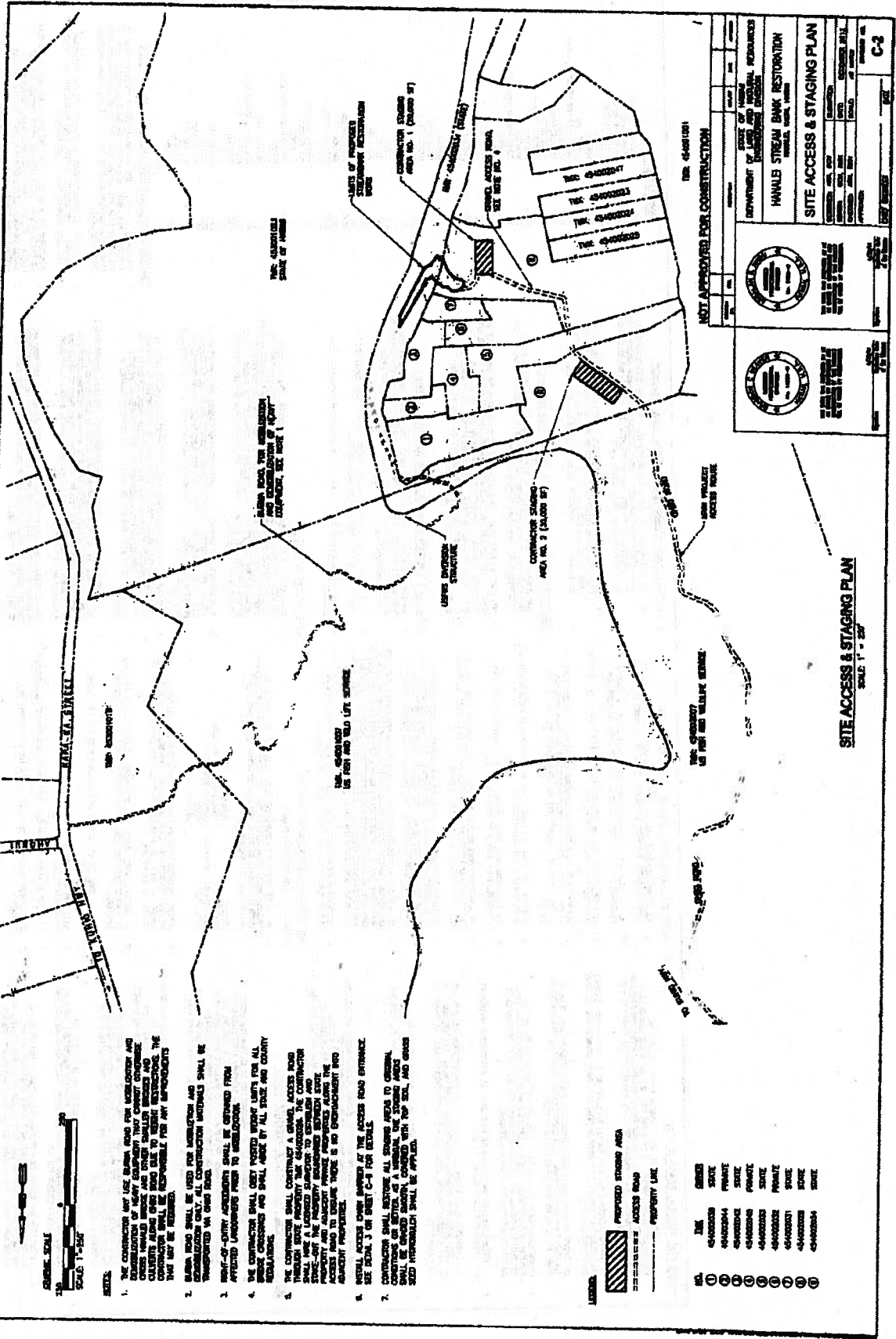
- 1. AIR QUALITY:
A. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...
2. WATER QUALITY:
A. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

- 5. GENERAL:
A. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...
B. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES...

Table with 2 columns: ABBREVIATIONS and DEFINITIONS. Includes terms like AC, AD, AE, AF, AG, AH, AI, AJ, AK, AL, AM, AN, AO, AP, AQ, AR, AS, AT, AU, AV, AW, AX, AY, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GG, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LL, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MM, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NN, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UU, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VV, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YY, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

NOT APPROVED FOR CONSTRUCTION. Includes fields for PROJECT NO., SHEET NO., and a table for GENERAL NOTES with columns for NO., DATE, and DESCRIPTION.

GENERAL NOTES. Includes project information: HWALLEE STREAM BANK RESTORATION, HAWAII COUNTY, HAWAII. Includes logos for the State of Hawaii and the County of Hawaii.



SITE ACCESS & STAGING PLAN
SCALE: 1" = 50'

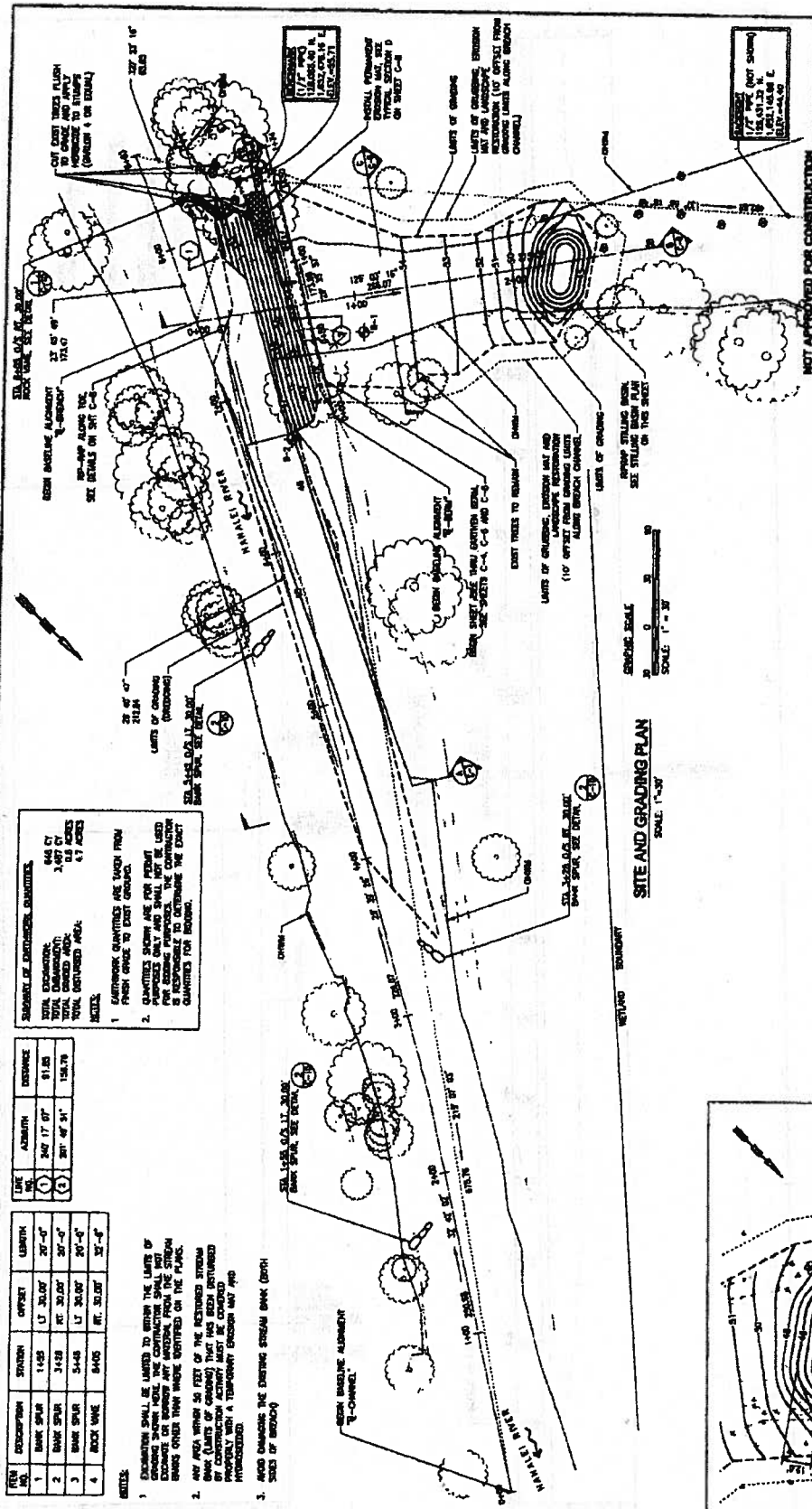
NOT APPROVED FOR CONSTRUCTION			
DEPARTMENT OF LAND AND NATURAL RESOURCES HANALEI STREAM BANK RESTORATION SITE ACCESS & STAGING PLAN DRAWN BY: [Name] DATE: [Date] CHECKED BY: [Name] DATE: [Date] APPROVED BY: [Name] DATE: [Date]			
DATE	BY	DATE	BY

- NOTES:**
1. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 2. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 3. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 4. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 5. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 6. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.
 7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE STATE OF HAWAII AND THE COUNTY OF HONOLULU PRIOR TO THE START OF CONSTRUCTION.



LEGEND:

[Symbol]	PROPOSED STAGING AREA
[Symbol]	ACCESS ROAD
[Symbol]	PROPERTY LINE



NOT APPROVED FOR CONSTRUCTION

DATE	BY	REVISION

**DEPARTMENT OF WATER RESOURCES
ENGINEERING DIVISION**

HINKLE STREAM BANK RESTORATION

SITE AND GRADING PLAN

HINKLE STREAM, MISSOURI

DESIGNER	DATE	SCALE	PROJECT NO.

APPROVED	DATE

C3

STATEMENT OF ESTIMATED QUANTITIES

TOTAL EXCAVATION	848 CY
TOTAL EMBANKMENT	3,467 CY
TOTAL DISTURBED AREA	4.3 ACRES

1. QUANTITIES SHOWN ARE TAKEN FROM FRESH GRADE TO EXIST GROUND.
2. QUANTITIES SHOWN ARE FOR PERMIT PURPOSES ONLY AND SHALL NOT BE USED FOR BIDDING OR CONTRACTING. THE ENGINEER IS RESPONSIBLE TO OBTAIN THE EXACT QUANTITIES FOR BIDDING.

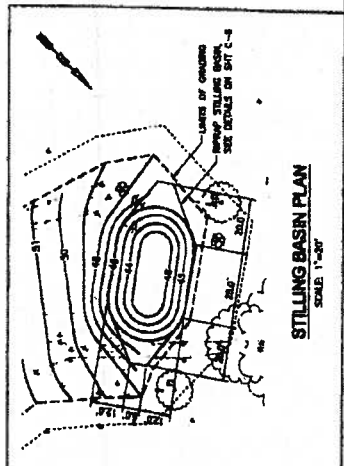
LINE NO.	ASUMIN	DISTANCE
1	240' 17' 0"	91.85
2	201' 48' 9"	128.79

LINE NO.	DESCRIPTION	SPAN/CH	OFFSET	LENGTH
1	BANK SPUR	1+05	L1 30.00'	20'-0"
2	BANK SPUR	3+28	R1 30.00'	20'-0"
3	BANK SPUR	5+48	L1 30.00'	20'-0"
4	BANK SPUR	8+00	R1 30.00'	20'-0"

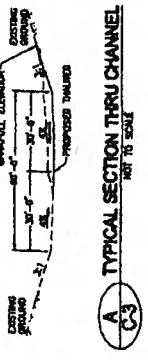
- NOTES:**
- EXCAVATION SHALL BE LIMITED TO WITHIN THE LIMITS OF EXCAVATION OR EMBANKMENT ARE CONTRACTED SHALL BE EXCAVATED OR EMBANKED TO THE ORIGINAL GRADE UNLESS OTHERWISE SPECIFIED ON THE PLANS.
 - ALL AREAS WITHIN 50 FEET OF THE RESTORED STREAM BANK (LIMITS OF GRADING) THAT HAS BEEN DISTURBED BY CONSTRUCTION ACTIVITY MUST BE RESTORED PROPERLY WITH A TEMPORARY EROSION MAT AND HYDRATED.
 - AVOID DAMAGING THE EXISTING STREAM BANK (WITH) SIDES OF BRIDGE.

ENGINEERING SCALE
0 10 20 30
SCALE: 1" = 30'

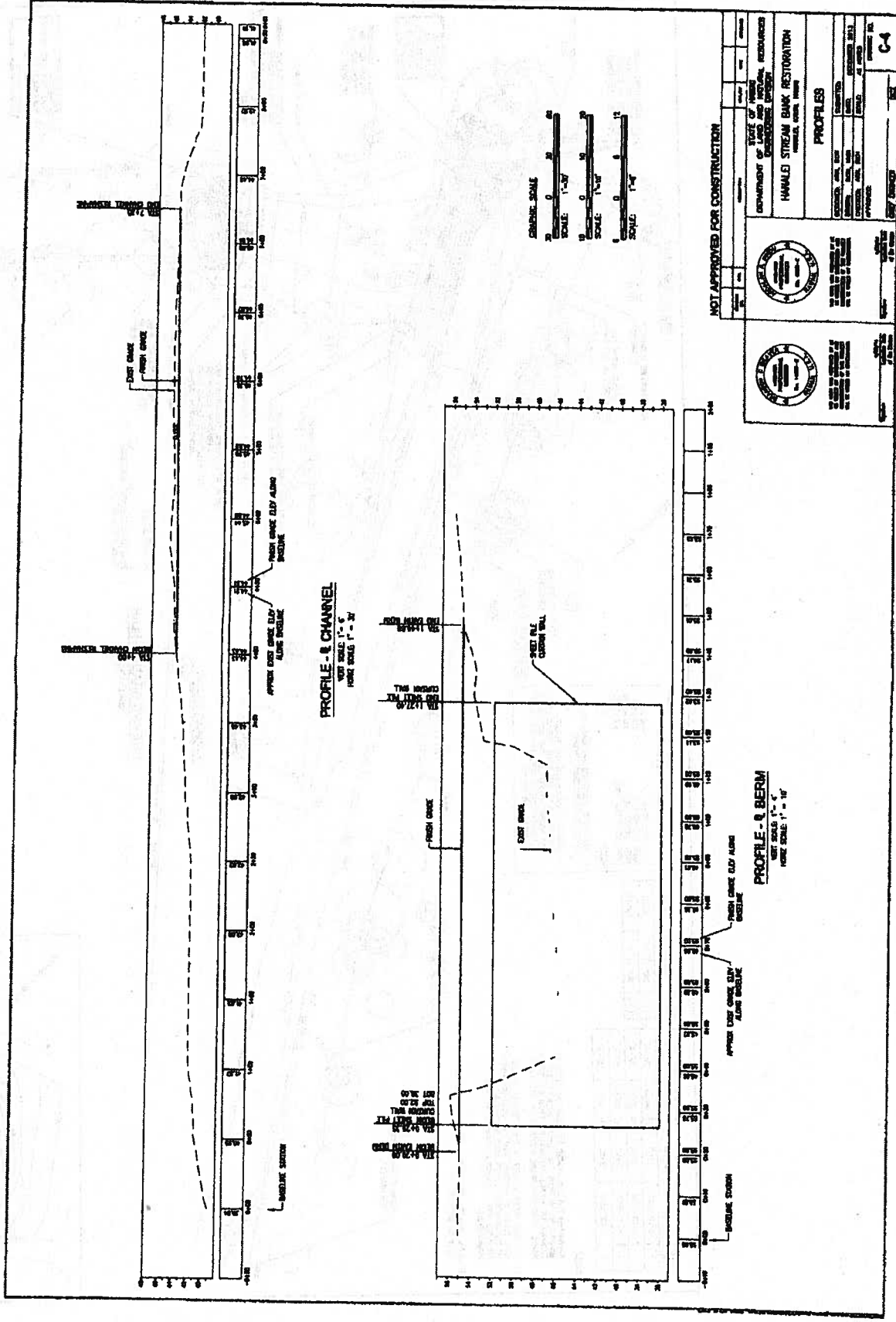
SITE AND GRADING PLAN
SCALE: 1" = 30'



TYPICAL SECTION THRU CHANNEL
SCALE: 1" = 30'



STILLING BASIN PLAN
SCALE: 1" = 30'



NOT APPROVED FOR CONSTRUCTION

DATE	BY	CHK'D	APP'D

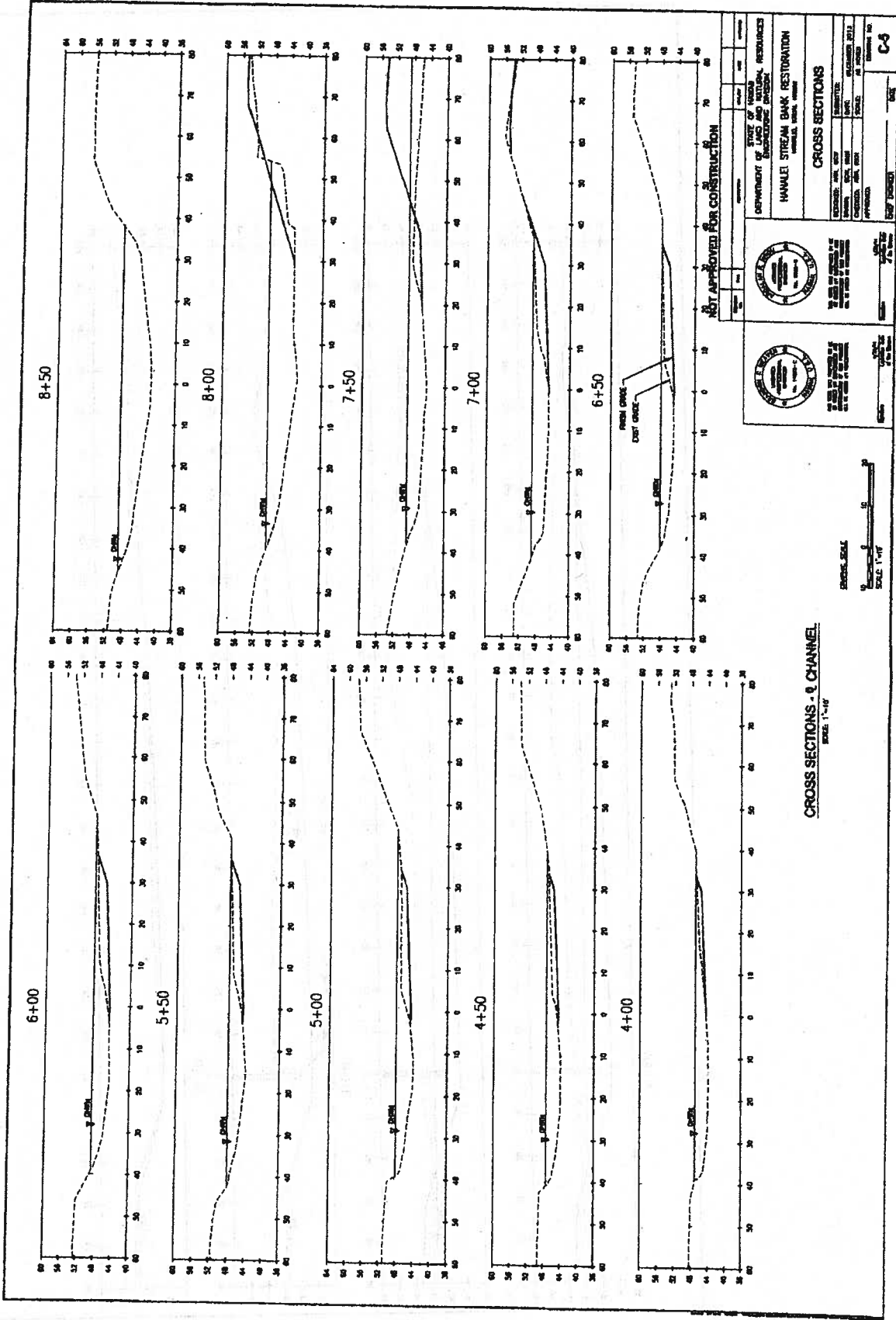
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
CONSERVATION ENGINEER

HAALEI STREAM BANK RESTORATION
HAALEI, OAHU, HAWAII

PROFILES



PROJECT NO.	DATE
100-000000	10/1/00

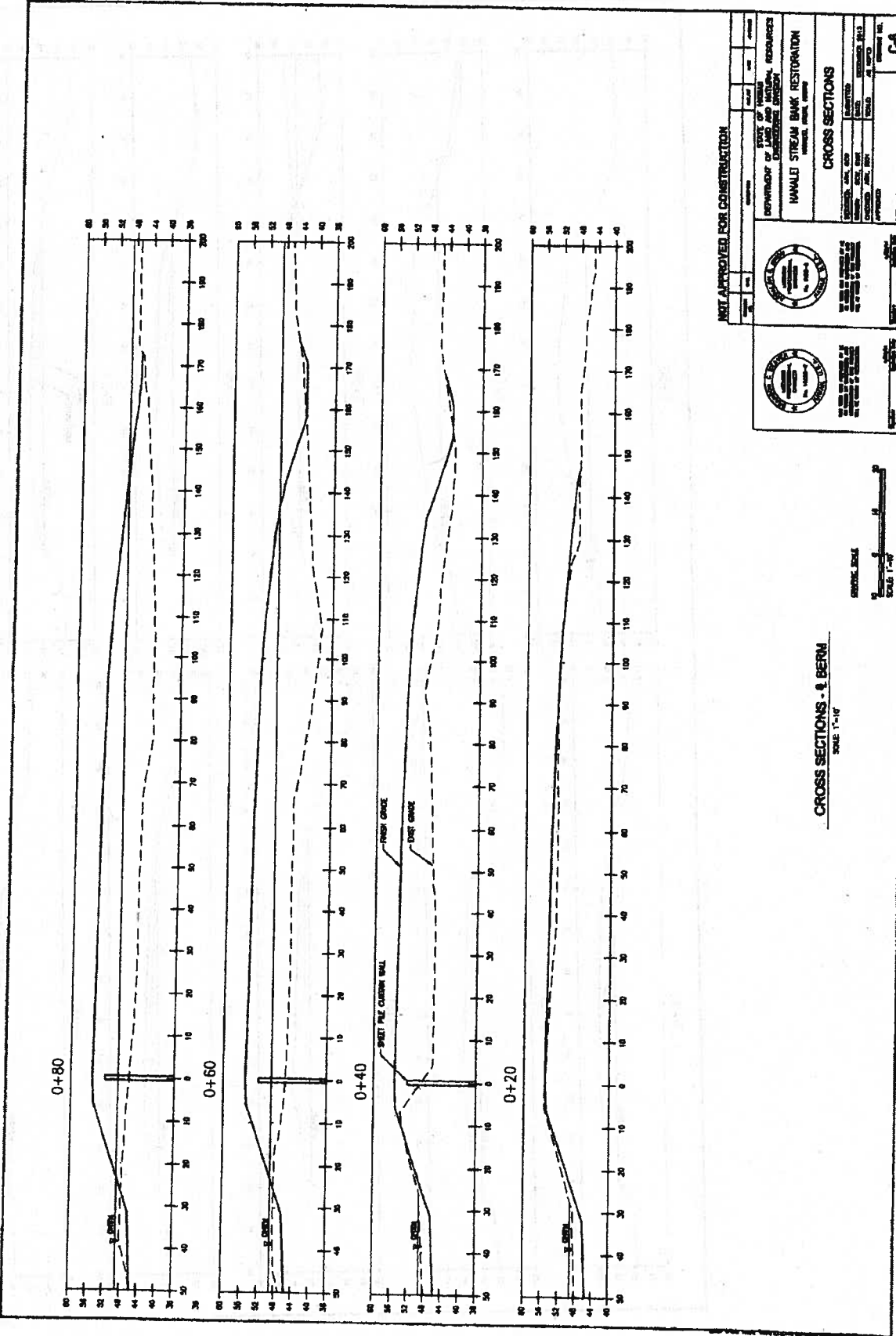
DATE DIGNED: 10/1/00
BY: [Signature]



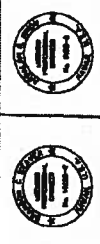
CROSS SECTIONS - 8 CHANNEL
 SCALE: 1" = 40'

NOT APPROVED FOR CONSTRUCTION

			
STATE OF NEVADA DEPARTMENT OF LAND AND NATURAL RESOURCES HAWAII STREAM BANK RESTORATION HAWAII, NEVADA			
DESIGNED BY	DRAWN BY	CHECKED BY	APPROVED BY
DATE	DATE	DATE	DATE
CROSS SECTIONS			SHEET NO. 03 OF 15 SHEETS



NOT APPROVED FOR CONSTRUCTION



STATE OF INDIANA
 DEPARTMENT OF NATURAL RESOURCES
 DIVISION OF WATER CONTROL
HAWLETT STREAM BANK RESTORATION
 HAWLETT, INDIANA

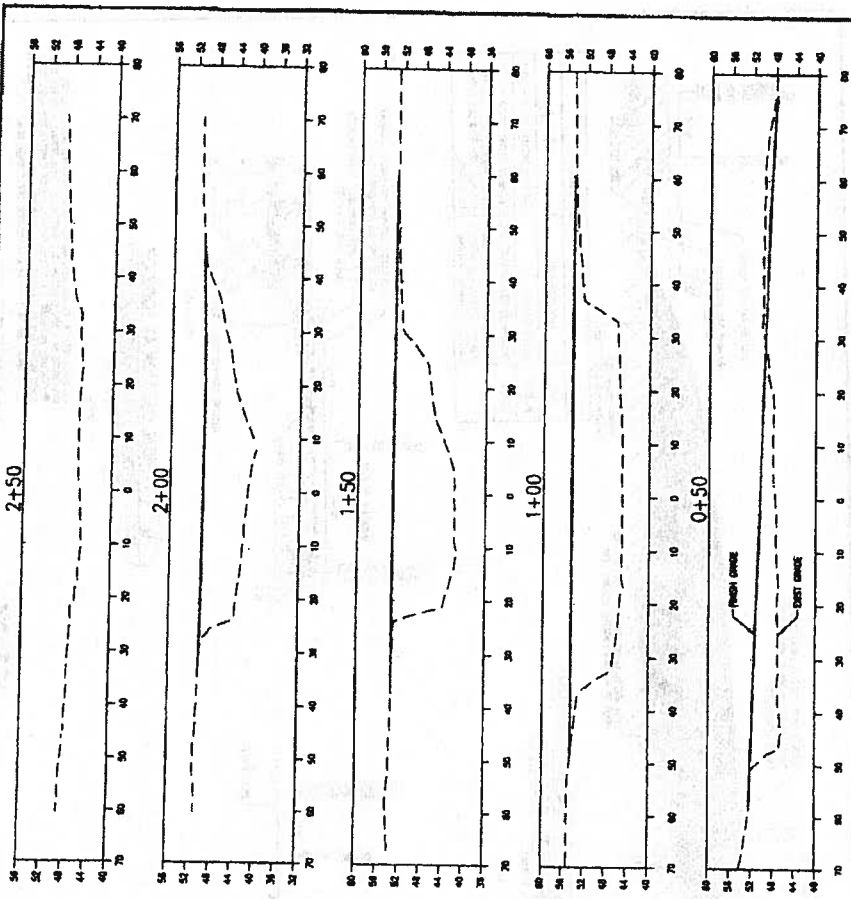
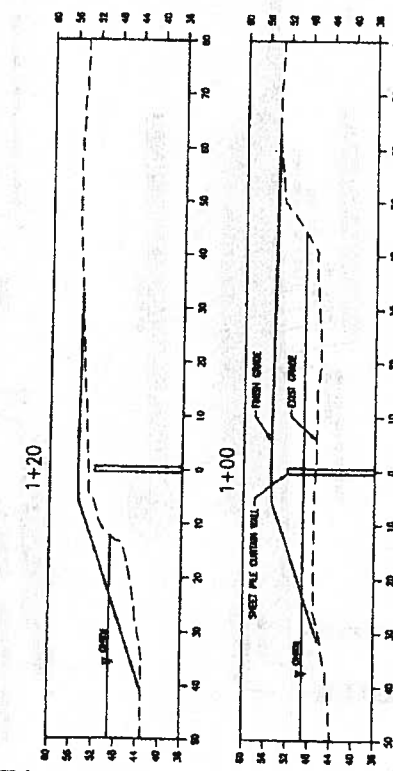
CROSS SECTIONS

DATE: 11/15/88
 DRAWN BY: [Signature]
 CHECKED BY: [Signature]
 APPROVED BY: [Signature]

SHEET NO. C-8

CROSS SECTIONS - 1/2 BERM
 SCALE 1"=10'





NOT APPROVED FOR CONSTRUCTION

STATE OF MICHIGAN
DEPARTMENT OF LAND AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

HAWLEI STREAM BANK RESTORATION
MUSKEGON RIVER, FARMINGTON TOWNSHIP

CROSS SECTIONS

DESIGNED BY: []
CHECKED BY: []
DATE: []

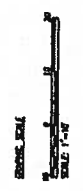
DATE OF SURVEY: []

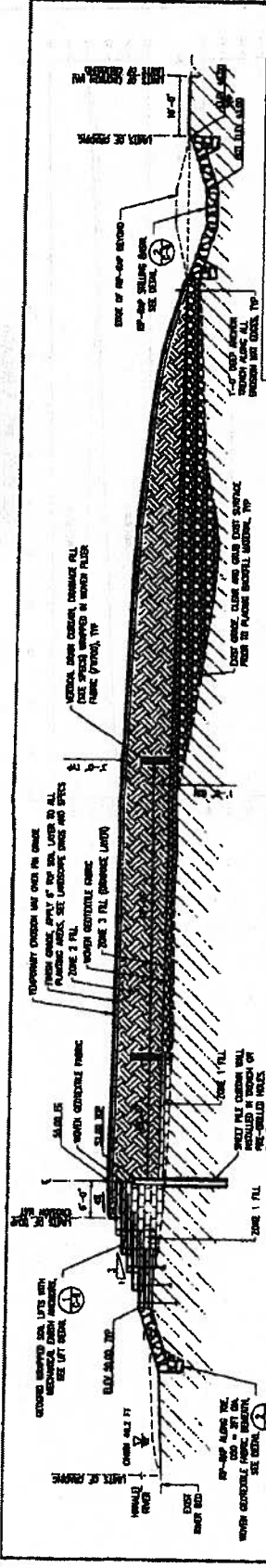
DATE OF PLOTTING: []

SCALE: 1"=4'

PROJECT NO.: []

SHEET NO.: **C-7**

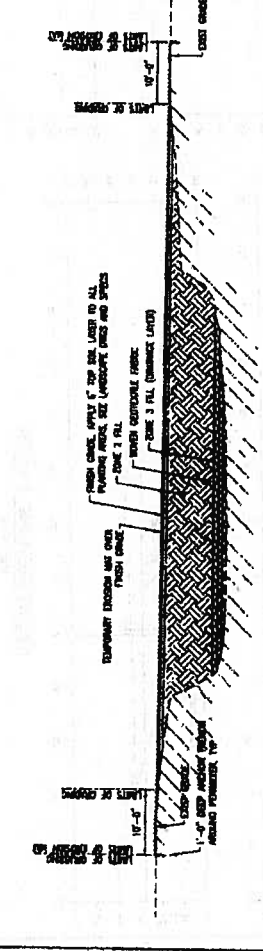
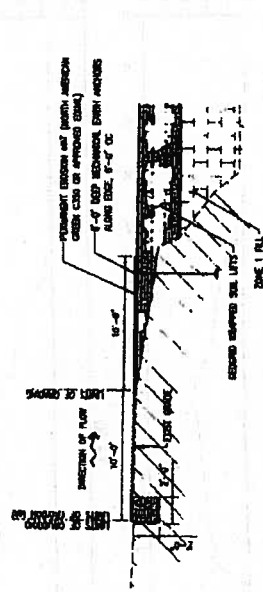




EARTH FILL SCHEDULE

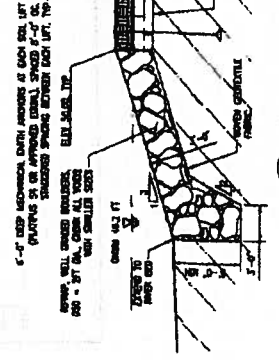
NO.	DESCRIPTION	DETAILS
ZONE 1	SELECT EXCAVATION	SEE SPEC SECTION 0210 - SOILS
ZONE 2	CONCRETE REINFORCED FILL	SEE SPEC SECTION 0210 - SOILS
ZONE 3	CONCRETE REINFORCED FILL	SEE SPEC SECTION 0210 - SOILS

**B TYPICAL SECTION THRU EARTHEN BERM
C-B (ALONG BASELINE B - B)**
NOT TO SCALE

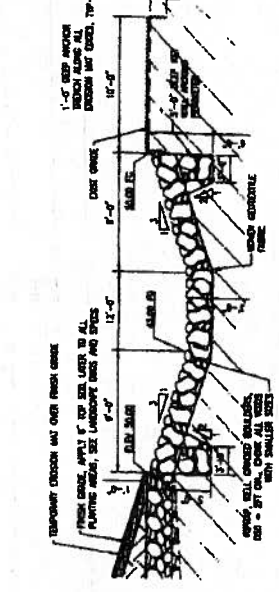


C TYPICAL SECTION ACROSS EARTHEN BERM
C-B
NOT TO SCALE

**D TYPICAL SECTION AT EDGE OF
C-B GEORGRID WRAPPED SOIL LIFTS**
NOT TO SCALE



1 RIP-RAP DETAIL
C-B
NOT TO SCALE



2 RIP-RAP STILLING BASIN DETAIL
C-B
NOT TO SCALE

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE DIVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTIONS. ALL COSTS ASSOCIATED WITH PERMITS AND APPROVALS, INCLUDING A COPY OF THE CONSTRUCTION SHALL BE INCLUDED IN THE COST OF CONSTRUCTION OF THE DIVISION.

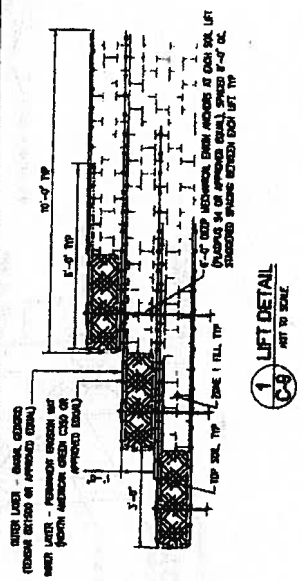
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL JURISDICTIONS. ALL COSTS ASSOCIATED WITH PERMITS AND APPROVALS, INCLUDING A COPY OF THE CONSTRUCTION SHALL BE INCLUDED IN THE COST OF CONSTRUCTION OF THE DIVISION.

NOT APPROVED FOR CONSTRUCTION

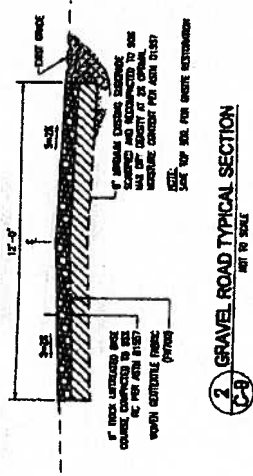
DEPARTMENT OF STATE OF NEW YORK
DIVISION OF STATE AND LOCAL RESOURCES
HAWAII STREAM BANK RESTORATION
HAWAII, USA

TYPICAL SECTIONS & DETAILS

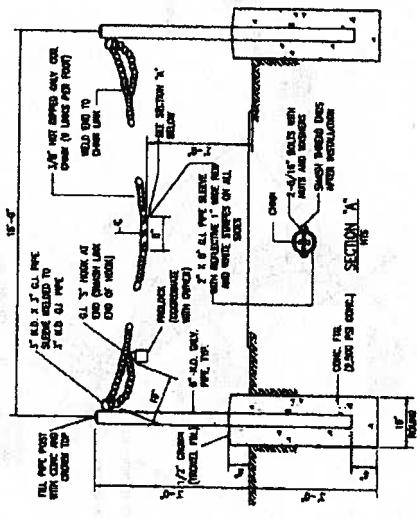
PROJECT NO. 06-0000044
SHEET NO. 9 OF 13 SHEETS



1 LIFT DETAIL
NOT TO SCALE



2 GRAVEL ROAD TYPICAL SECTION
NOT TO SCALE

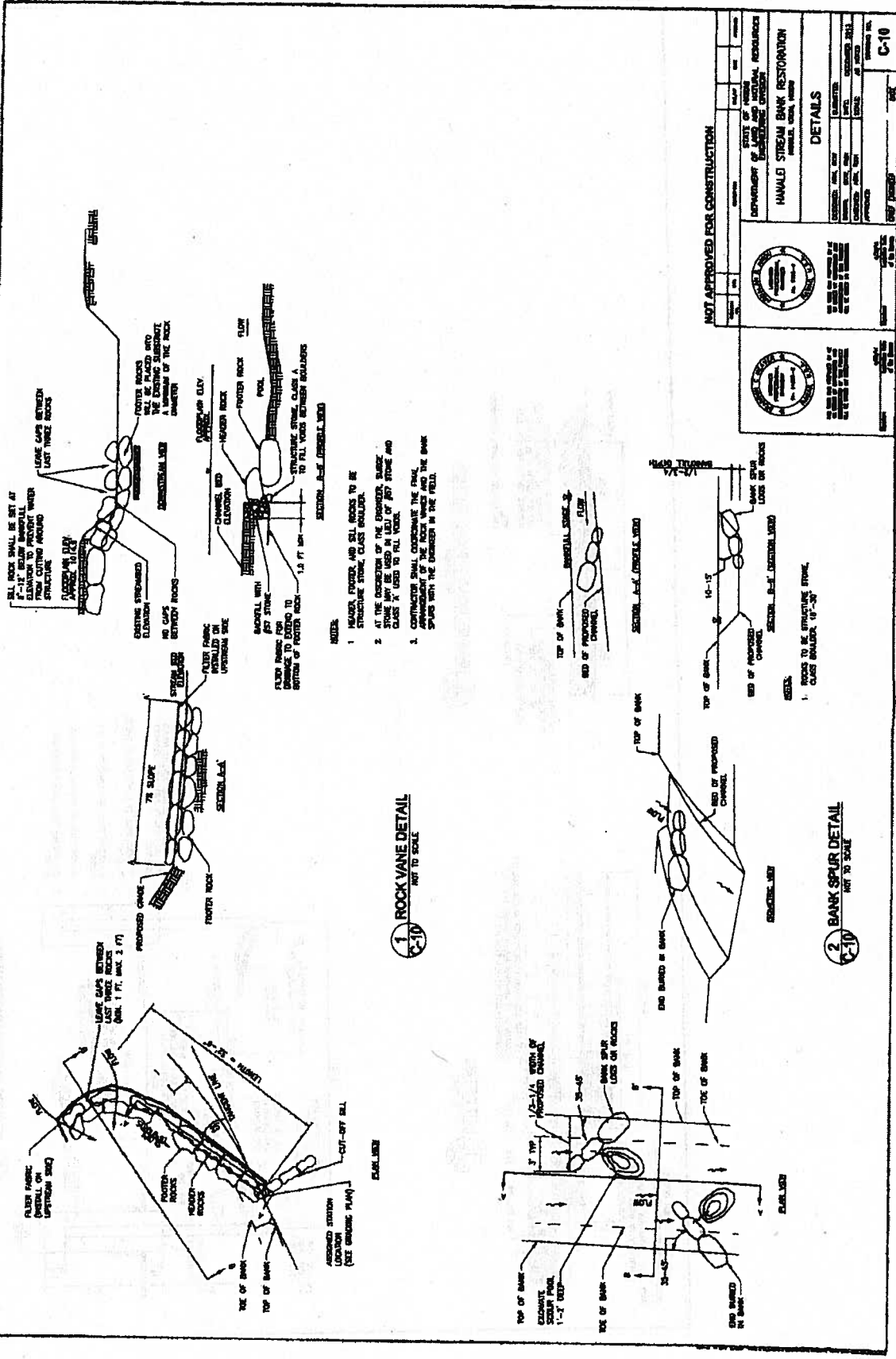


3 ACCESS CHAIN BARRIER DETAIL
NOT TO SCALE

1. ALL ELDED CONNECTIONS SHALL BE MADE WITH THE DATE OF Z.A.C. COLD CHAINING COMPLETE.
2. 3\"/>

NOT APPROVED FOR CONSTRUCTION

		STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES ENGINEERING DIVISION	
		HAWAII STREAM BANK RESTORATION HAWAII, HONOLULU	
DETAILS			
DESIGNED BY	DATE	CHECKED BY	DATE
DRAWN BY	DATE	APPROVED BY	DATE
PROJECT NO.	C-9		



NOT APPROVED FOR CONSTRUCTION

STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 HAWAII STREAM BANK RESTORATION

DETAILS

NO.	DATE	BY	CHKD.
1	12/15/20
2	1/20/21
3	2/10/21

SCALE: 1" = 10' (GENERAL)

SCALE: 1" = 10' (DETAILS)

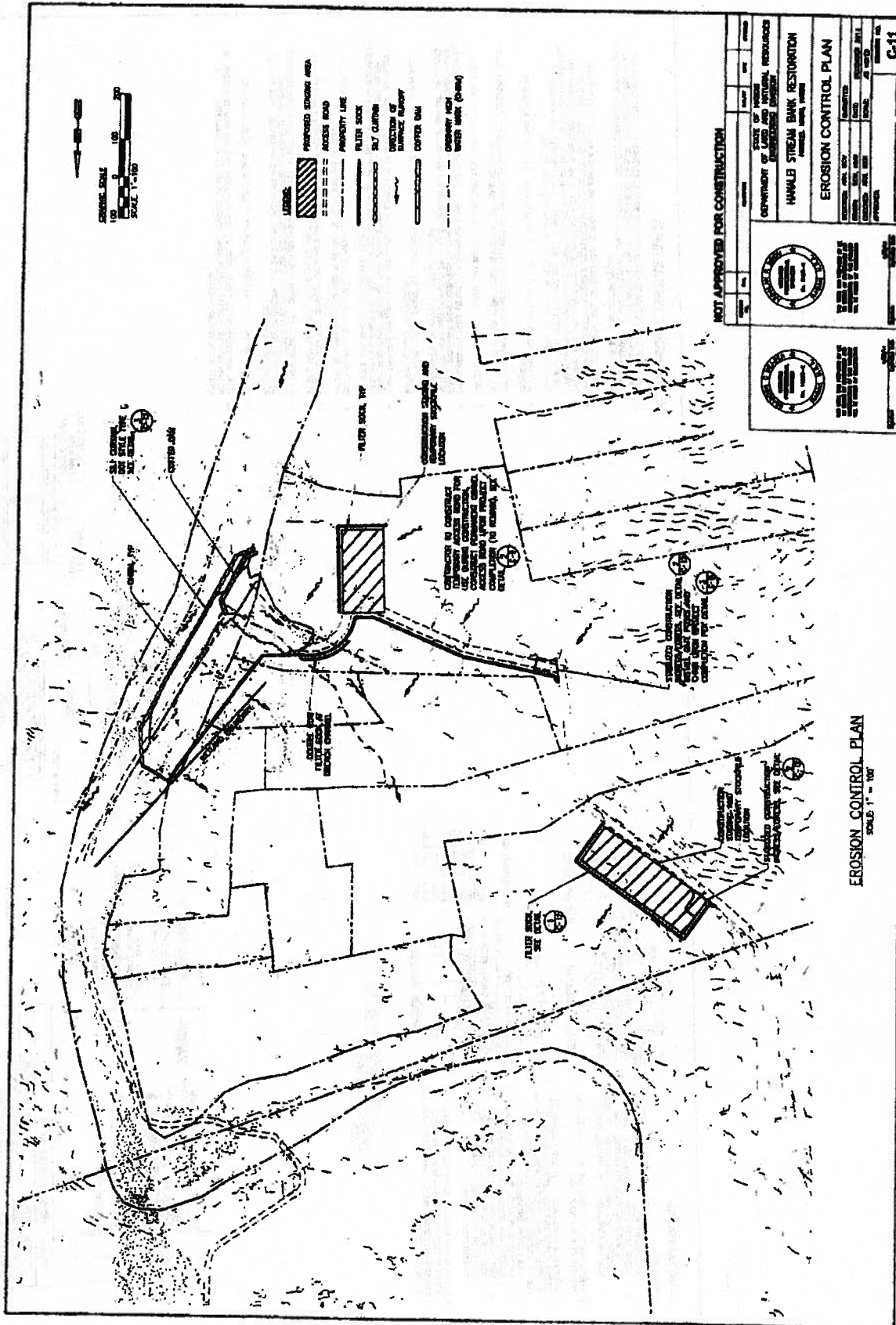
SCALE: 1" = 10' (DETAILS)

NOTES

1. HEAVY FINDER AND SILL ROCKS TO BE STRUCTURE STONE CLASS BOLLER.
2. AT THE DISCRETION OF THE DESIGNER, BANK STONE MAY BE USED IN LAY OF SET STONE AND CLASS X USED TO FILL VOID.
3. CONTRACTOR SHALL CHECK WITH THE PAKI, HAWAIIAN OF THE ROCKS AND THE BANK SPURS WITH THE DESIGNER IN THE FIELD.

1 ROCK VANE DETAIL
 NOT TO SCALE

2 BANK SPUR DETAIL
 NOT TO SCALE



GRAPHIC SCALE
 0 25 50 75 100
 FEET
 SCALE 1" = 100'

- LEGEND**
- PROPOSED EROSION AREA
 - ACCESS ROAD
 - PROPERTY LINE
 - FILTER SOCK
 - SILT TRAP
 - LOCATION OF SURFACE RUNOFF
 - CUTTER DAM
 - CONSTRUCTION OF CHECK DAM AND FILTER SOCKS TO BE COMPLETED BY 10/15/07
 - INSTALLATION OF FILTER SOCKS TO BE COMPLETED BY 10/15/07

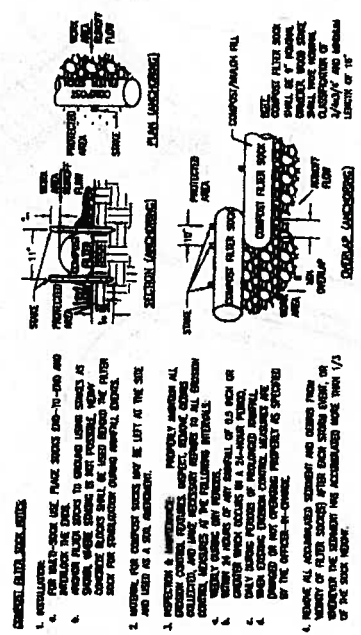
NOT APPROVED FOR CONSTRUCTION

STATE OF VERMONT DEPARTMENT OF LAND AND NATURAL RESOURCES WATER RESOURCES DIVISION		DATE: 08/15/07	
HAWKLE STREAM BANK RESTORATION PROJECT NO. 07-0000004		SCALE: 1" = 100'	
EROSION CONTROL PLAN		JOB NO. 0000004	
DESIGNED BY: [Signature]	CHECKED BY: [Signature]	DATE: 08/15/07	SCALE: 1" = 100'
PROJECT NO. 07-0000004	DATE: 08/15/07	SCALE: 1" = 100'	JOB NO. 0000004
JOB NO. 0000004		SHEET NO. 12 OF 15 SHEETS	

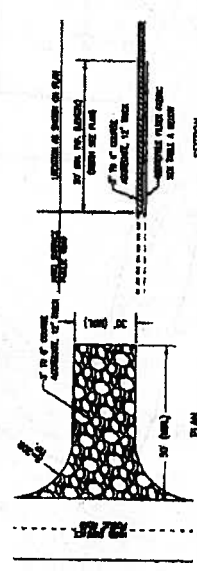
EROSION CONTROL PLAN
 SCALE 1" = 100'

BEST MANAGEMENT PRACTICES (BMPs)

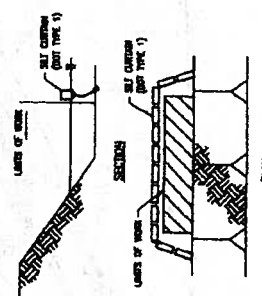
1. THE EROSION CONTROL PLAN ALLEGEDLY, MINOR CORRECTIONS, MODIFIED TO CONTROL EROSION AND SILTATION, SHALL BE APPROVED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
2. CONSTRUCTION SITES SHALL BE DESIGNED TO MINIMIZE THE EXPOSURE OF CLEARED SURFACE TO EROSION. ALL EROSION CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
3. ALL BMPs SHALL BE MAINTAINED AT THE START AND END OF EACH WORK DAY AND REPAIRED AS NECESSARY.
4. THE CONSTRUCTION SHALL ENSURE THAT ALL TYPES OF CONSTRUCTION VEHICLES ARE SUFFICIENTLY CLEARED OFF SO THAT THE RISK OF DAMAGE IS NOT INCREASED BY THE CONSTRUCTION SITE.
5. THE CONSTRUCTION SHALL ENSURE THAT MATERIALS WILL BE PROTECTED FROM WIND, RAIN, AND OTHER WEATHER CONDITIONS. ALL MATERIALS SHALL BE PROTECTED FROM WEATHER DAMAGE.
6. THE CONSTRUCTION SHALL CONSIDER THE FOLLOWING:
 - a. ALL CONSTRUCTION VEHICLES SHALL BE PROTECTED FROM WIND, RAIN, AND OTHER WEATHER CONDITIONS.
 - b. ALL CONSTRUCTION VEHICLES SHALL BE PROTECTED FROM WIND, RAIN, AND OTHER WEATHER CONDITIONS.
 - c. ALL CONSTRUCTION VEHICLES SHALL BE PROTECTED FROM WIND, RAIN, AND OTHER WEATHER CONDITIONS.
7. CONSTRUCTION SHALL MAINTAIN THE CONSTRUCTION AREA SHALL BE MAINTAINED BY THE CONTRACTOR.
8. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION.
9. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION.
10. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION.
11. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION. ALL CONSTRUCTION OPERATIONS SHALL BE CONDUCTED IN A MANNER THAT WILL NOT CAUSE EROSION OR SILTATION.
12. ALL BEST MANAGEMENT PRACTICES (BMPs) SHALL NOT BE REQUIRED UNTIL PROJECT COMPLETION.
13. AT THE COMPLETION OF ALL PROJECT WORK, ALL BEST MANAGEMENT PRACTICES SHALL BE REMOVED AND THE AREA SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, UPON ACCEPTANCE OF THE PROJECT BY THE OFFICIALS-IN-CHARGE.



1 FILTER SOCK DETAIL
NOT TO SCALE



2 CONSTRUCTION INGRESS/EGRESS DETAIL
NOT TO SCALE



3 SILT CURTAIN DETAIL
NOT TO SCALE

TABLE A. GEOTECHNICAL REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
SOIL TYPE	AS PER LOCAL AGENCY
FOUNDATION TYPE	AS PER LOCAL AGENCY
ALLOWED SETTLEMENT	AS PER LOCAL AGENCY
FOUNDATION TYPE	AS PER LOCAL AGENCY
FOUNDATION TYPE	AS PER LOCAL AGENCY
FOUNDATION TYPE	AS PER LOCAL AGENCY

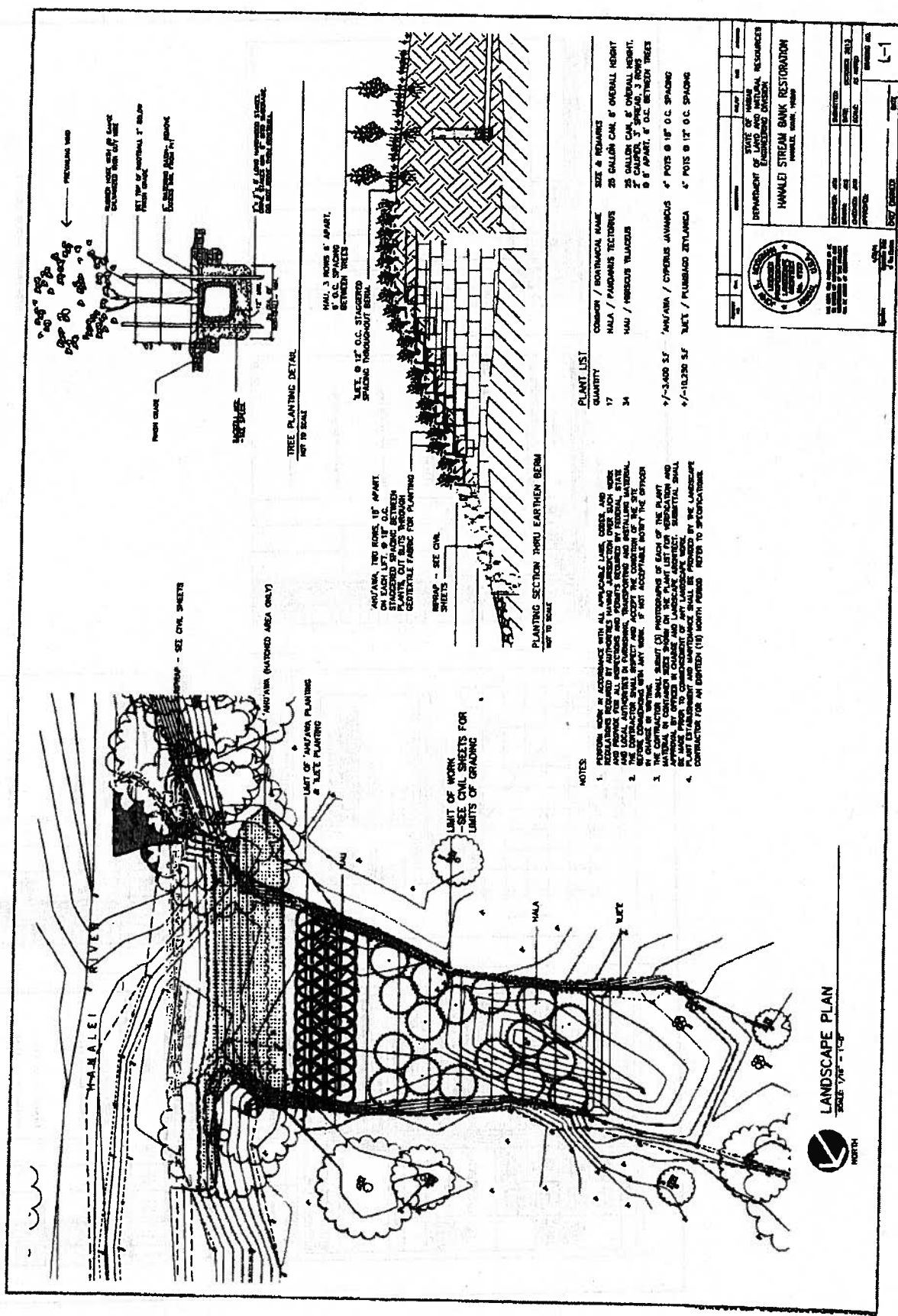
NOT APPROVED FOR CONSTRUCTION

DEPARTMENT OF LAND AND NATURAL RESOURCES
HAWAII STREAM BANK RESTORATION
WAILUKU, HAWAII

EROSION CONTROL DETAILS

DATE: 10/10/2014
DRAWN BY: [Name]
CHECKED BY: [Name]
APPROVED BY: [Name]

C-12



PLANT LIST

QUANTITY	COMMON / BOTANICAL NAME	SIZE & REMARKS
17	MALA / FARGUESIA TECTORIOS	25 GALLON CAN. @ ORIGINAL HEIGHT
34	MULA / MIBOSCHUS TILACIUS	25 GALLON CAN. @ ORIGINAL HEIGHT, 8' @ APART, 4' O.C. BETWEEN TREES
97-3400 SF	'A' AREA / CYPERUS JAVANICUS	4' POTS @ 18" O.C. SPACING
47-10250 SF	'B' AREA / PLUMBAGO ZETLANDIA	4' POTS @ 12" O.C. SPACING

- NOTES**
1. PERFORM WORK IN ACCORDANCE WITH ALL APPLICABLE LAWS, ORDINANCES AND REGULATIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION OVER SUCH WORK AND PROVIDE FOR ALL NECESSARY PERMITS REQUIRED BY FEDERAL, STATE AND LOCAL AGENCIES AND AGENCIES OF THE COUNTY OF HAWAII.
 2. THE CONTRACTOR SHALL VERIFY AND ACCEPT THE CONDITION OF THE SITE BEFORE COMMENCING WITH ANY WORK. IF NOT ACCEPTABLE NOTIFY THE OFFICER.
 3. THE CONTRACTOR SHALL SUBMIT (1) PHOTOGRAPHS OF EACH OF THE PLANT MATERIAL IN CONTACT WITH THE SOIL IN THE PLANT LIST FOR VERIFICATION AND (2) A LIST OF THE PLANT MATERIAL TO BE SUBMITTED TO THE OFFICER. THE CONTRACTOR SHALL BE MADE AWARE OF ANY LANDSCAPE MATERIALS THAT ARE NOT PERMITTED FOR USE IN THIS PROJECT. THE CONTRACTOR SHALL BE PROVIDED BY THE LANDSCAPE CONTRACTOR FOR AN EXPLODED (1) NORTH POINTS REFER TO SPECIFICATIONS.

HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES

 ENGINEERING DIVISION

 HANAIEI STREAM BANK RESTORATION

 HANAIEI, HAWAII, 1988

DATE	SCALE	BY	CHECKED

THE SEAL OF THE ENGINEER OR ARCHITECT IS REQUIRED ON ALL WORKS OF PROFESSIONAL DESIGN OR CONSTRUCTION.

LANDSCAPE PLAN
 SCALE: 1/8" = 1'-0"

Exhibit B

Hanalei – Monitoring Plan

This document is intended to outline a basic plan for monitoring the Hanalei River Streambank Restoration project, once construction is complete.

General- Monitoring Frequency and Methods

- 1. Visual Monitoring-** The project site shall be visually monitored every six months and after every major storm event. A major storm event is one that produces a flow in the Hanalei River of 6000 cfs or greater (1.5 BKF/Channel Forming Flow), as measured at the USGS gaging station (USGS 16103000). Flows in the Hanalei River can be checked on the USGS National Water Information Website (NWIS) at http://waterdata.usgs.gov/hi/nwis/uv?site_no=16103000. Visual monitoring shall be done of all components of the project, which include the following:
 - The new embankment (Plug)/Restored Stream Bank
 - Restored River Channel
 - Intake
 - Downstream breach channel/stilling basin

Visual monitoring shall consist of assessment documented with photographs. Walk each of the project areas thoroughly, noting any damage that may have occurred since the last monitoring visit. Photograph the damaged areas and record their position with a global positioning system (GPS).

- 2. Geomorphic evaluation-** Perform a full geomorphic evaluation on annual basis for a period of three years. While it does not necessarily require extensive survey, it should use a local control point to evaluate sedimentation concerns at the intake as well as the 500' of restored channel. Typically the USACE uses 5 yes but the reality is after vegetation is well established at 3 years, the last 2 of the 5 yes do not normally provide value and survey becomes quite difficult. Of particular importance is checking the water intake to ensure that excess sedimentation has not occurred since the last site visit.

Exhibit C

Hanalei –Maintenance and Repair Plan

This document is intended to outline a basic plan for repairing and maintaining the Hanalei River Streambank Restoration project, once construction is complete.

General- Possible Maintenance Scenarios

The following discussion provides potential maintenance scenarios that could occur following a major storm event and provides recommended repairs. All components of the project should be checked for potential damage at every monitoring event. If damage is observed, repairs should be implemented as noted.

i. Maintenance Scenario- Geotextile Fabric Damaged, Rolled or Misplaced

Look for: Tearing, rolling or undermining of geotextile fabric, on banks of restored channel and on face of the plug (see example Photo 1 and Photo 2).

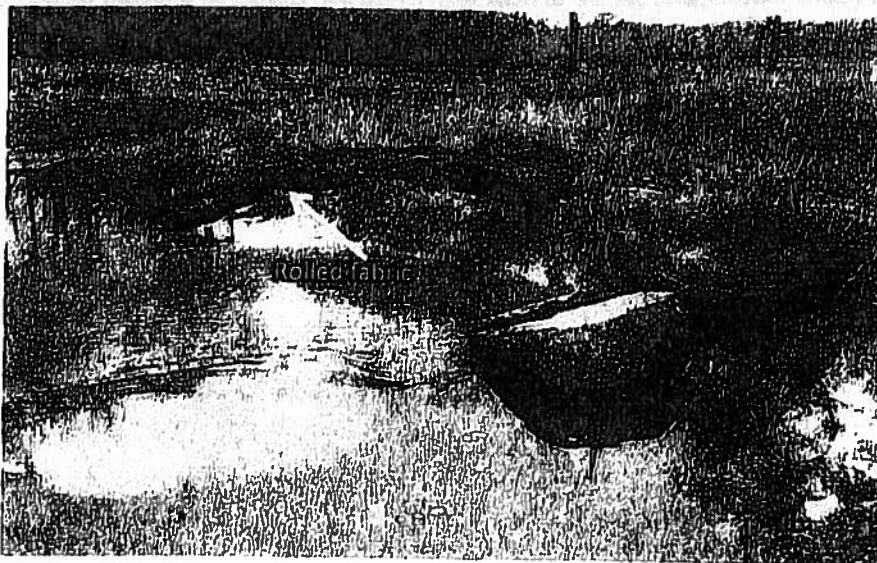


Photo 1- Rolled Geotextile Fabric

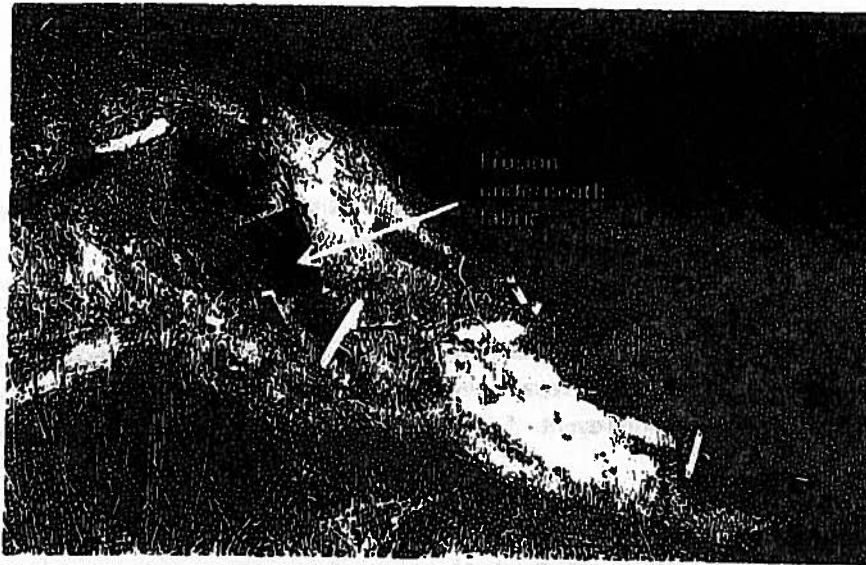


Photo 2- Erosion Taken Place below Erosion Mat

Recommended Repair/Maintenance:

Replace geotextile matting and secure to bank with landscape staples or wooden stakes. Ensure that no streambanks are bare or exposed underneath the geotextile fabric.

II. Maintenance Scenario- Vegetation has Significant Bare Areas

Look for: Significant bare areas of vegetation on face or top of the plug, or along the stream banks of the restored channel (see example Photo 3 and Photo 4).

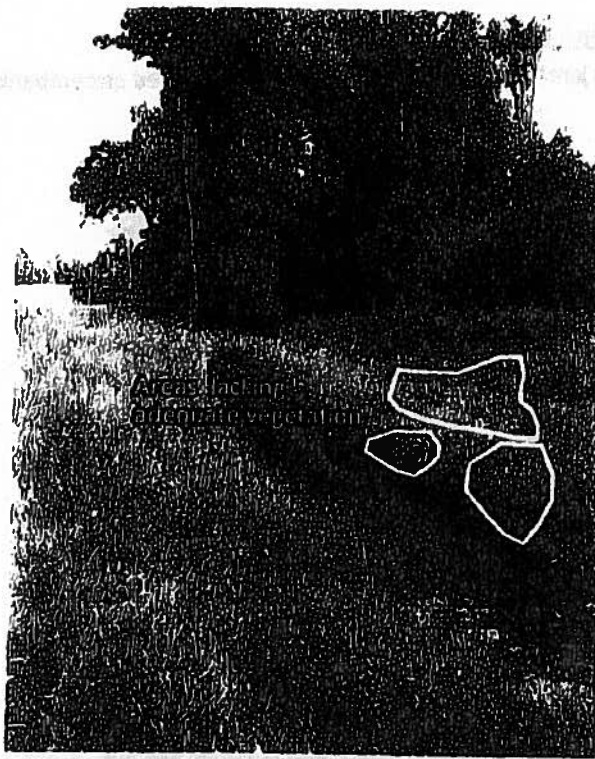


Photo3- Significant Bare Areas of Ground Cover

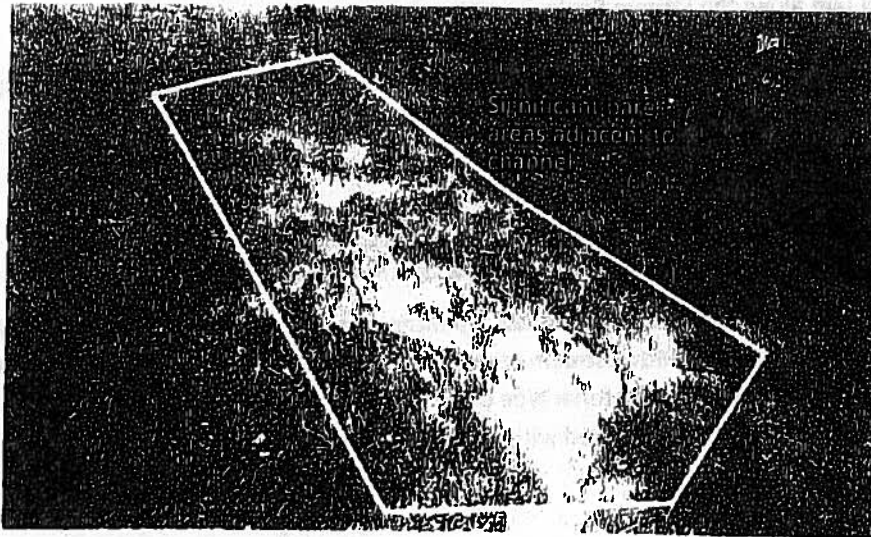


Photo 4- Bare Areas near Channel

Recommended Repair/Maintenance: Replant bare areas of vegetation with fast-growing, deep-rooted woody vegetation.

iii. Maintenance Scenario- Log Jams, Debris

Look for: Logs or other large debris jammed up or lodged against the restored streambank or intake (see example Photo 5).

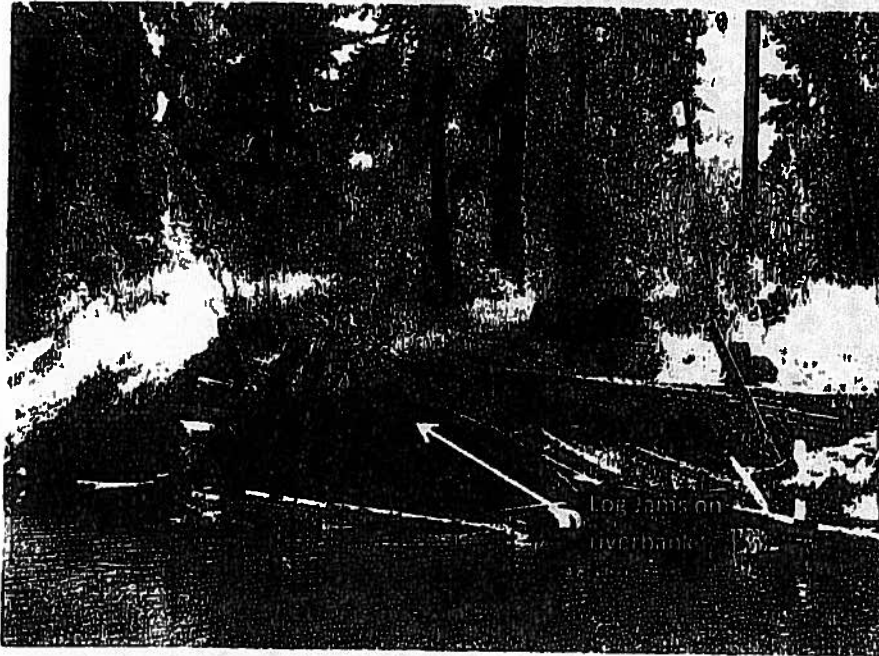


Photo 5- Log Jam along the Stream Bank

Recommended Repair/Maintenance: Remove log jams from affected areas using hand labor if possible or heavy equipment.

iv. Damage Scenario- Significant Erosion on the Plug, Restored River Channel

Look for: Erosion on restored channel reach, downstream breach channel, or plug area

Recommended Repair/Maintenance: Repair significant erosion areas with backfill graded to a slope to match upstream and downstream respectively. Plant the disturbed area with vegetation. If erosion is on river bed, use bed material type (river stone) to backfill scoured areas. Some erosion sensitive areas may need to be covered with geotextile fabric.

v. Maintenance Scenario- Significant Sedimentation at Intake

Look for: Significant deposits of rock or boulder material accumulating at location of intake since last monitoring visit (see example Photo 6).

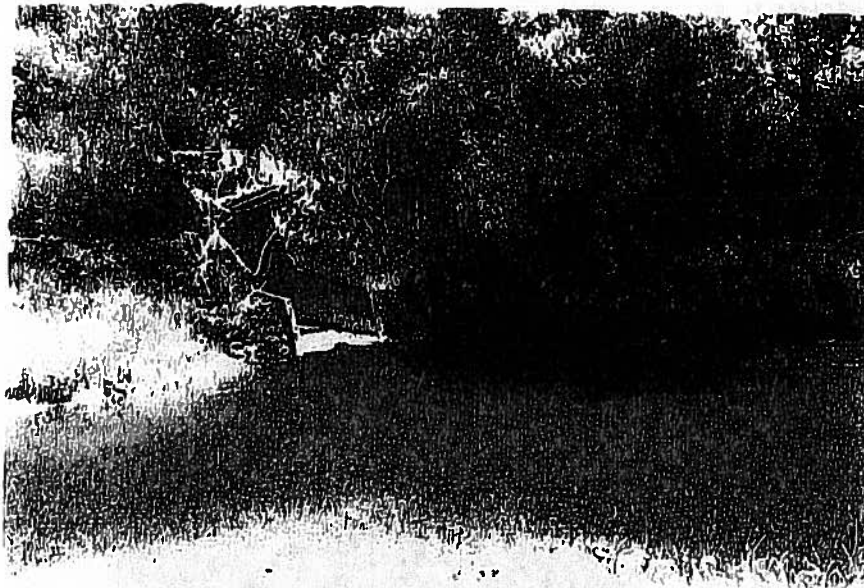


Photo 6- Sediment collection at the Intake

Recommended Repair/Maintenance: Remove excess rock/boulders

vi. Maintenance Scenario- Displacement of Rocks in Stilling Basin

Look for: Significant amounts of armor stone in stilling basin have been moved or displaced since last monitoring visit.

Recommended Repair/Maintenance: Replace missing armor stones.

vii. Maintenance Scenario- Structure Failure

Look for: Bank erosion immediately up and downstream of rock spurs and J-hook. Look for boulders that have been displaced and water piping around boulders (see example Photo 7).

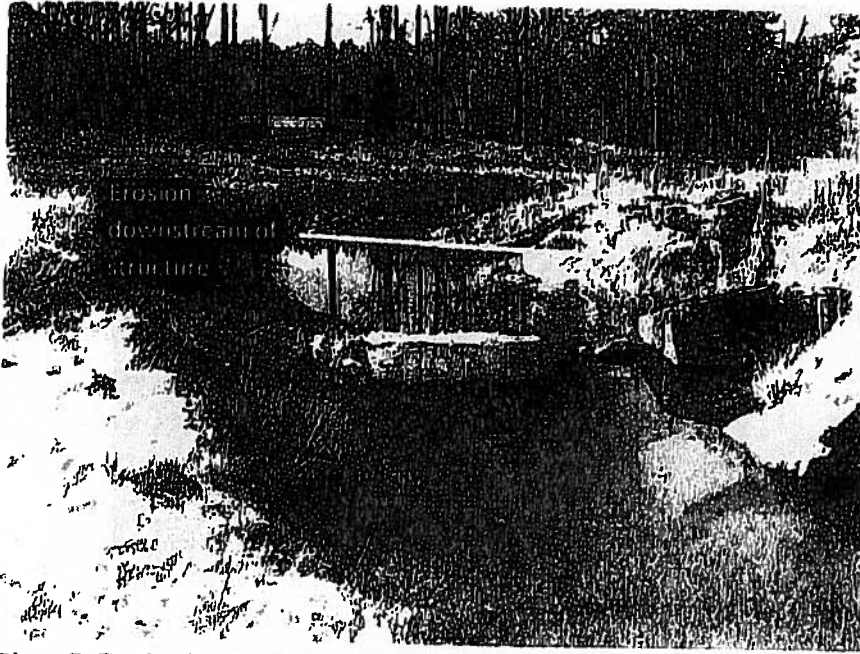


Photo 7- Erosion Downstream or Upstream of the Structure

Recommended Repair/Maintenance: Determine if structure is still functional, if only minor movement has occurred fill gaps with river stone and continue to monitor. If structure is no longer functional it may be necessary to rebuild.