FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(226)	1998	4	38

WATER NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEMS FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS," VOLUME 1, DATED 1985, THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION," VOLUME 2, DATED 1985, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS," VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF THE WATER SUPPLY. ALL OTHER FEATURES OF THE WATER SYSTEM, SUCH AS LINES, GRADES, FITTINGS, DRAINAGE, ETC., AND OTHER FEATURES OF IMPROVEMENTS SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
3. THE CONTRACTOR SHALL NOTIFY THE BWS PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINES, TEES AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATER LINE MOVEMENT DUE TO REMOVAL OF SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURE NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHODS.
5. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABILITY DATA BUT IS NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
6. REAPPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.

SEWER NOTES:

1. ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPTEMBER 1986, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPTEMBER 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990 AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT, VOL. 1, JULY 1993.
2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DEPARTMENT OF WASTEWATER MANAGEMENT AT 527-5820 OR 523-4345 TO ARRANGE FOR INSPECTION SERVICES AND SUBMIT FOUR SETS OF APPROVED CONSTRUCTION PLANS SEVEN DAYS PRIOR TO COMMENCEMENT OF SEWER WORK. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION COSTS.
3. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS RESEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING CONSTRCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATION AND PRESS RELEASES.
6. FOR ENTRY BY CITY PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:
   1. ALL SAFETY EQUIPEMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
      a. FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
      b. LIFELINE AND ASSOCIATED CLIPS.
      c. INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
      d. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
      e. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
      f. CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
      g. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20-FEET AWAY).
      h. PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
   2. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
   3. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).

HECO NOTES:

1. LOCATION OF HECO FACILITIES

   THE LOCATION OF HECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.

2. COMPLIANCE WITH DOSH

   THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).

3. EXCAVATION PERMIT

   THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. PLEASE REFER TO OUR REQUEST NUMBER AT THAT TIME.

4. UNDERGROUND LINES

   FOR VERIFICATION OF UNDERGROUND LINES OR FOR ASSISTANCE IN SUPPORTING AND PROTECTING THESE LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7345 A MINIMUM OF 72 HOURS IN ADVANCE.

5. EXCAVATIONS

   WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH OUR EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:

   A. SHEETING AND BRACING THE EXCAVATION TO PREVENT SLIDES, AVE-INS, AND SETTLEMENTS.

   B. PROTECTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNINGS.

6. POLE BRACING

   FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO DISTRICT SUPERINTENDENT AT (KOOLAU/261-6085, WAIAU/543-4223, WARD/543-7745) A MINIMUM OF 72 HOURS IN ADVANCE.

7. RELOCATION OF HECO FACILITIES

   ANY WORK REQUIRED TO RELOCATE HECO FACILITIES SHALL BE DONE BY HECO AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND FOR POSSIBLE COSTS IF APPLICABLE.

8. TEMPORARY RELOCATION OF HECO FACILITIES

   SHOULD IT BECOME NECESSARY TO RELOCATE ANY HECO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BORNE BY THE CONTRACTOR.

9. UNFORESEEN CONFLICTS

   ANY UNFORESEEN CONFLICT THAT WOULD RESULT IN THE REDESIGN OR RELOCATION (EITHER TEMPORARY OR PERMANENT) OF HECO'S ELECTRICAL FACILITIES MAY BE CAUSE FOR LENGTHY DELAYS. TO AVOID SUCH DELAYS, THE CONTRACTOR MUST NOTIFY HECO OF THE CONFLICT A MINIMUM OF 30 DAYS PRIOR TO THE START OF CONSTRUCTION.

10. DAMAGE TO HECO FACILITIES

    ANY DAMAGE TO HECO'S FACILITIES WILL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER AT 543-7874.

11. LIABILITY FOR DAMAGE TO HECO FACILITIES

    ALL HECO OVERHEAD AND UNDERGROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACILITIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.

12. INDEMNITY

    THE CONTRACTOR SHALL INDEMNITY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMAGES, CLAIMS OR ACTION, BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER DIRECTION OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY UPON THE SOLE NEGLIGENCE OF HECO.

HAWAIIAN TELEPHONE COMPANY NOTES:

1. ALL WORK ON TELEPHONE FACILITIES SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF HAWAIIAN TELEPHONE COMPANY FOR FACILITIES WITHIN THEIR JURISDICTION.
2. THE CONTRACTOR SHALL CLOSELY COORDINATE ALL WORK WITH HAWAIIAN TELEPHONE COMPANY.
3. ALL TRENCHES MUST BE INSPECTED BY HAWAIIAN TELEPHONE COMPANY PRIOR TO BACKFILLING AND CONCRETE-ENCASING OPERATIONS.
4. THE CONTRACTOR SHALL PROVIDE PULLING WIRE IN ALL CONDUITS, AS INCIDENTAL.
5. ALL CONDUITS SHALL BE CLEANED AND FREE FROM OBJECTIONABLE MATERIALS WITH THE ENDS ADEQUATELY COVERED UNTIL THE CABLE IS INSTALLED BY HAWAIIAN TELEPHONE COMPANY.
6. UNLESS OTHERWISE INDICATED, ALL CONDUITS SHALL BE SCH. 40 PVC (TYPE EB USED ONLY IN CONCRETE ENCASED).
7. ALL STREET CROSSINGS SHALL BE ENCASED IN A CONCRETE-ENCASED JACKET, WHICH SHALL EXTEND A MINIMUM OF 12 INCHES OUTSIDE OF EDGE OF PAVEMENT.
8. MINIMUM CLEARANCES BETWEEN ELECTRICAL AND TELEPHONE CONDUITS SHALL BE 12 INCHES HORIZONTALLY AND 6 INCHES VERTICALLY; HOWEVER, IF CONCRETE-ENCASED, A 3-INCH CLEARANCE MAY BE UTILIZED IN BOTH DIRECTIONS. CONCRETE USED FOR THIS PURPOSE SHALL BE CONSIDERED AS INCIDENTAL.
9. ALL TYPE 435 & 435TB6 BOXES SHALL BE CONSTRUCTED WITH A MINIMUM OF 2 PRECAST SECTIONS.
10. AT NO TIME SHALL CEMENT MORTAR, WOOD OR ANY OTHER MATERIAL BE USED BETWEEN PRE-CAST SECTIONS. LEVELING OR RAISING OF BOXES SHALL BE DONE AT THE BRICKWORK SECTION USING CEMENT MORTAR. THE PERMANENT INSTALLATION OF WOODEN WEDGES TO LEVEL OR RAISE THE PRE-CAST SECTIONS SHALL NOT BE PERMITTED.
11. A MINIMUM OF 2 LAYERS OF BRICK SHALL BE USED ON ALL OF THE PULLBOX INSTALLATIONS. THERE SHALL BE NO LESS THAN 1 FULL LAYER OF BRICK BELOW THE LOWEST DUCT ENTERING OR LEAVING THE PULLBOX.
12. ALL CONDUITS SHALL ENTER BOXES AT 90° ANGLE AND FLUSH TO THE WALL WITH FLARED OR BELL ENDS TO PREVENT CABLE DAMAGE.
13. A MINIMUM OF 3" OF #3 CRUSHED ROCK BACKFILL SHALL BE PLACED LOOSELY AT THE BOTTOM OF THE HANDHOLD OR PULLBOX. CLEARANCE ABOVE CRUSHED ROCK BACKFILL TO BE 6 INCHES.
14. THE CONTRACTOR SHALL FURNISH AND INSTALL NO. 4 B.C. GROUND WIRE (DIRECT BURIAL) FROM ALL TRANSFER PAD GROUND RODS TO THE NEAREST HAWAIIAN TELEPHONE COMPANY PULLBOX AS SPECIFIED IN H.T.CO. DETAIL 34045-D. INSTALL (1) 3/4" x 8' GROUND ROD IN ALL OTHER H.T.CO. PULLBOXES, EXCEPT IN 436T METER TYPE BOXES.
15. THE TOP OF ALL UTILITY BOXES SHALL MATCH THE FINISH GRADE.
16. BACKFILL MATERIAL AROUND ALL DUCTS SHALL BE SELECT MATERIALS.
17. ALL UTILITY CONDUITS (ELECTRIC, TELEPHONE AND CABLE TV) CROSSING THE TRAVELWAYS SHALL BE ENCASED IN CONCRETE, IN ACCORDANCE WITH THE REQUIREMENTS OF THE AFFECTED UTILITY COMPANIES.

LANDSCAPE AND IRRIGATION NOTES:

1. CONTRACTOR SHALL RELOCATE EXISTING IRRIGATION SYSTEM TO CLEAR NEW FOUNDATION CONSTRUCTION.
2. CONTRACTOR SHALL INSTALL 6 INCHES THICK TOP SOIL AND REGRASS TO MATCH THE EXISTING PLANTINGS.

CONSTRUCTION NOTES FOR GAS FACILITIES:

1. BHP GAS COMPANY GAS PIPELINES IN THE PROJECT AREA ARE PLASTIC COATED AND CATHODICALLY PROTECTED. THE CONTRACTOR SHALL BE EXTREMELY CAREFUL WHEN WORKING NEAR THESE GAS PIPELINES.
2. WRITTEN CLEARANCES MUST BE OBTAINED FROM BHP GAS COMPANY AT LEAST FIVE WORKING DAYS PRIOR TO STARTING EXCAVATION NEAR THESE GAS PIPELINES.

   SINCE GAS LINE LOCATIONS ON FIELD MAPS ARE APPROXIMATE, THE CONTRACTOR, AFTER OBTAINING WRITTEN CLEARANCE, SHALL CALL BHP GAS COMPANY AT LEAST FIVE WORKING DAYS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF THE EXISTING GAS PIPELINES. THE TELEPHONE NUMBER IS 594-5575 DURING BUSINESS HOURS AND 526-0066 AFTER HOURS.
3. THE CONTRACTOR SHALL EXCAVATE AND BACKFILL AROUND GAS PIPELINES IN THE PRESENCE OF A BHP GAS COMPANY REPRESENTATIVE. ALL BACKFILL WITHIN SIX INCHES OF ANY GAS PIPELINE SHALL BE SELECT CUSHION MATERIAL APPROVED BY BHP GAS COMPANY.
4. FOR RELOCATION OF ANY GAS PIPELINE, THE CONTRACTOR SHALL NOTIFY BHP GAS COMPANY FIVE WORKING DAYS BEFORE STARTING WORK. THE CONTRACTOR SHALL PROVIDE THE NECESSARY EXCAVATION AND BACKFILL, OBTAIN TRAFFIC PERMITS, AND RESTORE PAVEMENT, SIDEWALKS, AND OTHER FACILITIES. ANY RELOCATION OF GAS FACILITIES SHALL BE DONE BY BHP GAS COMPANY AND PAID FOR BY THE CONTRACTOR.
5. THE CONTRACTOR SHALL NOTIFY BHP GAS COMPANY IMMEDIATELY AFTER ANY DAMAGE HAS BEEN CAUSED TO EXISTING GAS PIPELINES, COATINGS, OR ITS CATHODIC PROTECTION DEVICES. REPAIR WORK ON SUCH DAMAGE SHALL BE DONE BY BHP GAS COMPANY AND PAID FOR BY THE CONTRACTOR.
6. MINIMUM VERTICAL AND HORIZONTAL CLEARANCE BETWEEN THE GAS PIPELINES AND OTHER PIPELINES, CONDUITS, DUCTLINES, OR OTHER FACILITIES SHALL BE 12 INCHES. ADEQUATE SUPPORT AND PROTECTION FOR GAS PIPELINES EXPOSED IN THE TRENCH SHALL BE PROVIDED BY THE CONTRACTOR AND APPROVED BY BHP GAS COMPANY.
7. THE CONTRACTOR SHALL WORK IN AN EXPEDITIOUS MANNER IN ORDER TO KEEP THE UNCOVERED GAS PIPELINES EXPOSED FOR AS SHORT A PERIOD OF TIME AS POSSIBLE.

APPROVED:

CHIEF, DIV. OF PLANNING & SERVICE CONTROL, WWM (FOR SEWER WORK WITHIN PUBLIC R/W & CITY SEWER EASEMENTS ONLY) — DATE 10/17/97

for CHIEF, PLANNING & ENGINEERING DIVISION BOARD OF WATER SUPPLY — DATE 10/16/97

DANIEL S. MIYASATO LICENSED PROFESSIONAL ENGINEER No. 3443-C HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

CONSTRUCTION NOTES

INTERSTATE ROUTE H-1, SEISMIC RETROFIT
KAPIOLANI INTERCHANGE
FAIP NO. BR-H1-1(226)

SCALE: AS NOTED DATE: DECEMBER 1998

SHEET NO. C1 OF 11 SHEETS

ORIGINAL PLAN | NOTE BOOK | No. ____
SURVEY PLOTTED BY ____ DATE ____
DRAWN BY ____
TRACED BY ____
DESIGNED BY ____
QUANTITIES BY ____
CHECKED BY ____

Ppoj. No. 96025-00
10/1/97
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FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-H1-1(226)	1999	5	38

PROPOSED BEST MANAGEMENT PRACTICE (BMP) PLAN

The Contractor shall prepare a water quality site-specific BMP and monitoring plan and NPDES site-specific BMP and dewatering plan and submit to the Engineer for approval by the Department of Health.

1. Construction Sequence

   a. The construction within the Manoa-Palolo Stream will be done during the dry season when there is low stream flow.

   b. Initially, the Contractor shall install an effective silt containment device(s) to isolate the construction activities from the receiving State waters. Construction equipment will not be allowed within the stream bed until the effective silt containment device(s) is installed.

   c. An access path to the construction site will be created by diverting the stream flow away from the path. The stream flow shall also be diverted around the construction site via berms, sand bags, pipes or other methods.

   d. All debris and/or excavated materials shall be properly removed from the aquatic environment and disposed of at the upland State or County approved sites. No construction material or construction-related materials shall be stockpiled, stored, or placed in the aquatic environment or stored or placed in ways that will disturb the aquatic environment. If stockpiling of excavated materials is required prior to transporting to the State or County approved site, transporting the excavated materials from the site to an approved stockpile area shall be done with a watertight equipment.

2. Construction Method

   a. After the stream flow has been diverted, a backhoe will be used to excavate the stream bed to expose the existing pile cap.

   b. If sheet piles are necessary, a pile driving equipment will be used to install the perimeter sheet piles to protect the excavation.

   c. The backhoe and/or other excavation equipment will be used to excavate and expose the bottom of the existing pile cap.

   d. The pile driving equipment will install the 16-inch and 18-inch diameter steel pipes to upgrade the foundation.

   e. Piles will be cut and removed prior to placing rebars and concrete.

   f. To facilitate dry bedding, the bottom may be over excavated and backfilled with crushed rock.

   g. Reinforcement will be placed and the concrete will be pumped into place.

   h. Clean up work area to restore to its pre-construction condition.

3. Characteristics of the Discharge and Potential Pollutants Associated with the Proposed Construction Activity.

   a. Material temporarily placed may include silt screen, plastic or steel pipes, coarse gravel, plastic lining, form material, berms, dikes, cofferdams, and sand bags.

   b. Material permanently placed include sheet piles, if necessary, concrete filled steel piles, reinforcement, and concrete.

   c. Material that may enter State waters due to the proposed construction activity includes soil erosion, construction debris, and removed vegetation.

   d. Discharges associated with the operation of the equipment include oil leak, and spills from the equipment fueling operation. Maintenance of equipment and fuel storage will not be allowed within the aquatic environment.

4. Proposed Control Measures or Treatment

   a. Effective silt containment devices shall be installed around the work site prior to any construction activity. They shall be maintained until the footing retrofit construction activity is completed. Details will be submitted after Contractor is selected.

   b. Stream flow shall be diverted away from, or around, the construction site prior to sheet pile installation.

   c. A designated upland area away from the aquatic environment for the selected Contractor to store or stockpile construction related materials and equipment will be assigned prior to start of construction activity.

   d. All loose material and small tools and equipment will be removed from the construction site after every work day is completed.

   e. Equipment shall be inspected daily to make sure oil leaks do not occur. Equipment shall be stored upland away from the aquatic environment. Fueling and lubricating of equipment and motor vehicles will be conducted away from the aquatic environment and in a manner to protect against spills and evaporation. Lubricants and excess oils will be disposed of in accordance with applicable federal, state and local regulations.

   f. Skilled masonry workers will be used to finish the concrete footing.

5. Water Quality Monitoring Plan

   a. The monitoring plan will consist of a control station and monitoring station at a location from the construction site approved by the Department of Health. Turbidity, pH, and total suspended solids (TSS) shall be monitored.

   b. The monitoring schedule shall involve collecting samples every day for five days prior to start of construction at the control station and monitoring station. During the construction period, representative samples shall be taken twice a week at the control station and monitoring station. Samples shall be taken after construction work has started for the day, at least 1 or 2 hours after the workday begins. If the results exceed the geometric mean established from the baseline pre-construction water quality monitoring or applicable water quality standards, modifications shall be made to the water pollution controls.

   c. Samples shall be taken at mid-depth of water or as recommended by the Department of Health. Sample results shall be submitted to the Department of Health, Clean Water Branch. If the results exceed the applicable water quality standards, the Clean Water Branch will be notified within 24 hours after the availability of the analytical results. Notification will include mitigation measures. The pre-construction, and during construction monitoring results shall be submitted to the Department of Health as soon as they become available or no later than one week after the availability of the analytical results.

   d. The State of Hawaii, Department of Health, Clean Water Branch (Phone: 586-4309) shall be notified three days prior to start of construction and at the end of construction.

6. Dewatering Plan

   a. An analysis of the source water quality as specified in DOH-NOI Form A shall be provided by the Contractor prior to start of dewatering. The analysis shall include an evaluation of the source water quality data collected with respect to the applicable numeric criteria and numeric standards for the toxic pollutants specified under HAR, Chapter 11-54.

   b. Contractor shall design the treatment of dewatering activity and obtain DOH's approval prior to dewatering.

   c. Treatment may include siltation tanks, filters, and pumps.

   d. Treatment design calculations and proposed mitigative measures shall be submitted to DOH by the Contractor.

   e. The site-specific dewatering plan shall be submitted to the Director, 30 days before the start of construction dewatering activities.

   f. Prohibited practices:

      (1) Dewatering effluent will not be directly discharged into any storm drain or receiving waters without prior treatment to remove pollutants.

      (2) If effluent water quality degrades below the treatable level of the filter system, discharges shall be halted until proper measures are incorporated.

   g. Operation and maintenance procedures shall include:

      (1) Responsible field person of the system, by title or name;

      (2) Operations plan;

      (3) Maintenance scheduling or action criteria;

      (4) Maintenance program;

      (5) Sediment handling and disposal plan;

      (6) Monitoring and visual inspection program;

      (7) Cessation of discharge plan; and

      (8) Effluent control plan.

BEST MANAGEMENT PRACTICES NOTES

1. WITHIN 14 CALENDAR DAYS AFTER THE CONTRACT AWARD, THE CONTRACTOR SHALL SUBMIT TO THE DEPARTMENT OF TRANSPORTATION THE FOLLOWING:

   A. SITE-SPECIFIC BEST MANAGEMENT PRACTICES (BMP) AND MONITORING PLAN FOR SECTION 401 WATER QUALITY CERTIFICATION.

   B. SITE-SPECIFIC BMP AND DEWATERING PLAN FOR THE NPDES PERMIT.

2. THE CONTRACTOR WILL NOT BE ALLOWED TO DO RETROFIT WORK IN THE WATER UNTIL THE SITE-SPECIFIC BMPS, MONITORING PLAN, AND DEWATERING PLAN ARE APPROVED.

ORIGINAL PLAN
NOTE BOOK No. ____
SURVEY PLOTTED BY ____ DATE
DRAWN BY " "
TRACED BY " "
DESIGNED BY " "
QUANTITIES BY " "
CHECKED BY " "

DANIEL S. MIYASATO
LICENSED PROFESSIONAL ENGINEER
No. 3443-C
HAWAII U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

ENVIRONMENTAL
NOTES

INTERSTATE ROUTE H-1, SEISMIC RETROFIT
KAPIOLANI INTERCHANGE
FAIP NO. BR-H1-1(226)

SCALE: AS NOTED DATE: DECEMBER 1998

SHEET NO. C2 OF 11 SHEETS

Ppoj. No. 96025-00
2/4/99
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