FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1I-01-14M	2014	6	42

BOARD OF WATER SUPPLY NOTES

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu, Board of Water Supply's "Water System Standards", dated 2002, 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 Capital Projects Division, Construction Section in writing one week prior to commencing work on the water system.

4. The existence and location of underground utilities and structures as shown on the plan are from the latest available data but is not guaranteed as to the accuracy of 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.

5. 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 the removal of the supporting earth beyond the existing reaction blocks. The Contractor shall take whatever measures necessary to protect the water lines, such constructing special reaction blocks (with BWS approval) and/or modifying his construction method.

6. Any adjustments to the existing water system required during construction to meet requirements of BWS standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board of Water Supply.

7. Prior to any excavating, the Contractor shall verify in the field the location of existing water mains and appurtenances.

8. The Contractor shall adjust all manhole frames/valve boxes/meter boxes within the work area. The Contractor shall be responsible for "referencing" these manholes/valve boxes/meter boxes to facilitate the adjustments.

HAWAIIAN TELCOM TELEPHONE GENERAL NOTES

1. The Contractor shall procure and pay for all licenses and permits and shall give all notices necessary and incident to the due and lawful prosecution of the work.

2. The locations of existing utilities are approximate only. The Contractor shall exercise extreme caution and shall maintain proper clearances whenever construction crosses or is in close proximity of Hawaiian Telcom facilities. The Contractor shall verify their locations and shall be liable for any damages to Hawaiian Telcom facilities. Any damages shall be reported immediately to Hawaiian Telcom's Repair Section at #611 (24 hours) or to the Excavation Permit Section at 546-7746 (normal working hours, Monday through Friday, except holidays). As a result of his operations, adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.

3. The Contractor shall take necessary precaution not to damage existing cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Hawaiian Telcom facilities. Temporary cable and duct supports shall be provided wherever necessary.

4. The Contractor shall notify Hawaiian Telcom's inspector or designated representative a minimum of 72 hours prior to excavation, bracing, or backfilling of Hawaiian Telcom's structures or facilities.

5. All applicable construction work shall be done in accordance with the "Hawaiian Telcom Standard Specifications for placing underground telephone systems" dated march 1999, all subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.

6. When excavation is adjacent to or beneath Hawaiian Telcom's existing structures or facilities, the Contractor shall:
   a. sheet and/or brace the excavation to prevent slides, cave-ins, or settlements to ensure no movement to Hawaiian Telcom's structures or facilities.
   b. protect existing structures and/or facilities with beams, struts, or underpinning while excavating beneath them to ensure no movement to Hawaiian Telcom's structures or facilities.

MECHANICAL/ELECTRICAL DIVISION NOTES

1. The Contractor shall notify the Joint Pole Committee two (2) weeks in advance of any relocation of utility pole(s) that may be necessary.

2. The Contractor shall notify the Mechanical/Electrical Design and Engineering Division, Department of Design and Construction (768-8431), three (3) working days prior to commencing work on the street lighting system.

3. The street lighting system shall be kept operational during construction. Any relocation required shall be approved by the Mechanical/Electrical Design and Engineering Division, Department of Design and Construction, and paid for by the Contractor.

4. The Contractor shall be responsible for any damages to the existing street lighting facilities. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu.

5. The Contractor shall be responsible for any damages to the City's existing communications fiber optic cable system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the City and County of Honolulu.

PUBLIC TRANSIT DIVISION, DTS NOTE:

This project will affect bus routes, bus stops, and para-transit operations, therefore, the Contractor shall notify the Department of Transportation Services, Public Transit Division at 768-8396 and Oahu Transit Services, Inc. (Bus Operations: 848-4578 or 848-6016 and Para-Transit Operations: 454-5041 or 454-5020 of the scope of work, location, proposed closure of any street, traffic lane, sidewalk, or bus stop and duration of project at least two weeks prior to construction.

ORIGINAL PLAN | NOTE BOOK | No.
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JASON H. LAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA

4/30/14
EXP. DATE

This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES

ALA WAI WATERSHED STORM WATER
BEST MANAGEMENT PRACTICES ON OAHU
Project No. H1I-01-14M

Scale: None Date: January 2014

SHEET No. N-03 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1I-01-14M	2014	7	42

HECO NOTES

1. 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 verify in the field the locations of the facilities and shall exercise proper care in excavating and working the area. Wherever connections of new utilities to existing utilities and utility crossings are shown, the Contractor shall expose the existing lines at the proposed connections and crossings to verify the depths prior to excavation for the new lines. The Contractor shall be responsible for any damages to HECO's facilities whether shown or not shown on the plans.

2. The Contractor shall comply with the State of Hawaii's Occupational Safety and Health laws and regulations, including without limitation, those related to working on or near exposed or energized electrical lines and equipment.

3. The Contractor shall obtain an excavation clearance from HECO's the Planning and Design Section of the Customer Installations Department (543-5654) located at 820 Ward Avenue, 4th Floor, a minimum of ten (10) working days prior to starting construction.

4. Existing HECO overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with HECO. Only HECO personnel are to handle these energized lines and erect temporary guards to protect these lines from damage. The Contractor shall work cautiously at all times to avoid accidents and damage to existing HECO facilities, which can result in electrocution.

5. State law (OSHA 1910.269(k)(2b)) requires that a worker and the longest object he or she may contact cannot come closer than a minimum radial clearance of 10 feet when working close to or under any overhead lines rated 50kV and below. For each additional 10kV above 50kV, an additional 4 inches shall be added to the 10-foot clearance requirement. The preceding information on line clearance requirements is provided as a convenience and it is the Contractor's responsibility to be informed of and comply with any revisions or amendments to the law.

   Should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance at any time, the Contractor shall notify HECO at least four (4) weeks prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate or de-energize HECO lines) can be investigated. HECO may also be able to blanket its distribution (12kV and below) lines to provide a visual aid in preventing accidental contact. HECO's cost of safeguarding or identifying its lines will be charged to the Contractor.

   Contact HECO's Customer Installations Department at 543-7846 for assistance in identifying and safeguarding overhead power lines.

6. A minimum clearance of 10 feet must be maintained when excavating around utility poles and/or their anchor system to prevent weakening or pole support failure. Should work require excavating within 10 feet of a pole and/or its anchor system, the Contractor shall protect, support, secure, and take all other precautions to prevent damage to or leaning of these poles. The Contractor is responsible for all pole bracing designs and structural calculations, as well as associated costs to brace, repair, or straighten poles. All means of structural support for the pole and or anchor system proposed by the Contractor shall be submitted to HECO's Customer Installations Department (543-7846) for review a minimum of ten (10) working days prior to implementation. The cost of HECO's review/assistance in providing proper support and protection of its poles will be charged to the Contractor.

7. The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. HECO's existing electrical cables are energized and will remain energized during construction. Only HECO personnel are to break into existing HECO facilities, handle these cables and erect temporary guards to protect these cables from damage. The cost of HECO's assistance in providing proper support and protection of its underground lines will be charged to the Contractor. For assistance/coordination in providing proper support and protection of these lines, the Contractor shall call HECO's Customer Installations Department at 543-7846 a minimum of ten (10) working days in advance.

   Special precautions are required when excavating near HECO's 138kV underground lines (See HECO Instructions to Consultants/Contractors on "Excavation near HECO's Underground 138kV Lines" for detail requirements.)

   For verification of underground lines, the Contractor shall call the Hawaii One Call Center at 866-423-7287 a minimum of five (5) working days in advance.

8. The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of HECO's underground fuel oil pipelines. Special precautions are required when excavating near HECO's underground fuel oil pipelines (See HECO's Instructions to Consultants/Contractors on "Excavation near HECO's Underground Fuel Pipelines" for detailed requirements.)

9. When trench excavation is adjacent to or beneath HECO's existing structures or facilities, the Contractor is responsible for:
   a. Arranging for HECO standby personnel to observe work at Contractor's cost.
   b. Sheeting, bracing, or otherwise supporting the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.
   c. Properly supporting existing structures or facilities with beams, struts, under-pinnings, or other necessary methods to fully protect it from damage.
   d. Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

10. Any work required to relocate or modify HECO facilities shall be done by HECO, or by the Contractor under HECO's supervision. The Contractor shall be responsible for all coordination and shall provide necessary support for HECO's work, which may include, but not be limited to, staking of pole/anchor locations, identifying right of way and property lines, excavation and backfill, permits and traffic control, barricading, and restoration of pavement, sidewalks, and other facilities.

    All costs associated with any relocation or modification (either temporary or permanent) for the convenience of the Contractor, or to enable the Contractor to perform work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

11. Any redesign or relocation of HECO's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that HECO is not responsible for any delay or damage that may arise as a result of any conflicts discovered or identified with respect to the location or construction of HECO's electrical facilities in the field, regardless of whether the Contractor has met the requested minimum advance notices. In order to minimize any delay or impact arising from such conflicts, HECO should be notified immediately upon discovery or identification of such conflict.

12. The Contractor shall be responsible for the protection of all HECO surface and subsurface utilities and shall be responsible for any damages to HECO's facilities as a result of his operations. The Contractor shall immediately report such damages or any hazardous conditions related to HECO's lines to HECO's Trouble Dispatcher at 548-7961. Repair work shall be done by HECO or by the Contractor under HECO's supervision. Costs for damages to HECO's facilities shall be borne by the Contractor.

    In case of damage or suspected damage to HECO's fuel pipeline, the Contractor shall immediately notify HECO's Honolulu Power Plant shift supervisor at 533-2102 (a 24-hour number) so HECO personnel can secure the damaged section and report any oil spills to the proper authorities. In case of damage or suspected damage to the Waiau or Kahe fuel pipelines, the Contractor shall also notify Chevron at 682-2227. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

ORIGINAL PLAN
NOTE BOOK
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QUANTITIES BY
CHECKED BY
DATE

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JASON H. KAU
LICENSED PROFESSIONAL ENGINEER
NO. 9360-C
HAWAII USA
4/30/14
EXP. DATE
This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES

ALA WAI WATERSHED STORM WATER BEST MANAGEMENT PRACTICES ON OAHU
Project No. H1I-01-14M

Scale: None Date: January 2014

SHEET No. N-04 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	H1I-01-14M	2014	8	42

HECO NOTES (CON'T.)

13. The Contractor may request HECO to provide an inspector to stand-by during construction near HECO's facilities. The cost of such inspection will be charged to the Contractor.

    The Contractor shall call the HECO's Customer Installations Department at 543-7846 a minimum of five (5) working days in advance to arrange for HECO stand-by personnel.

14. The Contractor shall indemnify, defend and hold harmless HECO from and against all losses, damages, claims, and actions, including but not limited to reasonable attorney's fees and costs based upon or arising out of damage to property or injuries to persons, or other tortuous acts caused or contributed to by Contractor or anyone acting under its direction or control or on its behalf; provided Contractor's indemnity shall not be applicable to any liability based upon the sole negligence of HECO.

15. The following clearances shall be maintained between HECO's ductline and all adjacent structures (charted and uncharted) in the trench:

Minimum Separation Clearances to Existing Underground Ductlines Horizontal (Parallel)

Utility Being Installed	Existing Direct Buried Cable	Existing Direct Buried in Conduit (No Concrete Encasement)	Existing 3" Concrete Encasement	Applicable Notes:
HECO DB Conduits	12"	3"	0"	
HECO 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"	12"	6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	E
Traffic Signal	12"	12"	12"	
Water DB	36"	36"	36"	A, D
Water Service Laterals	12"	12"	12"	
Water (Concrete Jacketed)	36"	36"	36"	A, D
Gas DB	12"	12"	12"	A
Gas (Concrete Jacketed)	12"	12"	12"	A
Sewer DB	36"	36"	36"	A, B
Sewer (Concrete Jacketed)	36"	36"	36"	A, B
Drain	12"	12"	12"	A
Fuel Pipelines	48"	48"	48"	C

15. (Continued)
    Notes for Horizontal (Parallel) Clearance Table:
    A. Where space is available, parallel clearance to other utilities, or foreign structures other than communication or traffic signal shall be 36".
    B. If 36" clearance cannot be met:
       - If clearance is less than 12", jacket sewer line with reinforced concrete (per HECO's Std. 30-1030) for a distance of 5' plus pipe diameter.
       - If clearance is between 12" and 36", jacket sewer line with plain concrete.
    C. Electrical conduit crossings of fuel lines should be kept to a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.
    D. 5 feet clear to water mains 16" and larger.
    E. For situations with 0" minimum separation, a 6" separation is recommended.
    F. Clearances measured from outer edges or diameters of utilities.

Minimum Separation Clearances to Existing Underground Ductlines Vertical (Crossing)

Utility Being Installed	Existing Direct Buried Cable	Existing Direct Buried in Conduit (No Concrete Encasement)	Existing 3" Concrete Encasement	Applicable Notes:
HECO DB Conduits	6"	3"	0"	
HECO 3" Encasement	0"	0"	0"	
Telephone/CATV DB	12"		6"	
Telephone/CATV DB Ducts	12"	12"	6"	
Telephone/CATV 3" Encasement	0"	0"	0"	E
Traffic Signal	12"	12"	6"	
Water DB	6"	6"	6"	B
Water Service Laterals	6"	6"	6"	
Water (Concrete Jacketed)	6"	6"	6"	B
Gas DB	12"	12"	12"	
Gas (Concrete Jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	A
Sewer (Concrete Jacketed)	24"	24"	24"	A
Drain	12"	12"	12"	
Fuel Pipelines	48"	48"	48"	C

15. (Continued)
    Notes for Vertical (Crossing) Clearance Table:
    A. If clearance cannot be met:
       - If clearance is less than 12", jacket sewer line with reinforced concrete (per HECO's Std. 30-1030) for a distance of 5' plus pipe diameter.
       - If clearance is between 12" and 24", jacket sewer line with plain concrete.
    B. 12" vertical clearance for pipe diameters greater than 16".
    C. Electrical conduit crossings of fuel lines should be kept to a minimum of 48" clear below fuel line for the full easement width. If the 48" clearance cannot be met but there is a minimum of 24", the fuel line must be encased with 6" of concrete.
    D. 5 feet clear to water mains 16" and larger.
    E. For situations with 0" minimum separation, a 6" separation is recommended.
    F. Clearances measured from outer edges or diameters of utilities.

The Contractor shall notify the Construction Manager & HECO of any heat sources (power cable duct bank, streamline, etc.) encountered that are not properly identified on the drawing.

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JASON H. LAU LICENSED PROFESSIONAL ENGINEER NO. 9360-C HAWAII USA
4/30/14 EXP. DATE
This work was prepared by me or under my supervision.

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES

ALA WAI WATERSHED STORM WATER BEST MANAGEMENT PRACTICES ON OAHU
Project No. H1I-01-14M

Scale: None Date: January 2014

SHEET No. N-05 OF 11 SHEETS