

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-01-23M	2023	5	26

HAWAIIAN TELCOM 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 Contractor shall obtain an excavation permit and toning request from Hawaiian Telcom's Excavation Permit Section, located at 1177 Bishop Street, two weeks prior to the start of construction. Hours of business are 8:00 a.m. to 11:00 a.m. and 12:00 noon to 3:00 p.m. Monday through Friday, except holidays.

3. Prior to the excavation of the ductline, the Contractor shall request Hawaiian Telcom to locate existing ductline wherever required. For underground cable locating and marking, five (5) working days advance notice is required. Three (3) working days advance notice is required for any inspection by a designated representative.

4. 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.

5. 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.

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

7. All applicable construction work shall be done in accordance with the "Hawaiian Telcom Standard Specifications for Placing Telephone Systems" dated January 2007, including all subsequent amendments and additions, and all other pertinent standards for telephone construction. Contractor shall familiarize his personnel by obtaining applicable specifications.

8. 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.

9. The Contractor shall brace all poles or light standards near the new ductline, manhole, or handhole during his operations.

10. The Contractor shall saw-cut A.C. pavement and concrete gutter wherever new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.

11. The Contractor shall repair sidewalks in accordance with these contract documents and State Standard Plan D-15.

12. The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.

13. Wherever connections to existing utilities are shown on the plans, the Contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.

14. The Contractor, at his own expense, shall keep the project and surrounding area free from dust nuisance. The cost for supplementary measures, which will be required by the City and County, shall be borne by the Contractor.

15. The Contractor shall pump all manholes dry during final inspection.

16. The Contractor shall notify Hawaiian Telcom inspector 24 hours prior to the pouring of concrete or backfilling.

17. When connecting to manhole walls, all existing reinforcing bars shall be left intact. Ducts shall be adjusted in the field in order to clear reinforcing.

18. The Contractor shall be responsible for laying out all required lines and grades and shall preserve all benchmarks and working points necessary to lay out the work correctly. The new ductline shall be adjusted by the Contractor to suit the existing conditions and the details as described in the plans.

19. Minimum concrete strength shall be:

For ductline 2500 psi at 28 days

For manhole 3000 psi at 28 days or as specified in design notes

20. Bends in the duct alignment, due to changes in grade shall have a minimum radius of 25 feet. All 90 degree C-bends at a pole or at the building floor slab penetration shall have a bend radius of ten times the diameter of the duct or greater.

21. After ductline has been completed, a mandrel with a square front not less than 12" long and having a diameter of 1/4" less than the inside diameter of the duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.

22. All ducts and conduits shall have an 1800\* polyester mule-tape (NEPTCO, WP1800P, Hawaiian Telcom Material Code No. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

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

RANDALL M. URAKAMI

LICENSED  
PROFESSIONAL  
ENGINEER

No. 7266-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME  
OR UNDER MY SUPERVISION.

Signature

04/30/24

EXPIRATION DATE  
OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

HAWAIIAN TELCOM NOTES

FARRINGTON HIGHWAY  
Ulehawa Stream Bridge Repairs  
Project. No. 93A-01-23M

Scale: None

Date: Mar. 2023

SHEET No. N-4 OF 11 SHEETS

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HAWAIIAN ELECTRIC COMPANY NOTES (Rev 12/04/19):

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1. Location of Hawaiian Electric Facilities:

The location of Hawaiian Electric'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 in 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 Hawaiian Electric's facilities whether shown or not shown on the plans.

2. Compliance with Hawaii Occupational Safety and Health Laws:

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. Excavation Clearance:

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

4. Caution!!! Electrical Hazard!!!

Existing Hawaiian Electric overhead and underground lines are energized and will remain energized during construction unless prior special arrangements have been made with Hawaiian Electric. Only Hawaiian Electric 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 Hawaiian Electric facilities, which can result in electrocution.

5. Overhead lines:

State law (OSHA) requires that a worker and the longest object he or she may contact cannot come closer than a specified minimum radial clearance when working close to or under any overhead lines. It is the Contractor's responsibility to be informed of and comply with the law.

At any time should the Contractor anticipate that his work will result in the need to encroach within the minimum required clearance as stated in the law, the Contractor shall notify Hawaiian Electric at least four (3) months prior to the planned encroachment so that, if feasible, the necessary protections (e.g. relocate or de-energize Hawaiian Electric lines) can be investigated. Hawaiian Electric may also be able to blanket its distribution (12kV and below) lines to provide a visual aid in preventing accidental contact. Hawaiian Electric's cost of safeguarding or identifying its lines will be charged to the Contractor.

Contact Hawaiian Electric's Customer Installations Division at 543-7070 for assistance in identifying and safeguarding overhead power lines.

6. Pole Bracing:

Contractor shall not excavate within 10 feet from Hawaiian Electric's utility poles or any anchor system supporting the utility pole. If Contractor must excavate closer than 10 feet from a utility pole or its anchor system, Contractor will be responsible for protecting, supporting, securing and taking all precautions to prevent damage to or leaning of existing poles. Before commencing such excavation, Contractor must submit its bracing calculations and drawings, prepared and stamped by a Licensed Structural Engineer, to Hawaiian Electric's Customer Installations Division (543-7070) for review. Hawaiian Electric requires a minimum of ten (10) working days to conduct the review of Contractor's submittal. Contractor shall be responsible for the design, installation, and

removal of the temporary pole bracing system, as well as all costs incurred by Hawaiian Electric to review Contractor's drawings and to repair or straighten poles impacted by Contractor's activities, including response and restoration costs incurred by Hawaiian Electric arising out of or related to outages caused by Contractor's failure to meet the foregoing requirements. Hawaiian Electric's review and approval of any Contractor submittals including its work procedure shall not relieve Contractor from any liability resulting from Contractor's excavation near or around Hawaiian Electric's utility poles.

7. Underground Lines:

The Contractor shall exercise extreme caution whenever construction crosses or is in close proximity of underground lines. Hawaiian Electric's existing electrical cables are energized and will remain energized during construction. Only Hawaiian Electric personnel are to break into existing Hawaiian Electric facilities, handle these cables, and erect temporary guards to protect these cables from damage. The cost of Hawaiian Electric'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 Hawaiian Electric's Customer Installations Division at 543-7070 a minimum of ten (10) working days in advance.

Special precautions are required when excavating near Hawaiian Electric's 138kV or 46kV underground lines (See Hawaiian Electric instructions to Consultants/Contractors on "Excavation near Hawaiian Electric's underground 138kV and/or 46kV lines" for detailed requirements).

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

8. Underground Fuel Pipelines:

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

9. Excavations:

When trench excavation is adjacent to or beneath Hawaiian Electric's existing structures or facilities, the Contractor is responsible for:

- Arranging for Hawaiian Electric Standby Personnel to observe work at Contractor's cost.
- 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.
- Properly supporting existing structures or facilities with beams, struts, under-pinnings, or other necessary methods to fully protect it from damage.
- Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Division for thermal backfill specifications).

10. Relocation of HECO Facilities:

Any work required to relocate or modify Hawaiian Electric facilities shall be done by Hawaiian Electric, or by the Contractor under Hawaiian

Electric's supervision. The Contractor shall be responsible for all coordination, and shall provide necessary support for Hawaiian Electric'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 his work in a safe and expeditious manner in fulfilling his contract obligations shall be borne by the Contractor.

11. Conflicts:

Any redesign or relocation of Hawaiian Electric's facilities not shown on the plans may be cause for lengthy delays. The Contractor acknowledges that Hawaiian Electric 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 Hawaiian Electric'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, Hawaiian Electric should be notified immediately upon discovery or identification of such conflict.

12. Damage to Hawaiian Electric Facilities:

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

In case of damage or suspected damage to Hawaiian Electric's fuel pipeline, the Contractor shall immediately notify Hawaiian Electric's Security Command Center at 543-7685 (a 24-hour number) so Hawaiian Electric personnel can secure the damaged section and report any oil spills to the proper authorities. All costs associated with the damage, repair, and oil spill cleanup shall be borne by the Contractor.

13. Hawaiian Electric Stand-by Personnel:

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

The Contractor shall call Hawaiian Electric's Customer Installations Division at 543-7070 a minimum of three (3) months in advance to arrange for Hawaiian Electric Stand-by Personnel.

<div><div><div><div><div><div><span></span></div><div>RANDALL M. UHAKAMI</div></div></div><div><div><div></div></div><div>LICENSED PROFESSIONAL ENGINEER</div><div>No. 7268-C</div><div>HAWAII, U.S.A.</div></div></div><div><div>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.</div><div><div><div><span></span></div><div>Signature</div></div><div><div>04/30/24</div><div>EXPIRATION DATE OF THE LICENSE</div></div></div></div></div><div><div>STATE OF HAWAII</div><div>DEPARTMENT OF TRANSPORTATION</div><div>HIGHWAYS DIVISION</div><div><b>HAWAIIAN ELECTRIC NOTES</b></div><div><u>FARRINGTON HIGHWAY</u></div><div><u>Ulehawa Stream Bridge Repairs</u></div><div><u>Project. No. 93A-01-23M</u></div><div>Scale: None</div><div>Date: Mar. 2023</div></div></div>
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HAWAIIAN ELECTRIC COMPANY NOTES (Cont.):

FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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14. Clearances:

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

GUIDELINES FOR MINIMUM HORIZONTAL (PARALLEL) CLEARANCES BETWEEN HAWAIIAN ELECTRIC AND OTHER UNDERGROUND UTILITIES				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried in Conduit (no concrete encasement)	Hawaiian Electric 3" (Min.) 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"	5
Traffic Signal	12"	12"	12"	
Water DB (BWS Owned)	36"	36"	36"	1, 4
Customer Owned Water Service Laterals	12"	12"	12"	
Water (Concrete Jacketed) (BWS Owned)	36"	36"	36"	1, 4
Gas DB	12"	12"	12"	1
Gas (Concrete Jacketed)	12"	12"	12"	1
Sewer DB	36"	36"	36"	1, 2
Sewer (Concrete Jacketed)	36"	36"	36"	1, 2
Drain	12"	12"	12"	1
Fuel Pipelines				3
Notes:				
1. Where space is available, parallel clearance to other utilities, or foreign structures other than communication or traffic signal shall be 36".				
2: If 36" clearance cannot be met:				
- If clearance is less than 12", jacket sewer line with reinforced concrete (per Hawaiian Electric'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.				
3. All Fuel Pipeline crossings shall be reviewed and approved by the company that owns and maintains it.				
4. 5 feet clear to water mains 16" and larger.				
5. For situations with 0" minimum separation, a 6" separation is recommended.				
6. Clearances measured from outer edges or diameters of utilities. Whenever concrete jackets are involved, clearances shall be total clear distance between the concrete jacket and utility concerned.				

GUIDELINES FOR MINIMUM VERTICAL (CROSSING) CLEARANCES HAWAIIAN ELECTRIC AND OTHER UNDERGROUND DUCTLINES				
Underground Utility	Hawaiian Electric Direct Buried Cable	Hawaiian Electric Direct Buried in Conduit (no concrete encasement)	Hawaiian Electric 3" (Min.) Concrete Encasement	Applicable Notes:
Hawaiian Electric DB Conduits	6"	3"	0"	
Hawaiian Electric 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"	3
Traffic Signal	12"	12"	6"	
Water DB (BWS Owned)	12"	12"	12"	5
Customer Owned Water Service Laterals	6"	6"	6"	
Water (Concrete Jacketed) (BWS Owned)	12"	12"	12"	5
Gas DB	12"	12"	12"	
Gas (Concrete Jacketed)	12"	12"	12"	
Sewer DB	24"	24"	24"	1
Sewer (Concrete Jacketed)	24"	24"	24"	1
Drain	12"	12"	6"	
Fuel Pipelines				2
Notes:				
1. If clearance cannot be met:				
- If clearance is less than 12", jacket sewer line with reinforced concrete (per Hawaiian Electric'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.				
2. All Fuel Pipeline crossings shall be reviewed and approved by the company that owns and maintains it.				
3. For situations with 0" minimum separation, a 6" separation is recommended.				
4. Clearances measured from outer edges or diameters of utilities. Whenever concrete jackets are involved, clearances shall be total clear distance between the concrete jacket and utility concerned.				
5. 36" clearance is required for trenchless installation work.				

The Contractor shall notify the construction manager of Hawaiian Electric of any heat sources (power cable duct bank, steamline, etc.) encountered that are not properly identified on the drawing.

15. Indemnity:

The Contractor shall indemnify, defend and hold harmless Hawaiian Electric 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 tortious 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 Hawaiian Electric.

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RANDALL M. URAKAMI

LICENSED PROFESSIONAL ENGINEER

No. 7268-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Signature

04/30/24

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

HAWAIIAN ELECTRIC NOTES

FARRINGTON HIGHWAY

Ulehawa Stream Bridge Repairs

Project. No. 93A-01-23M

Scale: None

Date: Mar. 2023

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WATER NOTES:

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- 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 2021, and all subsequent amendments and additions.
- No deviation to the Board of Water Supply 2002 Water System Standards as amended, shall be allowed without the Manager and Chief Engineer's approval.
- All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply and/or if work is to be done on/or near the water system.
- The existence and location of underground utilities and structures as shown on the plans are from the latest available data but are not guaranteed as to their 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.
- The Contractor shall be responsible for the protection of all waterlines during construction. The Contractor shall be especially careful when excavating behind waterlines, 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 waterlines, such as constructing special reaction blocks (with Board of Water Supply approval) and/or modifying his construction methods.
- Re-approval shall be required if this project is not under construction within a period of two (2) years.
- Prior to any excavation, the Contractor shall verify in the field the location of existing waterlines and appurtenances.
- Any adjustments to the existing water system required during construction, to meet the requirements of BWS Standards, whether shown on the plans or not, shall be done by the Contractor at no cost to the Board.
- When a utility (gas, sewer, electrical duct line, fiber optic, drainage, etc.) crosses below a Board of Water Supply water main, the designer of record and their construction engineer shall be responsible for determining the adequate water main structural support and submit the construction method and shop drawing, stamped by a licensed engineer and reviewed and accepted by the designer of record, to the Board of Water Supply for review and approval. All work shall be at no cost to the Board of Water Supply.
- At utility crossings where proper compaction under a water main is difficult to achieve, CLSM shall be installed in place of backfill material and pipe cushion material. CLSM mixture to be furnished shall be in accordance with Division 200 - Materials, Section 209.06 Controlled Low Strength Material (CLSM) of the Water System Standards as amended.

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WATER NOTES

FARRINGTON HIGHWAY  
Ulehawa Stream Bridge Repairs  
Project. No. 93A-01-23M

Scale: NoneDate: Mar. 2023

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US ARMY SIGNAL CORPS - NETWORK ENTERPRISE  
CENTER-HAWAII JOINT TRUNKING SYSTEM / OUTSIDE  
CABLE PLANT GENERAL CONSTRUCTION NOTES:

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1. All work impacting US Army Signal Corps (SC) telecommunications facilities and infrastructure shall be completed in accordance with:
- a. Military Standards and US Army Regulations (current version)
  - b. US Army Technical Criteria for the Installation Information Infrastructure Architecture (I3A) dated February 2010 (or most current). Copy of the I3A Technical Criteria can be found at <http://www.lrl.usace.army.mil/ed2/article.asp?id=1416&MyCategory=212>.
  - c. National Electric Code (NEC) and National Electric Safety Code (NESC), most current version.
  - d. ANSI/TIA/EIA Telecommunication Standards
  - e. National Electrical Manufacturers Association (NEMA) Bulletin No. TCB 2-2000.

The contractor shall be responsible for acquisition of all applicable guidance and directives.

2. Excavation Permit.
- a. US Army Excavation Permit. The Contractor shall obtain, process, and have an approved excavation permit from the US Army, Directorate of Public Works located in Building 682, 451 Brannon Road, Wheeler Army Airfield, Hawaii. The excavation permit form shall be completed and approved a minimum of two weeks prior to beginning of construction; or
  - b. One Call Center Form. The One Call Center form may be utilized in lieu of the US Army Excavation Permit form. The submission shall include a map of the areas affected by the excavations. The One Call Center Form shall be completed and approved a minimum of two weeks prior to the beginning of any construction. Submission of this form shall be submitted to Network Enterprise Center - Hawaii, Infrastructure Management Group, Bldg. 600, 148 Curtis Loop, Room 157, Wheeler Army Airfield, Hawaii.
3. The Contractor shall ensure the following for OSP placements:
- a. All duct joints shall be reamed to avoid burrs, obstructions, or areas where the mandrel will not flow freely or smoothly. Contractors shall utilize the NEMA Bulletin No. TCB 2-2000 for the general guidelines on the selection and installation of underground non-metallic duct. An electronic copy of this file is available at <http://www.nema.org/stds/tcb2.cfm>.
  - b. All protruding surfaces in the communication ducts at the joints or connection points shall be repaired or replaced by the Contractor until accepted by the Government and the Government Service Provider.

- c. All new communication ducts shall be swabbed (cleaned) and bi-directional mandrel tested by the Contractor. Bi-directional testing shall be witnessed by a Government Representative for acceptance by the Government and Government Service Provider. Ducts shall be completely dry and clean (free of dirt, rocks and debris).
  - d. Mandrels shall flow through freely and smoothly with no noticeable obstructions or hang-ups.
  - e. All equipment and personnel for mandrel testing shall be provided by the Contractor.
  - f. Mandrels used for communication duct testing shall be 12-inches in length, solid, non-tapered, and a diameter of .25 inch less than the inner diameter of the ducts being tested.
  - g. Contractor shall provide details of the mandrel test equipment used for Government approval 30 days prior to testing.
  - h. Contractor shall provide a mandrel test schedule for Government approval 15 days prior to any testing.
4. The Contractor shall ensure the casting of all "new" maintenance hole covers bear the imprinting of the words "USA Signal Corps." The inside neck of the maintenance hole shall be permanently labeled with the maintenance hole identifier provided by the Government.
5. The cover and ring of the maintenance hole shall be manufactured with thread holes (5/8" threads) to accept security bolts. Security patterns are unique to the US Army.
6. The Contractor shall obtain and fund for all required permits, notices, licenses and authorizations for the intended work for Federal and US Military Facilities and infrastructure.
7. The Contractor shall be responsible to validate military and defense cables identified and shall ensure other utilities/facilities, both aerial and underground, are secured and not impacted during operation. Outages and damages to other utilities shall be the responsibility of the Contractor.
8. The Contractor shall contact the Network Enterprise Center 72-hours prior to any physical work performed on US Army infrastructure and facilities.
9. The Network Enterprise Center POC is Ms. Dale Shinseki-Hironaka, (808) 656-3514, [dale.a.shinseki-hironaka.civ@army.mil](mailto:dale.a.shinseki-hironaka.civ@army.mil) or Ms. Janelle Reisdorf, [janelle.m.reisdorf.civ@army.mil](mailto:janelle.m.reisdorf.civ@army.mil) or Mr. Walter Selders, [walter.l.selders.civ@army.mil](mailto:walter.l.selders.civ@army.mil) or Mr. Byron Kawane, [byron.k.kawane.civ@army.mil](mailto:byron.k.kawane.civ@army.mil).

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FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	93A-01-23M	2023	11	26

SPECTRUM NOTES: cont.

41. Minimum clearance between street light standard and fire hydrants shall be three feet.
42. Underground utilities shown hereon is for information only. No guarantee is made on the accuracy or completeness of said installation.
43. For underground cable locating and marking, five working days advance notice is required. Three working days advance notice is required for any inspection by a designated representative. Contractor shall take necessary precaution not to damage any existing cables or ducts. Spectrum Oceanic's 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 Spectrum Oceanic's facilities.
44. Concrete strength shall be 3000 psi in 28 days.
45. Curing and backfilling. Maintain concrete in a moist condition for 24 hours minimum for 3,000 psi and 48 hours minimum for 2,500 psi before compacted. Backfilling: 72 hours minimum before permitting motor traffic load on ductline. Curing method shall meet Spectrum Oceanic Inspector's approval.
46. Install 4-mil. thick orange color warning tape 4-inch wide entire length of trench when placing CATV conduits. Tape should read "CAUTION BURIED CABLE LINE BELOW". Manufactured by Harris Industries, Inc. catalog number UT-43 or equivalent tape. Tape to be installed 12-inches above conduit or if concrete jacket involved then 12-inches above jacket.
47. After ductline has been completed, a mandrel with a square front not less than 12-inch long and having a diameter of 1/4-inch less than the inside diameter of duct, shall be pulled through each duct after which a brush with stiff bristles shall be pulled through to make certain that no particles of earth, sand, or gravel have been left inside. Ducts shall be completely dry and clean.
48. Metallic entrance conduits shall be grounded.
49. All conduits within a building shall:
- a. Be installed in the shortest and straightest possible run.
- b. Have no section longer than 100-feet nor contain more than two 90-degree bends. An approved sized junction box or gutter box shall be placed if this is exceeded.
- c. All bends shall be long sweep-radius bends but the inside radius of the bend must never be less than ten times the diameter of the conduit.
50. All construction must be inspected and approved by Spectrum Oceanic prior to the installation of any of its facilities and the energizing of its system.
51. Contractor and/or customer shall provide Spectrum Oceanic with sufficient installation time in their occupancy time table.

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

RANDALL M. URAKAMI

LICENSED PROFESSIONAL ENGINEER

No. 7266-C

HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/24

SIGNATURE

EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII  
DEPARTMENT OF TRANSPORTATION  
HIGHWAYS DIVISION

SPECTRUM NOTES

FARRINGTON HIGHWAY  
Ulehawa Stream Bridge Repairs  
Project. No. 93A-01-23M

Scale: None

Date: Mar. 2023

SHEET No. N-10 OF 11 SHEETS

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