FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	3	230

GENERAL NOTES:

1. The scope of work for this project includes widening the existing four-lane highway to provide an auxiliary lane for left turns. In general the work includes:

   a. Widen roadway to include 2 11-foot travel lanes in each direction with a 10-foot wide auxiliary lane.

   b. Construct an 8-foot wide shared use path.

   c. Realign existing historic OR&L railroad tracks to accommodate the widened roadway.

   d. Construct grade adjustment and retaining walls.

   e. Upgrade traffic signal systems to accommodate widened roadway.

   f. Relocate and/or adjust existing utilities to accommodate widened roadway.

   g. Relocate existing overhead utilities along the southern side of the corridor.

   h. Upgrade the street lighting system along the southern side of the corridor.

   i. Upgrade and/or install new drainage systems to accommodate the widening.

   j. Perform coordination and permitting, and obtain approval to complete the project in conformance with the appropriate federal, state and County standards.

2. The Contractor is reminded of the requirements of Subsection 105.16 - Subletting of Contract, which requires him to perform work amounting to not less than 30 percent of the total contract cost less deductible items.

   The Contractor's attention is directed to the following Sections of the Special Provisions : Subsection 104.04 - Maintenance of Traffic; Subsection 105.06 - Coordination Between Contractors; Subsection 107.12 - Protection of Persons and Property; Subsection 107.06 - Contractor duty regarding Public Convenience; and Section 645 -Traffic Control.

3. At the end of each day's work, the Contractor shall remove all equipment and other obstructions to permit free and safe passage of public traffic.

4. The existence and location of underground utilities, manholes, monuments and structures as shown on the plans are from the latest available data but the accuracy is not guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.

5. The Contractor shall notify in writing, the Oahu Transit Services, Inc. Roads Supervision Office, 811 Middle St., Hon., HI 96819 (Phone: 848-4571) seven (7) days prior to any paving operations.

6. The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.

7. The Contractor shall remove and dispose of all existing raised pavement markers and traffic tapes prior to the overlaying of Asphalt Concrete. This work shall be considered incidental to HMA Pavement, Mix No. IV and will not be paid for separately.

8. All holes, depressions and wheel ruts shall be filled and compacted with HMA Pavement, Mix No. V prior to resurfacing. This work will not be paid for separately; it will be considered incidental to the various contract items.

9. Smooth riding connections shall be constructed at all limits of resurfacing, including the beginning and end of project, connecting approaches, side streets and driveways as shown on the plans and/or as directed by the Engineer.

10. The existing drainage system will be functional at all times during construction. The Contractor is to furnish materials, equipment, labor, tools and incidentals necessary to maintain flow. This work shall be considered incidental to various contract items.

11. All saw cutting work including vacuum of slurry shall be considered incidental to HMA Pavement, Mix. No. IV.

12. At the location where the new pavements tie into the existing pavement, the Contractor shall check the existing and design grades to ensure a smooth riding connection. The Contractor shall saw cut the existing pavement in the transverse direction to provide a neat connection.

13. All azimuths and coordinates are referred to NAD27 Hawaii State Plane.

14. Work required to complete the project but not itemized specifically in the proposal shall be considered incidental to the various contract items and shall not be paid for separately.

15. The Contractor shall comply with the directives of the State of Hawaii Occupational Safety and Health Law (DOSH). Any citation (fine) received by the State for noncompliance by the Contractor shall be deducted from the progress payment.

16. For verifying the location of underground ductlines and for assistance in providing proper support and protection of underground ductlines, the Contractor is to contact Hawaiian Electric Co. Underground Division at 548-7395 a minimum of 72 hours in advance.

17. The Contractor shall exercise extreme caution when the excavation and construction crosses or is in close proximity of underground telephone and signal cable facilities and shall maintain adequate clearance for his equipment while working close to and/or under overhead facilities. Any damages to the existing underground facilities shall be repaired and paid for by the Contractor.

18. For field location of Hawaiian Telcom facilities, contact Hawaiian Telcom Outside Plant Engineering Section, a minimum of 72 hours in advance, prior to start of excavation.

19. Should field conditions and construction procedures require that utility poles be braced, the Contractor shall contact the following person for pole bracing instructions a minimum of 72 hours in advance of actual required bracing - Hawaiian Telcom - Calvin Choy - Area Construction Supervisor at 546-3381.

20. When trench excavation is adjacent to existing structures or facilities, the Contractor is responsible for properly sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure from possible slides, cave-ins, and settlement, and facilities with beams, struts, or underpinning to fully protect it from damage. This work shall be considered incidental to various contract items.

21. The Contractor shall survey and stake out the State Highway right-of-way and install all appurtenances associated with the project within the State right-of-way or construction parcels as shown in the plans.

22. The term "Engineer for the Utility Companies" shall also mean his delegated Representative and/or the Utilities Inspectors of Record.

23. The Contractor shall stake out all facilities for verification by the utility involved and/or affected.

24. When excavating near utility poles, 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 costs associated to repair and/or straighten pole.

25. Where pedestrian walkways exist, they shall be maintained in a safe and passable condition, or other facilities for pedestrians shall be provided. Passages between walkways at intersections shall likewise be provided at all times.

PUBLIC HEALTH, SAFETY AND CONVENIENCE NOTES:

1. The Contractor shall observe and comply with all Federal, State, and Local laws required for the protection of public health and safety and environmental quality.

2. The Contractor, at his own expense, shall keep the project and its surrounding areas free from dust nuisance. The work shall be in conformance with the air pollution standards and regulations of the State Department of Health. The City may require supplementary measures as necessary.

3. The Contractor's attention is directed to Chapter 448, Public Health Regulations, Department of Health, State of Hawaii, "Community Noise Control for Oahu" in which maximum allowable noise levels have been set. If the construction activities for this project will exceed the allowable noise levels, the Contractor will be required to obtain a permit from the Director of the Department of Health. The Contractor shall obtain a copy of Chapter 448 and become familiar with the noise level restrictions and the procedures for obtaining a Permit for construction activities.

4. The Contractor is to comply with the directions of the State of Hawaii Occupation Safety and Health Law (DOSH).

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GERALD D. ANDRADE
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No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES - 1

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-2 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	4	230

TRAFFIC SIGNALS AND TECHNOLOGY DIVISION NOTES:

1. The Contractor shall notify the Traffic Signals and Technology Division, Department of Transportation Services, three (3) working days prior to commencing work on the traffic signal system (Phone: 768-8388).

2. The traffic signal system shall be kept operational during construction. Any relocation required shall be approved by the Traffic Signals and Technology Division, Department of Transportation Services, and paid for by the Contractor.

3. The Contractor shall be responsible for any damages to the existing traffic signal facilities, including but not limited to the traffic signal fiber optic cable system, and interconnect system. Any and all damages to these facilities shall be repaired by the Contractor at his cost in accordance with the requirements of the Traffic Signals and Technology Division.

CONSTRUCTION NOTES (WITHIN CITY RIGHT-OF-WAY):

1. All applicable construction work shall be done in accordance with the Standard Specifications for Public Works Construction, September 1986 and Standard Details for Public Works Construction, September 1984, as amended, of the Department of Public Works, City and County of Honolulu and the Counties of Kauai, Maui, and Hawaii.

2. The underground pipes, cables or ductlines known to exist by the engineer from his search of his 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.

3. No Contractor shall perform any construction operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow into existing City drainage systems, or adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.

4. The Contractor shall be responsible for conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards" and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordinances of Honolulu, as amended. Best Management Practices shall be employed at all times during construction.

5. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting, at 768-8084 to arrange for inspection services and submit four (4) sets of approved Construction Plans seven (7) days prior to commencement of construction work.

6. Confined Space

   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:

   All safety equipment 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.
   i. Continuous forced air ventilation adequate to provide safe entry conditions.
   j. One attendant/rescue personnel topside (two, if conditions warrant it).

7. Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015). In addition, for non-City projects, the Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting (768-8084); and for City projects, notify the responsible City agency.

8. For projects abutting State Highways' rights-of-way, the owner or his authorized representative shall notify the State Department of Transportation, Highways Division, Oahu District, Drainage Discharge Unit at 831-6793 for an assessment of State Highways permit requirements.

TRAFFIC NOTES (WITHIN CITY RIGHT-OF-WAY):

1. A permit shall be obtained from the Department of Transportation Services before work on any portion of a public street or highway may begin. Construction traffic control plans approved by the Department of Transportation Services and/or the Department of Planning and Permitting must be provided when applying for the permit.

2. The Contractor shall provide, install and maintain all necessary signs and other protective facilities, which shall conform to the "Hawaii Administration Rules Governing the Use of Traffic Control Devices at Work Site on or Adjacent to Public Streets and Highways" adopted by the Director of Transportation, and the current U.S. Federal Highways Administration's "Manual on Uniform Traffic Control Devices for Streets and Highways, Part VI - Traffic Controls for Street and Highway Construction and Maintenance Operations."

3. Work on any City street area may be performed only between the hours of 8:30 a.m. to 3:30 p.m., Monday through Friday, unless otherwise permitted by the Department of Transportation Services.

4. During working hours, the Contractor shall provide for through traffic. During non-working hours, all trenches shall be covered with a safe non-skid bridging material and all lanes shall be open to traffic.

5. As required by the Department of Transportation Services, the Contractor shall provide off-duty police officers to control the flow of traffic.

6. Where pedestrian walkways exist, they shall be maintained in passable condition in accordance with ADAAG 206.1 and 402.1, or other facilities for pedestrians shall be provided. Passage between walkways at intersections shall likewise be provided.

7. Driveways shall be kept open unless the owners of the property using these rights-of way are otherwise provided for satisfactorily.

8. The Contractor shall reference to the approval of the Department of Transportation Services and the Department of Planning and Permitting, all existing traffic signs, posts and pavement markings prior to the commencement of construction. The Contractor shall replace or repair all traffic signs, posts and pavement markings disturbed by his activities.

9. The Contractor shall notify the Civil Engineering Branch, Department of Planning and Permitting, at 768-8084 to arrange for inspectional services and submit four (4) sets of approved Construction Plans seven (7) days prior to commencement of work to be done on signs, posts and pavement markings.

10. No equipment shall be stored within street rights-of-way except at locations designated in writing and approved by the Department of Transportation Services.

11. Department of Transportation, Highways Division, shall ensure that the Contractor installs the construction traffic control devices in accordance with the MUTCD and the Hawaii Administration Rules as specified in Traffic Note #2.

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

Gerald D. Andrade 04/30/14
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES - 2

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-3 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	5	230

CITY & COUNTY OF HONOLULU GRADING NOTES:

1. All grading work shall be done in accordance with Chapter 14, Articles 13, 14, 15 and 16, as related to Grading, Soil Erosion and Sediment Control of the Revised Ordinances of Honolulu, 1990, as amended, and Geotechnical Report by Geolabs, Inc. dated August 2010.

2. No Contractor shall perform any grading operation so as to cause falling rocks, soil or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses. Should such violations occur, the Contractor may be cited and the Contractor shall immediately make all remedial actions necessary.

3. The Contractor, at his own expense, shall keep the project area and surrounding area free from dust nuisance. The work shall be in conformance with the air pollution control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 60.1, "Air Pollution Control".

4. Adequate provisions shall be made to prevent surface waters from damaging the cut face of an excavation or the sloped surfaces of a fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.

5. All slopes and exposed areas shall be sodded or planted as soon as final grades have been established. Planting shall not be delayed until all grading work has been completed. Grading to final grade shall be continuous, and any area within which work has been interrupted or delayed shall be planted.

6. Fills on slopes steeper than 5:1 shall be keyed.

7. The City shall be informed of the location of the borrow/disposal site for the project when the application for a grading permit is made. The borrow/disposal site must also fulfill the requirements of the grading ordinance.

8. No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice to the Director, D.P.P., provided such grading work is also in conformance with the community noise control standards contained in the Hawaii Administrative Rules, Title 11, Chapter 46, "Community Noise Control".

9. The limits of the area to be graded shall be flagged before the commencement of the grading work.

10. All grading operations shall be performed in conformance with the applicable provisions of the water quality and water pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 54, "Water Quality Standards", and Title 11, Chapter 55, "Water Pollution Control", and if applicable, the NPDES permit for the project.

11. Where applicable and feasible the measures to control erosion and other pollutants shall be in place before any earth moving phase of the grading is initiated.

12. Temporary erosion controls shall not be removed before permanent erosion controls are in-place and established.

13. Temporary Erosion Control Procedures shall be submitted for approval prior to application for grading permit.

14. If the grading work involves contaminated soil, then all grading work shall be done in conformance with applicable State and Federal requirements.

15. Building Permit for retaining walls shall be obtained prior to commencement of grading work on site.

16. The Contractor shall notify the Civil Engineering Branch, D.P.P. at 768-8084 to arrange for inspectional services and submit three (3) sets of approved Construction Plans seven (7) days prior to commencement of construction work. For City projects, the Contractor shall coordinate inspectional services with the responsible City agency.

17. All grading and construction work shall implement measures to ensure that the discharge of pollutants from the construction site will be reduced to the maximum extent practicable and will not cause or contribute to an exceedance of water quality standards.

18. Non-compliance to any of the above requirements shall mean immediate suspension of all work, and remedial work shall commence immediately. All costs incurred shall be billed to the violator. Furthermore, violators shall be subjected to administrative, civil and/or criminal penalties.

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

GENERAL NOTES - 3

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS
AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-4 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	6	230

LEGEND:

- Existing Electrical Line
- Existing Utility Pole
- Existing Electric Manhole
- Existing Telephone Line
- Existing Telephone Manhole
- Existing Signal Corps Line
- Existing Cable TV Line
- Existing 12" Water Line
- Existing Water Manhole
- Existing Water Valve Box
- Existing Water Meter
- Existing Fire Hydrant
- Existing 12" Sewer Line
- Existing Sewer Manhole
- Existing 6" Gas Line
- Existing Navy Fuel Line (Abandoned)
- Existing Monument
- Existing 24" Drain Line
- Existing Storm Drain Manhole
- Existing Drain Inlet
- Existing Catch Basin
- Existing Traffic Signal
- Existing Street Light
- Existing 2½" Irrigation Line
- Existing Highway Lighting Standard
- Existing Edge of Shoulder
- Existing Edge of Pavement
- New Edge of Shoulder
- New Edge of Pavement
- Existing Major Contour
- Existing Minor Contour
- Existing Chain Link Fence
- New Chain Link Fence
- New Guardrail
- Existing Guardrail
- Boring Log
- Denotes No Access Permitted and Right of Way
- Denotes Access Permitted and Right of Way
- Denotes New Right of Way
- Remove and Dispose Abandoned Utility
- Realigned OR&L Railroad Tracks

ABBREVIATIONS:

A.C.	Asphalt Concrete
A/C	Air Conditioning
APPROX.	Approximate
ARV	Air Release Valve
AUX	Auxiliary
℄	Baseline
BC	Bottom Curb
BFP	Back Flow Preventer
BOT.	Bottom
BW	Bottom Wall
℄	Centerline
C	Chord
CATV	Cable Television
C.B.	Catch Basin
C.L.	Chain Link
CMU	Concrete Masonry Unit
C.O.	Clean Out
COL.	Column
COMM.	Communication
CONC.	Concrete
CRM	Concrete Rubble Masonry
D	Diameter or Drain
D.I.	Drain Inlet
D.S.	Down Spout
DSP	Dry Stand Pipe
DWY.	Driveway
E/ELEC.	Electric
ELEV.	Elevation
EP	Edge of Pavement
FAR	Farrington Highway
F.A.	Fire Alarm
F.H.	Fire Hydrant
FL	Flow Line
FM	Force Main
G	Gas
G.I.	Grated Inlet
GMH	Gas Manhole
GND.	Ground
G.P.	Guard Post/Guy Pole/Gate Post
GV	Gas Valve
G.W.	Guy Wire
H	Height
H.B.	Hose Bib
HMA	Hot Mix Asphalt
ICV	Irrigation Control Valve
INV.	Invert
JTS	Joint Trunking System
L	Length
L.P.	Lamp Pole
M.B.	Mail Box
MH	Manhole
OR&L	Oahu Railway & Land Company
O/H	Overhead
PAV'T.	Pavement
PC	Point of Curvature
PCC	Portland Cement Concrete
P.M.	Parking Meter
P.P.	Power Pole
PRC	Point of Reverse Curve
PSL	Pedestrian Signal Light
PT	Point of Tangency
R	Radius
R/W	Right of Way
REF.	Reflector
S	Sewer or Spread
SC	Signal Corps
SCMH	Signal Corps Manhole
SDMH	Storm Drain Manhole
S.L.	Street Light
SLB	Street Light Box
SMH	Sewer Manhole
SPR.	Sprinkler
ST. NAME	Street Name
STA.	Station
SWR	Sewer
TC	Top Curb
TDC	Top Drop Curb
T/TEL.	Telephone/Tangent
TP	Top Pipe
TRC	Top Rolled Curb
TS	Top Stem
TSL	Traffic Signal Light
TSLB	Traffic Signal Light Box
TV	Top Valve
TW	Top Wall
U.P.	Utility Pole
U.P./S.L.	Utility Pole w/ Street Light
W	Water
WM	Water Meter
WMH	Water Manhole
WV	Water Valve Box
X-WALK	Cross Walk

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GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

LEGEND AND ABBREVIATIONS

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-5 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	7	230

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 1:00 a.m. to 4:00 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 840-1444 (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 excavation, bracing, or backfilling of Hawaiian Telcom's structures or facilities. Hawaiian Telcom's Inspectors as follows:
   West Oahu - Colman Nyuha, 840-2995
   East Oahu - Joe Correia, 840-2994

7. 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.

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 comply with the policy adopted by the Department of Public Works, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.

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.

13. 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.

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 ¼" 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. 5711154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

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 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 HECO'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 Permit:

   The Contractor shall obtain an excavation permit from HECO's Technical Division (543-5654) located at 820 Ward Avenue, 4th floor, two weeks prior to starting construction. Please refer to our request number at that time.

4. Caution!!! Electrical Hazard!!!

   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. Overhead lines:

   State law 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 1kv above 50kv, an additional 0.4 inch 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, de-energize, or blanket HECO lines) can be put in place. HECO's cost of safeguarding its lines will be charged to the Contractor.

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 1

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-6 OF 11 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY ____ DATE
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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	8	230

HECO NOTES (CONT.):

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

Refer to Section X of HECO's Electric Service Installation Manual for additional guidelines when working around HECO's facilities. A copy may be obtained from HECO's Customer Installations Department.

6. Pole Bracing:

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 associated costs to brace, repair, or straighten poles. All means of structural support for the pole proposed by the Contractor shall first be reviewed by HECO before implementation. For pole bracing instructions, the Contractor shall call the HECO Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of two (2) weeks in advance.

7. Underground lines:

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. 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 detailed requirements).

For verification of underground lines, the Contractor shall call HECO's underground division at 543-7049 a minimum of 72 hours in advance.

For assistance in providing proper support and protection of these lines, the contractor shall call HECO's Construction & Maintenance Dept., Customer & System Superintendent, at 543-4223, a minimum of two (2) weeks in advance.

8. Underground Fuel Pipelines:

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 instructions to Consultants/Contractors on "Excavation near HECO's underground Fuel Pipelines" for detailed requirements).

9. Excavations:

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

a. Sheeting and bracing the excavation and stabilizing the existing ground to render it safe and secure and to prevent possible slides, cave-ins, and settlements.

b. Properly supporting existing structures or facilities with beams, struts, or under-pinnings to fully protect it from damage.

c. Backfilling with proper backfill material including special thermal backfill where existing (refer to Engineering Department for thermal backfill specifications).

10. Relocation of HECO Facilities:

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, 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 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. Damage to HECO Facilities:

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 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.

13. HECO Stand-by Personnel:

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 Construction and Maintenance Dept., Customer & System Superintendent at 543-4223 a minimum of 5 working days in advance to arrange for HECO stand-by personnel.

14. Clearances:

The following clearances shall be maintained between HECO's ductline and all adjacent structures (Charted and Uncharted) in the trench:

Structural Type	Minimum Clearances (Inches)
Water Lines, Parallel	36
Water Lines, Crossing	12 (A)
Sewer Lines, Parallel	36 (B)
Sewer Lines, Crossing	24 (C)
Drain Lines, Parallel	12
Drain Lines, Crossing	6 (D)
Electrical and Gas Lines, Parallel	12
Electrical and Gas Lines, Crossing	12
Telephone Lines, Parallel	6 (D)
Telephone Lines, Crossing	6 (D)
Chevron Oil Lines, Parallel	36
Chevron Oil Lines, Crossing	48 Below Oil Line (E)

A. The minimum vertical clearances to water lines crossing electrical ductlines can be reduced to 6 inches if the electrical ductline structure is smaller than 16 inches, is concrete encased, and is below the water line.

B. A minimum horizontal clearance of 36 inches is required between new handholes and existing sewer laterals.

C. The minimum vertical clearances to sewer pipes crossing electrical ductlines can be reduced to 12 inches if the sewer pipe is jacketed in concrete.

D. The minimum clearances shall be increased to 12 inches if the electrical ductline is direct buried.

E. The minimum vertical clearances to oil lines crossing electrical ductlines can be reduced to 24 inches below oil lines if the crossings are encased in 6 inches of concrete.

F. The Contractor shall notify the Construction Manager & HECO 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 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 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 HECO.

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GERALD D. ANDRADE
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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

04/30/14
SIGNATURE — EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 2

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-7 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	9	230

HECO NOTES (CONT.): ADDITIONAL NOTES WHEN WORK INVOLVES CONSTR. OF HECO FACILITIES:

19. Construction:

Contractor shall furnish all labor, materials, equipment, and services to properly perform and fully complete all work shown on the contract, drawings, and specifications. All materials shall be new and manufactured in the United States of America. All manhole, handhole, and ductline installations shall be inspected and approved by HECO prior to excavation and prior to placing concrete. Contractor shall notify HECO's Inspection Division at 543-4356 at least 48 hours prior to placing concrete.

20. Stakeout:

The Contractor shall stakeout all proposed HECO facilities within the project area so as to not conflict with any utility (Existing or Proposed) and any proposed construction or improvement work for verification by HECO before proceeding with HECO work.

21. Ductlines:

All ductline installations shall be PVC Schedule 40 encased in concrete, unless otherwise noted. All completed ductlines shall be Mandrel Tested by the Contractor in the presence of HECO's Inspector using HECO's Standard Practice. The Contractor shall install a 1/8" Polyolefin Pull Line in all completed ductlines after Mandrel Testing is complete.

22. Joint pole removal:

The last joint pole occupant off the poles shall remove the poles.

23. As-built plans:

The Contractor shall provide HECO with two sets of As-Built reproducible tracings showing the offsets, stationing, and vertical elevation of the duct lines(s) constructed.

DEPARTMENT OF PLANNING AND PERMITTING SEWER NOTES:

1. All sewer construction shall be performed in accordance with the City's Standard Specifications, Sept. 1986, the Department of Public Works Standard Details, Sept. 1984, current City Practices and Revised Ordinances of Honolulu, as Amended, and the Design Standards of the Department of Wastewater Management Vol. 1, July 1993.

2. The Contractor shall notify the Construction Management Branch, Wastewater Division, DDC at 768-8773 or 768-8770 to arrange inspection services and submit four (4) sets of approved construction plans seven (7) 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, including and affecting sewer lines, in the presence of the Wastewater Inspector 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 construction.

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. Maintain 3'-0" min. horizontal clear separation between all sewer systems and nearest street lighting ductlines, pullboxes, and handholes paralleling the sewer system.

7. Maintain 5'-0" min. horizontal clear separation between street lighting standards (including any modular units) and nearest sewer line system. Contractor shall field verify for conflicts at each street lighting standard location. Where conflicts occur, the Contractor shall coordinate with Project Engineer to revise the street light standard to provide the required clearances.

8. At electrical/signal ductline sewer crossings, adjust all electrical/signal ductline elevations to maintain 24" vertical clear separation from all sewer lines. If less than 24" clear above the sewer line, RC jacket the sewer line per City Standard Detail S-5 at no cost to the City.

9. If the ductline crosses under the sewer line, provide a RC beam on the sewer line per City Standard Detail S-52 at no cost to the City.

10. For sewer manhole (SMH) adjustments upward less than 3", See DPW Std. Detail S-25. For SMH adjustments upward greater than 3" or for any adjustments downward, reconstruct the SMH top from below the cone section.

11. Confined Space
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 equipment 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 harness 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 of 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).

12. In the event that any change in alignment or grade for the proposed sewers are required due to unforseen conflict with other utilities, the engineer in charge or the makers of the plans shall be responsible for the required changes which are to be presented to the Department of Planning and Permitting (DPP) for approval.

13. Crushed rock cradle is permitted where soil is stable. In areas of unstable soil, the maker of the plans and the construction engineer will determine the pipe support required.

14. Trees in the road right-of-way shall be situated a minimum of 5'-0" from the City's sewer lines.

15. Sewer lateral shall be clear of and not conflicting with any other utility. Minimum horizontal and vertical clearances shall be strictly observed and followed.

16. The Consulting Engineer shall submit to the DPP mylar "as-built" tracings of the construction plans as actually constructed, showing all changes from the original plans.

17. The Contractor shall install "Rainstopper" manhole inserts in all sewer manholes with Type SA frame and cover.

18. All drop and shallow drop manholes shall be lined with epoxy liners. Also, if the velocity exceeds 10 feet per second (fps), the sewer manhole shall be epoxy lined.

19. All sewer pipe joints within easements shall be wrapped with geotextile root barrier.

20. S4C pipe cradle seals shall be installed 10 feet from all sewer manholes to prevent soil migration. See Detail on Sheet U-21.

21. Geotextile fabric to envelope the pipe cradle and select backfill material shall be provided where water or unstable soil conditions are encountered.

22. When connecting to a live sewer line, the Contractor shall abide by all conditions that the State Department of Health sets forth to mitigate any wastewater spill that may occur. The contractor shall inform the City inspector five (5) working days prior to the actual connection. The contractor shall be responsible for any fines and penalties resulting from the connection.

23. No rungs shall be installed inside new sewer manholes.

24. If the Contractor encounters flow monitoring devices such as a special sewer manhole cover embedded with solar panels, notify C&C of Honolulu, ENV-CSM at 768-7272 to coordinate temporary removal.

25. Contractor shall maintain visibility and maintenance access to live sewer manhole locations at all times, including during non-working hours and paving operations.

26. Contractor shall use manhole debris catching devices when performing manhole height adjustment work and remove any construction debris that has fallen into the manhole. Disposal of construction debris in the sewer system is strictly prohibited.

27. For precast sewer manholes, the Consulting Engineer shall submit four (4) sets of shop drawings to DPP for approval. After the shop drawings are approved, the manufacturer shall notify the Construction Management Branch, Wastewater Division, DDC, at 768-8773 or 768-8770 to arrange inspection services for concrete pours made at its plant seven (7) days prior to pour.

Approved:

Scott Grusha 9/13/13
Chief, Wastewater Branch, DPP Date

GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 3

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-8 OF 11 SHEETS

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FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	10	230

WATER NOTES:

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, dated 1994, as amended, of the Hawaii Highways Division, Department of Transportation, and 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.

3. The Contractor shall notify BWS Capital Projects Division, Construction Section in writing and submit six (6) sets of approved construction plans one week prior to commencing work on the water system.

4. The existence and location of underground utilities and structures as shown on the plans are from the latest available 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.

5. Re-approval shall be required if this project is not under construction within a period of two years.

6. 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 measure necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction methods.

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

8. The Contractor shall verify all existing service lateral locations whether shown or not shown on plans prior to commencing with any of the work and shall not assume that where no services are shown, none exist.

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

10. Maintain 3'-0" minimum cover for all existing waterlines from new finish grade. The Contractor shall probe the waterline and service laterals and submit the probing data to BWS Capital Projects Division, Construction Section. Any adjustments to the existing water system to meet the minimum cover and the requirements of the BWS standards, whether shown on plans or not, shall be done by the Contractor at no cost to BWS.

11. All waterline construction requiring shutdown connection shall be scheduled for normal working hours at six (6) hours maximum downtime.

12. Maintain 3'-0" min. horizontal clear separation between all waterline systems and nearest electrical/signal ductlines paralleling the water system at no cost to the Board of Water Supply.

13. At the electrical/signal ductline water crossings, adjust all electrical/signal ductline elevations to maintain 6" vertical clear separation from all waterlines (12" clear for all electrical/signal ductline structures larger than 16") at no cost ot the Board of Water Supply.

14. Maintain 3'-0" min. horizontal clear separation between street light/traffic signal, standards (including any modular units) and the nearest water system. Contractor shall field verify for any conflicts at each street light/traffic signal standard location. Where conflicts occur, the Contractor shall coordinate with the project engineer to revise the street light/traffic signal standard to provide the required clearances at no cost to the BWS.

15. The Contractor shall furnish and install polyethylene wrap, 3 feet minimum at all taps (for DI pipe and copper lateral combination only) and plastic pipe (PE tubing) 3 feet long after meters for all service lateral connections. (For copper service laterals only.)

16. Soil resistivity for the site has a corrosion rating of 2@4 as reported by Hirata & Associates, Inc. All required electrical isolation procedures and corrosion control requirements shall apply.

17. Pipe cushion shall be of high resistivity material. The Contractor shall submit a soil certification that high resistant cushion material has a resistivity greater than 5,000 OHM-CM. Remainder of the backfill material shall be as specified in the Water Systems Standards. Pipe cushion and backfill material shall contain no hazardous substances above regulatory action levels including but not limited to lead, asbestos, mercury, chromium, cadmium, zinc, strontium, and polychlorinated biphenyls (PCB).

18. All ductile iron pipe, fittings and valves shall be wrapped with two layers of 8 mil. Polyethylene wrap.

19. Polyvinyl chloride (PVC) pipes shall be Class 150 or 200. All ductile iron valves and metallic fittings shall be wrapped with two layers of 8 mil polyethylene wrap. No bending of polyvinyl chloride pipes shall be permitted. The installation of PVC pipe, according to the plans and specifications as bid on by the Contractor, may require additional design work, additional fittings and special couplings and shall be considered incidental to the unit price bid in the proposal for PVC pipe. Any additional design work shall be the responsibility of the Contractor. Electronic markers shall be installed along the centerline of the entire length of the pipeline at a minimum depth of 2 feet and a maximum depth of 3 feet from finish grade.

20 All Polyvinyl Chloride (PVC) pipe deflections shall be accomplished only by the use of special PVC deflection couplings. Deflection around curves shall be accomplished only by the use of PVC deflection couplings.

21. The Contractor shall furnish and install polyethylene wrap, 3 feet minimum at all taps (for DI pipe and copper lateral combination only) and plastic pipe (PE tubing) 3 feet long after meters for all service lateral connections.

22. All sections of the water main requiring reinforced concrete jacketing shall be ductile iron pipe Class 52 with ductile iron fittings.

23. Bossed tees required for all lateral and ARV connections to PVC mains.

24. The Contractor shall install electronic markers to all mains and test the electronic markers prior to installations to verify proper operation. BWS personnel shall verify the number and locations of placed electronic markers before final paving of the project. See detail on sheet U-21.

25. All PVC fittings shall conform to American Water Works Associations (AWWA) C-907. Ductile iron fittings shall be used for all types of fittings not specified in AWWA C-907.

26. Reaction block requirements for PVC fittings shall be the same for ductile iron fittings.

27. The use of hub clamps and set screws on PVC fittings is not approved.

28. Prior to the PVC fitting installation, the Contractor shall submit for approval by the BWS, the manufacturer's certification that all PVC fittings conform to AWWA C-907.

29. Pipe Alternatives

    A. Ductile iron pipes shall be Class 52, wrapped with two layers of 8 mil. polyethylene.

30. Two-way blue reflective hydrant markers Type DB shall be installed at all new fire hydrant installations. Contractor shall verify the exact locations of hydrant markers with the nearest Honolulu Fire Department Battalion Chief.

31. The Contractor shall coordinate the securing of the existing water system with the BWS prior to excavating behind or removing any existing thrust blocks, structural struts or reaction beams, or any fittings such as tees, plugs, caps, bends, offsets, and valves, or any other pipeline appurtenance. The Contractor shall be responsible for all associated damages resulting from failure to adequately secure the existing system.

32. Water Pipeline Chlorination and Testing Procedures:

    A. The following chlorination and water sample collection procedure shall apply to all water pipeline projects:

    Step 1: Chlorinate main by filling with water and introducing chlorine in sufficient quantity to obtain a minimum chlorine concentration of 50 parts per million. Leave chlorinated water in main overnight.

    Step 2: Flush main with fresh water until all chlorine has been flushed out as evidenced by the N,N Diethyl-p-phenylenediamine test, then collect a water sample while continuing to flush the main.

Approved:

1-2-14

for Manager and Chief Engineer, BWS Date
(For work affecting BWS facilities in City/State R/W and BWS Easements only)

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

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GERALD D. ANDRADE LICENSED PROFESSIONAL ENGINEER No. 10377-C HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 4

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-9 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	11	230

WATER NOTES (CONT.):

Step 3: Repeat Steps 1 and 2. After collecting the second water sample, stop flushing and allow the water to stand in the main overnight.

Step 4: Thoroughly flush the main with fresh water until all water that had been standing in the main overnight has been flushed out. Stop flushing and let the water stand in the main for one hour. Collect a water sample.

B. The main is deemed acceptable and certified when (1) two consecutive water samples, collected 24 hours apart under Steps 1 and 2, show no total and fecal coliform and less than 200 colony forming units (CFU) of total bacteria and (2) the sample of water held in the main for one hour, collected under Step 4, also shows no total and fecal coliform and less than 200 CFU of total bacteria.

C. Chlorination, flushing, sampling and testing will be extended should unsatisfactory results be encountered. Any sample that shows positive coliform presence or total bacteria greater than 200 CFU is unsatisfactory.

D. Steps 1 and 2 may be repeated before collecting the one-hour hold sample specified in Step 4. Repeating Steps 1 and 2 is recommended in the event samples show the presence of coliforms and/or increasing total bacterial results from one sample to the next.

E. Water samples that show the presence of atypical colonies, debris or results inconsistent with existing water are subject to reconfirmation. BWS reserves the right to request and test additional water samples in the interest of safeguarding public health and safety.

33. Test pressure shall be 150 psi. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.

34. The Contractor shall chlorinate the entire inside surface of each pipe and fitting with disinfection solution of 5 ounces of sodium hypochlorite mixed with 10 gallons of water. (For connection only)

35. Prior to installation, the Contractor shall submit for approval by Board of Water Supply, the manufacturer's certification that all cast iron (gray or ductile) fittings for the project conform in all respects to the Water Systems Standards, dated 2002.

36. Polygon shape for mechanical joint glands as described in AWWA Standard C111 shall be "straight-sided" or an approved equal on a job-to-job basis.

37. Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

38. The Contractor/Developer shall obtain a NPDES permit prior to chlorination and/or dewatering. A copy of the permit shall be submitted to the Board of Water Supply, Capital Projects Division, Construction Section.

39. All ductile iron pipe, fittings and valves shall be wrapped with two layers of 8 mil. polyethylene wrap.

40. Ball corp and ball stop shall be used in lieu of corporation stop and stopcock, respectively.

41. Install 4 mil thick, non-metallic, blue colored, 6 inches wide warning tape over centerline of the pipe and below the base course along the entire length of trench. Tape should be marked with "CAUTION WATER LINE BURIED BELOW".

42. Cleaning shall be by the use of "pigs" introduced into the pipeline and run completely through all installed pipelines and all branch lines for fire hydrants. "Pigging" of service laterals is not required. Bare foam "pigs" shall be used to swab piping clean as each length of the pipeline is installed. Each "pig" shall consist of a cylindrical piece of polyurethane foam with a density of 3-7 pounds per cubic foot and a vinyl-coated nose. Outside diameter of the "pig" shall be equal to 1-1/4 to 1-1/2 times the inside diameter of the pipe being installed. The length of the "pig" shall be 1-1/2 to 2 times its diameter. Prior to use, the "pig" shall be submerged in a chlorine solution of 1 oz. of 5% chlorine bleach in 5 gallons of water. "Pigging" of the pipeline shall be considered incidental to the installation of the new pipeline.

43. Nuts and bolts for flange connections within meter boxes shall be bronze or stainless steel except coupling adapters where "COR-TEN" (U.S. Steel) or "MAYARI" (Bethlehem Steel) may be used. Flange connections outside of meter box may use "COR-TEN" or "MAYARI" type nuts and bolts.

44. Contractor shall cut and plug all existing unused laterals at the main whether or not shown on the plans. Meter and valve boxes to be or already abandoned shall be demolished or removed and properly disposed of. The damaged area shall be repaired to an equal or better condition than the immediate area. All work shall be done at the expense of the Contractor.

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

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.

Approved:

1-2-13

Manager and Chief Engineer, BWS Date
(For work affecting BWS facilities in City/State R/W and BWS Easements only)

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

J:/DOT-FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/Sheets/Misc/NOTES_09.dgn

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 5

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-10 OF 11 SHEETS

FED. ROAD DIST. NO.	STATE	FEDERAL AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-093-1(22)	2013	12	230

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

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 idenitifier 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 responsibilility 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@mail.mil or Mr. Marion (808) 656-3514, dale.a.shinseki-hironaka.civ@mail.mil or Mr. Marion "Budd" F. Robinson, Jr., (808) 656-1765, marion.f.robinson.civ@mail.mil Mr. Eugene Brown, (808) 656-6656, eugene.brown3.civ@mail.mil.

OCEANIC CABLE NOTES:

1. The locations of existing utilities are approximate only. The Contractor shall verify their locations and shall be responsible for any damages to these utilities as a result of his operations. Adjustments to the new ductline alignment, if required, shall be made to provide the required clearances.

2. 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 execise proper care in excavating in the areas. Wherever connections of new utilities to existing utilites 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.

3. Prior to the excavation of the ductline, the Contractor shall request that Oceanic Cable Company to locate existing ductline wherever required.

4. The Contractor shall take necessary precaution not to damage existing cables or ducts. Any work involving existing cables or ducts shall be done in the presence of the Oceanic Cable Company inspector or his representative.

5. The Contractor shall notify the Oceanic Cable Company inspector 48 hours prior to the start of work on CATV infrastructure, pouring of concrete or backfilling. Oceanic's inspector, Moki Place, can be reached at 625-8378.

6. 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.

7. The location of CATV facilities shown on plans are from existing records with varying degrees or accuracy as to its actual fixed location. The Contractor shall use extreme caution when working in close proximity of CATV facilities.

8. The Contractor shall obtain excavation permit clearance from Oceanic's Engineering Section located at 200 Akamainui St., Mililani Tech Park.

9. For any field assistance or verification of CATV facilities, the Contractor shall call the Technical Operatons Center at 625-8378.

10. Any work required to relocate CATV facilities shall be done by Oceanic Cable and the Contractor shall be responsible for all coordination requirements and associated costs.

11. Any damage to Oceanic's facilities shall be reported to OCI's repair dispatch department at 625-8437 or 625-8666.

12. All existing improvements that are disturbed during the construction phase shall be restored to its original or better condition.

13. The Contractor shall take all necessary precaution not to damage the existing cables in the pullbox. All damages to existing cables shall be reparied by Oceanic Cable and paid for by the Contractor.

14. Coordinate all penetration of telephone pullboxes with Verizon inspector.

15. Smooth finish inside wall of existing pullboxes and handholes to its original condition or better. All entrances into the pullbox shall be grouted around conduits.

16. For 3" conduits or larger, the Contractor shall install Neptco WP1800 MULETAPE or approved equal in all ductlines. Leave MULETAPE in place for future use as a pull or fish line, unless otherwise noted. Reference Verizon Material Code No. 571154. All ducts shall be capped to prevent entry of foreign material during construction and at completion of installation. Endbells are required for conduits 2" and larger.

17. For conduits less than 3", the Contractor shall place poly cord through out project, and secure in manholes, handholes, and pullboxes.

18. Penetration into pullboxes if necessary to be from factory installed opening or from bricks position. Penetration from pullbox walls is not acceptable. All conduits shall enter through the end of the pullbox at 90 degrees.

19. A minimum of (2) precast sections must be used on all 2x4 or 2x6 pullboxes.

20. Two minimum layers of bricks to be used shall always be at least one layer lower than the lowest duct entering the pullbox. At no time however, shall there be less then two layers of bricks on each installation.

21. At no time shall cement mortar, wood, or any other material be used between precast sections. Leveling or raising of boxes to grade must be done at brickwork section using cement mortar. The permanent installation of wooded wedges to accomplish this purpose will not be accepted.

22. Concrete precast base may be used as an alternative to bricks.

23. Trenching to be by hand digging near and across existing utility lines.

24. Minimum clearance between street light stand and fire hydrants shall be three feet.

25. Underground utilities shown hereon is for information only. No guarantee is made on the accuracy or completeness of said installation.

26. For underground cable location 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. Oceanic's inspector or designated reprsentative is required to be at any job site whenever there will be a breakage into or entry into any structure that contain Oceanic's facilities.

27. Concrete strength shall be 3000 psi in 28 days.

    Bends in the duct alignment, due to changes in grade shall have a minimum radius of 20-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.

28. 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.

29. All construction must be inspected and approved by Oceanic prior to the installation of any of its facilities and the energizing of its system.

30. Contractor and/or customer shall provide Oceanic with sufficient installation time in their occupancy time table.

31. Install 4-mil thick orange color warning tape 3-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 below grade.

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

J:/DOT-FARRINGTON HWY INTERSECTIONS NANAKULI HALEAKALA/CADD/Sheets/Misc/notes_10.dgn

GERALD D. ANDRADE
LICENSED PROFESSIONAL ENGINEER
No. 10377-C
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

SIGNATURE 04/30/14 EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

UTILITY NOTES - 6

FARRINGTON HIGHWAY INTERSECTION IMPROVEMENTS AT NANAKULI AVENUE AND HALEAKALA AVENUE
Federal-Aid Project No. STP-093-1(22)

Scale: None Date: April 2013

SHEET No. G-11 OF 11 SHEETS