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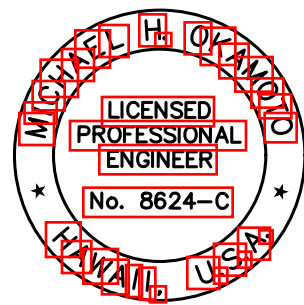
GENERAL NOTES

- The Project Scope of Work includes replacement of Makaha Bridge No. 3 and Makaha Bridge No. 3A; relocation of 12" water line; construction of temporary By-Pass road; clearing and grading; exist. Makaha stream slope improvements; repaving of AC road; installation of guardrails; and construction of bus stop shelter.
- All applicable construction work shall be done in accordance with 2005 Standard Specifications for Road and Bridge.
- The Contractor's attention is directed to the following Sections of the Special Provisions: Subsection 104.09 – Maintenance of Traffic; Subsection 104.11 – Utility and Services; Subsection 107.06 – Contractor Duty Regarding Public Convenience; and Section 645 – Work Zone Traffic Control.
- All existing utilities to remain in use, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. Any damage to the existing utilities shall be repaired and paid for by the Contractor.
- Unless Relocation is called for on the plans, existing utilities shall remain in-service and in place. If relocation of existing utilities is required for the Contractor's convenience, interruption of service shall be kept to a minimum and shall be done at the Contractor's expense and only with the approval of the Engineer.
- Verify and check all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the Engineer for clarification.
- 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 Contractors shall immediately make all remedial actions necessary.
- The Contractor, at his expense, shall keep the project area and surrounding area free from dust nuisances. The work shall be in conformance with the Air Pollution Control Standards and Regulations of the State Department of Health.
- 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.
- No blasting shall be permitted on this project.
- Pursuant to Section 6E, HRS, in the event any artifacts or human remains are uncovered during the construction operations, the Contractor shall immediately suspend work and notify the Honolulu Police Department, The State Department of Land and Natural Resources–Historic Preservation Branch (692–8015). In addition, for non-city projects, the Contractor shall inform the Civil Engineering Branch, D.D.P. (768–8084); and for city projects, notify the responsible city agency.

- All posts, poles and other fixtures located in the sidewalks or pedestrian routes shall be placed such that a min. 36" pedestrial passage is provided.
- 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.
- The existence and location of underground utilities, manholes, monuments and concrete pavements, and other structures as shown on the plans are from the latest available data but the accuracy is no guaranteed. The encountering of other obstacles during the course of work is possible. The Contractor shall make an independent check on the ground by probing and/or with the various utility companies and governmental agencies to verify the exact locations and depths of the existing utilities and obstructions. The Contractor shall exercise proper care when excavating in the area. Whenever 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 excavating for the new lines. The Contractor shall be held liable for any damages incurred to the existing facilities and/or improvements as a result of his operations.
- The Contractor shall notify the Engineer in writing, two (2) weeks prior to starting paving operations.
- Smooth riding connections shall be constructed at all limits of resurfacing, including the beginning and end of project and connecting approaches as shown on the plans and/or as directed by the Engineer.
- Dressing of shoulder and sidewalk shall consist of clearing, grubbing, grading, reshaping and compacting the unpaved shoulders with suitable material as shown on the plans and/or as directed by the Engineer. This work shall be considered incidental to the various contract items.
- 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.
- All saw cutting work, including vacuum of slurry, shall be considered incidental to removal of A.Cpavement and aggregate base course.
- Contractor shall dispose or deliver any removed material at no cost to the State.
- The Contractor shall be held liable for any damages incurred to the existing utilities as a result of his operations. All damaged portions shall be replaced in accordance with the standards and specifications of the affected utility company at the Contractor's expense.
- After the project is completed, the Contractor shall restore grades and ground cover in the project limits to a condition equal or better than existing before such damage or injury was done.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	6	168

- All existing utilities, whether or not shown on the plans, shall be protected at all times by the Contractor during construction unless specified on the plans to be abandoned. Any damage to the existing utilities shall be repaired and paid for by the Contractor.
- Unless relocation is called for on the plans, existing utilities shall remain in service and in place at all times. If relocation of the existing utilities is required for the Contractor's convenience, interruption of service shall be kept to a minimum and shall be done at the Contractor's expense with the approval of the affected utility company.
- The Contractor shall field verify the operational status of all existing utilities to be removed or abandoned in place. Any discrepancy shall be brought to the attention of the Engineer.
- The Contractor shall verify all dimensions and details shown on the drawings prior to the start of construction. Any discrepancy shall be immediately brought to the attention of the Engineer.
- The Contractor shall stop work and notify the Engineer upon uncovering any potential historical artifacts or items of archaeological significance.
- The existing improvements on the premises and in adjacent area that are not to be removed shall be preserved and protected. Any and all damages resulting from the Contractor's construction operations shall be replaced and repaired to original condition, at no additional cost and to the satisfaction of the owner.
- The Contractor shall notify Oahu Transit Services, Art Akana at 852–6030 (Bus Operations) and John Black at 454–5041 (Paratransity Operations), at least two weeks prior to construction informing them of location, scope of work, proposed closure of any street or traffic lanes, and the need to relocate any bus stop.
- The Contractor shall provide for access to and from all existing side streets and private driveways at all times.
- The contractor shall clean and remove any accumulation of aggregates and debris along the roadside within 10 feet of the edge of the pavement. This work shall be considered incidental to the various contract items.
- The subgrade cross-slope shall be parallel to the roadway cross-slope.
- Benchmark are referenced to Government Survey Triangulation Station "Puu o Hulu Makai". Elevations shown on these plans are referenced to Mean Sea Level (MSL). For benchmark see Sht. C0.14.
- Work required to complete the project but not itemized specifically in the proposed shall be considered incidental to the various contract items and shall not be paid separately.



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Michael H. O'Hara
SIGNATURE
EXPIRATION DATE
OF THE LICENSE
April 30, 2022

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES – 1	
FARRINGTON HIGHWAY	
Replacement of Makaha Bridge	
No. 3 and Makaha Bridge 3A	
F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. C0.5 OF 168 SHEETS	

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	7	168

General Notes (Cont.)

36.

For geologic investigation summary refer to "Geotechnical Investigation, Farrington Highway, Makaha Brdige No. 3 and No. 3A Replacement" dated July 2, 2020 prepared by Hirata & Associates, Inc.
37.

Contractor shall notfy the State Highways' Highway Lighting and Traffic Signal Supervisor (837-8056), three (3) working days prior to commencing work.
38.

Plastic marking tape: provide plastic marking tape that is acid and alkali resistant polyethylene film 6 inches wide with minimum thickness of 0.004 inch. Provide tape with minimum strength of 1750 PSI lengthwise and 1500 PSI crosswise. Manufacture tape with integral wires, foil backing or other means to enable detection by a metal detector when the tape is buried up to 3 feet deep. Manufacture tape specifically for marking and locating underground utilities. Provide the metallic core of the tape encased in a protective jacket or provided with other means to protect it from corrosion. Conform to the following tape color and bear a continuous printed inscription describing the specific utility.

Red:

Electric

Yellow:

Gas, Oil Dangerous, Matierials

Orange:

Telephone, Telegraph, Television, Police, and Fire Communication

Blue:

Water Systems

Green:

Serwer Systems

CONSTRUCTION NOTES FOR WORK WITHIN STATE R/W

1.

All construction work shall be done in accordance with the Standard Plans and Specifications of the State Department of Transportation as amended, unless otherwise specified by the contract plans and specifications.

Confined Space

2.

For entry by SDOT 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 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 flammable (capable of monitoring at a distance at least 20-feet away).

h.

Personal multi-gas detector to be carried by the SDOT Personnel.

2.

Continuous forced air ventilation adequate to provide safe entry conditions.

3.

Qualified attendant/rescue personnel at each entry/exit point.

GENERAL NOTES FOR TRAFFIC CONTROL PLAN

1.

The permittee shall make minor adjustments at intersections, driveways, structures, etc., to fit field conditions.
2.

Cones or delineators shall be extended to a point where they are visible to approaching traffic.
3.

Traffic control devices shall be installed such that the sign or device farthest from the work area shall be placed first. The others shall then be placed progressively toward the work area.
4.

Regulatory and warning signs within the construction zone that are in conflict with the traffic control plans shall be removed or covered. All signs shall be restored upon completion of the work.
5.

Flaggers and/or police officers shall be in sight of each other or in direct communication at all times.
6.

When required by the issuing office, the permittee shall install a flashing arrow signal as shown on the traffic control plans.
7.

Sign spacings (d), taper lengths (t) and spacings of cones or delineators shall be as shown in Table 645-1, Section 645-Work Zone Traffic Control of the specifications, unless otherwise noted on the traffic control plans.
8.

All traffic lanes shall be a minimum of 10 feet wide.
9.

All construction warning signs shall be promptly removed or covered whenever the message is not applicable or not in use.
10.

The backs of all signs used for traffic control shall be appropriately covered to preclude the display of inapplicable sign messages (i.e., when signs have messages on both faces).
11.

At the end of each day's work or as soon as the work is completed, the permittee shall remove all traffic control devices no longer needed to permit free and safe passage of public traffic. Removal shall be in the reverse order of installation.
12.

Permanent pavement markings and traffic signs shall be replaced upon the completion of each phase of work.
13.

The Contractor shall be allowed to close inbound or outbound lane for night work from 8 PM to 4:30 AM Sunday night/Monday morning through Thursday night/Friday morning.
14.

Traffic control cost will be the responsibility of the Contractor.

FREE SERVICE FOR LOCATING UNDERGROUND UTILITIES

A free service is available to Contractors for locating underground utilities. Service is provided by Underground Service Alert North, at toll free telephone no. 1-800-227-2600. Call Underground Service Alert North at least two days prior to the start of any excavation work.

HIGHWAY LIGHTING, HECO, HAWTEL, SPECTRUM - NOTES

See electrical drawings.

ENVIRONMENTAL PERMIT NOTES:

1.

A biological survey shall be performed by a biologist retained by the Contractor prior to construction to determine the presence of Ae'o (Hawaiian Stilt) and if active nests are present.
2.

The contractor shall condut biological monitoring on the project site and shall be trained by the biologist consultant. Biological monitoring shall take place during all construction or earth moving activities to ensure that Ae'o and active nests are not adversely impacted.
3.

The Contractor shall prepare a post construction report and submit to the USFWS within 30 days of completion of the project. The project shall include the results of the Ae'o survey by the biologist and monitoring activities by the contractor, the location and outcome of documented nests, and any other relevant information.
4.

Woody plans taller than 15 feet shall not be disturbed, removed, or trimmed during the birthing and pup rearing season (June 1 athrough September 15)
5.

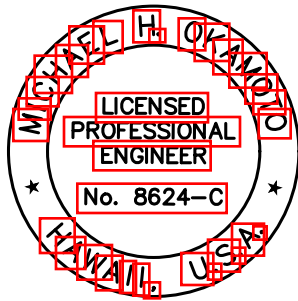
A qualified biologist will survey the areas within 300 feet of the project site to ensure that no honu (green sea turtle), Honu'ea (hawksbill turtle), or nests (nesting occurs between May to October) are present prior to the start of each work day. The biologist shall also make visual surveys prior to re-initiation of work following any break of more than 30 minutes as well as performing periodic surveys throughout the workday.
6.

When entering and exiting the site, heavy equipment and vehicle operator will use the same path as the day before to minimize the footprint of the project.
7.

The Contractor shall not perform any nighttime work occurring during the nesting season (May to October). If lighting is used, light shields will be completely opaque, sufficiently large, and positioned so that the bulb is only visible from below and that light from the shielded source cannot be seen from the beach.
8.

Contractor shall remove any construction related debris that may pose as an entanglement threat from the project site if not actively being used, and at the conclusion of the project. No project-related materials shall be stockpiled in the intertidal zone, reef flats, or stream channels.
- If either species (green or hawksbill turtle) are found within the project area while construction is occurring, all potential disruptive activities (including human activity, mechanical, or construction disturbance) will be stopped until the animal(s) voluntarily leave the area. In the event they enter the project area and activity cannot be halted, conduct observations and immediately contact NOAA/NMFS turtle hotline at (808)983-5370.

If there is evidence of nesting activities or active nests in the vicinity of the proposed project, a 100-foot buffer will be maintained in which no work activities will be allowed.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Michael H. Sham, April 30, 2022
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII

DEPARTMENT OF TRANSPORTATION

HIGHWAYS DIVISION

CONSTRUCTION NOTES - 2

FARRINGTON HIGHWAY

Replacement of Makaha Bridge

No. 3 and Makaha Bridge 3A

F. A. Project No. BR-093-1(20)

Scale: None Date: July 2020

SHEET No. C0.6 OF 168 SHEETS

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ENVIRONMENTAL PERMIT NOTES (CONT.):

9. Construction activities will not begin if a sea turtle is within 50 yards of the construction area. Construction can only begin after the animal voluntarily leaves the area. The contractor will designate a competent observer to survey the areas adjacent to the proposed action for sea turtles when installing and removing the silt curtain. The Contractor shall not attempt to feed, touch, ride or otherwise intentionally interact with any sea turtle.
10. Contractor shall verify that no sea turtles are in areas where equipment or materials are expected to contact the substrate. Work performed during night hours shall utilize sea–turtle–friendly lighting to reduce the brightness of the emitted light and avoid disorienting turtles.
11. Contractor shall utilize shielded lighting during night hours to reduce direct and ambient light to potential nearby beach habitat.
12. All workers associated with this project, irrespective of their employment arrangement or affiliation (e.g. employee, contractor, etc.) shall be fully briefed on the BMPs and the requirement to adhere to them for the duration of their involvement in this project.
13. All equipment and material will be clean of soil and invasive species before entering the water.
14. All objects that are to be placed in the water (such as the cofferdam and silt curtain), shall be lowered to the bottom in a controlled manner. This can include the use of cranes, winches, or other equipment that affect positive control over the rate of decent to minimize turbidity potential.
15. Silt fence locations shall be devoid of live corals, seagrass beds, or other significant resources.
16. Appropriate materials to contain and clean potential spills shall be stored at the work site and be readily available. All project–related materials and equipment placed in the water shall be free of pollutants. The contractor shall perform daily pre–work equipment inspections for cleanliness and leaks. Heavy equipment operations shall be halted should a leak be detected, and shall not proceed until the leak is repaired and equipment cleaned. Spill kits including absorbent pads and other materials shall be readily available on–site.
17. Off–site fueling areas shall be used to the maximum extent practical. Should fueling of project related vehicles or equipment need to occur on–site, a designated fueling area will be established at least 50 feet from any body of water (shoreline, streams, drainage, etc.). Project personnel shall be trained on proper fueling and fuel spill cleanup procedures.
18. Hazardous materials and petroleum products shall be transported, used, and stored on–site in a manner to prevent contamination of soils and water.
19. Stockpile, staging, and material storage areas shall be kept at least 50 feet from the any body of water (shoreline, streams, drainage, etc.).
20. The contractor shall take appropriate precautions in advance of predicted hurricane events to prevent material losses during surge or flood events, such as relocating materials and equipment to be at least 50 feet from the shoreline.
21. Turbidity and siltation from project–related work shall be minimized and contained through the appropriate use of erosion–control practices and effective silt containment devices (e.g., silt fencing, silt curtains), and the curtailment of work during adverse weather and tidal/flow conditions.
22. An Environmental Protection Plan, Erosion Control Plan, Storm Water Pollution Prevention Plan, litter–control plan, Hazard Analysis and Critical Control Point Plan, and project–specific plans shall be prepared, approved by appropriate regulatory agencies, and implemented.
23. Solid and sanitary waste disposal procedures and facilities shall be implemented.
24. Erosion–control device(s) shall be employed at the job site to prevent debris and soil from entering the water. Device(s) must be secured and able to withstand heavy rains and winds.
25. Construction debris must be removed immediately and not stored at the job site. Debris includes excavated soil, cement material, piping, and asphalt.
26. Any material or debris removed from the aquatic environment shall be disposed of at upland sites in accordance with applicable laws and regulations.
27. Work shall be conducted below the mean high water line during the dry season and low tides when feasible.
28. Do not allow any concrete to fall into the water.
29. No excavation or fill in the shoreline or streams during mass–coral spawning times, which occurs during the days before full moon in late spring/early summer.

CONSTRUCTION NOTES (CITY AND COUNTY OF HONOLULU)

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 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 inspectional 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:
- I. 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.
- II. Continuous forced air ventilation adequate to provide safe entry conditions.
- III. 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 inform 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.

SIDEWALK NOTES

1. All sidewalks shall provide a minimum clear width of 3'–0" (excluding curb) for pedestrian circulation. If this cannot be met, a minimum 32–inch clear width is allowed for a maximum distance of 24 inches.
2. Narrow sidewalks (3'–0" min. width, excluding curb) may prohibit the installation of any sign posts, utility poles, fire hydrants, traffic signal standards, light poles, etc. in the sidewalk.
3. Passing spaces along new sidewalks with 5' clear width or less shall be provided at maximum 200' intervals as required by ADA guidelines. The passing area shall be a minimum 5' wide by 5' long as feasible.
4. For new construction, the minimum sidewalk width shall be 6'–0" (excluding curb). The cross slope shall not exceed 2%.
5. If possible, install utility poles, fire hydrants, light poles, sign posts, pullboxes, etc. off of sidewalk but within the right–of–way.
6. Objects protruding from utility poles and walls adjacent to the sidewalks (i.e. wall mounted fire hydrants, telephones, meters on poles, etc.) shall be mounted to meet the current Americans with Disabilities Act Accessibility Guidelines (ADAAG) and will be subject to Engineer's approval.
7. All new wheelchair–accessible curb ramps and flares shall be no steeper than 12H:1V. Ramps and flares shall be lengthened as required to achieve this maximum slope.

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 of the State Department of Health. The State may require supplementary measures as necessary.

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THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Michael H. Sham
SIGNATURE
EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII	
DEPARTMENT OF TRANSPORTATION	
HIGHWAYS DIVISION	
CONSTRUCTION NOTES – 3	
FARRINGTON HIGHWAY	
Replacement of Makaha Bridge	
No. 3 and Makaha Bridge 3A	
F. A. Project No. BR–093–1(20)	
Scale: None	Date: July 2020
SHEET No. 10.7 OF 168 SHEETS	

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AMERICANS DISABILITIES ACT NOTE

1. All new walkway cross slopes shall be 2% max. Cross slope shall be defined as the direction perpendicular to the prevalent pedestrian flow of travel.
2. Contractor shall provide smooth and continuous connections between new and existing sidewalks and walkways, and shall hold the maximum allowable 2% cross slope.

ARCHAEOLOGICAL NOTES

1. If, during construction, any archaeological sites or remains (such as artifacts, shell, bone, or charcoal deposits, human burials, rock or coral alignments, pavings, or walls) are encountered, the Contractor shall stop work and contact the Construction Manager immediately. Work in the immediate area shall be stopped until the owner is able to assess the impact and make recommendations for mitigative activity.

GRADING NOTES

1. All grading work shall be done in accordance with State of Hawaii 2005 Standard Specifications for Road and Bridge Construction.
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 the Contractor's 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. The underground pipes, cables or ductlines known to exist by the Design Engineer from his/her 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 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.
5. Surface waters shall not damage the cut face of an excavation or the sloped surfaces of a fill. Furthermore, sediment-laden runoff shall not leave the site.
6. All slopes and exposed areas shall be sodded, planted, or hydromulched, 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.
7. Fills on slopes steeper than 5:1 shall be keyed.
8. No grading work shall be done on Saturdays, Sundays and holidays at any time without prior notice and acceptance by the Engineer, 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. The maximum surface area of earth material exposed at any time is 300,000 square feet.
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.

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11. 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 by the Engineer 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. In the event any artifacts or human remains are uncovered during construction operations, the contractor shall immediately suspend work and notify SDOT, the Honolulu Police Department, the State Department of Land and Natural Resources-Historic Preservation Division (692-8015).
17. 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.
18. Place topsoil and irrigation system prior to placement of erosion control matting or turf reinforcement matting, in accordance with the requirements of Section 616-Irrigation System, 617-Planting Soil, and Section 663-Erosion Control Matting.
19. Any loose/soft soils encountered shall be removed and backfilled with proper compacted fill prior to mass grading

DRAINAGE NOTES

1. The Contractor shall verify the locations of all existing culverts, drainage facilities and utilities in the field. Any existing culverts, drainage facilities and utilities damaged during construction shall be repaired or replaced by the contractor at his/her own expense.
2. Storm drain pipes shall be reinforced concrete pipe (RCP), Class III, unless noted otherwise.
3. All drainlines under paved areas shall have 2 feet minimum cover or be below the pavement structure, whichever is greater. Drainlines in other areas shall have a minimum 2 foot cover.
4. Concrete shall be Class A unless otherwise noted.

AT&T NOTES

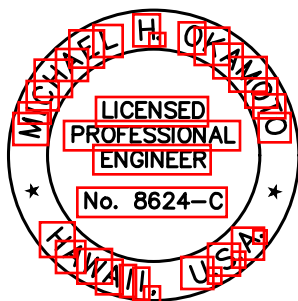
1. The Contractor should be particularly aware of an AT&T fiber optic ductline that runs along the Makai side of Farrington highway. During construction a designated AT&T personnel shall be present on-site to monitor the excavation and placement of the terrestrial cable. The Contractor shall be liable for any damages incurred to the AT&T fiber optic ductline caused by his operations while an on-site AT&T inspector is not present.
2. Two weeks prior to start of construction, the Contractor shall contact the AT&T fiber optics facilities field office at 455-1010.
3. Work involving the protection and mitigation of existing AT&T and signal corps facilities shall be considered incidental to the various contract items.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	9	168

EROSION AND SEDIMENT CONTROL PLAN
SCHEDULE AND RAIN RESPONSE PLAN

- Project sequence:
1. Install stabilized construction entrances, perimeter controls, inlet protection, and temporary fencing for protected areas, clearing and grubbing as necessary for the installation of these bmps.
 2. Clear, grub and grade the site, refer to site plan. Relocate, reconstruct and maintain bmps as needed to keep them effective at all times. Initiate temporary stabilization immediately once grading is completed.
 3. Proceed with construction with least possible disturbance of vegetative areas and temporary structures.
 4. Plant permanent ground cover according to the landscaping plan as soon as possible.
 5. Remove or dismantle temporary erosion control structures after full establishment of permanent vegetative cover.
 6. Practice good housekeeping measures throughout the duration of construction.
 7. Inspections will be performed weekly.

- Rain response plan (contractor shall perform the following when heavy rains, tropical storm or hurricane is imminent or is forecasted in the next 48 hours):
1. Temporary suspend active grading and trenching.
 2. Inspect all perimeter controls and inlet protection devices, and maintain as needed. Reinstall any perimeter controls that were removed due to active work in the area. If a severe storm is expected, remove inlet protection devices to prevent flooding on surrounding roadways.
 3. Cover or relocate material stockpiles and liquid material containers to avoid contact with rainwater.
 4. Place spill pans or oil-only spill pads under construction vehicles to prevent runoff from contacting any spilled petroleum products. Properly dispose of any accumulated oily water after the rain event.
 5. Re-inspect after the approaching heavy rains, tropical storm or hurricane and replace or maintain bmps as needed.



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CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Michael H. Sham
SIGNATURE
EXPIRATION DATE
OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 4	
FARRINGTON HIGHWAY	
Replacement of Makaha Bridge	
No. 3 and Makaha Bridge 3A	
F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. 9 OF 168 SHEETS	

EROSION PREVENTION/ SEDIMENT CONTROL NOTES:

A. General:

- 1. See special provisions section 209 – water pollution and erosion control. Section 209 describes but is not limited to: submittal requirements; scheduling of a water pollution and erosion control conference with the engineer; construction requirements; methodof measurement; and basis of payment. In addition, appendix a lists potential pollutant sources and corresponding bmps used to mitigate the pollutants.
- 2. Follow the guidelines in the current hdot construction best management practices field manual in developing, installing and maintaining the best management practices (bmp) for the project. For any conflicting requirements between the manual and applicable bid documents, the applicable bid documents will govern. Should a requirement not be clearly described within the applicable bid documents, the contractor shall notify the engineer immediately for interpretation. For the purposes of clarification under note a.2, "applicable bid documents" include the construction plans, standard specifications, special provisions, permits, and the storm water pollution prevention plan (swppp) when applicable.
- 3. Follow the guidelines in the honolulu's city & county "rules relating to soil erosion standards and guidelines" along with applicable soil erosion guidelines for projects on maui, molokai, kauai, and hawaii.
- 4. The engineer may assess liquidated damages of up to \$27,500 for non-compliance of each bmp requirement and each requirement stated in section 209 and special provisions, for every day of non-compliance. There is no maximum limit on the amount assessed per day.
- 5. The engineer will deduct the cost from the progress payment for all citations received by the department for non-compliance, or the contractor shall reimburse the state for the full amount of the outstanding cost incurred by the state.
- 6. If necessary, install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. Do not install in a location where rain water may splash into rain gage. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
- 7. Submit site-specific bmp plan to the engineer along with a completed site-specific bmp review checklist within 30 calendar days of contract execution. The site-specific bmp review checklist may be obtained from <http://www.Stormwaterhawaii.com>.

B. Waste disposal:

- 1. Waste materials collect and store all waste materials in a securely lidded metal dumpster or roll off container with cover to keep rain out or loss of waste during windy conditions. The dumpster shall meet all local and state solid waste management regulations. Deposit all trash and construction debris from the site in the dumpster. Empty the dumpster weekly or when the container is two-thirds full, whichever is sooner. Do not bury construction waste materials onsite. The contractor's supervisory personnel shall be instructed regarding the correct procedure for waste disposal. Post notices stating these practices in the office trailer, on a weatherproof bulletin board, or other accessible location acceptable to the engineer. The contractor shall be responsible for seeing that these procedures are followed.

Submit the solid waste disclosure form for construction sites to the engineer within 30 calendar days of contract execution. Provide a copy of all the disposal receipts from the facility permitted by the department of health to receive solid waste to the engineer monthly. This should also include documentation from any intermediary facility where solid waste is handled or processed.

- 2. Hazardous waste dispose all hazardous waste materials in the manner specified by local or state regulations and by the manufacturer. The contractor's site personnel shall be instructed in these practices and shall be responsible for seeing that these practices are followed.
- 3. Sanitary waste collect all sanitary waste from the portable units a minimum of once per week, or as required. Position sanitary facilities where they are secure and will not be tipped over or knocked down.

C. Erosion and sediment control inspection and maintenance practices:

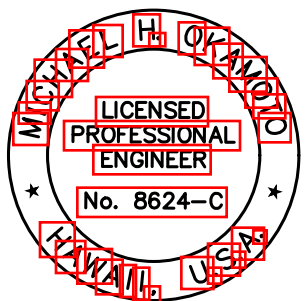
- 1. For projects with an npdes permit for construction activities, inspect at the following intervals. For construction areas discharging to nutrient or sediment impaired waters, inspect all control measures at least once each week and within 24 hours of any rainfall event of 0.25 inches or greater within a 24 hour period. For construction areas discharging to waters not impaired for nutrient or sediments, inspect all control measures weekly. Inspections are only required during the project's normal working hours. The discharge point water classification may be found in the swppp.
- 2. For projects without an npdes permit for construction activities, inspect all control measures weekly.3. Maintain all erosion and sediment control measures in good working order. If repair is necessary, initiate repair immediately and complete by the close of the next work day if the problem does not require significant repair or replacement, or if the problem can be corrected through routine maintenance. When installation of a new erosion or sediment control or a significant repair is needed, install the new or modified control or complete the repair no later than 7 calendar days from the time of discovery. "immediately" means the contractor shall take all reasonable measures to minimize or prevent discharge of pollutants until a permanent solution is installed and made operational. If a problem is identified at a time in the day in which it is too late to initiate repair, initiation of repair shall begin on the following work day.
- 3. Remove built-up sediment from silt fence when it has reached one-third the height of the fence. Remove sediment from other perimeter sediment control devices when it has reached one-half the height of the device.
- 4. Inspect silt screen or fence for depth of sediment, tears, to verify that the fabric is securely attached to the fence posts or concrete slab and to verify that the fence posts are firmly in the ground. Inspect and verify the bottom of the silt screen is buried a minimum of 6 inches below the existing ground.
- 5. Inspect temporary and permanent seeding and planting for bare spots, washouts and healthy growth.
- 6. Complete and submit to the engineer a maintenance inspection report within 24 hours after each inspection.
- 7. Provide a stabilized construction entrance at all points of exit onto paved roads to reduce vehicle tracking of sediments. Include stabilized construction entrance in the water pollution, dust, and erosion control submittals. Minimum length should be 50 feet.
- 8. Minimum width should be 30 feet. Minimum depth should be 12 inches or as recommended by the soils engineer and underlain with geo-textile fabric. If minimum dimensions cannot be met, provide other stabilization techniques that remove sediment prior to exit. Clean the paved street adjacent to the site entrance daily or as required to remove any excess mud, cold-planed materials, dirt or rock tracked from the site. Do not hose down the street

without containing or vacuuming wash water. Cover dump trucks hauling material from the construction site with a tarpaulin. Remove sediment tracked onto the street, sidewalk, or other paved area by the end of the day in which the track-out occurs.

- 9. Include designated concrete washout area(s) in the water pollution, dust, and erosion control submittals.
- 10. Submit the name of a specific individual designated responsible for inspections, maintenance and repair activities and filling out the inspection and maintenance report.
- 11. Personnel selected for the inspection and maintenance responsibilities shall receive training from the contractor. They shall be trained in all the inspection and maintenance practices necessary for keeping the erosion and sediment controls used onsite in good working order.
- 12. Contain, remove, and dispose slurry generated from saw cutting of pavement in accordance with approved bmp practices. Do not allow discharge into the drainage system or state waters.
- 13. For projects with an npdes permit for construction activities, immediately initiate stabilizing exposed soil areas upon completion of earth-disturbing activities for areas where earth-disturbing activities have permanently or temporarily ceased. Earth-disturbing activities have permanently ceased when clearing and excavation within any area of the construction site that will not include permanent structures has been completed. Earth-disturbing activities have temporarily ceased when clearing, grading, and excavation within any area of the site that will not include permanent structures will not resume (i.E., the land will be idle) for a period of 14 or more calendar days, but such activities will resume in the future. For construction areas discharging into waters not impaired for nutrients sediments, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities. For construction areas discharging into nutrient or sediment impaired waters, complete initial stabilization within 7 calendar days after the temporary or permanent cessation of earth-disturbing activities. Classification of water at the discharge point may be found in the swppp.
- 14. For projects without an npdes permit for construction activities, complete initial stabilization within 14 calendar days after the temporary or permanent cessation of earth-disturbing activities.

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	10	168

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Michael H. Sham, April 30, 2022
SIGNATURE EXPIRATION DATE OF THE LICENSE

STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES – 5	
FARRINGTON HIGHWAY	
Replacement of Makaha Bridge	
No. 3 and Makaha Bridge 3A	
F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. 10 OF 168 SHEETS	

EROSION PREVENTION/SEDIMENT CONTROL NOTES (CONT.)

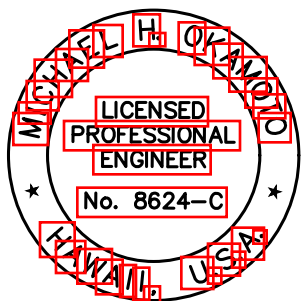
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	11	168

- D. Good housekeeping best management practices:
- Materials pollution prevention plan
 - Applicable materials or substances listed below are expected to be present onsite during construction. Other materials and substances not listed below shall be added to the inventory. Concrete cleaning solvents detergents wood paints (enamel and latex) masonry block metal studs herbicides and pesticides tar curing compounds fertilizers adhesives petroleum based products
 - Use material management practices to reduce the risk of spills or other accidental exposure of materials and substances to storm water runoff. Make an effort to store only enough product as is required to do the job.
 - Store all materials stored onsite in a neat, orderly manner in their appropriate containers and if possible under a roof or other enclosure.
 - Keep products in their original containers with the original manufacturer's label.
 - Do not mix substances with one another unless recommended by the manufacturer.
 - Whenever possible, use a product up completely before disposing of the container.
 - Follow manufacturer's recommendations for proper use and disposal.
 - Conduct a daily inspection to ensure proper use and disposal of materials onsite.
 - Hazardous material pollution prevention plan
 - Keep products in original containers unless they are not resealable.
 - Retain original labels and safety data sheets (sds), formerly material safety data sheets (msds).
 - Dispose of surplus products according to manufacturers' instructions and local and state regulations.
 - Onsite and offsite product specific plan
the following product specific practices shall be followed onsite:
 - Petroleum based products: monitor all onsite vehicles for leaks and perform regular preventive maintenance to reduce the chance of leakage. Store petroleum products in tightly sealed containers which are clearly labeled. Apply asphalt substances used onsite according to the manufacturer's recommendation.
 - Fertilizers: apply fertilizers used only in the minimum amounts recommended by the manufacturer and federal, state, and local requirements. Avoid applying just before a heavy rain event. Apply at the appropriate time of year for the location, and preferably timed to coincide as closely as possible to the period of maximum vegetation uptake and growth. Once applied, work fertilizer into the soil to limit exposure to storm water. Do not apply to storm conveyance channels with flowing water. Storage shall be in a covered shed or in an area where fertilizer will not come into contact with precipitation or stormwater. Transfer the contents of any partially used bags of fertilizer to a sealable plastic bin to avoid spills.
 - Paints: seal and store all containers when not required for use. Do not discharge excess paint to the drainage system, sanitary sewer system, or state waters. Dispose properly according to manufacturers' instructions and state and local regulations.
 - Concrete trucks: washout or discharge concrete truck drum wash water only at a designated site as far as practicable from storm drain inlets or state waters. Do not discharge water in the drainage system or state waters. Disposal by percolation is prohibited. Clean disposal site as required or as requested by the engineer.
 - Spill control plan
 - Post a spill prevention plan to include measures to prevent and clean up each spill.
 - The contractor shall be the spill prevention and cleanup coordinator. Designate at least three site personnel who shall receive spill prevention and cleanup training. These individuals shall each become responsible for a particular phase of prevention and cleanup. Post the names of responsible spill personnel in the material storage area on a weatherproof bulletin board or other accessible location acceptable to the engineer and in the office trailer onsite.
 - Clearly post manufacturers' recommended methods for spill cleanup. Make site personnel aware of the procedures and the location of the

- information and cleanup supplies.
- Keep ample materials and equipment necessary for spill cleanup in the material storage area onsite.
 - Clean up all spills immediately after discovery.
 - Keep the spill area well ventilated. Personnel shall wear appropriate protective clothing to prevent injury from contact with a hazardous substance.
 - Report spills of toxic hazardous material to the appropriate state or local government agency, regardless of the size. Where a leak, spill, or other release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity established under either 40 cfr part 110, 40 cfr part 117, or 40 cfr part 302 occurs during a 24-hour period, the contractor shall notify the engineer as soon as the contractor has knowledge of the discharge. The engineer will notify the national response center (nrc) at (800) 424-8802, the clean water branch during regular business hours at 586-4309, and the Hawaii state hospital operator at 247-2191 and the clean water branch (doh-cwb) via email at cleanwaterbranch@doh.Hawaii.Gov during non-business hours immediately. The contractor shall also provide to the engineer, within 7 calendar days of knowledge of the release, a description of the release, the circumstances leading to the release, and the date of the release. The engineer will provide this information to the doh-cwb. The engineer will provide information to the nrc if requested.
- Permit requirements:
 - A national pollutant discharge elimination system (NPDES) permit for construction activities of one acre or more of disturbed area is required for this project. If the contractor requires extra land disturbance, including staging and storage areas, that is not covered by the NPDES permit obtained by the state, the contractor shall be responsible for obtaining the required NPDES construction activities permit to cover this additional disturbed area. See Hawaii administrative rules chapter 11-55, appendix c for definition of land disturbance. The contractor's attention is directed to the applicable NPDES permit documents on the bid package compact disc 1. The calculated land disturbance area for this project based on the construction plans is 3.8 acres not including contractor staging and storage areas. If the total of the disturbed area and the contractor staging and storage area is one acre or greater, the contractor shall obtain the NPDES construction activities permit using HDOT's latest swppp template. See Hawaii administrative rules chapter 11-55, appendix c for the definition of land disturbance. The contractor shall be responsible for obtaining the required NPDES construction activities permit and complying with the requirements of har 11-55 including, but not limited to:
 - Deadlines for initiating and completing initial stabilization
 - Ncreased inspection frequency and installation of rain gage if applicable
 - Deadlines to initiate and complete repairs to BMPs
 - Reporting requirements and corrective action reports
 - Comply with all applicable state and federal permit conditions. Permits may include, but not limited to the following:
 - NPDES permit for construction activities
 - NPDES permit for construction dewatering
 - NPDES permit for hydrotesting waters
 - Water quality certification
 - Stream channel alteration permit
 - Section 404 army corps of engineer permit
 - Site-specific BMP requirements: each BMP below is referenced to the corresponding section of the current HDOT construction best management practices field manual and appropriate supplemental sheets. The manual may be obtained from the HDOT statewide stormwater management program website at (<http://www.StormwaterHawaii.Com/resources/contractors-and-consultants>) under construction best management practices field manual. Supplemental BMP sheets are located at (<http://www.StormwaterHawaii.Com/resources/contractors-and-consultants/storm-water-pollution-prevention-plan-swppp/>) under concrete curing and irrigation water. The requirements for water pollution, dust, and erosion control submittals are included in section 209 of the Hawaii standard specifications for road and bridge construction dated 2005 and applicable special provisions. A list of pollutant sources and

- corresponding BMP used to mitigate the pollutants are included in section 209 of the special provisions under Appendix A. Follow the requirements below:
- Protect all drainage inlets receiving runoff from disturbed areas (SC-2).
 - Contain on-site runoff using perimeter sediment controls
 - SC-1 silt fence
 - SC-5 vegetated filter strips and buffers
 - SC-8 compost filter berm
 - SC-13 sandbag barrier
 - SC-14 brush or rock filter
 - Control offsite runoff from entering construction area
 - EC-8 run-on diversion
 - SC-6 earth dike
 - SC-7 temporary drains and swales
 - Incorporate applicable site management BMP
 - SM-1 employee training
 - SM-2 material delivery and storage
 - SM-3 material use
 - SM-4 protection of stockpiles
 - SM-6 solid waste management
 - SM-7 sanitary/septic waste management
 - SM-9 hazardous waste management
 - SM-10 spill prevention and control
 - ISM-11 vehicle and equipment cleaning
 - SM-12 vehicle and equipment maintenance
 - SM-13 vehicle and equipment refueling
 - SM-14 scheduling
 - SM-15 location of potential sources of sediment
 - SM-16 preservation of existing vegetation
 - SM-18 dust control
 - Contain pollutants within the construction staging/storage area BMP with applicable perimeter sediment controls and site management BMP. Include a stabilized construction entrance/exit (EC-2) for all areas which exit onto a paved street. Restrict vehicle access to these points.
 - Manage concrete waste including installing a concrete washout area (SM-5) and properly disposing of concrete curing water (california stormwater BMP handbook NS-12 concrete curing).
 - Remove saw cut slurry and hydrodemolition water from the site by vacuuming. Provide storm drain protection and/or perimeter sediment controls during saw cutting and hydrodemolition work.

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STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 6	
FARRINGTON HIGHWAY	
Replacement of Makaha Bridge	
No. 3 and Makaha Bridge 3A	
F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. 11 OF 168 SHEETS	

WATER NOTES

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	ADD.12	168

1. Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the 2005 Standard Specifications for Road and Bridge Constructions, as amended, of the Hawaii Highways Division, Department of Transportation, 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 ammendments and additions.

2. All plans approved by the Board of Water Supply are based solely on the adequacy of the water supply.

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

4. 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.

5. Water commitment shall be canceled if the approved construction plans are allowed to lapse.

6. 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)

7. 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 behind the existing reaction blocks. The Contractor shall take whatever measures necessary to protect the water lines, such as constructing special reaction blocks (with BWS approval) and/or modifying his construction method.

8. 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 shall pay for all damages to existing utilities. The Contractor shall not assume that where no utilities are shown, that none exist.

9. 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 System Standards, Dated 2002.

10. 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.

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

12. 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.

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

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

15. Maintain 3'-0" min. horizontal clear separation between electrical/cable/signal appurtenances (including modular units) and the nearest waterlines or water appurtenance. Contractor shall field verify for any conflicts at each street electrical/cable/signal appurtenance location. Where conflicts occur, the Contractor shall coordinate with the Project Engineer to revise electrical/cable/signal appurtenance to provide the required clearances at no cost to the Board of Water Supply.

16. 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.

17. All ductile iron pipe, fittings and valves shall be wrapped with two (2) layers of 8 mil. polyethylene wrap. The inside surface of the polyethelene wrap to be in contact with the pipe exterior shall be infused with a blend of an antimicrobial to mitigate microbiologically influenced corrosion and a volatile corrosion inhibitor to control galvanic corrosion.

18. All ductile iron pipe and fittings including sections requiring reinforced concrete jacketing shall be ductile iron class 53 and zinc coated as per BWS Water System Standards.

19. 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 volume 1 of the water system 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).

20. Cleaning shall be by the use of "pigs" introduced into the pipeline and run acompletey 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.

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

22. For cut-in connections, cut & plug work:
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.
23. For cut-in connections to existing:
All waterline construction requiring shutdown connection shall be scheduled for normal working hours at six (6) hours maximum downtime.

24. 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.

25. 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.

26. Maintain 3'-0" minimum cover for all existing waterlines (18" minimum for service laterals) 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.

27. 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.

28. 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.

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CHECKED BY	
ORIGINAL PLAN	
NOTE BOOK	
No.	

APPROVED:

Manager and Chief Engineer, Board of Water Supply
(For work affecting BWS facilities in City/State R/W and easements only)



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

Michael H. Okamoto
SIGNATURE EXPIRATION DATE OF THE LICENSE

11/18/20	Revised Notes
Date	Description
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES - 7	
FARRINGTON HIGHWAY Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. C0.11 OF 168 SHEETS	

WATER NOTES (Cont.)

28. The following chlorination and water sample collection procedure shall apply to all water pipeline projects (all work to be coordinated through BWS inspector):

A. Chlorination of Water Systems

- (1.) The Contractor shall provide a 4 week advance notice, in writing, to the Officer-In-Charge for proposed flushing, filling and bacterial testing of the new pipeline.

(2.) The Contractor shall hire a State of Hawaii – Department of Health certified laboratory to provide water sampling services and to deliver water samples to the Micro Lab for analysis. Water samples for bacterial testing shall be delivered no later than 2:30pm, on the day the samples are taken to the BWS Microlab located at 630 S. Beretania St., Honolulu, HI 96843. The Micro Lab shall perform analysis and provide their results to the Officer-In-Charge by 4:30pm on the following day (in some cases, final results notification may take up to 48 hours).

(3.) Water mains shall be disinfected in accordance with the Honolulu Board of Water Supply Water System Standards (2002), as amended.

(4.) Liquid chlorine, chlorine based liquid disinfectants or calcium hypochlorite that has been tested and certified as meeting the specifications of ANSI/NSF Standard 60, Drinking Water Treatment Chemicals – Health Effects, shall be used for the chlorination of the water mains.

(5.) Prior to chlorination, the water mains shall be thoroughly flushed.

(6.) The interior surfaces of the water mains shall be exposed to the chlorinating solution by completely filling the main remove air pockets, for a minimum of 24-hours and the free chlorine residual shall not be less than 10 ppm after such time.

(7.) Should the calcium hypochlorite be used, no solid and/or undissolved portion of the compound shall be introduced into any section of the water mains to be chlorinated.

(8.) At the end of the 24-hour disinfection period, representative samples shall be taken and analyzed to assure a free chlorine residual of at least 10 ppm.

(9.) Should the free chlorine residual results indicate adequate chlorination, the water mains shall be thoroughly flushed and filled with water from the existing system and again tested for free chlorine residual. The flushing shall be considered adequate if the free chlorine residual test results indicate that the water in the water mains has a comparable chlorine residual as the water in the existing system.

(10.) The Contractor shall be responsible for the proper disposal of chlorinated water to safeguard public health and the environment in accordance with applicable State of Hawaii Department of Health requirements. A neutralizing chemical shall be applied to the water to be disposed to thoroughly neutralize the chlorine residual remaining in the water in accordance with Honolulu Board of Water Supply Water System Standards (2002), as amended.

(11.) The Contractor shall be responsible for obtaining a National Pollutant Discharge Eliminating System (NPDES) Permit from the Department of Health, Clean Water Branch prior to the start of Construction, for the disposal of water used for hydro testing and chlorination, as required by the contract documents.

(12.) Following the acceptable flushing of the water mains, three (3) consecutive days of acceptable samples, taken at least 24-hours apart, from the representative points shall be taken and subjected to microbiological tests. For water lines, at least one set of samples shall be collected from every 1,200 feet of the new water main, plus one from the end of the line and at least one set from each branch. Positive or Invalid test results will not be acceptable and the process will be repeated.

- (13.) All measurements for chlorine residual shall be analyzed using E.P.A., approved methods for drinking water.

(14.) All microbiological tests shall be performed by a laboratory approved by the Department of Health, State of Hawaii and the Water Quality Division of the Honolulu Board of Water Supply.

(15.) The Contractor shall be responsible for all costs associated with all of the foregoing.

(16.) Cleaning and Swabbing procedures shall be in accordance with Honolulu Board of Water Supply Water System Standards (2002), as amended.

All materials in direct contact with the potable water shall have National Sanitation Foundations (NSF) approvals. The Contractor shall submit these approvals to the Board of Water Supply for information only prior to its application.

29. 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".

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

31. All sections of the water main requiring reinforced concrete jacketing shall be ductile iron pipe class 53 with ductile iron fittings.

32. 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.

33. The Contractor shall have existing water mains toned before construction of work in vicinity of water mains, call the investigation section at 748-5381 for toning services. Guardrail post locations are to be kept to a minimum clear distance of 18 inches to any 2 1/2 inch meter lines and meter boxes. no post driving will be allowed when post is to be installed closer than 3 feet from water main. Excavated areas shall be restored to their original conditions.

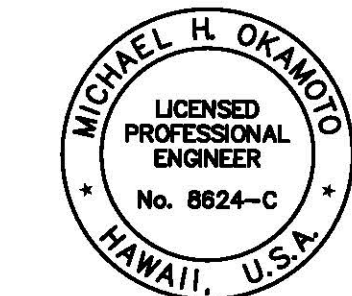
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-093-1(20)	2020	ADD.13	168

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

APPROVED:

Manager and Chief Engineer,
Board of Water Supply
(For work affecting BWS facilities in City/State
R/W and easements only)

Date



THIS WORK WAS PREPARED BY ME
OR UNDER MY SUPERVISION AND
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.

Michael H. Okamoto
SIGNATURE
EXPIRATION DATE
OF THE LICENSE

11/18/20	Revised Notes
Date	Description
STATE OF HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION	
CONSTRUCTION NOTES – 8	
FARRINGTON HIGHWAY Replacement of Makaha Bridge No. 3 and Makaha Bridge 3A F. A. Project No. BR-093-1(20)	
Scale: None	Date: July 2020
SHEET No. 00.12 OF 168 SHEETS	