## **GENERAL NOTES:**

- 1. The project is the reconstruction of the existing T-intersect Kamehameha Highway and Kahekili Highway into a roundabou project includes reconstruction of AC pavement; removing expavement, guardails and trees; constructing curbs, gutters, s Portland cement concrete truck apron and bus bay pads, and walls; installing guardrails, street lighting, geotextiles, signs pavement markings; relocating bus shelters; modifying draina culverts and inlets; adjusting and relocating utilities; cleanin existing culverts; cold planing; erosion control; and traffic co
- 2. Subsection 105.16(A) Subcontract Requirements requires the Contractor to perform work amounting to not less than 30 perform the total contract cost less deductible items.
- 3. The Contractor's attention is directed to the following Section Standard Specifications and the Special Provisions: Subsect - Maintenance of Traffic; Subsection 105.09 - Coordination E the Contractors; Subsection 107.06 - Contractor Duty Regard Convenience; Subsection 107.12 - Protection of Persons and F and Section 645 - Work Zone Traffic Control.
- 4. At the end of each day's work, the Contractor shall remove equipment and other obstructions to permit free and safe pa public traffic.
- 5. The existence and location of underground utilities, manhole monuments and structures as shown on the plans are from available data but the accuracy is not guaranteed. The enco of other obstacles during the course of work is possible. The Contractor shall be held liable for any damages incurred to existing facilities and/or improvements as a result of his o
- 6. All existing utilities, whether or not shown on the plans, sha be protected at all times by the Contractor during construct unless specified on the plans to be abandoned. All existing utility/light poles, overhead utilities and guy poles/wires sh remain in place and operational. The Contractor shall be he liable for any damages incurred to the existing utilities as result of his operations. All damaged portions shall be repu in accordance with the standards and specifications of the affected utility company at no cost to the State. No delays extensions of contract time will be allowed as a result of the required repairs.
- 7. The Contractor shall notify in writing, the Oahu Transit Ser Field Operations Department, 811 Middle St., Hon., HI 96819 (1 848-4571) three (3) weeks prior to construction, informing th location, scope of work, and date(s) of lane(s) closure(s).
- 8. The Contractor shall notify the Engineer in writing, two (2) prior to starting paving operations.
- 9. The Contractor shall indemnify and be solely responsible for protection of adjacent properties, utilities, and existing stru from damages due to construction. Repairing any damage sh the Contractor's own expense, to the satisfaction of the Eng
- 10. The existing drainage system shall be kept functional at all during construction. Furnish materials, equipment, labor, too incidentals necessary to maintain flow. This work shall be incidental to the various contract items.

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ORIGINAL	NAL	NOTE BOOK		No	

	<u>GEI</u>	NERAL NOTES, CON'T:	<u>GE</u>
tion at ut. The kisting sidewalk, od retaining		Smooth riding connections shall be constructed at all limits of the project, including the beginning and end of project, connecting approaches, side streets, walkways, and driveways as shown on the plans and/or as ordered by the Engineer.	25.
a nd age system ng	12.	All saw cutting work including vacuuming of slurry seal shall be considered incidental to HMA Pavement, Mix. No. IV.	26.
control. e percent of	13.	Maintain existing pedestrian walkways in a safe and passable condition, or provide other temporary walkway facilities for pedestrians to maintain access. Passages between walkways at intersections shall likewise be provided at all times.	20.
ons of the ction 104 <b>.</b> 09	14.	Driveways shall be kept open unless owners of the abutting lots using these right of ways are otherwise provided for satisfactorily.	27.
Between ling Public Property;	15.	No material or equipment shall be stockpiled or otherwise stored within highway right-of-way except at locations shown on the plans or designated in writing and approved by the Engineer.	28.
all assage of	16.	Contact Hawaiian Telcom Outside Plant Engineering Section, a minimum of 72 hours in advance, prior to start of excavation, to locate existing Hawaiian Telcom facilities.	29.
s, the latest	17.	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	30.
countering The the operations.		it safe and secure from possible slides, cave-ins, and settlement. Provide beams, struts, or underpinning as necessary. This work shall be considered incidental to various contract items.	31.
all tion	18.	For night work, the Contractor shall follow all work hours, conditions, and other restrictions as specified in the noise variance and the Special Provisions.	
nall eld a laced	19.	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.	32 <b>.</b> 33.
or hese	20.	All azimuths and coordinates are referred to NAD83 Hawaii State Plane.	∆ <i>34</i> .
rvices, Inc. 'Phone:	21.	Elevations referred to National Geodetic Survey control disk NGS "4 32" at the center of sidewalk southwest of the junction of Waihee Road and Kamehameha Highway. Top of Brass Disk, Elev. = 6.64 U.S. FT. MSL.	
nem of weeks	22.	All graded areas and all grassed areas damaged by construction activities shall be planted in accordance with Specifications Section 641 - Hydro-Mulch Seeding. This work shall be considered incidental to the various contract items.	
r the Ictures nall be at gineer.	23.	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.	
times ols and considered	24.	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.	

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	STATE	PROJ. NO.			

ENERAL NOTES, CON'T:

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.

Should field conditions and construction procedures require that utility poles be braced, the Contractor shall contact Hawaiian Telcom Outside Plant Engineering Section for pole bracing instructions a minimum of 72 hours in advance of actual required bracing.

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.

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

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

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.

Forms shall be used for the concrete bus pads. Adjacent A.C. shall not be used as a form. After the form is removed, backfill with CLSM, instead of aggregate base course, up to the bottom of the proposed new asphalt. Fill the remainder with HMA Mix No. IV. This work shall be included in the contract price for the concrete bus pad. See Special Provision 645 for working hours for constructing bus pads.

Contractor shall obtain all necessary dewatering or hydrotesting permits.

Contractor to provide access to driveways at all times.

All Bus Pads and Driveways shall attain a flexural strength of 450 PSI with 12 hours.

	08/31/2022 Date	Added Note
HIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.	( 	STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <u>GENERAL NOTES</u> <u>KAMEHAMEHA HIGHWAY</u> <u>NTERSECTION IMPROVEMENTS</u> <u>AT KAHEKILI HIGHWAY</u> ral-Aid Project No. NH-083-1(082)
	SHE	EET NO. N-2 OF 13 SHEETS

# PUBLIC HEALTH, SAFETY, AND CONVENIENCE NOTES:

- environmental quality.
- measures as necessary.
- permit from the Director of the Department of Health. The Permit for construction activities.
- 4. The Contractor is to comply with the directions of the State of Hawaii Occupation Safety and Health Law (DOSH).

## <u>CITY & COUNTY OF HONOLULU GRADING NOTES:</u>

- Geotechnical Report by Geolabs, Inc. dated August 4, 2021.
- 2. No Contractor shall perform any grading operation so as to cause immediately make all remedial actions necessary.
- Control".
- 4. The underground pipes, cables or ductlines known to exist by the and depths prior to excavation for the new lines.
- 5. Adequate provisions shall be made to prevent surface waters from fill. Furthermore, adequate provisions shall be made to prevent sediment-laden runoff from leaving the site.
- shall be continuous, and any area within which work has been interrupted or delayed shall be planted.

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

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

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 Contractor shall obtain a copy of Chapter 448 and become familiar with the noise level restrictions and the procedures for obtaining a

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

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

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

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 are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations

damaging the cut face of an excavation or the sloped surfaces of a

6. 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

<u>CITY & COUNTY OF HONOLULU GRADING NOTES, CON'T:</u> 7. Fills on slopes steeper than 5:1 shall be keyed.

- grading ordinance.
- Chapter 46, "Community Noise Control".
- commencement of the grading work.
- project.
- the grading is initiated.
- erosion controls are in-place and established.
- prior to application for grading permit.
- requirements.
- City agency.

8. 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

9. 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,

10. The limits of the area to be graded shall be flagged before the

11. 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

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

13. Temporary erosion controls shall not be removed before permanent

14. Temporary Erosion Control Procedures shall be submitted for approval

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

16. The Contractor shall notify the Civil Engineering Branch, D.P.P. at  $\Delta$  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. 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 Engineer, 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, D.P.P. (768-8084); and for City Projects, notify the responsible <u>CITY & COUNTY OF</u>

- 18. For all projects requirements.
- penalties.

	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS		
	HAWAII	HAW.	NH-083-1(082)	2022	ADD. 4	99		
<u>TY &amp; COUNTY OF HONOLULU GRADIN</u>	G NOTES	S, CON	<u>/'T:</u>					
<u>TY &amp; COUNTY OF HONOLULU GRADING NOTES, CON'T:</u> For all projects, which will disturb one (1) acre or more of land, the Contractor shall not start construction until a Notice of General								

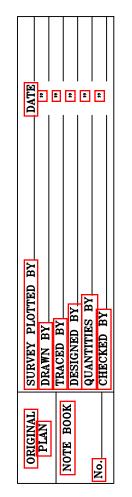
Permit Coverage (NGPC) is received from the Department of Health, State of Hawaii, and has satisfied any other applicable requirements of the NPDES permit program. Also, for non-City and other non-governmental agency projects, the Contractor shall provide a written copy of the NGPC to the Permitting and Inspection Section, Civil Engineering Branch, D.P.P., at least seven (7) calendar days before the start of the construction. For City or other governmental projects, the Contractor should provide a written copy of the NGPC to the appropriate City department or governmental agency per their

19. 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.

20. 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

	10/14/22 Date	Revised Notes Revision
K R. SALLABO S LICENSED PROFESSIONAL ENGINEER No. 14094-C HAWAII, U.S.F.		STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION GENERAL NOTES
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. MALE MALE 04/2024 SIGNATURE EXPIRATION DATE OF THE LICENSE		<u>KAMEHAMEHA HIGHWAY</u> <u>NTERSECTION IMPROVEMENTS</u> <u>AT KAHEKILI HIGHWAY</u> Tral-Aid Project No. NH-083-1(082) Date: Sept. 2022
	SHE	EET NO. N-3 OF 13 SHEETS

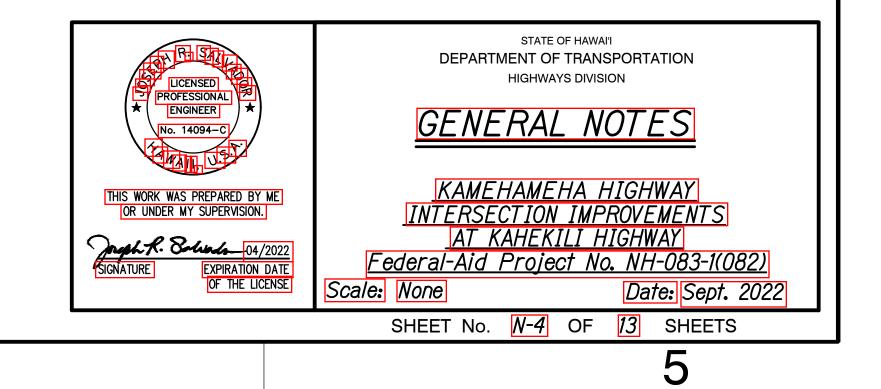
$\overline{co}$	NSTRUCTION NOTES (WITHIN CITY RIGHT-OF-WAY):
1.	All applicable construction work shall be done in accordance Standard Specifications for Public Works Construction, Septe 1986 and Standard Details for Public Works Construction, Se 1984, as amended, of the Department of Public Works, City an of Honolulu and the Counties of Kauai, Maui, and Hawaii.
2.	The underground pipes, cables or ductlines known to exist by engineer from his search of his records are indicated on the The Contractor shall verify the locations and depths of the and exercise proper care in excavating in the area. Whereve connections of new utilities to existing utilities are shown of plans, the Contractor shall expose the existing lines at the p connections to verify their locations and depths prior to exca for the new lines.
3.	No Contractor shall perform any construction operation so as falling rocks, soil or debris in any form to fall, slide or flow existing City drainage systems, or adjoining properties, stree natural watercourses. Should such violations occur, the Con may be cited and the Contractor shall immediately make all r actions necessary.
7.	The Contractor shall be responsible for conformance with th applicable provisions of the water quality and water pollution standards contained in Hawaii Administrative Rules, Title 11, 54, "Water Quality Standards" and Title 11, Chapter 55, "Water Pollution Control", as well as Chapter 14 of the Revised Ordi Honolulu, as amended. Best Management Practices shall be at all times during construction.
•	The Contractor shall notify the Civil Engineering Branch, Dep of Planning and Permitting, at 768-8084 to arrange for insp services and submit four (4) sets of approved Construction seven (7) days prior to commencement of construction work.
ĵ.	Confined Space
	For entry by City personnel, including inspectors, into a pern required confined space as defined in 29 CFR Part 1910.146( Contractor shall be responsible for providing:
	All safety equipment required by the confined space regulation applicable to all parties other than the construction industry, include, but not limited to, the following:
	<ul> <li>a. Full body harnesses for up to two personnel.</li> <li>b. Lifeline and associated clips.</li> <li>c. Ingress/egress and fall protection equipment.</li> <li>d. Two-way radios (walkie-talkies) if out of line-of-sight.</li> <li>e. Emergency (escape) respirator (10 minute duration).</li> <li>f. Cellular telephone to call for emergency assistance.</li> <li>g. Continuous gas detector (calibrated) to measure oxygen, sulfide, carbon monoxide and flammables (capable of mon at a distance at least 20-feet away).</li> </ul>



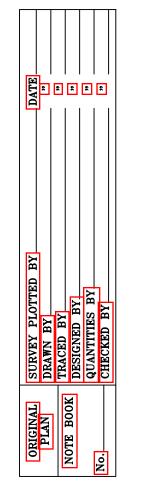
				FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
				HAWAII	HAW.	NH-083-1(082)	2022	5	99
ce with the ptember September and County	<ul> <li>CONSTRUCTION NOTES (WITHIN CITY RIGHT-OF-WAY), CON'T:</li> <li>Pursuant to Chapter 6E, HRS, in the event any artifacts or human remains are uncovered during construction operations, the Contracto 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</li> </ul>	or or	RAFFIC NOTES (WITHIN CITY RIG The Contractor shall notify the Co of Planning and Permitting, at 76 services and submit four (4) sets seven (7) days prior to commenced posts and pavement markings.	ivil Engine 8-8084 to of approv ment of wo	ering arrang ed Col ork to	Branch, Dep ge for inspe nstruction P be done on	ctional lans signs,		
<sup>•</sup> by the the plans. e facilities	Branch, Department of Planning and Permitting (768-8084); and for City projects, notify the responsible City agency.	10	No equipment shall be stored with locations designated in writing ar Transportation Services.		•	-	•		
ever	8. For projects abutting State Highways' rights-of-way, the owner or I	his							

	co	NSTRUCTION NOTES (WITHIN CITY RIGHT-OF-WAY), CON'T:
the tember County the plans. acilities the oposed vation	7. <i>8</i> .	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. 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.
to cause		
into	TR	AFFIC NOTES (WITHIN CITY RIGHT-OF-WAY):
s or actor medial control	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.
hapter ances of nployed artment ans	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.
, the s	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.
to	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.
vdrogen toring	7.	Driveways shall be kept open unless the owners of the property using these rights-of way are otherwise provided for satisfactorily.
entry	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.

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.



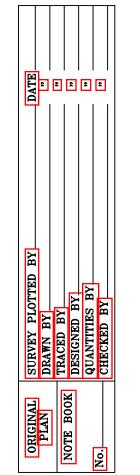
<u>NO</u>	TES FOR PROTECTION OF ENDANGERED SPECIES:
/•	HAWAIIAN SEABIRDS No night time construction will be permitted during the sear fledging period (September 15th through December 15th). Th Contractor's attention is directed to Special Provision Section Avoidance and Minimization Measures for Endangered Speci
	All outdoor lights shall be fully shielded and only visible fr the bulb height. Outdoor lights shall only be used when neo and shall be turned off when activity is not occurring in th area.
2.	HAWAIIAN HOARY BAT ('Ope'ape'a) No disturbing, clearing, grubbing, or trimming of woody plan than 15' tall shall be allowed during the Hawaiian Hoary Ba and pup-rearing season (June 1st through September 15th).
	The Contractor shall not use barbed wire fencing.
3.	HAWAIIAN WATERBIRDS In areas where waterbirds are known to be present, post a implement reduced speed limits and inform project personne presence of endangered species on-site.
	In areas where vegetated streambanks would be disturbed, nest searches shall be conducted by a qualified biologist be work is conducted, within 3 days of project initiation and a subsequent delay of work of 3 or more days (during which may attempt to nest).
	If a nest or active brood is found: - Contact the Service (808) 861-8525 within 48 hours for a guidance. - Establish and maintain a 100-foot buffer around all activity and/or broods until the chicks/ducklings have fledged. I conduct potentially disruptive activities or habitat alterat this buffer.
4.	A biological monitor that is familiar with the species' biolog present on the project site during all construction or earth activities until the chicks/ducklings fledge to ensure that F waterbirds and nests are not adversely impacted.
5.	Turbidity and siltation from project-related work should be and contained within the project area by silt containment de curtailing work during flooding or adverse tidal and weather conditions. BMPs should be maintained for the life of the c period until turbidity and siltation within the project area i stabilized. All project construction-related debris and sedim containment devices should be removed and disposed of at a approved site.
6.	No project construction-related materials or equipment (drea vessels, backhoes, silt curtains, etc.) shall be placed in an a environment. Project related activities should not result in disposal, non-native species introductions, or attraction of n pests to the affected or adjacent aquatic or terrestrial hab



	NOTES FOR PROTECTION OF ENDANGERED SPECIES (CON'T):
abird The tion 107.18 - cies.	7. Project construction-related materials (fill, revetment rock, pipe, etc.) should not be stockpiled in, or in close proximity to, aquatic habitats and should be protected from erosion (e.g., with filter fabric, etc.), to prevent materials from being carried into waters by wind, rain, or high surf.
rom below ecessary the lighted ants greater	8. Fueling of project-related vehicles and equipment should take place away from the aquatic environment and a contingency plan to control petroleum products accidentally spilled during the project should be developed. The plan should be retained on site with the person responsible for compliance with the plan. Absorbent pads and containment booms should be stored on-site to facilitate the clean-up of accidental petroleum releases.
at birthing	9. All deliberately exposed soil or under-layer materials used in the project near water should be protected from erosion and stabilized as soon as possible with geotextile, filter fabric or native or non-invasive vegetation matting, hydro-seeding, etc.
and nel about the	
, waterbird before any after any h the birds	
further	
tive nests Do not ntion within	
gy shall be h moving Hawaiian	
e minimized devices and her construction is ment an	
edges, aquatic n any debris non-native	

		FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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ABBREVIA	<u>ATIONS:</u>						
4 <i>C</i>	Asphalt Concrete	M.L.		Matchline			
Approx.	Approximate	MB		Meter Box	K		
ARV	Air Release Valve	Min.		Minimum			
Aux.	Auxiliary	Mod		Modified			
₿	Baseline	MW		Monitoring	g Well		
BFP	Back Flow Preventer	1 1		North			
BMP	Best Management	NTS	)	Not to Sc	ale		
	Practices	No.	1	Number		ingl	
Bot.	Bottom	0/H		Overhead	Electr	icai	
BC	Bottom Curb	0/S		Offset		Pay	
BW	Bottom Wall	PBX PC/		Panel Box			
	Centerline	PCC		Point of ( Point of (			
CLF	Chain Link Fence	100		Curvature	•		
C/Ch	Chord	PCC	P	Portland		+	
CIr Conc	Clearance Concrete	,		Concrete			
CRM	Concrete Rubble	PI		Point of .			
	Masonry			of Tanger			
CY	Cubic Yard	PRC	, ,	Point of a		e	
D	Drain Line			Curve			
DI	Drain Inlet	PT/	′P <b>.</b> T.	Point of	Tanger	псу	
Dia <b>.</b>	Diameter	Pav	t/Pvm	nt Pavement	•		
E/Elec	Electrical	R		Radius			
ES	Edge of Shoulder	RPN	1	Raised Pa	avemen	t l	
EP	Edge of Pavement			Marker			
Elev	Elevation	Ref.		Reflector			
Emb	Embankment	Rd		Road			
Exc	Excavation	Rt.		Right			
Exist.	Existing	R/W	/	Right-of-V	Vay		
FH	Fire Hydrant	S	,	Sewer			
FM	Force Main	SMF	1	Sewer Ma			
GDI	Grated Drop Inlet	S.E. SF		Superelev			
G	Ground	Sht		Square F Sheet	661		
GRP	Grouted Rubble	SDN	<b>1</b> H	Storm Dra	ain Ma	nhole	
<u>^</u> D	Paving	SDW St	111	Street		111010	
GP CW/	Guard Post	SL		Street Lig	aht		
GW HECo	Guy Wire Hawaiian Electric	Sta.		Station	<i>,</i> ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	Company	Std		Standard			
Н	Height	T		Tangent			
, HWY	Highway	Tel		Telephone	1		
HMA	Hot Mix Asphalt	TC		Top <sup>'</sup> Curb			
Inv.	Invert	TW		Top Wall			
Kah	Kahekili Highway	Тур.		Typical			
Kam	Kamehameha Highway			Under Gro	· · · · ·		
L/Lc	Length of Curve	UP		Utility Po	le		
LF	Linear Feet	Var		Varies			
<u>L†</u>	Left	W	,	Water			
		W <i>MF</i> WV	7	Water Mai			
				Water Val STATE OF HAWA	l'I		
			DEI	PARTMENT OF TRAN HIGHWAYS DIVIS		)N	
			<u>SENE</u>	RAL NOT	ES A	AND	
	No. 14094–C			BREVIAT			
	THE DEPARTMENT						
	THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.			MEHAMEHA I RSECTION IMP			
	Josph R. Solunda 04/2022		A	<u>T KAHEKILI H</u>	IGHWAY		
	SIGNATURE EXPIRATION DATE OF THE LICENSE			<u>Aid Project No</u>		<u>83-1(082</u> Sept. 20	
					u ate.	ISENT 2	JZZ

<u>HA</u>	WAIIAN TELCOM NOTES:
1.	The Contractor shall procure and pay for all licenses and po shall give all notices necessary and incident to the due and prosecution of the work.
2.	The Contractor shall obtain an excavation permit and toning Hawaiian Telcom's Excavation Permit Section, located at 1177 Street, two weeks prior to the start of construction. Hours are 8:00 a.m. to 11:00 a.m. and 12:00 noon to 3:00 p.m. Monday Friday, except holidays.
3.	Prior to the excavation of the ductline, the Contractor shall Hawaiian Telcom to locate existing ductline wherever require underground cable locating and marking, five (5) working da notice is required. Three (3) working days advance notice is for any inspection by a designated representative.
4.	The locations of existing utilities are approximate only. The shall exercise extreme caution and shall maintain proper clear whenever construction crosses or is in close proximity of Ha Telcom facilities. The Contractor shall verify their locations liable for any damages to Hawaiian Telcom facilities. Any d be reported immediately to Hawaiian Telcom's Repair Section hours) or to the Excavation Permit Section at 546-7746 (nor hours, Monday through Friday, except holidays). As a result operations, adjustments to the new ductline alignment, if req be made to provide the required clearances.
5.	The Contractor shall take necessary precaution not to damage cables or ducts. A Hawaiian Telcom inspector or designated representative is required to be at any job site whenever the breakage into or entry into any structure that contain Hawai facilities. Temporary cable and duct supports shall be provi necessary.
6.	The Contractor shall notify Hawaiian Telcom's inspector or a representative a minimum of 72 hours prior to excavation, br backfilling of Hawaiian Telcom's structures or facilities.
7.	All applicable construction work shall be done in accordance "Hawaiian Telcom Standard Specifications for Placing Teleph dated January 2007. All subsequent amendments and addition other pertinent standards for telephone construction. Contra familiarize his personnel by obtaining applicable specification
8.	When excavation is adjacent to or beneath Hawaiian Telcom's structures or facilities, the Contractor shall:
	a) Sheet and/or brace the excavation to prevent slides, can settlements to ensure no movement to Hawaiian Telcom's or facilities.
	b) Protect existing structures and/or facilities with beams underpinning while excavating beneath them to ensure n to Hawaiian Telcom's structures or facilities.
9.	The Contractor shall brace all poles or light standards near ductline, manhole, or handhole during his operations.

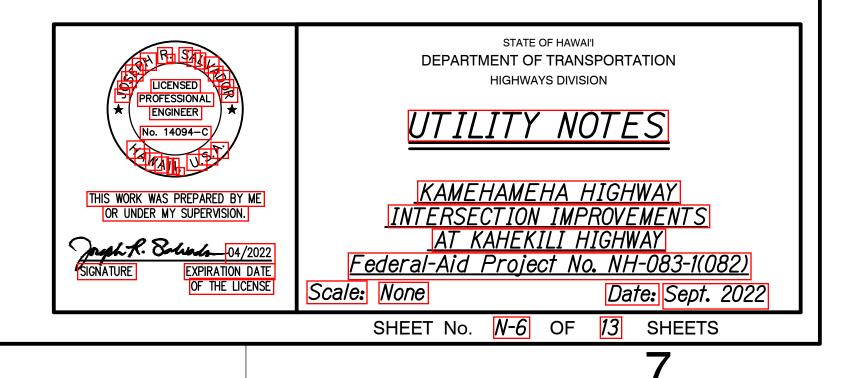


permits and	10.	The Contractor shall saw-cut A.C. pavement and concrete gutter wherever
l lawful		new manholes, handholes, or ductlines are to be placed and shall restore to existing condition or better.
request from 7 Bishop 5 of business	11.	The Contractor shall comply with the policy adopted by the Department of Planning and Permitting, City and County of Honolulu, concerning the replacement of concrete sidewalks after excavation work.
y through I request red. For ays advance is required	12.	The underground pipes, cables, or ductlines known to exist by the Engineer from his search of records are indicated on the plans. The Contractor shall verify the locations and depths of the facilities and exercise proper care in excavating in the area. Wherever connections of new utilities to existing utilities are shown on the plans, the Contractor shall expose the existing lines at the proposed connections to verify their locations and depths prior to excavation for the new lines.
e Contractor earances lawaiian	13.	Wherever connections to existing utilities are shown on the plans, the Contractor shall expose the existing lines prior to excavation of the main trenches to verify their locations and depths.
s and shall be damages shall n at #611 (24 rmal working t of his quired, shall	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.
gan oa, onan	15.	The Contractor shall pump all manholes dry during final inspection.
ge existing d nere will be a	16.	The Contractor shall notify Hawaiian Telcom inspector 24 hours prior to the pouring of concrete or backfilling.
niian Telcom vided wherever	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.
designated pracing, or e with the	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.
ohone Systems" ons, and all actor shall ons.	19.	Minimum concrete strength shall be <b>:</b> For ductline 2500 psi at 28 days For manhole 3000 psi at 28 days or as specified in design notes
's existing	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
ve-ins, or s structures		diameter of the duct or greater.
s, struts, or	21.	After ductline has been completed, a mandrel with a square front not less than 12" long and having a diameter of 1#4" less than the inside diameter of the duct, shall be pulled through each duct after which a
no movement		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.
the new		
	22.	All ducts and conduits shall have an 1800 <sup>#</sup> polyester mule-tape (NEPTCO, WP1800P, Hawaiian Telcom Material Code No. 571154) installed throughout its entire length. All ducts shall be capped to prevent entry of foreign material during construction and at the completion of installation.

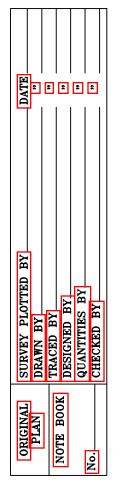
	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS		
	HAWAII	HAW.	<u>NH-083-1(082)</u>	2022	7	99		
DEPARTMENT OF PLANNING AND PERMITTING								

#### SEWER NOTES:

- 1. All sewer construction shall be performed in accordance with the City's "Standard Specifications," Sept. 1986, the Department of Environmental Services "Wastewater System Design Standards," July 2017, and "Wastewater System Standard Details," July 2017, Current City Practices and Revised Ordinances of Honolulu, 1990 as amended.
- 2. The contractor shall notify the Construction Management Branch, Wastewater Engineering and Construction Division, ENV, at 768-8785, 768-8769, or 768-8755 to arrange for inspection services and submit four (4) sets of approved construction plans to the Wastewater Branch, DPP 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 consulting engineer shall submit to the Wastewater Branch, DPP "as-built" tracings and electronic files of the construction plans as actually constructed, showing all changes from the original plans.
- 6. 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 notifications and press releases.
  - The contractor shall install "Rainstopper" manhole inserts in all sewer manholes with Type "SA" frame and cover.



	<u>WER NOTES, CON'T:</u> Confined Space Ear aptry by aity paragonal including increators into a parm
	For entry by city personnel, including inspectors, into a perm confined space as defined in 29 CFR part 1910.146(b), the cor be responsible for providing:
	1. All safety equipment required by the confined space regard applicable to all parties other than the construction indu- include, but not limited to, the following: a. Full body harnesses for up to two personnel.
	<ul> <li>b. Lifeline and associated clips.</li> <li>c. Ingress/egress and fall protection equipment.</li> <li>d. Two-way radios (walkie-talkies) if out of line-of-sight.</li> <li>e. Emergency (escape) respirator (10 minute duration).</li> <li>f. Cellular telephone to call for emergency assistance.</li> <li>g. Continuous gas detector (calibrated) to measure oxygen, sulfide, carbon monoxide and flammables (capable of mon at a distance at least 20-feet away).</li> </ul>
	h. Personal multi-gas detector to be carried by inspector.
	2. Continuous forced air ventilation adequate to provide sati conditions.
	3. One attendant/rescue personnel topside (two, if condition it).
9.	No rungs shall be installed inside new sewer manholes.
10.	For sewer manhole adjustments upward less than 3", see ST S-28. For SMH adjustments upward greater than 3" or for a adjustments downward, reconstruct SMH top from below the
11.	If the contractor encounters flow monitoring devices, such a sewer manhole covers embedded with solar panels, contact Co Systems Maintenance (CSM), ENV at 768-7272 to coordinate te removal.
12.	The contractor shall maintain visibility and maintenance acce sewer manhole locations at all times, including during non-wo and paving operations.
13.	The contractor shall use a manhole debris catching device w performing manhole height adjustment work and remove any d debris that has fallen into the manhole. Disposal of construc in the sewer system is strictly prohibited.



	<u>SP</u>	ECTRUM 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.
rmit-required contractor shall	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 areas.
egulations dustry, to		
	3.	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 Spectrum inspector or his representative.
n, hydrogen	4.	The location of CATV facilities shown on plans are from existing records with varying degrees of accuracy as to its actual fixed location. The Contractor shall use extreme caution when working in close proximity of CATV facilities.
nonitoring •	5.	The Contractor shall obtain excavation permit clearance from Spectrum's Engineering Section located at 200 Akamainui St., Mililani Tech Park.
safe entry	6	For any field assistance or verification of CATV facilities, the Contractor shall call the Technical Operatons Center.
ions warrant	7.	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.
STD. DETAIL	8	Any damage to Specrum's facilities shall be reported to Spectrum's repair dispatch department.
ne cone section.	9.	All existing improvements that are disturbed during the construction phase shall be restored to its original or better condition.
as special Collection temporary	10.	The Contractor shall take all necessary precaution not to damage the existing cables in the pullbox. All damages to existing cables shall be repaired by Spectrum and paid for by the Contractor.
cess to live work hours	11.	Trenching to be by hand digging near and across existing utility lines.
when y construction uction debris		

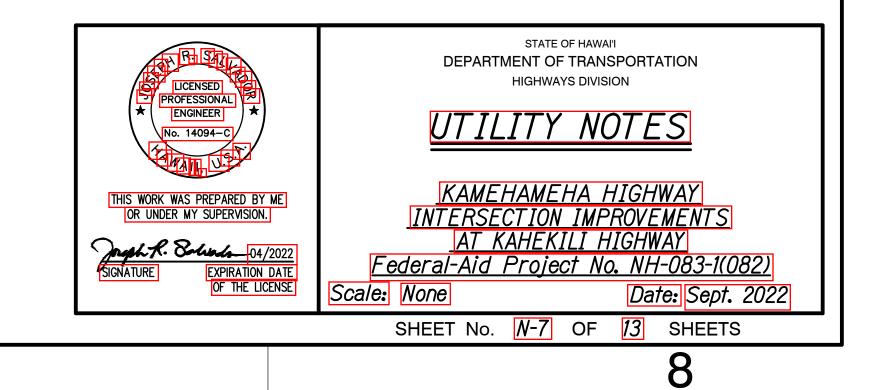
	FED. ROAD DIST. NO.	STATE	PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
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DUDUTE TRANSIT DIVISION (DTS)	NOTE.					

PUBLIC TRANSIT DIVISION (DTS) NOTE:

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

## ADJUSTMENT TO EXISTING UTILITIES NOTE:

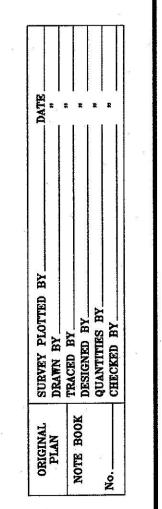
Adjust all utility valve box frame & covers, water meter boxes, manhole frames & covers, street monument covers, etc., to new finish grade. Coordinate with private companies and City agencies for work on each respective utility.



## WATER NOTES:

- Unless otherwise specified, all materials and construction of water system facilities and appurtenances shall be in accordance with the City and County of Honolulu Board of Water Supply's "WATER SYSTEM STANDARDS", DATED 2002, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 2021, and all subsequent amendments and additions.
- 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 Board of Water Supply Capital Projects Division, Construction Section in writing or call (808) 748-5730, and submit six (6) sets of 24"x36" approved construction drawings, one week prior to commencing construction activities.
- 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 after working hours at six (6) hours maximum downtime.

12. At the electrical/cable/signal ductline water crossings, adjust all electrical/cable/signal ductline elevations to maintain 12" vertical clear separation from all waterlines at no cost to the Board of Water Supply.



## WATER NOTES, CON'T:

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

14. Maintain 3'-0" minimum horizontal clear separation between electrical/ cable/signal appurtenances, (including any modular units) and the nearest waterline or water appurtenance. Contractor shall field verify for any conflicts at each electrical/cable/signal appurtenance location. Where conflicts occur, the contractor shall coordinate with the project engineer to revise the electrical/cable/signal appurtenance to provide the required clearances at no cost to the BWS.

15. 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).

16. All ductile iron pipe, including sections requiring reinforced concrete jacketing, shall be Ductile Iron Class 53 with a bonded dielectric coating as per the Board of Water Supply 2002 System Standards as amended.

17. 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-3.

18. No deviation to the Board of Water Supply 2002 Water System Standards shall be allowed without the Manager and Chief Engineer's approval.

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

20. When a utility (gas, sewer, electrical duct line, fiber optic, drainage, etc.) crosses below a Board of Water Supply water main, the designer of record and their construction engineer shall be responsible for determining the adequate water main structural support and submit the construction method and shop drawing, stamped by a licensed engineer and reviewed by the designer of record, to the Board of Water Supply for approval. All work shall be at no cost to the Board of Water Supply.

21. All ductile iron fittings and metallic valves shall have a factory applied coating and wrapped with petrolatum wax tape.

22. Water Pipeline Chlorination and Testing Procedures

A. The following chlorination and water sample collection procedure shall apply to all water pipeline projects (all work to be coordinated through Board of Water Supply Inspector):

1. Chlorination of Water Systems

a. 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.

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WATER NOTES, CON'T:

- b. 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 2:30 p.m. on the day the samples are taken to the Board of Water Supply 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 4:30 p.m. on the following day (in some cases, final results notification may take up to 48 hours).
- c. Water mains shall be disinfected in accordance with the Board of Water Supply System Standards (2002), as amended, Section 302.29.

Step 1 - Preliminary Flushing (Prior to Chlorination): The mains shall be flushed with maximum available pressure and velocity. Adequacy of turnovers shall be determined by the absence of particles. Turbidity shall be less than 1.0 NTU before chlorination. During all flushing operations, the Manager's authorized representative shall determine the rate of water use.

Step 2 - Chlorination: The Contractor shall submit to the Manager, for approval, a sketch showing locations of sampling points and a plan or schedule delineating the method or steps the Contractor proposes to use to accomplish the work. The following methods for chlorination shall be used:

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.

APPROVED: MANAGER & CHIEF (For Work Affecting City/State Right-o	, BWS Faci	
	08/31/2022 Date	Added BWS Signature Revision
HIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.		STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION <u>UTILITY NOTES</u> <u>KAMEHAMEHA HIGHWAY</u> <u>NTERSECTION IMPROVEMENTS</u> <u>AT KAHEKILI HIGHWAY</u> ral-Aid Project No. NH-083-1(082) Date: Sept. 2022
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## WATER NOTES, CON'T:

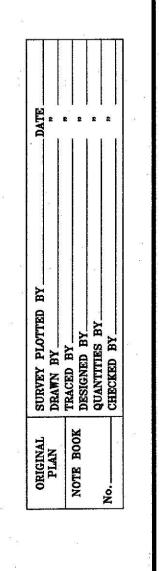
Step 2: Flush main with fresh water until all chlorine has been flushed out as evidenced by the N,N-diethyl-pphenylenediamine (DPD) test, then collect a water sample while continuing to flush the main.

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:

- (i) the three consecutive water samples, collected 24 hours apart under Steps 1 and 2, show no TC (Total Coliform bacteria), no E. coli, less than CFU/ml (Colony Forming Units per ml) of HPC (Heterotrophic Plate Count bacteria) or less than 202 HPC using the MPN (Most Probable Number) method and Turbidity <1.0 NTU, and
- (ii) the sample of water held in the main for one hour, collected under Step 4, also shows no TC, no E. coli, less than 200 CFU of HPC using the MPN method and Turbidity <1.0 NTU.
- c. Chlorination, flushing, sampling and testing will be extended should unsatisfactory results be encountered. Any sample that shows positive TC, E. coli, HPC > 200 CFU/ml, HPC > 202 MPN or Turbidity >1.0 NTU 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 TC and/or E. coli and/or increasing total bacterial results from one sample to the next.
- e. Water samples that show the presence of atypical results, debris, high turbidity or results inconsistent with existing water are subject to reconfirmation. The Manager reserves the right to request and test additional water samples in the interest of safeguarding public health and safety at no additional cost to the Department.
- f. 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 chlorination of the water mains.
- d. Prior to chlorination, the water mains shall be thoroughly flushed.
- e. The interior surfaces of the water mains shall be exposed to the chlorinating solution by completely filling the mains to remove air pockets, for a minimum of 24-hours and the free chlorine residual shall not be less than 10ppm after such time.
- f. 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.



## WATER NOTES, CON'T:

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

h. 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.

i. 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 Board of Water Supply Water System Standards (2002), as amended.

j. The Contractor shall be responsible for obtaining a National Pollutant Discharge Elimination 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.

k. Following the acceptable flushing of the water mains, three (3) consecutive days of acceptable samples, taken at least 24-hours apart, from 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 new water main. Positive or invalid test results will not be acceptable, and the process will be repeated.

I. All measures for chlorine residual shall be analyzed using E.P.A. approved methods for drinking water.

f. 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 Board of Water Supply.

- g. The Contractor shall be responsible for all costs associated with all of the foregoing.
- h. Cleaning and Swabbing procedures shall be in accordance with Board of Water Supply Water System Standards (2002), as amended.
- i. 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.
- 23. All water mains and appurtenances shall be subject to hydrostatic test pressure of 150 psi by the contractor in accordance with Division 300 -Construction, Section 302.28, PIPE PRESSURE TEST of the "WATER SYSTEM STANDARDS", DATED 2002. During the 30-minute pressure test, the pressure shall not drop more than 10 psi.

24. 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)

25. 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.

WATER NOTES, CON'T:

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- 26. 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.
- 27. 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.
- 28. 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.
- 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. 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. The type, density, size diameter and length of the pig shall be submitted for review and approval by the Manager prior to pigging work. "Pig" shall be used per manufacturer's specifications. 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. Manual sweeping, hand cleaning or swabbing may be allowed in lieu of "pigging" as approved by the Board of Water Supply Manager.
- 31. Soil resistivity for the site has a corrosion rating of Corrosion Category A (Moderately to Severely Corrosive) as reported by Geolabs, Inc. All required electrical isolation procedures and corrosion control requirements shall apply.
- 32. The Contractor shall furnish and install an insulating corporation stop and petrolatum wax tape at all taps (for DI pipe and copper lateral combination only).

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APPROVED:					
MANAGER & CHIEF ENIGINEER, BWS " DATE (For Work Affecting BWS Facilities in City/State Right-of-Way and BWS Easement only					
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a e					
	08/31/2022	Added BWS Signature			
45	Date	Revision			
K Steph R. SALL B CONCENSED PROFESSIONAL PROFESSIONA	STATE OF HAWAI'I DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION				
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.	<u>KAMEHAMEHA HIGHWAY</u> INTERSECTION IMPROVEMENTS AT KAHEKILI HIGHWAY				
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