

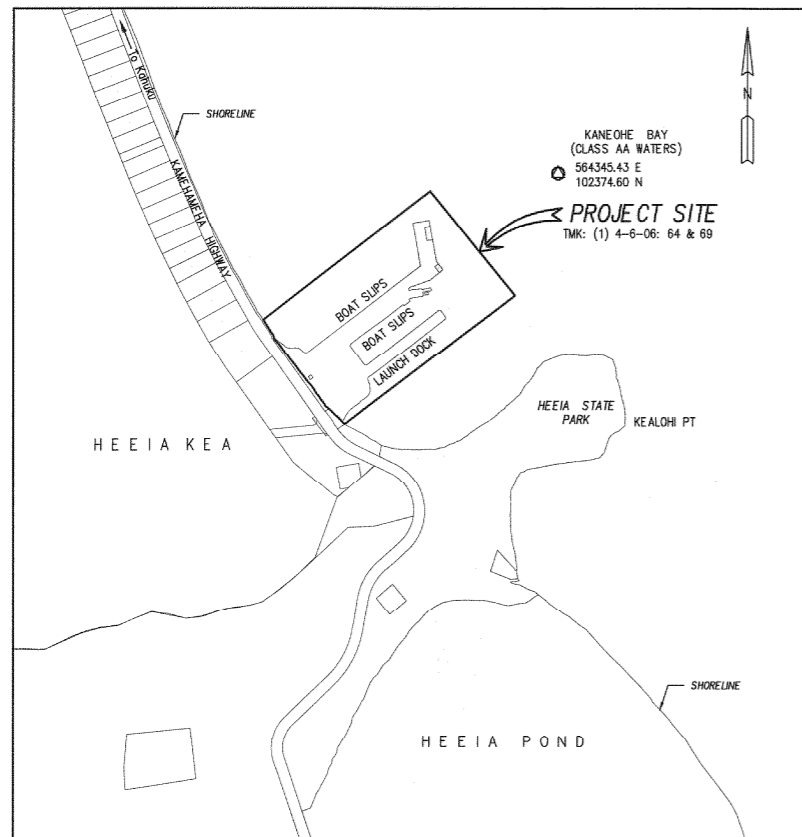
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

DIVISION OF BOATING AND OCEAN RECREATION

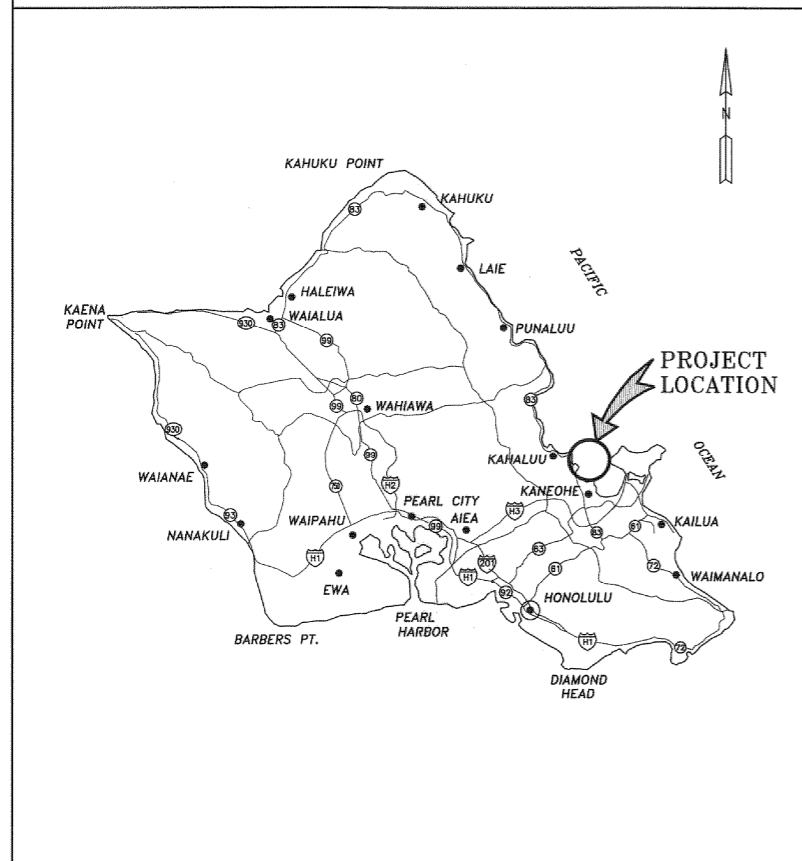
JOB NO. B78C074A

**HEEIA KEA SMALL BOAT HARBOR
WASTEWATER TREATMENT
SYSTEM IMPROVEMENTS**
INSTALLATION OF ABSORPTION BED SYSTEM
HEEIA, KOOLAUPOKO, OAHU, HAWAII

T.M.K.: (1) 4-6-06: 64 & 69



LOCATION MAP
SCALE: 1" = 300'



ISLAND OF OAHU
NOT TO SCALE

I N D E X

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N.I.C.

APPROVED:

Walter J. Weston
DIRECTOR, DEPARTMENT OF PLANNING & PERMITTING
CITY & COUNTY OF HONOLULU
(FOR SITE GRADING ONLY)

DATE: 3/4/19

APPROVED:

Edward R. Underwood
EDWARD R. UNDERWOOD
ADMINISTRATOR
DIVISION OF BOATING AND OCEAN RECREATION
DEPARTMENT OF LAND AND NATURAL RESOURCES

DATE: Jul 17, 2019

DRAWING NO.
T001

CONSTRUCTION NOTES

- 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, STATE OF HAWAII.
- THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES, APPURTENANCES AND STRUCTURES AS SHOWN ON THESE DRAWINGS WERE COMPILED FROM TOPOGRAPHIC SURVEYS PERFORMED BY CONTROLPOINT SURVEYING, INC. JOB NO. 17021, DATED MAY 25, 2017 AND SUPPLEMENTED ON JUNE 30, 2017. RECORD DRAWINGS PROVIDED BY UTILITY AND GOVERNMENT AGENCIES, AND FROM THE ENGINEER'S MEASUREMENTS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO THE EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES, GIVE ALL NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES AND REGULATIONS BEARING ON THE CONDUCT OF THE WORK AS DRAWN AND SPECIFIED.
- WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE DRAWINGS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
- THE CONTRACTOR SHALL PROVIDE ACCESS TO AND FROM DRIVEWAYS AND PUBLIC STREETS AT ALL TIMES EXCEPT AS NOTED ON THE DRAWING.
- WHEN TRENCH EXCAVATION IS ADJACENT TO OR UNDER EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDER-PINNING TO FULLY PROTECT THEM FROM DAMAGE.
- BACKFILL UNDER EXISTING STRUCTURES OR FACILITIES SHALL BE SANDY OR GRANULAR MATERIAL COMPLETELY PLACED AS SOON AS THE PIPE IS LAID AND TESTED. THE BACKFILL MATERIAL SHALL BE RAMMED WITH PROPER TOOLS UNTIL COMPACTED TO 90 TO 95 PERCENT OF ITS MAXIMUM DENSITY.
- ALL ABANDONED PIPE OPENINGS SHALL BE PLUGGED WITH CLASS B CONCRETE TO A DEPTH OF 1½ TIMES THE DIAMETER OF PIPE.
- 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. COMMENCEMENT OF CONSTRUCTION SHALL INDICATE CONTRACTOR'S ACCEPTANCE OF EXISTING SITE CONDITIONS.
- THE CONTRACTOR SHALL NOTIFY ALL UTILITY AGENCIES TO VERIFY THE ACTUAL LOCATIONS OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO EXCAVATING. THE CONTRACTOR SHALL COORDINATE ALL WORK.
- THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC. AT NO ADDITIONAL EXPENSE TO THE STATE.
- FOR BENCH MARK, SEE DRAWING NO. C001.
- 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 AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- THE CONTRACTOR SHALL NOT PERFORM ANY CONSTRUCTION OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING DRAINAGE SYSTEMS, ADJOINING PROPERTIES, STREETS, NATURAL WATER COURSES OR OCEAN. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY AT NO COST TO THE STATE.
- IN THE EVENT THAT ANY PREVIOUSLY UNIDENTIFIED ARCHAEOLOGICAL SITES OR REMAINS (SUCH AS ARTIFACTS, SHELLS, BONE OR CHARCOAL DEPOSITS, HUMAN BURIALS, ROCK OR CORAL ALIGNMENTS, PAVINGS, OR WALLS) ARE ENCOUNTERED, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK AND NOTIFY THE POLICE DEPARTMENT, STATE DEPARTMENT OF LAND AND NATURAL RESOURCES, HISTORIC PRESERVATION DIVISION (692-8015) AND THE ENGINEER. WORK IN THE IMMEDIATE AREA SHALL BE STOPPED UNTIL THE DIVISION IS ABLE TO ASSESS THE IMPACT AND MAKE FURTHER RECOMMENDATIONS FOR THE MITIGATIVE ACTIVITY.
- CONFINED SPACE**

FOR ENTRY BY STATE PERSONNEL, INCLUDING INSPECTORS, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(b), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:

 - ALL SAFETY EQUIPMENT REQUIRED BY THE CONFINED SPACE REGULATIONS APPLICABLE TO ALL PARTIES OTHER THAN THE CONSTRUCTION INDUSTRY, TO INCLUDE, BUT NOT LIMITED TO, THE FOLLOWING:
 - FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
 - LIFELINE AND ASSOCIATED CLIPS.
 - INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
 - TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
 - EMERGENCY (ESCAPE) RESPIRATOR (10-MINUTE DURATION).
 - CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
 - CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE AND FLAMMABLES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20- FEET AWAY).
 - PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.
 - CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.
 - ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT).
- THE CONTRACTOR SHALL NOTIFY THE STATE DIVISION OF BOATING AND OCEAN RECREATION OAHU DISTRICT MANAGER (PHONE NO. 832-3520) AND HEĒIA KEA SMALL BOAT HARBOR HARBOR MASTER (973-9727) AT LEAST 2 WEEKS PRIOR TO ANY CLOSURE OR SHUTDOWN OF ANY SERVICE.
- BOULDERS, ROCK, CORAL OR SIMILAR MATERIAL MAY BE ENCOUNTERED DURING EXCAVATION. EXCAVATION OF THESE MATERIALS SHALL BE DONE AT NO ADDITIONAL COST TO THE STATE.
- CONTRACTOR SHALL MAKE ARRANGEMENTS FOR UTILITIES SUCH AS ELECTRICITY, WATER, TELEPHONE, ETC. REQUIRED FOR HIS OPERATION AND ALL COSTS SHALL BE BORNE BY THE CONTRACTOR.
- THE CONTRACTOR SHALL TEST EXISTING UTILITIES PRIOR TO START OF WORK TO IDENTIFY THE PARTS OF THESE UTILITIES THAT ARE NOT IN WORKING ORDER. A REPRESENTATIVE OF THE STATE OF HAWAII, DIVISION OF BOATING AND OCEAN RECREATIONS SHALL BE PRESENT TO WITNESS THE TESTING. THE CONTRACTOR SHALL DOCUMENT THE CONDITION OF ALL EXISTING UTILITIES. THE CONTRACTOR SHALL RESTORE ALL DAMAGE CAUSED BY HIS/HER OPERATIONS TO ORIGINAL CONDITIONS OR BETTER AT HIS/HER OWN EXPENSE.

SEWER NOTES

- ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPTEMBER 1986, THE DEPARTMENT OF PUBLIC WORKS STANDARD DETAILS, SEPTEMBER 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT, JULY 2017.
- CRUSHED ROCK CRADLE IS PERMITTED WHERE SOIL IS STABLE. IN AREAS OF UNSTABLE SOIL, THE DESIGN CONSULTANT WILL WORK WITH THE CONSTRUCTION ENGINEER TO DETERMINE THE SUPPORT REQUIRED.
- MINIMUM SLOPE FOR SEWER LATERALS SHALL BE 1.00% UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWAGE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE OF HAWAII DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATION AND PRESS RELEASES. THIS WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL INSTALL "RAINSTOPPER" MANHOLE INSERTS IN ALL SEWER MANHOLES WITH TYPE "SA" FRAME AND COVER.
- GEOTEXTILE FABRIC TO ENVELOP THE PIPE CRADLE AND SELECT BACKFILL MATERIAL SHALL BE PROVIDED WHERE GROUNDWATER OR UNSTABLE SOIL CONDITIONS ARE ENCOUNTERED.
- INVERTS SHOWN FOR EXISTING SEWER PIPING ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY LOCATION AND INVERT OF EXISTING SEWER. IN THE EVENT THAT ANY CHANGE IN ALIGNMENT OR GRADE FOR THE PROPOSED SEWERS ARE REQUIRED DUE TO EXISTING SEWER LINE INVERT OR UNFORESEEN CONFLICT WITH OTHER UTILITIES, THE CONTRACTOR SHALL ADJUST INVERTS AND ALIGNMENTS FOR NEW PIPING ACCORDINGLY. MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO PROCEEDING WITH RE-ALIGNMENT WORK.
- CONTRACTOR SHALL PHOTOGRAPH ALL STAGES OF THE INSTALLATION OF THE WASTEWATER SYSTEM INCLUDING EXCAVATED AREAS AND TRENCHES PRIOR TO INSTALLATION, WASTEWATER SYSTEM AND PIPING PRIOR TO BACKFILL, AND WASTEWATER SYSTEM AND PIPING AFTER BACKFILLED AND PRIOR TO SURFACE RESTORATION. THE CONTRACTOR SHALL SUBMIT TWO (2) SETS OF PHOTOS (4' x 6') TO THE ENGINEER AFTER COMPLETION OF EACH STAGE NOTED.

PUBLIC HEALTH SAFETY AND CONVENIENCE NOTES

- THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.
- THE CONTRACTOR, AT HIS/HER 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 OF HAWAII, DEPARTMENT OF HEALTH. THE STATE SHALL REQUIRE SUPPLEMENTARY MEASURES IF REQUIRED.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF THE PUBLIC.
- THE CONTRACTOR'S ATTENTION IS DIRECTED TO STATE OF HAWAII, DEPARTMENT OF HEALTH, TITLE 11, HAWAII ADMINISTRATIVE RULES, CHAPTER 46, "COMMUNITY NOISE CONTROL" IN WHICH MAXIMUM ALLOWABLE NOISE LEVELS HAVE BEEN SET. IF THE CONSTRUCTION ACTIVITIES FOR THIS PROJECT WILL EXCEED THE ALLOWABLE NOISE LEVELS, THE CONTRACTOR WILL BE REQUIRED TO OBTAIN A PERMIT FROM THE DIRECTOR OF THE DEPARTMENT OF HEALTH. THE CONTRACTOR SHALL OBTAIN A COPY OF CHAPTER 46 AND BECOME FAMILIAR WITH THE NOISE LEVEL RESTRICTIONS AND THE PROCEDURES FOR OBTAINING A PERMIT FOR CONSTRUCTION ACTIVITIES. APPLICATION AND INFORMATION ON VARIANCES ARE AVAILABLE AT THE ENVIRONMENTAL HEALTH SERVICES DIVISION, 591 ALA MOANA BOULEVARD, HONOLULU, HAWAII 96813 OR BY TELEPHONE (586-4700).
- CONTRACTOR SHALL PROVIDE A TEMPORARY SAFE PEDESTRIAN PASSAGEWAY AROUND ALL CONSTRUCTION ACTIVITY WHENEVER PEDESTRIAN WALKWAYS ARE OBSTRUCTED. THE TEMPORARY PEDESTRIAN PASSAGEWAY SHALL CONFORM TO AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG) SECTION 4.1.1(4).

ABBREVIATIONS:

AC	ASPHALTIC CONCRETE	T	TOP
BC	BOTTOM CURB	TC	TOP CURB
BFP	BACKFLOW PREVENTOR	TEL.	TELEPHONE
C	CONCRETE	TRANS.	TRANSFORMER
D	DIAMETER	TS	TOP STEM
G	G, GAS	UTIL.	LIGHT POLE
GP	GUARD POST	WM	WATER METER
H	HEIGHT	WMH	WATER MANHOLE
LP	LIGHT POLE	WV	WATER VALVE
SMH	SEWER MANHOLE	SEWER LINE	-----S12"-----
		WATER LINE	-----W12"-----

NOTE:

UNDERGROUND UTILITY LINES AND/OR STRUCTURES, IF SHOWN, ARE PROVIDED FOR INFORMATION ONLY AND ARE BASED ON INFORMATION SHOWN ON PLANS/MAPS PREPARED BY OTHERS. THE INFORMATION SHOWN, THEREFORE, MAY OR MAY NOT BE REPRESENTATIVE OF THE ACTUAL FIELD CONDITIONS. THE UNDERGROUND UTILITY LINES AND/OR STRUCTURES MAY OR MAY NOT BE PRESENT AT THE LOCATIONS SHOWN OR OTHER UNDERGROUND UTILITY LINES AND/OR STRUCTURES NOT SHOWN MAY BE PRESENT.

GENERAL NOTES FOR TRAFFIC CONTROL:

- THE CONTRACTOR SHALL DEVELOP WORKABLE TRAFFIC CONTROL PLAN FOR THE PROJECT.
- CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- 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 THE COMPLETION OF THE WORK.
- FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- ALL TRAFFIC LANES SHALL BE A MINIMUM OF NINE (9) FEET WIDE.
- ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E. WHEN THE SIGNS HAVE MESSAGES ON BOTH FACES).
- LANE CLOSURE SHALL BE LIMITED ONLY TO THE EXTENT OF ACCOMPLISHING EACH DAY'S WORK. AS SOON AS EACH DAY'S WORK IS COMPLETED, THE CONTRACTOR SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC.
- PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF WORK.
- DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. FURTHER, THE PERMITTEE SHALL CONTROL TRAFFIC GOING IN AND OUT OF DRIVEWAYS.

Thu, 18 Apr 2019 - 10:17 AM N:\Projects\1662-00 HEĒIA KEA WWP\Const Plans\1662-00 T002 Notes & Abbreviations.dwg

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
		THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.			
		STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION			
		HEĒIA KEA SMALL BOAT HARBOR WASTE WATER TREATMENT SYSTEM IMPROVEMENTS			
		GENERAL NOTES AND ABBREVIATIONS			
		BILLS ENGINEERING, INC.			
DESIGNED: DB		SUBMITTED: BE1			
DRAWN: RE/SI		DATE:			
CHECKED: DB		SCALE: AS SHOWN			
APPROVED:		DATE:		DRAWING NO.	
CHIEF ENGINEER		DATE:		T002	

GRADING NOTES

1. ALL GRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 & 16 AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED, AND SOILS REPORT BY SHINSATO ENGINEERING, INC. ENTITLED "GEOTECHNICAL INVESTIGATION PROPOSED WASTEWATER TREATMENT PLANT FACILITY, HEEIA KEA SMALL BOAT HARBOR, KAMEHAMEHA HIGHWAY, KANEOHE, HAWAII" AS PREPARED BY SHINSATO ENGINEERING INC, JUNE 21, 2017.
2. NO CONTRACTOR SHALL PERFORM ANY GRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL".
4. 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 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. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
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 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. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
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, CHAPTER 46, "COMMUNITY NOISE CONTROL".
10. THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
11. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE 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.
 THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:
 1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
 2. DISCHARGES OF HYDROTASTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.
 IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT [HTTP://HEALTH.HAWAII.GOV/CWB](http://health.hawaii.gov/cwb). THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS AS REQUIRED BY LAW.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
15. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. BUILDING PERMIT FOR RETAINING WALLS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF GRADING WORK ON SITE.
17. FOR NON-CITY PROJECTS, THE CONTRACTOR SHALL NOTIFY THE CIVIL ENGINEERING BRANCH, D.P.P. AT 768-8084 TO ARRANGE FOR INSPECTORIAL SERVICES AND SUBMIT TWO (2) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK. FOR CITY PROJECTS, THE CONTRACTOR SHALL COORDINATE CONSTRUCTION SERVICES WITH THE RESPONSIBLE CITY AGENCY.
18. 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, D.P.P. (768-8084); AND FOR CITY PROJECTS, NOTIFY THE RESPONSIBLE CITY AGENCY.

GRADING NOTES. (CONT'D)

19. 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 REQUIREMENTS.
20. 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.
21. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATORS. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
22. FOR BENCH MARK, SEE SHEET C001.

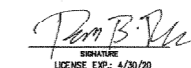

DUST CONTROL NOTES:

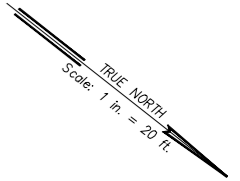
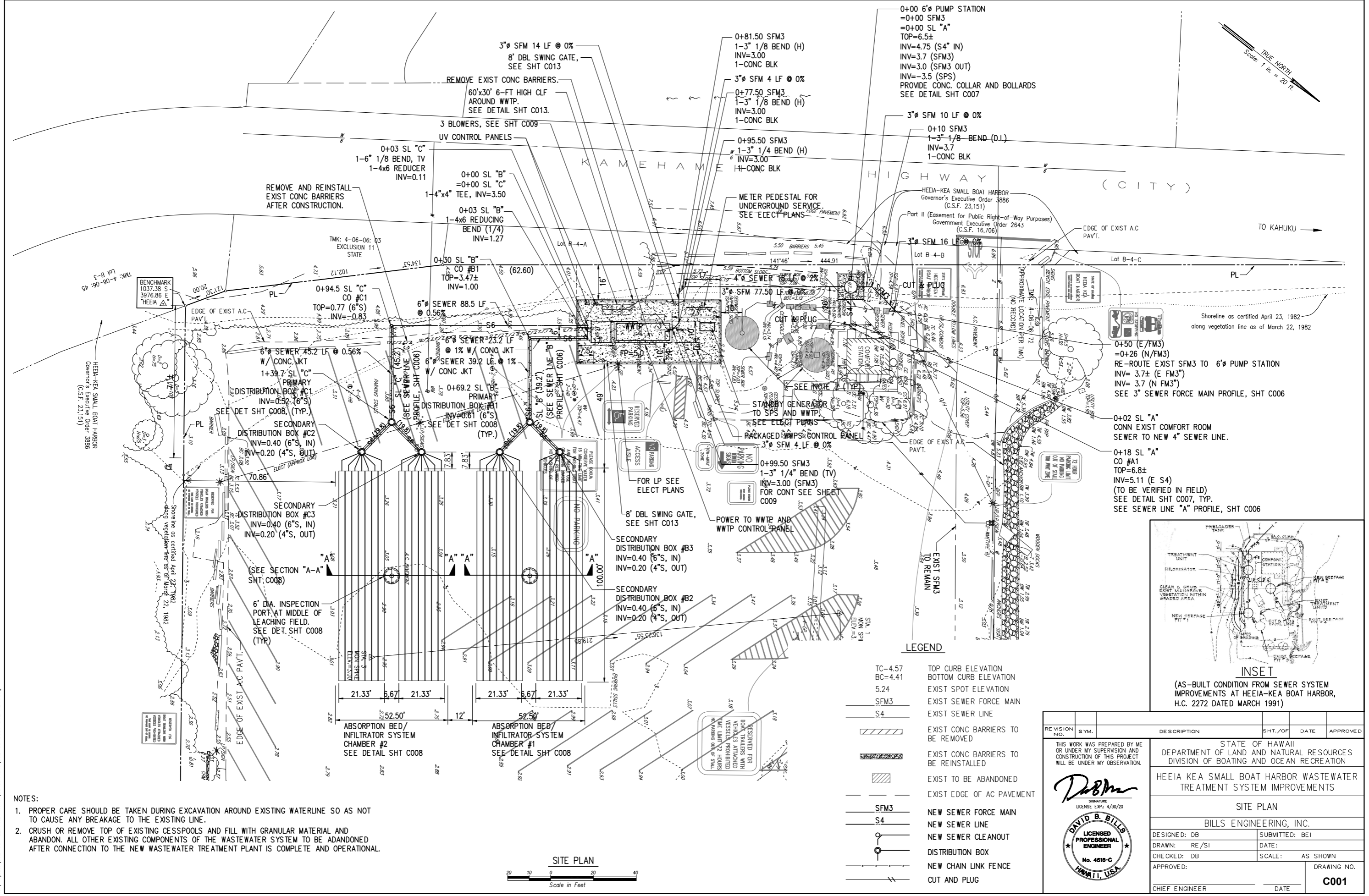
1. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR THE MEASURES IT WILL TAKE FOR THE CONTROL OF FUGITIVE DUST FROM THE WORKSITE. THE MEASURES MAY INCLUDE BUT ARE NOT LIMITED TO WATERING OF THE SITE AND FILL MATERIAL BEING PLACED, AND DELAYING WORK IN THE WEEK THAT PREVAILING WIND DIRECTION SHOULD SHIFT. 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 STANDARDDD CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: CHAPTER 11-60, "AIR POLLUTION CONTROL". DUST SHALL BE KEPT WITHIN ACCEPTABLE LEVELS AT ALL TIMES, INCLUDING NON-WORKING HOURS, WEEKENDS AND HOLIDAYS IN CONFORMANCE WITH TITLE 11, CHAPTER 60.1-AIR POLLUTION CONTROL, AS AMENDED, OF THE STATE DEPT. OF HEALTH, PUBLIC HEALTH REGULATIONS. THE METHOD OF DUST CONTROL, AND ALL COSTS INCURRED THEREFORE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL DUST DAMAGE CLAIMS.
2. CONSTRUCTION ACTIVITIES SHALL COMPLY W/PROVISIONS OF HAR CH. 11-60-1 "AIR POLLUTION CONTROL" SECTION 11-60-1-33, FUGITIVE DUST. THE CONTRACTOR SHALL PROVIDE ADEQUATE MEASURES TO CONTROL DUST FROM ROAD AREAS AND DURING VARIOUS PHASES OF CONSTRUCTION WHICH SHALL INCLUDE, BUT ARE NOT LIMITED TO:
 - A. PLAN THE DIFFERENT PHASES OF CONSTRUCTION, FOCUSING ON MINIMIZING THE AMOUNT OF DUST GENERATING MATERIALS AND ACTIVITIES, CENTRALIZING ON-SITE VEHICULAR TRAFFIC ROUTES, AND LOCATING POTENTIALLY DUSTY EQUIP. IN AREAS OF LEAST IMPACT.
 - B. PROVIDE ADEQUATE WATER SOURCE AT THE SITE PRIOR TO START UP OF CONSTRUCTION ACTIVITIES.
 - C. LANDSCAPE AND PROVIDE RAPID COVERING OF BARE AREAS, INCLUDING SLOPES, STARTING FROM THE INITIAL GRADING PHASE.
 - D. MINIMIZE DUST FROM SHOULDERS & ACCESS ROADS.
 - E. PROVIDE ADEQUATE DUST CONTROL MEASURES DURING WEEKENDS, AFTER HOURS, AND PRIOR TO DAILY START-UP OF CONSTRUCTION ACTIVITIES.
 - F. CONTROL DUST FROM DEBRIS BEING HAULED AWAY FROM PROJECT SITE.

Mon, 25 Feb 2019 - 9:25am
N:\Projects\862-00 HEEIA KEA WWP\Const Plans\862-00 T003 GRADING NOTES.dwg

APPROVED:

Melvin Johnson *2/26/19*
 FOR CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.		STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION HEEIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS			
 SIGNATURE LICENSE EXP: 4/30/20 		GRADING NOTES BILLS ENGINEERING, INC. DESIGNED: DB SUBMITTED: BEI DRAWN: RF/SL DATE: CHECKED: DB SCALE: AS SHOWN APPROVED: DRAWING NO. T003 CHIEF ENGINEER DATE			

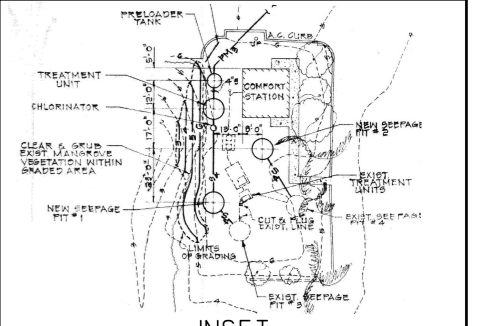


Shoreline as certified April 23, 1982
along vegetation line as of March 22, 1982

0+50 (E/FM3)
=0+26 (N/FM3)
RE-ROUTE EXIST SFM3 TO 6" PUMP STATION
INV= 3.7± (E FM3)
INV= 3.7 (N FM3)
SEE 3" SEWER FORCE MAIN PROFILE, SHT C006

0+02 SL "A"
CONN EXIST COMFORT ROOM
SEWER TO NEW 4" SEWER LINE.

0+18 SL "A"
CO #A1
TOP=6.8±
INV=5.11 (E S4)
(TO BE VERIFIED IN FIELD)
SEE DETAIL SHT C007, TYP.
SEE SEWER LINE "A" PROFILE, SHT C006



INSET
(AS-BUILT CONDITION FROM SEWER SYSTEM IMPROVEMENTS AT HEEIA-KEA BOAT HARBOR, H.C. 2272 DATED MARCH 1991)

LEGEND

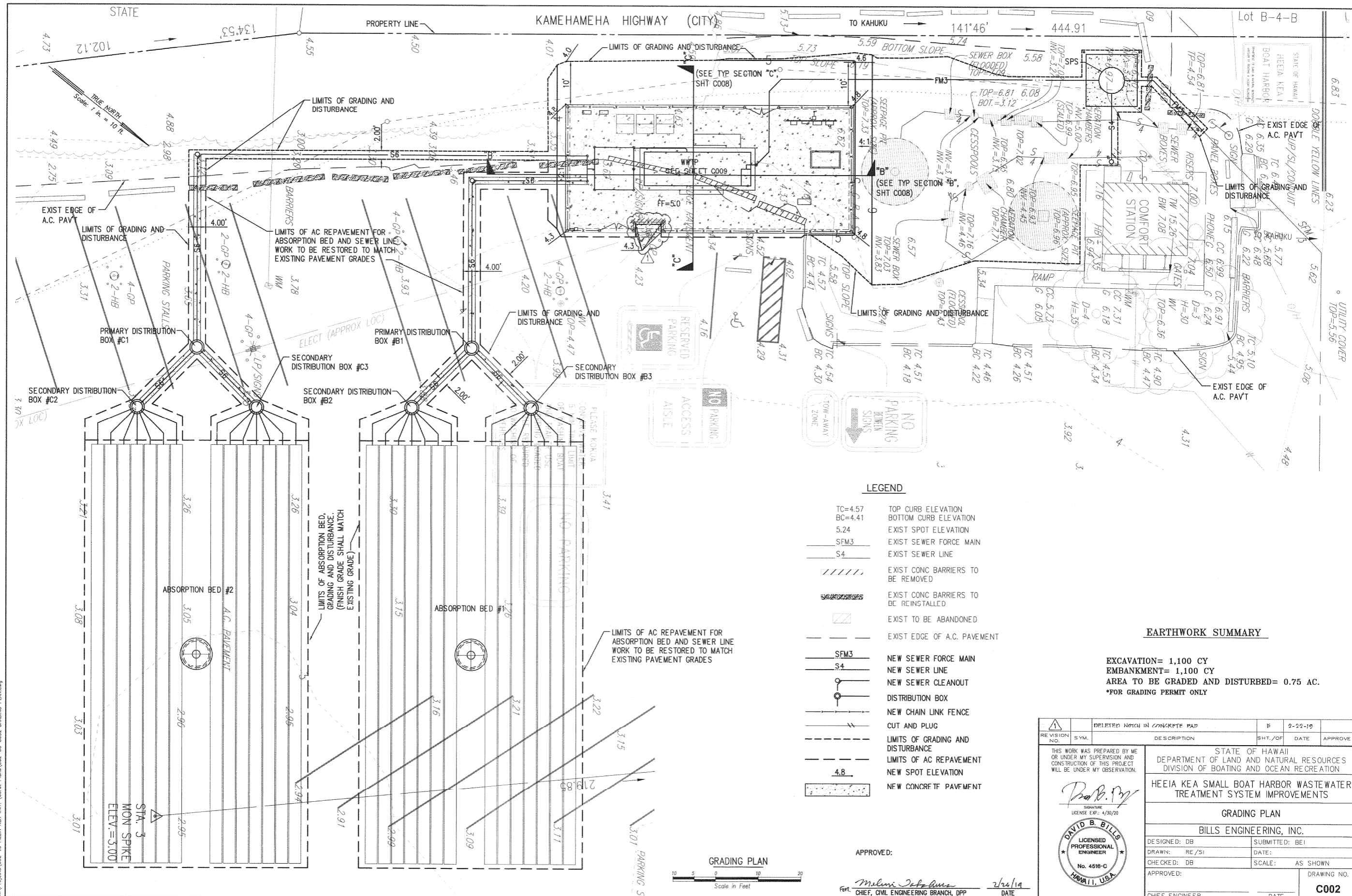
TC=4.57	TOP CURB ELEVATION
BC=4.41	BOTTOM CURB ELEVATION
5.24	EXIST SPOT ELEVATION
SFM3	EXIST SEWER FORCE MAIN
S4	EXIST SEWER LINE
[Hatched Box]	EXIST CONC BARRIERS TO BE REMOVED
[Hatched Box]	EXIST CONC BARRIERS TO BE REINSTALLED
[Hatched Box]	EXIST TO BE ABANDONED
[Dashed Line]	EXIST EDGE OF AC PAVEMENT
SFM3	NEW SEWER FORCE MAIN
S4	NEW SEWER LINE
[Circle with Cross]	NEW SEWER CLEANOUT
[Circle]	DISTRIBUTION BOX
[Line with Tick]	NEW CHAIN LINK FENCE
[Line with Tick]	CUT AND PLUG

- NOTES:**
1. PROPER CARE SHOULD BE TAKEN DURING EXCAVATION AROUND EXISTING WATERLINE SO AS NOT TO CAUSE ANY BREAKAGE TO THE EXISTING LINE.
 2. CRUSH OR REMOVE TOP OF EXISTING CESSPOOLS AND FILL WITH GRANULAR MATERIAL AND ABANDON. ALL OTHER EXISTING COMPONENTS OF THE WASTEWATER SYSTEM TO BE ADANDONED AFTER CONNECTION TO THE NEW WASTEWATER TREATMENT PLANT IS COMPLETE AND OPERATIONAL.



REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION			HEEIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS		
SITE PLAN					
BILLS ENGINEERING, INC.					
DESIGNED: DB			SUBMITTED: BE1		
DRAWN: RE/SI			DATE:		
CHECKED: DB			SCALE: AS SHOWN		
APPROVED:			DATE:		
CHIEF ENGINEER			DATE:	C001	

Thu, 18 Apr 2019 - 8:29am
N:\Projects\1662-00 HEEIA KEA WWP\Const Plans\1662-00 C001 SITE PLAN.dwg



LEGEND

- TC=4.57 TOP CURB ELEVATION
- BC=4.41 BOTTOM CURB ELEVATION
- 5.24 EXIST SPOT ELEVATION
- SFM3 EXIST SEWER FORCE MAIN
- S4 EXIST SEWER LINE
- EXIST CONC BARRIERS TO BE REMOVED
- EXIST CONC BARRIERS TO BE REINSTALLED
- EXIST TO BE ABANDONED
- EXIST EDGE OF A.C. PAVEMENT
- SFM3 NEW SEWER FORCE MAIN
- S4 NEW SEWER LINE
- NEW SEWER CLEANOUT
- DISTRIBUTION BOX
- NEW CHAIN LINK FENCE
- CUT AND PLUG
- LIMITS OF GRADING AND DISTURBANCE
- LIMITS OF AC REPAVEMENT
- NEW SPOT ELEVATION
- NEW CONCRETE PAVEMENT

EARTHWORK SUMMARY

EXCAVATION= 1,100 CY
 EMBANKMENT= 1,100 CY
 AREA TO BE GRADED AND DISTURBED= 0.75 AC.
 *FOR GRADING PERMIT ONLY

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
		DELETED NOTCH IN CONCRETE PAD	F	2-22-19	

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STATE OF HAWAII
 DEPARTMENT OF LAND AND NATURAL RESOURCES
 DIVISION OF BOATING AND OCEAN RECREATION

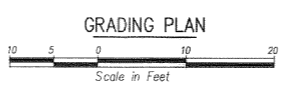
HEEIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS

GRADING PLAN

BILLS ENGINEERING, INC.

DESIGNED: DB	SUBMITTED: BEI
DRAWN: RE/SI	DATE:
CHECKED: DB	SCALE: AS SHOWN
APPROVED:	DRAWING NO. C002
CHIEF ENGINEER	DATE:

DAVID B. BILLS
 LICENSED PROFESSIONAL ENGINEER
 No. 4518-C
 HAWAII, USA



APPROVED:
 Melina J. [Signature]
 CHIEF, CIVIL ENGINEERING BRANCH, DPP
 DATE: 2/26/19

File: 08 Feb 2019 11:11:11am
 N:\Projects\562-N\HEEIA\WWP\Const\Plans\562-00\0202 GRADING PLAN.dwg

GOOD HOUSEKEEPING BMPS NOTES:

- STREET SWEEPING, VACUUMING, ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFFSITE AREAS MUST BE SWEEPED OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.
- MATERIALS DELIVERY, STORAGE AND USE MANAGEMENT. PREVENT, REDUCE OR ELIMINATE THE DISCHARGE OF POLLUTANTS FROM MATERIAL DELIVERY, STORAGE AND USE TO THE STORM WATER SYSTEM OR WATERCOURSES BY MINIMIZING THE STORAGE OF HAZARDOUS MATERIALS ONSITE, STORING MATERIALS IN A DESIGNATED AREA, INSTALLING SECONDARY CONTAINMENT. CONSTRUCTION MATERIALS, WASTE, TOXIC AND HAZARDOUS SUBSTANCES, STOCKPILES AND OTHER SOURCES OF POLLUTANT SHALL NOT BE STORED IN BUFFER AREAS, NEAR AREAS OF CONCENTRATED FLOW, OR AREAS ADJUTING THE MS4, RECEIVING WATERS, OR DRAINAGE IMPROVEMENTS THAT DISCHARGE OFFSITE. PRIMARY AND SECONDARY CONTAINMENT CONTROLS AND COVERS SHALL BE IMPLEMENTED TO THE MEP.
- SPILL PREVENTION AND CONTROL. CREATE AND IMPLEMENT SPILL PREVENTION AND RESPONSE PLAN TO ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO THE MS4 AND RECEIVING WATERS FROM LEAKS AND SPILLS BY REDUCING THE CHANCE FOR SPILLS, ABSORBING, CONTAINING, AND CLEANING UP SPILLS AND PROPERLY DISPOSING OF SPILL MATERIALS. AT A MINIMUM, ALL PROJECTS SHALL CLEANUP ALL LEAKS AND SPILLS IMMEDIATELY.
- HAZARDOUS MATERIALS. PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM HAZARDOUS WASTE THROUGH PROPER MATERIAL USE AND WASTE DISPOSAL. IN THE EVENT THAT HAZARDOUS MATERIALS ARE DISCHARGED TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL IMMEDIATELY NOTIFY THE DEPARTMENT OF FACILITIES MAINTENANCE, HONOLULU FIRE DEPARTMENT, AND HONOLULU POLICE DEPARTMENT OF THE DISCHARGE BY TELEPHONE. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE, AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
- NONHAZARDOUS MATERIALS. IN THE EVENT THAT NONHAZARDOUS MATERIALS ARE DISCHARGE TO THE MS4, THE PROPERTY OWNER OR ESCP COORDINATOR SHALL NOTIFY THE CITY DEPARTMENT OF FACILITIES MAINTENANCE BY TELEPHONE NO LATER THAN THE NEXT BUSINESS DAY. A WRITTEN REPORT DESCRIBING THE POLLUTANTS THAT WERE DISCHARGED, THE REASONS FOR THE DISCHARGE AND THE MEASURES THAT HAVE BEEN TAKEN OR WILL BE TAKEN TO PREVENT A REOCCURRENCE OF THE DISCHARGE SHALL BE SUBMITTED TO THE DIRECTOR NO LESS THAN 3 DAYS AFTER NOTIFICATION BY PHONE.
- VEHICLE AND EQUIPMENT CLEANING. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT CLEANING OPERATIONS BY USING OFFSITE FACILITIES WHEN FEASIBLE, WASHING IN DESIGNATED, CONTAINED AREAS ONLY, AND ELIMINATING DISCHARGES TO THE STORM DRAIN SYSTEM BY EVAPORATING AND/OR TREATING WASH WATER, AS APPROPRIATE OR INFILTRATING WASH WATER FOR EXTERIOR CLEANING ACTIVITIES THAT USE WATER ONLY.
- VEHICLE AND EQUIPMENT FUELING. PREVENT FUEL SPILLS AND LEAKS BY USING OFFSITE FACILITIES, FUELING ONLY IN DESIGNATED AREAS, ENCLOSED OR COVERED STORED FUEL, AND IMPLEMENTING SPILL CONTROLS SUCH AS SECONDARY CONTAINMENT AND ACTIVE MEASURES USING SPILL RESPONSE KITS.
- VEHICLE AND EQUIPMENT MAINTENANCE. ELIMINATE AND MINIMIZE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM VEHICLE AND EQUIPMENT MAINTENANCE OPERATIONS BY USING OFFSITE FACILITIES WHEN FEASIBLE, PERFORMING WORK IN DESIGNATED AREAS ONLY, USING SPILL PADS UNDER VEHICLES AND EQUIPMENT, CHECKING FOR LEAKS AND SPILLS, AND CONTAINING AND CLEANING UP SPILLS IMMEDIATELY.
- SOLID WASTE MANAGEMENT. PREVENT OR REDUCE DISCHARGE OF POLLUTANTS TO THE LAND, GROUNDWATER, IN STORM WATER, FROM SOLID WASTE OR CONSTRUCTION AND DEMOLITION WASTE, BY PROVIDING DESIGNATED WASTE COLLECTION AREAS. COLLECT SITE TRASH DAILY, AND ENSURE THAT CONSTRUCTION WASTE IS COLLECTED, REMOVED, AND DISPOSED OF, ONLY AT AUTHORIZED DISPOSAL AREAS.
- SANITARY/SEPTIC WASTE MANAGEMENT. TEMPORARY AND PORTABLE SANITARY AND SEPTIC WASTE SYSTEMS SHALL BE MOUNTED OR STAKED IN, WELL-MAINTAINED, AND SCHEDULED FOR REGULAR WASTE DISPOSAL AND SERVICING. SOURCES OF SANITARY AND/OR SEPTIC WASTE SHALL NOT BE STORED NEAR THE MS4 OR RECEIVING WATERS.
- STOCKPILE MANAGEMENT. STOCKPILES SHALL NOT BE LOCATED IN DRAINAGE WAYS, WITHIN 50- FEET FROM AREAS OF CONCENTRATED FLOWS, AND ARE NOT ALLOWED IN THE CITY RIGHT-OF-WAY. SEDIMENT BARRIERS OR SILT FENCES SHALL BE USED AROUND THE BASE OF ALL STOCKPILES. STOCKPILES SHALL NOT EXCEED 15 FEET IN HEIGHT. STOCKPILES GREATER THAN 15 FEET IN HEIGHT SHALL REQUIRE 8 FOOT WIDE BENCHING IN ACCORDANCE WITH ROH CHAPTER 14, ARTICLE 15. STOCKPILES MUST BE COVERED WITH PLASTIC SHEETING OR A COMPARABLE MATERIAL IF THEY WILL NOT BE ACTIVELY USED WITHIN 7 DAYS.
- LIQUID WASTE MANAGEMENT. LIQUID WASTE SHALL BE CONTAINED IN A CONTROLLED AREA SUCH AS A HOLDING PIT, SEDIMENT BASIN, ROLL-OFF BIN, OR PORTABLE TANK, OF SUFFICIENT VOLUME AND TO CONTAIN THE LIQUID WASTES GENERATED. CONTAINMENT AREAS OR DEVICES MUST BE IMPERMEABLE AND LEAK FREE AND SHOULD NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNEL OR STORM DRAINS.
- CONCRETE WASTE MANAGEMENT. PREVENT OR REDUCE THE DISCHARGE OF POLLUTANTS TO STORM WATER FROM CONCRETE WASTE BY CONDUCTING WASHOUT OFFSITE OR PERFORMING ONSITE WASHOUT, IN A DESIGNATED AREA CONSTRUCTED AND MAINTAINED IN SUFFICIENT QUANTITY AND SIZE TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS. PLASTIC LINING MATERIAL SHALL BE A MINIMUM OF 10 MILLIMETER POLYETHYLENE SHEETING AND SHALL BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL. CONTAINMENT AREAS AND DEVICES SHALL NOT BE LOCATED WHERE ACCIDENTAL RELEASE OF THE CONTAINED LIQUID CAN DISCHARGE TO WATER BODIES, CHANNELS, OR STORM DRAINS. WASHOUT FACILITIES MUST BE CLEANED, OR NEW FACILITIES MUST BE CONSTRUCTED AND READY FOR USE ONCE THE WASHOUT IS 75 PERCENT FULL ONCE CONCRETE WASTES ARE WASHED INTO DESIGNATED AREA AND ALLOWED TO HARDEN, THE CONCRETE SHALL BE BROKEN UP, REMOVED, AND DISPOSED OF AS SOLID WASTES.
- CONTAMINATED SOIL MANAGEMENT. AT A MINIMUM, CONTAIN CONTAMINATED MATERIAL SOIL BY SURROUNDING WITH IMPERMEABLE LINED BERMS OR COVER EXPOSED CONTAMINATED MATERIAL WITH PLASTIC SHEETING. CONTAMINATED SOIL SHALL BE DISPOSED OF PROPERLY IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS.
- DUST CONTROL. FOLLOW DUST CONTROL NOTES ON T003 OF THESE PLANS.
- BMP AND SITE MAINTENANCE. FOLLOW ALL GOOD HOUSE KEEPING BMP NOTES, EROSION PREVENTION/SEDIMENT CONTRIL NOTES, EROSION AND SEDIMENT CONTROL PLAN NOTES AND RAIN RESPONSE PLAN NOTES AND DETAILS OF THIS SHEET (C004).

EROSION PREVENTION/SEDIMENT CONTROL NOTES:

- THE CONTRACTOR SHALL FOLLOW THE GUIDELINES IN THE CITY & COUNTY OF HONOLULU'S "RULES RELATING TO WATER QUALITY".
- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTHWORK IS INITIATED.
- SLOPE PROTECTION IS REQUIRED ON AREAS WITH SLOPES GREATER THAN 15% AND ON AREAS OF MODERATE SLOPE THAT ARE PRONE TO EROSION UNLESS THEY ARE BEING ACTIVELY WORKED. USE DIVERSION UPSTREAM OF SLOPE (DIKES, SWALES, SLOPE DRAINS) TO DIVERT WATER AROUND THE SLOPE. PROVIDE A 10-FT BUFFER ZONE AT THE TOE OF SLOPE. ONLY 5 ACRES MAYBE DISTURBED AT ANYTIME ON SLOPES GREATER THAN 15%.
- TEMPORARY STABILIZATION IS REQUIRED ON DISTURBED AREAS WHICH ARE AT FINAL GRADE OR WHEN THE DISTURBED AREA WILL NOT BE WORKED FOR 14 CONSECUTIVE DAYS OR MORE.
- PERMANENT STABILIZATION. ALL DISTURBED AREAS SHALL BE PERMANENTLY STABILIZED USING VEGETATIVE COVERING, PAVEMENT, OR EQUIVALENT, PRIOR TO REMOVING EROSION AND SEDIMENT MEASURES. TRAPPED SEDIMENT AND AREAS OF DISTURBED SOIL WHICH RESULT FROM THE REMOVAL OF THE TEMPORARY MEASURES SHALL BE IMMEDIATELY AND PERMANENTLY STABILIZED.
- PRESERVE EXISTING VEGETATION. CLEARLY MARK THE AREAS TO BE PRESERVED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FENCING SHALL BE ADEQUATELY SUPPORTED BY POSTS AND MAINTAINED IN AN UPRIGHT POSITION.
- MINIMIZE SOIL COMPACTION AREAS. WHERE FINAL STABILIZATION OR INFILTRATION PRACTICES ARE TO BE INSTALLED, AREA SHALL BE PROTECTED FROM EXCESSIVE COMPACTION DURING CONSTRUCTION. VEHICLE AND EQUIPMENT USE SHALL BE RESTRICTED OR TECHNIQUES TO CONDITION THE SOILS TO SUPPORT VEGETATION SHALL BE IMPLEMENTED IN THE AREAS THAT HAVE BEEN COMPACTED AND ARE DESIGNATED TO REMAIN VEGETATIVE OR POST-CONSTRUCTION INFILTRATION AREAS. CLEARLY MARK THE AREAS TO BE AVOIDED WITH FLAGS OR TEMPORARY FENCING. WHERE TEMPORARY FENCING IS USED, FENCING SHALL BE ADEQUATELY SUPPORTED BY POSTS AND MAINTAINED IN AN UPRIGHT POSITION.
- PERIMETER CONTROLS ARE REQUIRED DOWN SLOPE OF ALL DISTURBED AREAS. MAINTAIN DOWNSTREAM VEGETATED BUFFER AREA.
- TRACKING CONTROL.
 - MINIMIZE SEDIMENT TRACK-OUT ONTO OFFSITE STREETS, OTHER PAVED AREAS, AND SIDEWALKS FROM VEHICLES EXITING THE CONSTRUCTION SITE BY RESTRICTING VEHICLE TRAFFIC TO PROPERLY DESIGNATED AREAS AND USING ADDITIONAL CONTROLS TO REMOVE SEDIMENT FROM VEHICLE TIRES PRIOR TO EXITING THE SITE.
 - VEHICULAR PARKING AND MOVEMENTS ON PROJECT SITE SHALL BE CONFINED TO PAVED SURFACES OF PREDEFINED PARKING AREAS AND VEHICLE PATHS, WHICH SHALL BE MARKED WITH FLAGS OR BOUNDARY FENCING.
 - ALL POLLUTANTS AND MATERIALS THAT ARE DROPPED, WASHED, TRACKED, SPILLED OR OTHERWISE DISCHARGED FROM A PROJECT TO OFFSITE STREETS, OTHER PAVED AREAS, SIDEWALKS OR THE MS4 SHALL BE CLEANED USING DRY METHODS SUCH AS SWEEPING OR VACUUMING.
 - WASHING POLLUTANTS AND MATERIALS THAT ARE DISCHARGED FROM THE PROJECT SITE TO THE MS4 INTO DRAIN INLETS OR CATCH BASINS IS PROHIBITED UNLESS THE MATERIAL IS SEDIMENT AND THE INLETS ARE DIRECTED TO A SEDIMENT BASIN OR SEDIMENT TRAP.
- BEST MANAGEMENT PRACTICES (BMPS) SHALL NOT BE REMOVED UNTIL FINAL STABILIZATION IS COMPLETE FOR THAT PHASE.
- REFER TO CITY & COUNTY OF HONOLULU BEST MANAGEMENT PRACTICES MANUAL - CONSTRUCTION, FOR MORE INFORMATION ON BMPS.
- THE FOLLOWING BMPS WERE DETERMINED TO BE NOT APPLICABLE BASED ON THE SPECIFIC SITE CONDITIONS:
 - VELOCITY DISSIPATION DEVICES
 - DIVERSION BMPS TO DIVERT RUNOFF FROM UPSTREAM AREAS AROUND DISTURBED AREAS OF THE SITE
 - STORM DRAIN INLET PROTECTION
 - SEDIMENT BARRIERS

AS CONSTRUCTION PROGRESSES, REVISIONS MAY BE NECESSARY AND SHALL BE PROVIDED TO DPP INSPECTORS. A BRIEF EXPLANATION OF WHY EACH OMITTED BMP IS UNNECESSARY OR IMPRACTICABLE HAS BEEN PROVIDED UNDER SEPARATE DOCUMENTATION TO DPP.
- THE CONTRACTOR SHALL COMPLY WITH THE PROJECT SCHEDULE REQUIREMENTS OF THE CITY'S RULES RELATING TO STORM WATER QUALITY AND SUBMIT THE SCHEDULED START DATE TWO WEEKS PRIOR.
- THE CONTRACTOR SHALL SUBMIT THE ESCP COORDINATOR DESIGNATION USING THE FORM FROM APPENDIX A TO THE CITY'S RULES RELATING TO WATER QUALITY AT THE TIME OF APPLICATION FOR THE GRADING PERMIT.
- THIS PROJECT IS A CATEGORY 4 PROJECT.
- SEE SHEET T001 FOR WATER BODY NAME, CLASSIFICATION AND COORDINATE.

GOOD HOUSEKEEPING BMPS NOTES (CONT'D):

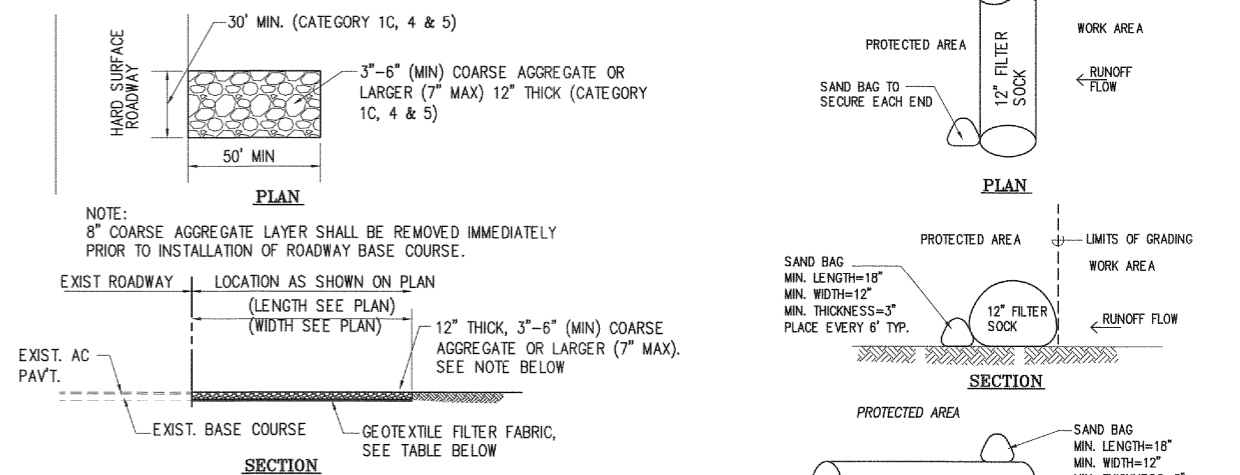
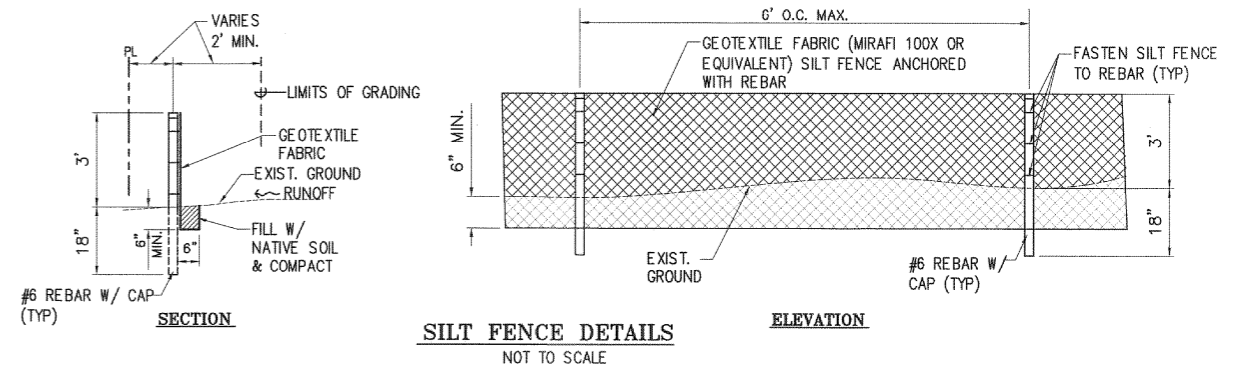
- DEWATERING HOUSE KEEPING NOTES:
 - THE ABSORPTION BED SHALL BE PARTIALLY INSTALLED INTO THE WATER TABLE. IT IS INTENDED THAT THE ABSORPTION BEDS BE INSTALLED IN PHASES AND ACTIVE INSTALLATION BE DEWATERED BY USE OF COFFERDAMS (OR EQUAL) TO ISOLATE THE WORK AREA AND DEWATERING BE ACCOMPLISHED BY PUMPING TO INACTIVE AREAS OF THE ABSORPTION BED AREA. DEWATERING FROM ACTIVE AREAS OF ABSORPTION BED INSTALLATION INTO A COMPLETED ABSORPTION BED IS ALSO ALLOWED AS LONG AS EXCESSIVE SOLIDS ARE NOT DISCHARGED INTO A COMPLETED ABSORPTION BED. THIS MAY REQUIRE A ZONE OF INTERMEDIATE SETTLING BEFORE DISCHARGE INTO A COMPLETED ABSORPTION BED. THE CONTRACTOR SHALL PREPARE AND SUBMIT ITS PROPOSED ABSORPTION BED INSTALLATION/PHASING PLAN FOR ENGINEER APPROVAL SHOWING ACTIVE CONSTRUCTION WORK AREAS AND AREAS THAT WILL BE USED FOR DEWATERING. ONCE APPROVED THE CONTRACTOR CAN COMMENCE ABSORPTION BED INSTALLATION PER CONTRACT DRAWINGS. SHOULD THE PHASING PLAN NOT EFFECTIVELY PROVIDE INADEQUATE DEWATERING AREAS PER INSTALLATION PHASE THE CONTRACTOR SHALL MODIFY THE PHASING PLAN UNTIL EFFECTIVE BY THE CONTRACTOR'S GEOTECHNICAL AND STRUCTURAL PROFESSIONAL ENGINEERS.
 - SHOULD THE CONTRACTOR SELECT AN ALTERNATIVE METHOD OF DEWATERING NON-STORM WATER, SUCH FILTERING AND DISCHARGING TO STATE WATERS THAT NON-STORM CANNOT BE DISCHARGED FROM THE SITE WITHOUT PRIOR NOTICE TO AND APPROVAL FROM DOH (NPDES FORM G).

EROSION AND SEDIMENT CONTROL PLAN NOTES:

- PROJECT SEQUENCE:
- INSTALL STABILIZED CONSTRUCTION ENTRANCES AND TEMPORARY SILT FENCING/FILTER SOCK FOR PROTECTED AREAS, CLEARING AND GRUBBING AS NECESSARY FOR THE INSTALLATION OF THESE BMPS.
 - PROCEED WITH CONSTRUCTION AND GRADING WITH LEAST POSSIBLE DISTURBANCE OF VEGETATIVE AREAS AND TEMPORARY STRUCTURES.
 - INITIATE STABILIZATION OF STEEP SLOPES (>15%) WITH HYDROSEEDING AS SOON AS GRADING IS COMPLETED ON THOSE AREAS. INSTALL PERMANENT IRRIGATION SYSTEM PRIOR TO PERMANENT SEEDING.
 - REMOVE OR DISMANTLE TEMPORARY EROSION CONTROL STRUCTURES AFTER FULL ESTABLISHMENT OF PERMANENT VEGETATIVE COVER.
 - PRACTICE GOOD HOUSEKEEPING MEASURES THROUGHOUT THE DURATION OF CONSTRUCTION.
 - INSPECTIONS SHALL BE PERFORMED WEEKLY.

RAIN RESPONSE PLAN NOTES:

- THE FOLLOWING SHALL BE PERFORMED WHEN HEAVY RAIN, TROPICAL STORM OR HURRICANE IS IMMINENT, OR IS FORECASTED IN THE NEXT 48 HOURS.
- TEMPORARILY SUSPEND ACTIVE GRADING.
- INSPECT ALL SILT FENCES, AND MAINTAIN AS NEEDED. REINSTALL ANY FENCES THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA.
- COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
- 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.
- RE-INSPECT AFTER THE APPROACHING HEAVY RAINS, TROPICAL STORM OR HURRICANE, AND REPLACE OR MAINTAIN BMPS AS NEEDED.



PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3788)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

CONSTRUCTION INGRESS/EGRESS DETAILS
NOT TO SCALE

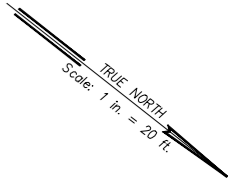
PRE-CONSTRUCTION, DURING CONSTRUCTION AND POST CONSTRUCTION BMP TABLE

PRE-CONSTRUCTION	DURING CONSTRUCTION	POST CONSTRUCTION
INSTALL BIO-SOCK, SILT FENCE PER DETAILS OF ESCP OF PROJECT PLANS	MONITOR ESCP'S PER PROJECT PLAN ESCP EROSION AND SEDIMENT CONTROL NOTES AND GOOD HOUSEKEEPING NOTES	MAINTAIN PERMANENT VEGETATION (GRASS) PROVIDED ON ALL DISTURBED AREAS AS APPLICABLE
INSTALL STABILIZED CONSTRUCTION ENTRANCE PER DETAILS ESCP OF PROJECT PLANS	TEMPORARY STABILIZATION	PERMANENT STABILIZATION

APPROVED:

Melvin J. Jones
CHIEF, CIVIL ENGINEERING BRANCH, DPP

REVISION NO.	SYN.	DESCRIPTION	SHT./OF	DATE	APPROVED
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.					
STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
HEEIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS					
EROSION AND SEDIMENT CONTROL NOTES & DETAILS					
BILLS ENGINEERING, INC.					
DESIGNED: DB	SUBMITTED: BEI				
DRAWN: RE/SI	DATE:				
CHECKED: DB	SCALE: AS SHOWN				
APPROVED:	DRAWING NO. C004				
CHIEF ENGINEER	DATE:				



KAMEHAMEHA HIGHWAY (CITY)

TO KAHUKU

HEEIA-KEA SMALL BOAT HARBOR
 Governor's Executive Order 3886
 (C.S.F. 23,151)
 Part II (Easement for Public Right-of-Way Purposes)
 Government Executive Order 2643
 (C.S.F. 16,706)

Shoreline as certified April 23, 1982
 along vegetation line as of March 22, 1982

Lot B-4-A
 Lot B-4-B
 Lot B-4-C

BENCHMARK
 1037.38 S
 3976.86 F
 "HEEIA"

HEEIA-KEA SMALL BOAT HARBOR
 Governor's Executive Order 3886
 (C.S.F. 23,151)

Shoreline as certified April 27, 1982
 along vegetation line as of March 22, 1982

EXISTING CONC BARRIERS TO BE REMOVED

EXISTING CONC BARRIERS TO BE REINSTALLED

EXISTING CONC BARRIERS TO BE ABANDONED

EXISTING EDGE OF A.C. PAVEMENT

NEW SEWER FORCE MAIN

NEW SEWER LINE

NEW SEWER CLEANOUT

DISTRIBUTION BOX

NEW CHAIN LINK FENCE

CUT AND PLUG

BARRICADE

RESERVED FOR BOAT TRAILERS WITH VESSELS ATTACHED TIME LIMIT 72 HOURS NO PARKING OUT OF STALL

RESERVED PARKING ACCESS AISLE

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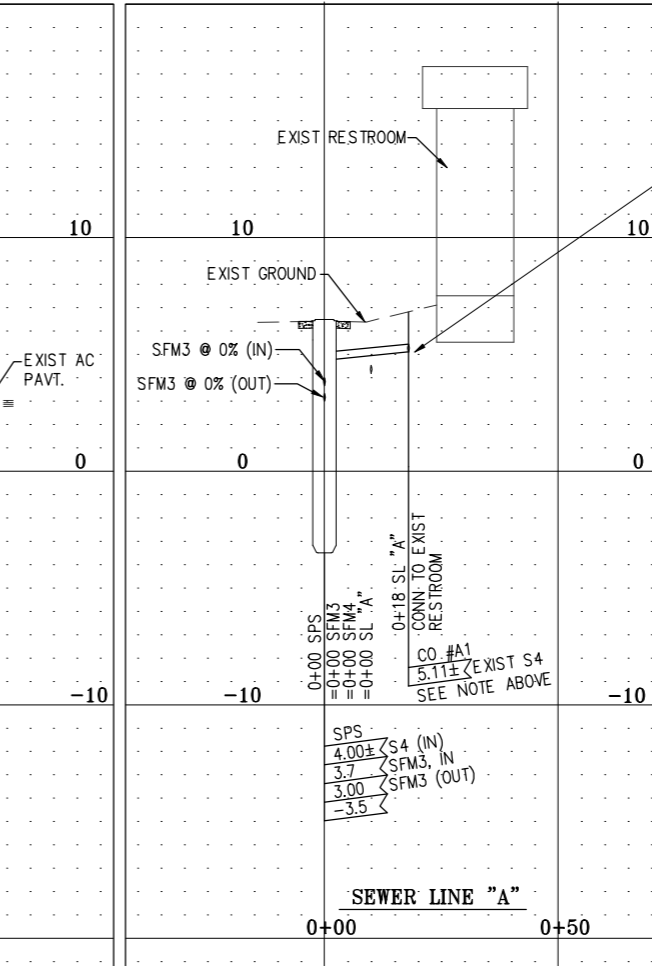
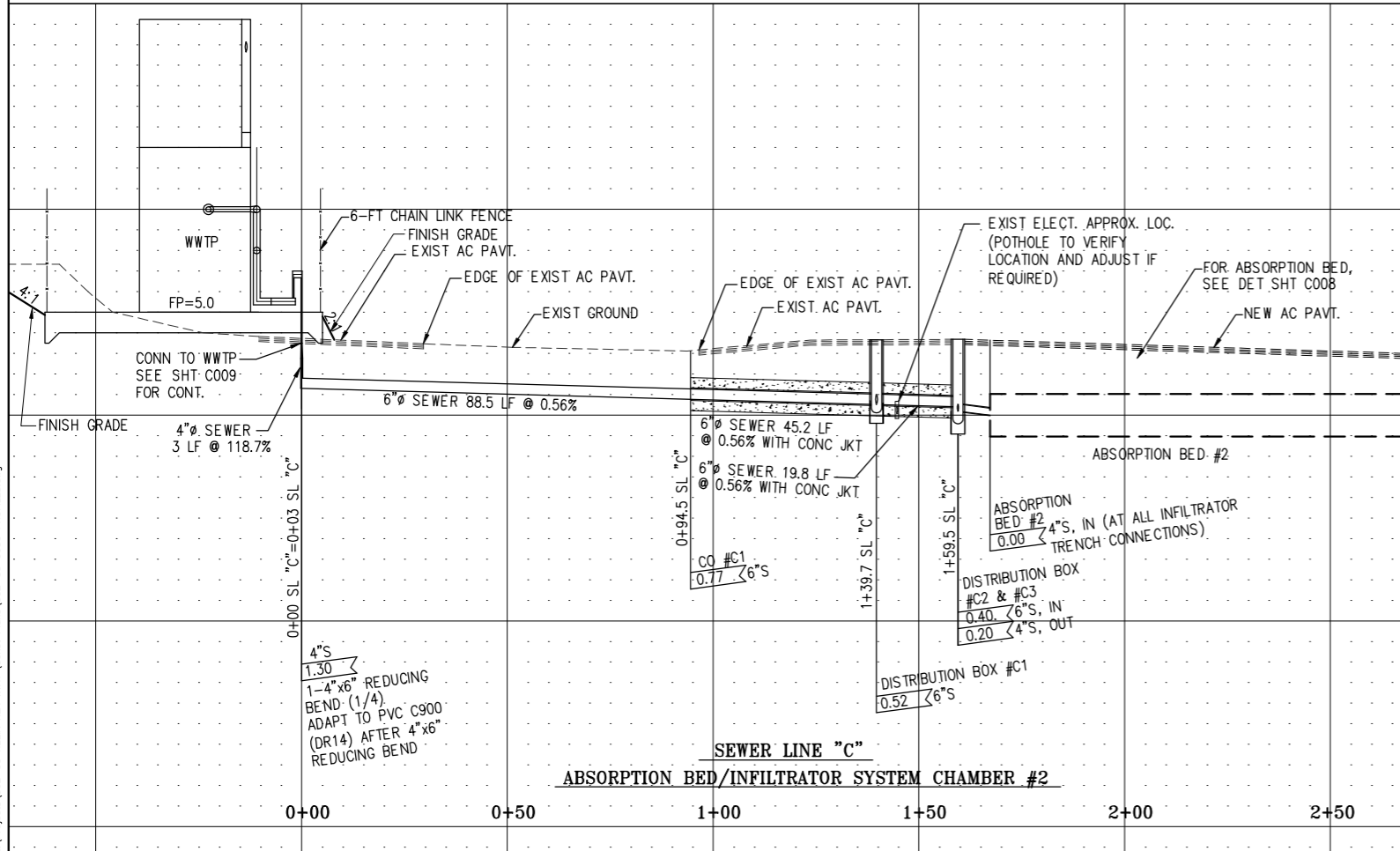
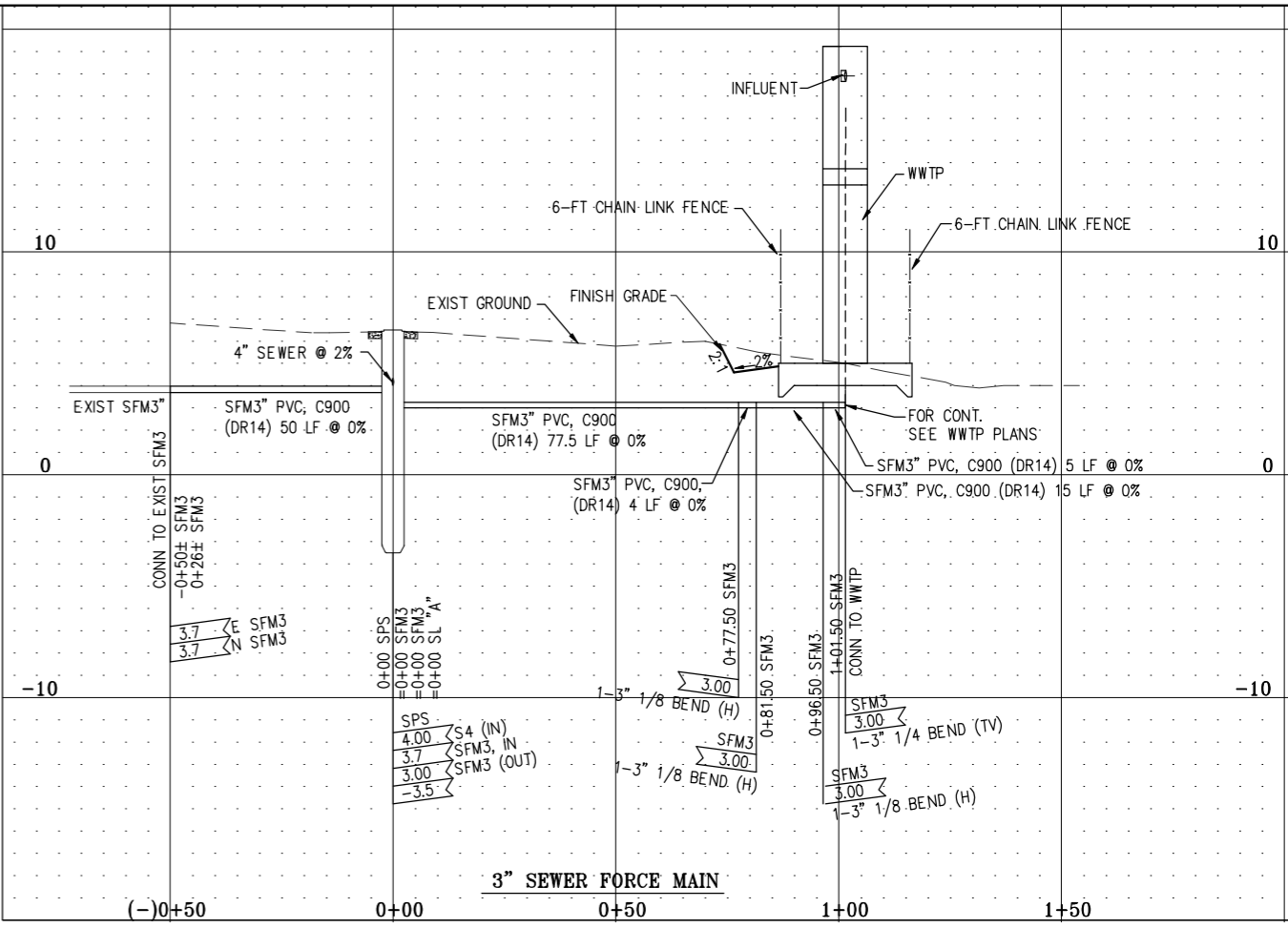
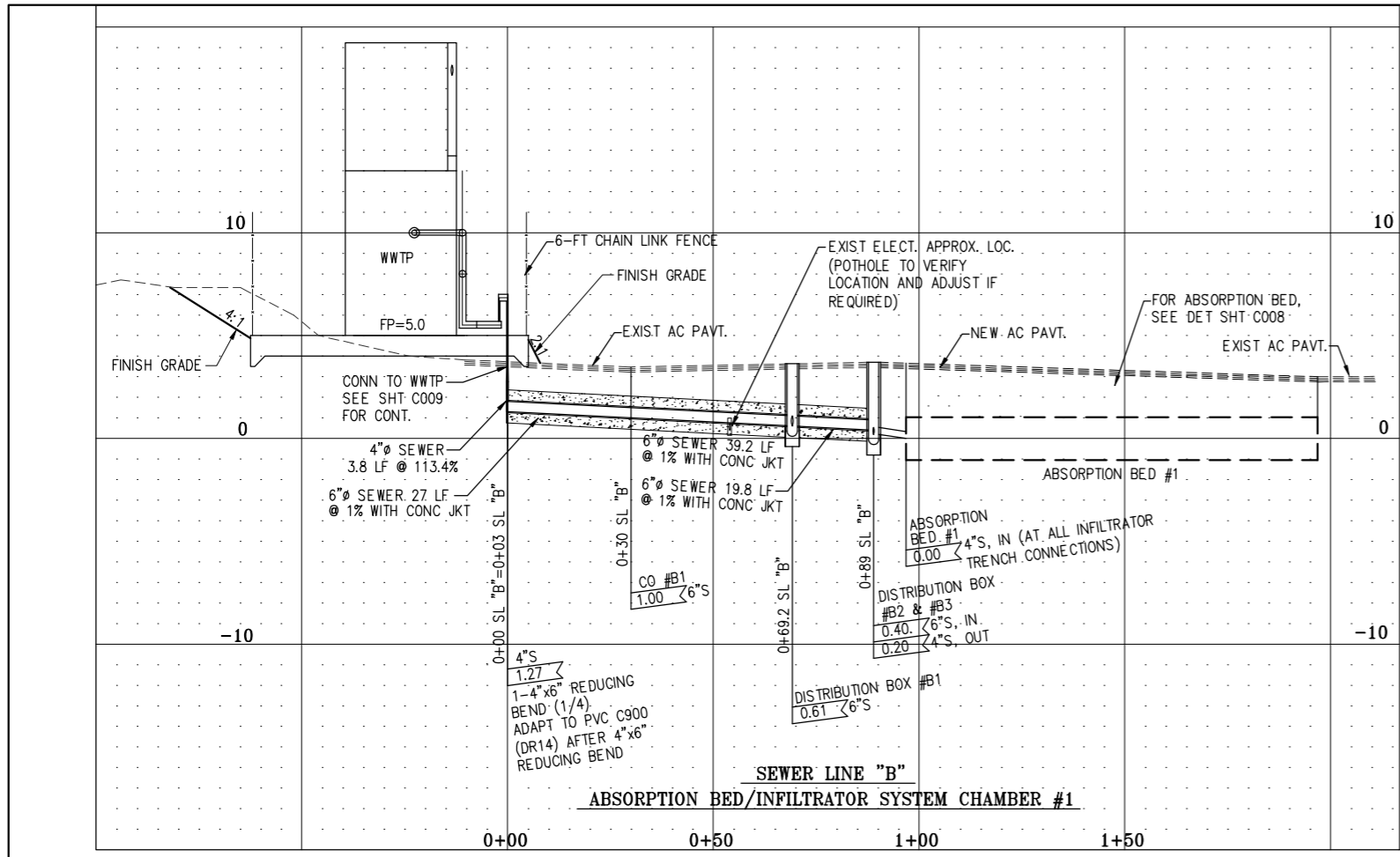
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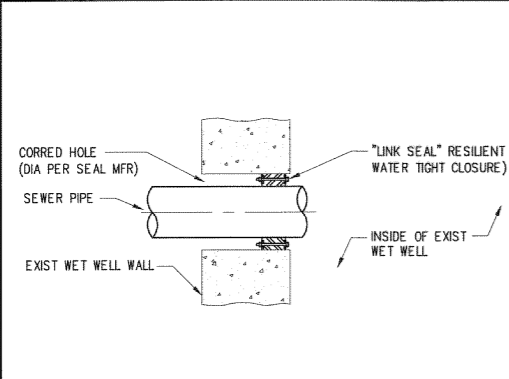


NOTE:
 POTHOLE AND EXPOSE EXISTING S4" FROM RESTROOM TO EXISTING TREATMENT SYSTEM. INSTALL CLEAN-OUT TO GRADE AND RUN NEW S4" (PVC, C900, DR18) AT 2% TO NEW SPS. (ABANDON EXISTING S4" TO EXISTING WWTP BE FLUSHING AND FILLING WITH CLSM).

HORI 20 10 0 20 40
 VERT 4 2 1 4 8
 SCALE IN FEET

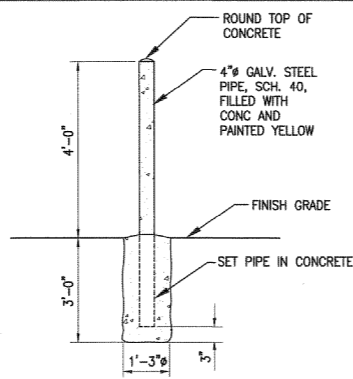
REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION					
HE'EIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS					
PROFILES					
BILLS ENGINEERING, INC.					
DESIGNED: DB			SUBMITTED: BE1		
DRAWN: RE/SI			DATE:		
CHECKED: DB			SCALE: AS SHOWN		
APPROVED:			DRAWING NO.		
CHIEF ENGINEER			DATE		C006

Thu, 18 Apr 2019 - 8:47am
 N:\Projects\1662-00 HE'EIA KEA WWTP\Const. Plans\1662-00 C006 PROFILES.dwg



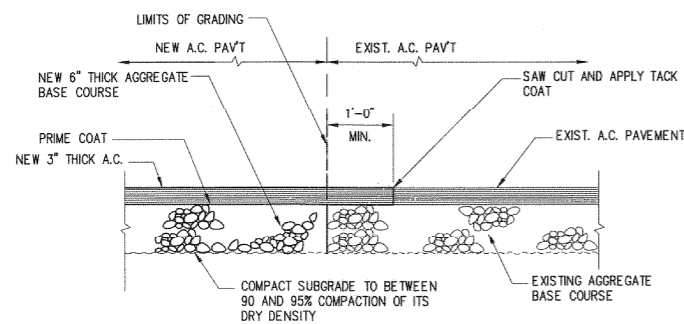
PIPE PENETRATION DETAIL

SCALE: 1" = 0'-6"



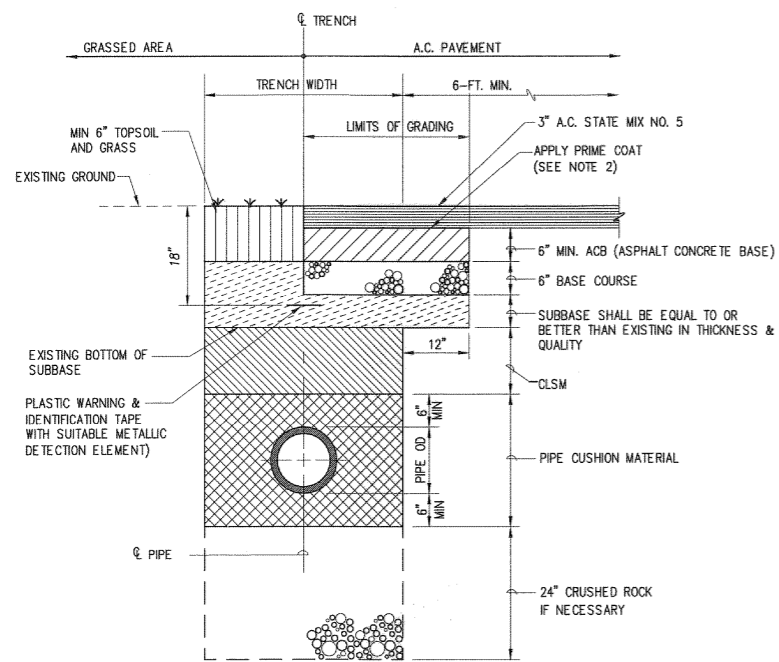
BOLLARD DETAIL

NOT TO SCALE



A.C. PAVEMENT CONNECTION DETAIL

NOT TO SCALE

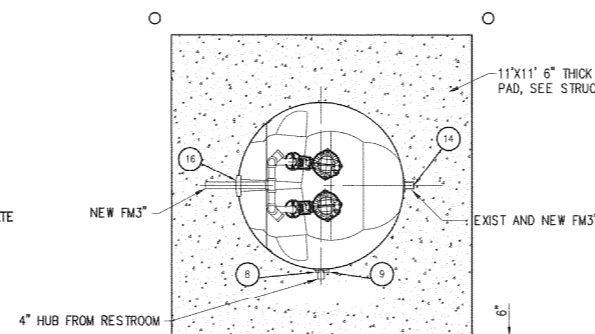


REPAVING NOTES

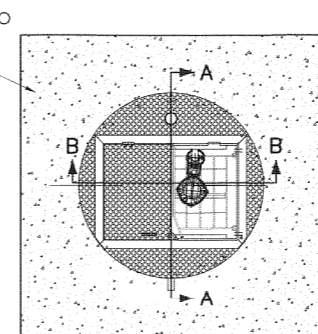
1. PAVEMENT STRUCTURE SHALL BE EQUAL TO OR BETTER THAN EXISTING IN THICKNESS AND QUALITY.
2. FOR ROAD GRADES 0% TO 7.99% PRIME COAT IS NOT REQUIRED.
3. ALL DISTURBED PAVEMENT MARKINGS SHALL BE REPLACED AND ALL REQUIRED UTILITY ADJUSTMENTS SUCH AS MANHOLE COVERS ETC. SHALL BE DONE BY THE CONTRACTOR.
4. LENGTH OF REPAIRED TRENCH SHALL BE REPAIRED TWO FEET IN ADDED LENGTH TO EACH END OF TRENCH.

TYPICAL SEWER TRENCH DETAIL (STATE)

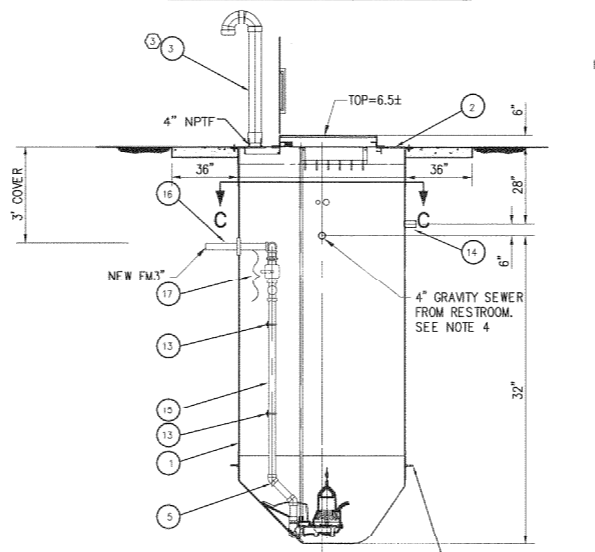
SCALE: 3/4" = 1'-0"



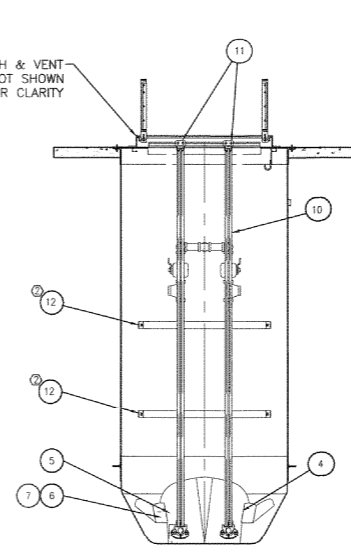
PLAN LESS COVER



PLAN WITH COVER



SECTION A-A



SECTION B-B

PUMP STATION DATA

ITEM	DESCRIPTION	PART NUMBER	QTY
1	BASIN/CYLINDER ASSEMBLY, 5'		1
2	COVER, 5'		1
3	VENT PIPE, 4" (OPTIONAL)	14-68 22 02	1
4	DISCHARGE CONNECTION, 3"	619 95 00	2
5	PIPING KIT, JOG OVER FOR 4"		2
6	NUT, 3/4-10, 316 SST	94805A135	4
7	WASHER, 13/16 ID. 1 1/2 OD, GENERAL PURPOSE, 316 SST	91950A036	4
8	SEAL, CABLE WALL, LEVEL SENSOR	18605CF125P	1
9	SEAL, CABLE WALL, PUMP		1
10	GUIDE BAR, 3/4", 316 SST		4
11	UPPER GUIDE BAR KIT, 3/4"		2
12	BRACING, DISCHARGE PIPE		2
13	U-BOLT 3/8-16 OD, 4 1/2", 4" PIPE	29505T6	4
14	HUB FOR 3" FORCE MAIN CONNECTION		1
15	PIPE, 4", SCH 40, PVC SST		FT
16	PIPING KIT, 3"		1
17	THREADED PIPING KIT, 4"		2

McMASTER CARR

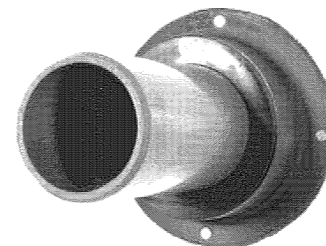
THE SEWAGE PUMP STATION SHALL BE A TOPS SEWAGE PUMP STATION AS MANUFACTURED BY FLYGT USING FLYGT PUMPS OR ENGINEER APPROVED EQUAL

SEWAGE PUMP STATION DETAIL

NOT TO SCALE

NOTES

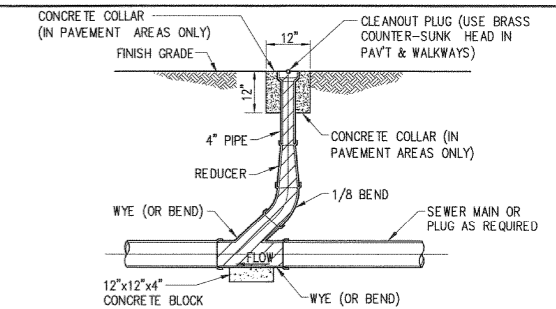
1. STATION DEPTH: MAX. 6ft., AVAILABLE IN 1ft. INCREMENTS.
2. ALL BOLT PENETRATIONS THRU WALLS MUST BE SEALED WITH SILICONE SEALANT.
3. OPTIONAL PVC CANDY CANE STYLE VENT SHOWN. MUSHROOM STYLE VENT ALSO AVAILABLE.
4. EXPOSE GRAVITY SEWER AND MEASURE DEPTH FOR APPROPRIATE SEWER CONNECTION TO WET WELL. PUNCTURE WET WELL WALL WITH JIG SAW AND DRILL BIT, OR EQUAL. USE FLYGT SEALING JOINT TO MAKE CONNECTION TO WET WELL. SEE DET BELOW.



INFLUENT PIPE SEALING DETAIL

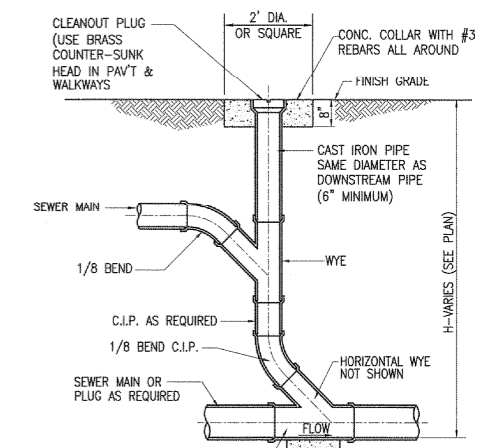
APPROVED:

For *Melvin J. Johnson*
CHIEF, CIVIL ENGINEERING BRANCH, DPP
(FOR GRADING ONLY)



CLEANOUT DETAIL

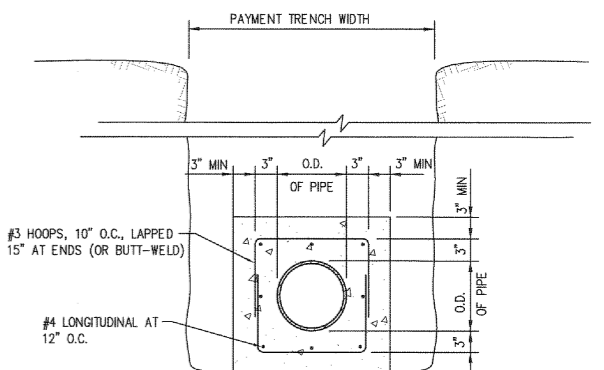
NOT TO SCALE



- NOTES:**
1. THE ENDS OF THE CAST IRON CLEANOUT PIPE SHALL HAVE AN INNER PIPE THREAD TO RECEIVE EITHER RAISED CLEANOUT PLUG OR COUNTERSUNK BRASS PLUG AS INDICATED.
 2. APPLY GREASE TO CLEANOUT PLUG THREADS PRIOR TO INSTALLATION.

DROP CLEANOUT DETAIL

NOT TO SCALE

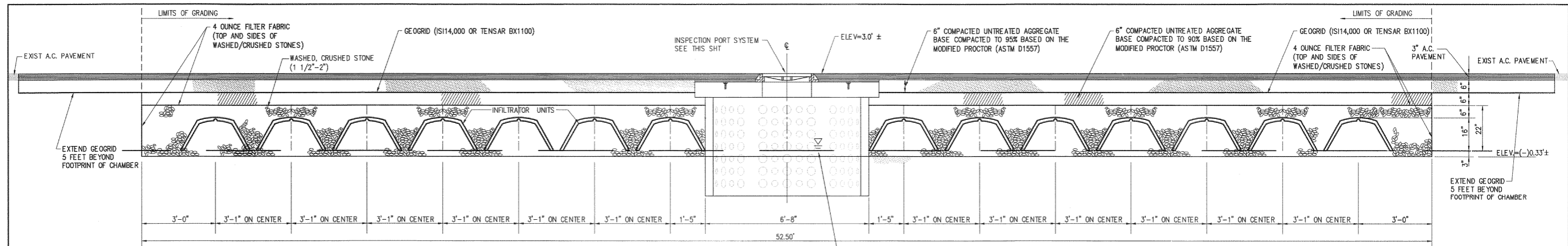


CONCRETE JACKET DETAIL

NOT TO SCALE

REVISION NO.	S.Y.M.	DESCRIPTION	SHT./OF	DATE	APPROVED
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.</p> <p>STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES DIVISION OF BOATING AND OCEAN RECREATION</p> <p>HEEIA KEA SMALL BOAT HARBOR WASTEWATER TREATMENT SYSTEM IMPROVEMENTS</p> <p>MISCELLANEOUS DETAILS -- 1</p> <p>BILLS ENGINEERING, INC.</p> <p>DESIGNED: DB SUBMITTED: BEI</p> <p>DRAWN: RE/SI DATE:</p> <p>CHECKED: DB SCALE: AS SHOWN</p> <p>APPROVED: DRAWING NO. C007</p> <p>CHIEF ENGINEER DATE</p>					

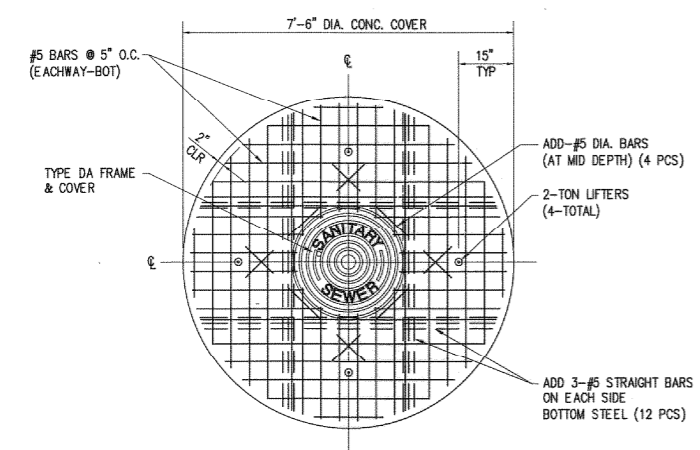
File: 25 Jan 2019 - 8:37am
 N:\Projects\562-00 HEIA HEA WWP\Const Plans\562-00 C007 MSC DETAILS - 1.dwg



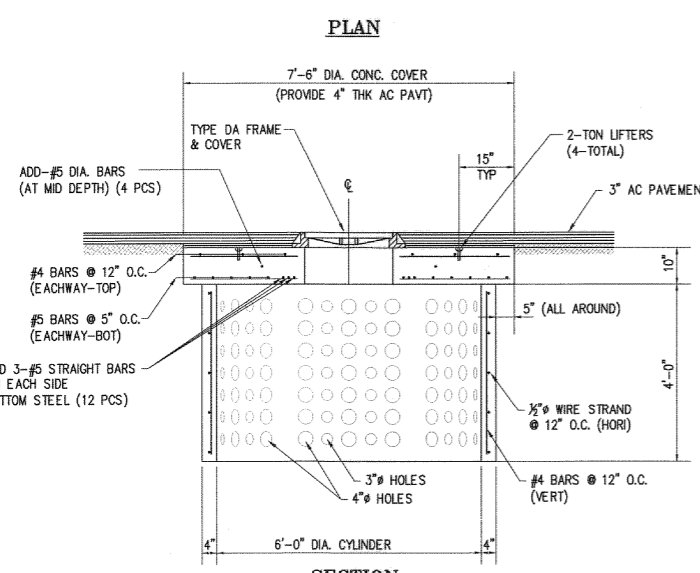
- CONSTRUCTION NOTES**
1. MAXIMUM LENGTH OF EACH INFILTRATION LINE SHALL BE 100 FEET.
 2. INFILTRATION LINES SHALL BE UNIFORMLY SPACED AT A MAXIMUM OF 3'-1" APART.
 3. INFILTRATION LINES SHALL BE LEVEL.
 4. THE FLOOR OF THE ABSORPTION BED SHALL BE LEVEL.
 5. WHERE NOT OTHERWISE SPECIFIED, THE CONSTRUCTION OF THE ADSORPTION BED SHALL CONFORM TO HAWAII ADMINISTRATIVE RULES, TITLE II, CHAPTER 62, SECTION 34.
 6. THE INFILTRATOR BEDS SHALL BE INFILTRATOR WATER TECHNOLOGIES HIGH CAPACITY INFILTRATOR CHAMBER H-20 OR ENGINEER APPROVED EQUAL. THE LAYOUT IS GENERIC. CONTRACTOR SHALL FOLLOW INSTALLATION DETAILS OF SPECIFIC INFILTRATION SYSTEM.

SECTION "A-A"
ABSORPTION BED/INFILTRATOR CHAMBER DETAIL
 NOT TO SCALE

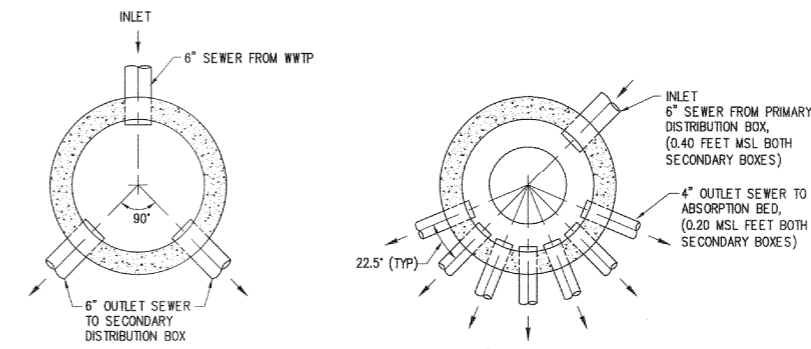
(TOTAL AREA PER BED = 5,250 SQ. FT., EFFECTIVE AREA PER BED = 4,267 SQ. FT. EFFECTIVE AREA IS BED AREA LESS ZONE (6'-8") FOR INSPECTION PORT)



- NOTES**
1. ALL CONCRETE AND REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE AMERICAN CONCRETE INSTITUTE'S BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318-LATEST) AS SPECIFIED HEREIN.
 2. CONCRETE COMPRESSIVE STRENGTH: 4000 PSI IN 28 DAYS
 3. CEMENT SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT "STANDARD SPECIFICATION FOR PORTLAND CEMENT" ASTM DESIGNATION C-150.
 4. MIXING: READY MIXED ASTM C-94
 5. REINFORCING STEEL SHALL BE DEFORMED, INTERMEDIATE GRADE, CONFORMING TO THE CURRENT "STANDARD SPECIFICATIONS FOR BILLET-STEEL BARS FOR CONCRETE REINFORCEMENTS", ASTM A 615, GRADE 60
 6. WIRE STRAND SHALL CONFORM TO ASTM A-416 AND HAVE A STRENGTH OF 270 KSI

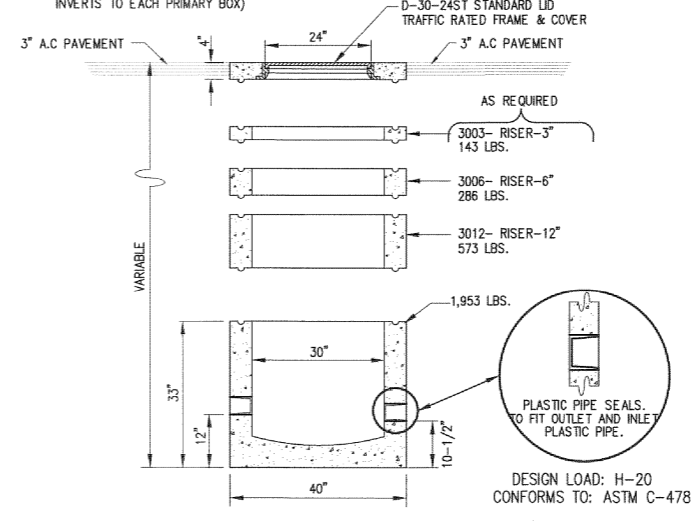


INSPECTION PORT SYSTEM DETAIL
 NOT TO SCALE
 (INSPECTION PORT SYSTEM SHALL BE PRICE CESSPOOL RING OR ENGINEER APPROVED EQUAL)

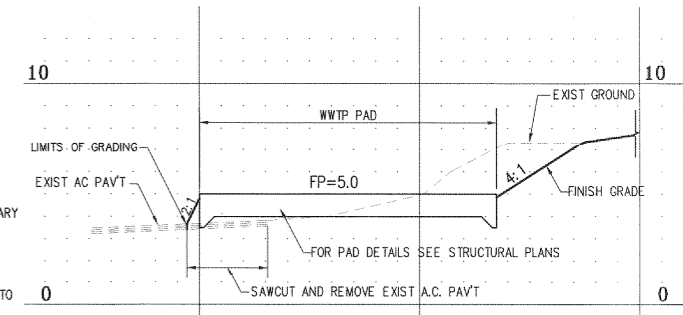


PRIMARY DISTRIBUTION BOX PLAN
 (SEE SITE PLAN AND PROFILES FOR INVERTS TO EACH PRIMARY BOX)

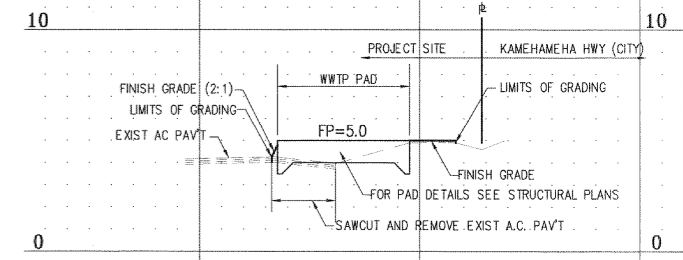
SECONDARY DISTRIBUTION BOX PLAN



DISTRIBUTION BOX DETAILS
 NOT TO SCALE
 (DISTRIBUTION BOX SHALL BE PRE-CAST COMMERCIAL DISTRIBUTION BOX OR ENGINEER APPROVED EQUAL)



TYPICAL SECTION "B-B"
 SCALE: 1"=20'-0"



TYPICAL SECTION "C-C"
 SCALE: 1"=20'-0"

APPROVED:
 For *Melina J. Williams* 2/26/14
 CHIEF, CIVIL ENGINEERING BRANCH, DPP DATE
 (FOR GRADING ONLY)

REVISION NO.	SYM.	DESCRIPTION	SHT./OF	DATE	APPROVED
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MISCELLANEOUS DETAILS - 2					
BILLS ENGINEERING, INC.					
DESIGNED: DB	SUBMITTED: BE1				
DRAWN: RF/SI	DATE:				
CHECKED: DB	SCALE: AS SHOWN				
APPROVED:	DRAWING NO.				
CHIEF ENGINEER	DATE		C008		

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