		DRAWING INDEX
SHT. NO.	DWG. NO.	DESCRIPTION
1	T-1.0	TITLE SHEET AND DRAWING INDEX
2	C-1.0	CIVIL NOTES
3	C-1.1	CIVIL NOTES
4	C-1.2	CIVIL NOTES
5	C-1.3	CIVIL NOTES, ABBREVIATIONS AND BMP DETAILS
6	C-2.0	SEWERLINE "A" PLAN AND PROFILE STA. 0+00 TO STA. 5+30
7	C-3.0	CIVIL DETAILS
8	C-3.1	CIVIL DETAILS
9	C-4.0	TRAFFIC CONTROL PLAN
	PRO	OJECT LOCATION - HAWAI'I ISLAND

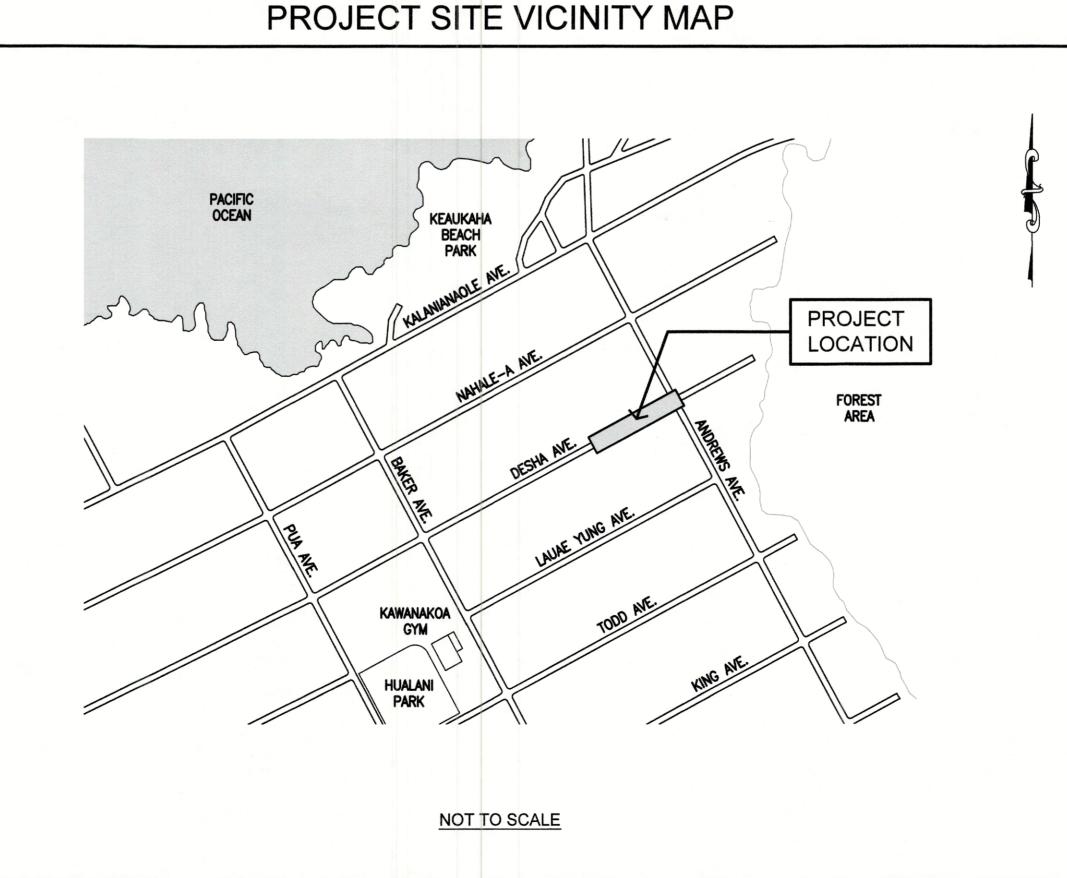
PHASE 1 - KEAUKAHA SEWERLINE

DESHA AVENUE CONNECT TO ANDREWS AVENUE 10" SEWERLINE HILO, HAWAII 96720

> TMK: (3) 2-1-021:006, 007, 008, 009, 010, 011, 029, 030, 031, 032, 033, 072, 108

> > DEPARTMENT OF HAWAIIAN HOME LANDS LAND DEVELOPMENT DIVISION 91-5420 KAPOLEI PARKWAY KAPOLEI, HI 96707

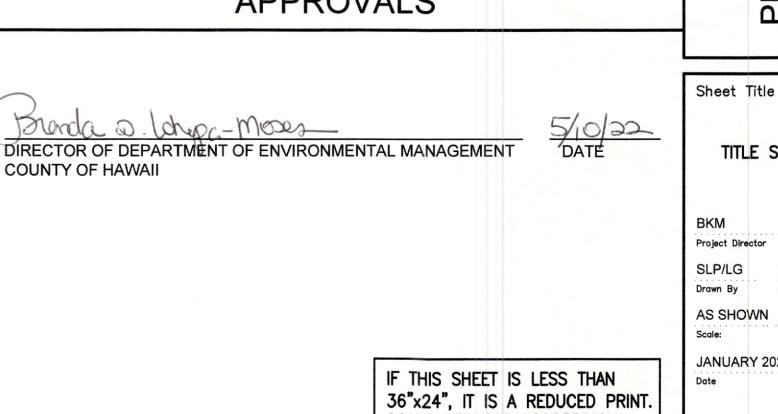
Waimea KOHALA /HAMAKUA NORTH **PROJECT** LOCATION HILO Kailua Holualoa Pahoa ` SOUTH NOT TO SCALE



CONSULTANTS **CIVIL ENGINEER:** OKAHARA AND ASSOCIATES, INC. 200 KOHOLA STREET HILO, HAWAII 96720 LAND SURVEYOR: ISLAND SURVEY 17 MAKA'ALA STREET, SUITE 102 HILO, HAWAII 96720 **APPROVALS**

Brenda D. Lahor-Moses

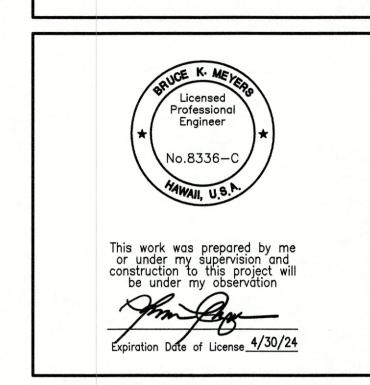
COUNTY OF HAWAII

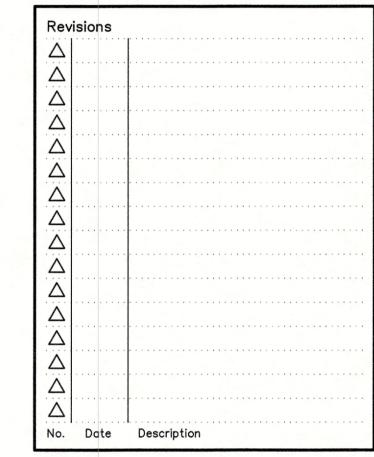




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TITLE SHEET AND DRAWING INDEX

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GENERAL NOTES

- 1. THE SCOPE OF WORK FOR THIS PROJECT INCLUDES SEWER LINE INSTALLATION AND CONNECTIONS.
- 2. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREAS FREE FROM DUST NUISANCES. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL RULES OF THE STATE DEPARTMENT OF HEALTH, HAR 11-60.1, FUGITIVE DUST.
- 3. THE CONTRACTOR SHALL PROVIDE A SMOOTH—RIDING CONNECTION TO EXISTING STREETS AND DRIVEWAYS.
- 4. EXISTING UTILITIES SHALL REMAIN IN SERVICE DURING CONSTRUCTION.
- 5. IN PERFORMING ALL WORK, THE CONTRACTOR SHALL EXERCISE DUE CARE AND CAUTION NECESSARY TO AVOID ANY DAMAGE TO AND IMPAIRMENT IN THE USE OF ANY EXISTING UTILITY LINE. ANY DAMAGE INFLICTED ON EXISTING UTILITY LINES RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE IMMEDIATELY REPAIRED OR RESTORED AT THE CONTRACTOR'S EXPENSE.
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE DWS WATER SYSTEM, HAWAII GAS GAS LINES, HAWAIIAN TELCOM SYSTEM, HELCO SYSTEM, OR OTHER UTILITY LINES (UNDERGROUND OR OVERHEAD).
- 7. THE CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS; AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT.
- 8. THE CONTRACTOR SHALL TONE AND PROBE THE AREA PRIOR TO ALL EXCAVATION AND TRENCHING TO VERIFY THE LOCATION OF ALL EXISTING UTILITIES AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. WHENEVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS, DEPTHS AND ASSURE THAT CONNECTIONS CAN BE MADE PRIOR TO EXCAVATION FOR THE NEW LINES AT NO COST TO THE OWNER. ANY NECESSARY ADJUSTMENTS FOR THE NEW LINES TO ENSURE PROPER CONNECTIONS TO THE EXISTING SHALL BE THE CONTRACTOR'S RESPONSIBILITY.
- 9. THE CONTRACTOR IS ADVISED THAT THE DEPTH TO THE EXISTING WATER LATERALS, GAS LINES, AND OTHER UTILITIES MAY BE SHALLOW. THE CONTRACTOR IS RESPONSIBLE FOR WORKING AROUND THE UTILITIES CAREFULLY AT NO ADDITIONAL COST TO THE OWNER. THESE UTILITIES SHALL REMAIN IN PLACE AND SHALL BE KEPT OPERATIONAL AT ALL TIMES.
- 10. ANY PAVEMENT, PAVEMENT MARKINGS, STRUCTURES, SIGNS AND OTHER APPURTENANCES DAMAGED BY THE CONTRACTOR AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL, OR BETTER CONDITION.
- 11. THE CONTRACTOR SHALL 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 OWNER FOR CLARIFICATION.
- 12. THE CONTRACTOR SHALL NOTIFY ALL AGENCIES TO VERIFY THE ACTUAL LOCATION OF ALL UTILITIES IN THE PROJECT AREA PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE ALL WORK WITH AGENCIES AND UTILITY COMPANIES. ALL UTILITY WORK WITH UNDERGROUND INSTALLATIONS MUST BE COMPLETED PRIOR TO PAVING WORK BEING DONE ABOVE THEM.
- 13. WORK INCIDENTAL TO THE CONTRACT AND NECESSARY TO COMPLETE THE PROJECT, ALTHOUGH NOT SPECIFICALLY REFERRED TO ON THE CONTRACT DOCUMENT, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR AT HIS OWN COST.
- 14. THE CONTRACTOR IS TO COMPLY WITH THE DIRECTIONS OF THE STATE OF HAWAII OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN, FROM THE APPROPRIATE COUNTY AND STATE AGENCIES, ALL PERMITS REQUIRED TO COMPLETE THE WORK SHOWN ON THESE PLANS INCLUDING, BUT NOT LIMITED TO, AUTHORIZATION TO WORK WITHIN COUNTY RIGHT—OF—WAY AND CONNECT TO COUNTY SEWER, AND PLUMBING PERMIT.

NOTES FOR WORK WITHIN THE COUNTY RIGHT-OF-WAY

- 1. ALL CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH STANDARD DETAILS AND STANDARD SPECIFICATIONS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAII AND THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, 2005 EDITION, UNLESS OTHERWISE SPECIFIED ON THE PLANS OR SPECIFICATIONS.
- 2. ALL CONSTRUCTION LINES, GRADES AND SURVEY MONUMENT STAKEOUTS SHALL BE MADE BY LICENSED SURVEYORS.
- 3. A LICENSED SURVEYOR SHALL SUBMIT A LETTER TO THE DEPARTMENT OF PUBLIC WORKS CERTIFYING THAT THE MONUMENT STAKEOUT AND INSTALLATION IS CORRECT.
- 4. THE CONTRACTOR SHALL CONDUCT ALL TESTS AS REQUIRED BY THE DPW AND/OR ENGINEER AND THE CONTRACT DOCUMENTS AND BE RESPONSIBLE FOR ALL EXPENSES INCURRED IN CONDUCTING THESE TESTS.

- 5. THE CONTRACTOR SHALL PROVIDE AT LEAST ONE (1) LANE FOR TRAFFIC MOVEMENT AT ALL TIMES. TWO (2) LANES FOR TRAFFIC MOVEMENT SHALL BE PROVIDED BETWEEN THE HOURS OF 3:00 P.M. AND 8:30 A.M. ALL INTERSECTIONS MUST REMAIN OPEN TO TRAFFIC AT ALL TIMES.
- 6. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, AND SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF SAME IN THE EVENT OF DAMAGES DUE TO HIS CONSTRUCTION PRACTICES. THE CONTRACTOR SHALL COORDINATE AND SCHEDULE HIS WORK WITH THE RESPECTIVE UTILITY COMPANIES AT NO ADDITIONAL COST. THE CONTRACTOR SHALL BE RESPONSIBLE IF NECESSARY IN RESCHEDULING HIS WORK AND ADJUSTING LABOR AND EQUIPMENTS TO ACCOMMODATE THE UTILITY WORK AT NO COST TO THE COUNTY.
- 7. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH THE CURRENT EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," & AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- 8. ALL DIMENSIONS AND DETAILS SHOWN ON THE CONSTRUCTION DRAWINGS AND/OR SPECIFICATIONS SHALL BE CHECKED AND VERIFIED PRIOR TO THE START OF CONSTRUCTION, AND ANY DISCREPANCIES SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE ENGINEER FOR CLARIFICATION.
- 9. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS 48 HOURS BEFORE THE COMMENCEMENT OF ANY UTILITY LINE WORK TO SCHEDULE A FIELD REVIEW AND SECURE APPROVAL OF THE PROPOSED UTILITY LINE LOCATION WITHIN THE COUNTY RIGHT-OF-WAY.
- 10. THE PROPOSED UTILITY LINE LOCATION SHALL BE LAID OUT IN THE FIELD PRIOR TO THE CONDUCTING OF THE FIELD REVIEW BY THE DEPARTMENT OF PUBLIC WORKS.
- 11. FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE COMMENCEMENT OF ANY UTILITY LINE WORK.
- 12. THE REQUIRED PERMIT, UNDER CHAPTER 22, ARTICLE 4, SECTION DIVISION I OF THE HAWAII COUNTY CODE, SHALL BE OBTAINED FROM THE DEPARTMENT OF PUBLIC WORKS BY THE CONTRACTOR FOR WORK WITHIN THE COUNTY RIGHT—OF—WAY.
- 13. THE EXISTING PAVEMENT SHALL BE SAW-CUT BEFORE COMMENCEMENT OF TRENCHING WORK. THIS IS INCIDENTAL TO THE TRENCHING.
- 14. ANY PAVEMENT OUTSIDE THE CONTRACT ZONE LIMITS DAMAGED AS A RESULT OF CONSTRUCTION OPERATIONS SHALL BE RESTORED TO ITS ORIGINAL CONDITION, OR BETTER, AS DIRECTED BY THE DPW.
- 15. THE EXISTING IMPROVEMENTS ON THE PROJECT LIMITS AND IN ADJACENT AREAS THAT ARE NOT TO BE REMOVED SHALL BE PRESERVED AND PROTECTED. ANY AND ALL DAMAGES RESULTING FROM THE CONTRACTOR'S CONSTRUCTION OPERATIONS SHALL BE REPLACED AND REPAIRED TO THE ORIGINAL OR BETTER CONDITION, TO THE SATISFACTION OF THE OWNER AND PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL OBTAIN A WRITTEN APPROVAL FROM EACH AFFECTED PROPERTY OWNER TO BE SUBMITTED TO THE ENGINEER.
- 16. A TEMPORARY COLD MIX PATCH SHALL BE APPLIED IMMEDIATELY UPON COMPLETION OF THE BACKFILLING OPERATION OR UPON PLATING OF TRENCH AND SHALL BE MAINTAINED BY THE CONTRACTOR UNTIL A PERMANENT PATCH IS AUTHORIZED BY THE DEPARTMENT OF PUBLIC WORKS.
- 17. NO MATERIAL, EXCEPT THE TRENCH EXCAVATED MATERIAL, SHALL BE STOCKPILED CLOSER THAN SIX (6) FEET FROM THE EXISTING EDGE OF PAVEMENT.
- 18. NO CONSTRUCTION EQUIPMENT SHALL BE PARKED WITHIN THE ROAD RIGHT—OF—WAY IN SUCH A MANNER THAT THE EQUIPMENT WILL OBSTRUCT THE NORMAL MOVEMENT AND SIGHT DISTANCE OF THE DRIVING MOTORIST, EXCEPT DURING ACTUAL WORKING HOURS.
- 19. DURING NON-WORKING HOURS, ALL SIGNS THAT DO NOT PERTAIN TO THE CONSTRUCTION ACTIVITY, SUCH AS "MEN WORKING" AND "FLAGMAN AHEAD" SHALL BE COVERED OR LAID DOWN. HOWEVER, ALL SIGNS NECESSARY FOR THE SAFETY OF THE PUBLIC SHALL BE MAINTAINED.
- 20. ANY PAVEMENT MARKINGS, STRUCTURES, AND APPURTENANCES (WITHIN OR OUTSIDE OF THE CONTRACT ZONE LIMITS) DAMAGED AND/OR WORN AWAY UNDER THE PERMIT BY THE UTILITY LINE INSTALLATION SHALL BE REPAINTED OR RECONSTRUCTED AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS.
- 21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AS WELL AS CHAPTER 14 OF THE REVISED ORDINANCES OF HONOLULU, AS AMENDED. BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING CONSTRUCTION.
- 22. NO TRENCHING SHALL BE LEFT OPEN FOR MORE THAN FIVE (5) WORKING DAYS.
- 23. SHOULD TRENCHING OCCUR THROUGH AN EXISTING SIDEWALK OR SHOULD DAMAGES OCCUR TO THE SIDEWALK AS A RESULT OF TRENCHING, THE FOLLOWING PROCEDURE SHALL BE UTILIZED TO REPAIR THE SIDEWALK:
 - A. ALL PORTLAND CEMENT CONCRETE TO BE REMOVED SHALL BE FIRST CUT WITH A CONCRETE SAW THAT HAS A DIAMOND OR CARBORUNDUM ABRASIVE WHEEL. THOSE CUTS SHALL BE MADE TO A DEPTH EQUAL TO AT LEAST ONE—FOURTH OF THE DEPTH OF THE SLAB, OR ENOUGH AS IS DEEMED NECESSARY BY THE DEPARTMENT OF PUBLIC WORKS, TO PERMIT BREAKING OUT THE BALANCE OF THE CONCRETE WITHOUT SPALLING OFF THE EXPOSED EDGES OF THE SLAB LEFT IN PLACE.

- B. IF ANY CONCRETE BLOCK IS TOUCHED, THE WHOLE BLOCK SHALL BE REMOVED AND LATER REPLACED, UNLESS A MINOR VARIATION IS AUTHORIZED BY THE DPW OR ITS REPRESENTATIVE.
- C. ANY DAMAGE TO ADJACENT AREAS DUE TO SETTLEMENT OR TO ANY OTHER EFFECTS WHATSOEVER CAUSED BY THE TRENCH CONSTRUCTION SHALL BE PROPERLY REPAIRED AND CORRECTED.
- D. ALL OTHER INCIDENTAL WORK SHALL BE SATISFACTORILY PERFORMED TO EFFECT THE PROPER RESTORATION OF THE SIDEWALK AREA.
- E. SHOULD DAMAGE TO A SIDEWALK, CURB AND/OR GUTTER OCCUR AT A LOCATION WHERE A CURB RAMP SHOULD EXIST, OR TO A DRIVEWAY THAT DOES NOT MEET WITH THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT (ADA), REPAIR WORK SHALL INCLUDE THE CONSTRUCTION OF A CURB RAMP, OR RECONSTRUCTION TO THE DRIVEWAY SUCH THAT REPAIR WORK COMPLIES WITH THE ADA AND MEETS WITH THE APPROVAL OF THE DPW.
- 24. THE PERMITTEE SHALL MAINTAIN, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS, THE AREA WORKED WITHIN THE GOVERNMENT RIGHT—OF—WAY INCLUDING ANY REPAIRS TO PAVEMENT AND SHOULDER DAMAGED AS A RESULT OF THE INSTALLATION WORK, FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF FINAL INSPECTION. THE PERMITTEE SHALL UNDERTAKE REPAIRS EXPEDITIOUSLY, WHENEVER DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS DURING THE MAINTENANCE PERIOD.
- 25. WHEN WORK INTERFERES WITH A SIDEWALK OR PEDESTRIAN WALKWAY THE CONTRACTOR SHALL PROVIDE FOR THE SAFE PASSAGE OF PEDESTRIANS INCLUDING THE DISABLED AROUND OR THROUGH THE WORK AREA.
- 26. PURSUANT TO CHAPTER 6E, HRS, IN THE EVENT ANY ARTIFACTS OR HUMAN REMAINS ARE UNCOVERED DURING CONSTRUCTION OPERATIONS, THE CONTRACTOR SHALL IMMEDIATELY SUSPEND WORK IN THE AREA AND NOTIFY THE ENGINEER, THE COUNTY OF HAWAII POLICE DEPARTMENT, THE STATE DEPARTMENT OF LAND AND NATURAL RESOURCES HISTORIC PRESERVATION DIVISION (692–8015) AND THE DEPARTMENT OF PUBLIC WORKS (808–961–8321).
- 27. NO CONTRACTOR SHALL PERFORM ANY CONSTRUCTION OPERATION AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW INTO EXISTING DRAINAGE SYSTEMS, OR ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY AT HIS OWN COST.
- 28. THE CONTRACTOR SHALL SUBMIT A NOISE POLLUTION CONTROL PLAN WHEN APPLYING FOR A CONSTRUCTION PERMIT.
- 29. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRIERS, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES, AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE, AND SAFETY OF THE TRAVELING PUBLIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON, OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS," ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAYS ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREETS AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND INCIDENT MANAGEMENT OPERATIONS."

IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.

- 30. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN THE HIGHWAY RIGHT-OF-WAY, EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE ENGINEER.
- 31. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON—SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC. SMOOTH RIDING TAPERS SHALL BE PROVIDED FOR PAVEMENT TRANSITIONS AND ADVANCE WARNING SIGNS SHALL BE POSTED. PRIOR TO INSTALLING SUCH BRIDGING MATERIAL, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR ACCEPTANCE, DRAWINGS STAMPED BY A LICENSED STRUCTURAL ENGINEER.
- 32. ALL REGULATORY, GUIDE, AND CONSTRUCTION SIGNS AND BARRICADES SHALL BE OF HIGH—INTENSITY REFLECTIVE SHEETING.
- 33. UNPROTECTED PAVEMENT DROP OFFS GREATER THAN 2" WITHIN 8 FEET OF THE TRAVEL WAY SHALL NOT BE ALLOWED DURING NON-WORKING HOURS, EXCEPT WHERE APPROVED BY THE ENGINEER IN WRITING.
- 34. NO OPEN TRENCHES SHALL BE PERMITTED WITHIN THE CLEAR ZONE, DEFINED BY THE CURRENT EDITION OF THE "AASHTO ROADSIDE DESIGN GUIDE," EXCEPT WHERE SPECIFIED IN THE APPROVED TRAFFIC CONTROL PLAN. OR AS APPROVED BY THE ENGINEER IN WRITING.
- 35. FREE FLOW OF TRAFFIC SHALL BE MAINTAINED IN BOTH DIRECTIONS AT ALL TIMES. TEMPORARY STOPPAGES REQUIRE ADVANCE APPROVAL IN WRITING FROM THE ENGINEER AND A "NOTICE TO MOTORISTS" MAY BE REQUIRED. SUBMIT THE NOTICE TO THE ENGINEER FOR REVIEW AND ACCEPTANCE A MINIMUM OF 6 WEEKS PRIOR TO PUBLICATION.
- 36. CLEAR SHOULDER AREAS SHALL BE MAINTAINED FOR BICYCLISTS AND PEDESTRIAN TRAFFIC AT ALL TIMES. IF ON SHOULDER IS TO BE CLOSED, APPROPRIATE SIGNS SHALL BE POSTED DIRECTING BICYCLISTS AND PEDESTRIANS TO USE ALTERNATE SHOULDER AREAS.

37. NO WORK WITHIN THE COUNTY RIGHT-OF-WAY SHALL BE DONE ON SATURDAYS, SUNDAYS, AND HOLIDAYS ANYTIME WITHOUT PRIOR APPROVAL FROM THE DEPARTMENT OF PUBLIC WORKS. RIGHT-OF-WAY WORK ON NORMAL WORKING DAYS SHALL BE LIMITED BETWEEN THE HOURS OF 7:00 AM TO 3:30 PM.

STANDARD TRAFFIC NOTES (2019)

- ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST AMENDED EDITIONS OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES", APPLICABLE SECTIONS OF PART 5 OF THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", DATED SEPTEMBER, 1984, AND THE "2005 HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", UNLESS OTHERWISE INDICATED ON THE PLANS, SPECIFICATIONS, OR STANDARD TRAFFIC NOTES.
- 2. THE CONTRACTOR SHALL INSTALL PERMANENT OR TEMPORARY PAVEMENT MARKERS, STRIPING AND MARKINGS AS REQUIRED BY SECTION(S) 629 AND 755.05 OF THE "2005 HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", AND AS AMENDED. TO ENSURE PROPER LANE WIDTHS AND THE SAFE FLOW OF TRAFFIC, TEMPORARY STRIPING SHALL BE INSTALLED AS CLOSELY AS POSSIBLE TO THE FINAL STRIPING PLAN, BUT NOT IN A MANNER THAT WOULD OBSTRUCT PERMANENT STRIPING LAYOUT OPERATIONS.

THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC SIGNS AND MARKINGS FOR ALL PROJECT—RELATED TEMPORARY TRAFFIC CONTROL PLANS. THE CONTRACTOR SHALL COORDINATE AND HIRE SPECIAL DUTY POLICE OFFICER(S) AS NEEDED TO PROVIDE TRAFFIC CONTROL WHILE WORKING WITHIN THE COUNTY RIGHT OF WAY.

- 3. THE CONTRACTOR SHALL INFORM THE TRAFFIC DIVISION AT LEAST SIX (6) WORKING DAYS PRIOR TO ANY WORK ON PAVEMENT MARKINGS OPERATIONS AND/OR SIGN INSTALLATIONS TO SCHEDULE A REVIEW AND APPROVAL OF THE STRIPING AND/OR SIGNING PLANS.
- 4. THE APPROVED STRIPING PLAN SHALL BE LAID OUT USING MARKING PAINT OR OTHER APPROVED METHODS. FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE INSPECTOR BEFORE THE FINAL MARKINGS ARE APPLIED.
- 5. ALL PAVEMENT MARKINGS THAT BECOME INAPPLICABLE SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE. REMOVAL SHALL BE BY ERADICATION OR BY OTHER METHODS APPROVED BY THE INSPECTOR BEFORE THE NEW PAVEMENT MARKINGS ARE APPLIED. EXCESSIVE GOUGING OF THE PAVEMENT SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
- 6. ALL PAVEMENT STRIPING SHALL BE WITH ALKYD BASED REFLECTIVE THERMOPLASTIC COMPOUND PAVEMENT MARKING AS SPECIFIED IN SECTION(S) 629 AND 755.05 OF THE HAWAI'I STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005 EDITION, AND AS AMENDED, ON ALL ROADWAYS. THE CONTRACTOR SHALL SUBMIT CERTIFICATE OF COMPLIANCE CERTIFYING THAT THE THERMOPLASTIC MATERIALS TO BE USED MEET THE CURRENT AASHTO M-247 (FOR GLASS BEADS) AND AASHTO M-249 (FOR STRIPING) SPECIFICATIONS.

FOR CROSSWALKS AND STOP LINES, THE CONTRACTOR SHALL APPLY HIGH SKID-RESISTANT WHITE CORUNDUM OR APPROVED EQUAL.

- 7. ON CONCRETE PAVEMENTS, PRE—STRIPE APPLICATION AREA WITH BINDER MATERIAL, PRIMER, OR PRIME SEAL COAT RECOMMENDED BY PAVEMENT MARKER MANUFACTURER.
- 8. HEAT APPLIED PRE—FORMED THERMOPLASTIC PAVEMENT MARKING TAPE WITH VISIBLE TEMPERATURE INDICATORS, OR AN EQUAL PAVEMENT MARKING TAPE THAT IS APPROVED BY THE TRAFFIC DIVISION SHALL BE USED FOR ALL BIKE LANE SYMBOLS AND LEGENDS PER TRAFFIC STANDARD DETAIL TR—111, AND MAY BE USED FOR CROSSWALKS, STOP LINES, PAVEMENT ARROWS, ALPHABETS, AND SYMBOLS IN LIEU OF THERMOPLASTIC COMPOUND.

HEAT APPLIED PRE-FORMED THERMOPLASTIC PAVEMENT MARKING TAPE FOR BIKE LANE SYMBOLS AND LEGENDS PER TRAFFIC STANDARD DETAIL TR-111, CROSSWALKS AND STOP LINES SHALL BE MADE OF A DURABLE, HIGH SKID-RESISTANT MATERIAL.

9. REFLECTORIZED RAISED PAVEMENT MARKERS (RPM'S) SHALL BE THE REGULAR SIZED MARKERS WITH APPROXIMATE DIMENSIONS OF 4"X4"X0.7". THE CONTRACTOR SHALL SUBMIT CERTIFICATE OF COMPLIANCE CERTIFYING THAT THE RPM'S TO BE USED MEET OR EXCEED THE CURRENT STATE OF HAWAI'I. DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.

Okahara and Associates, Inc.

ENGINEERS AND LANDSCAPE ARCHITECTS

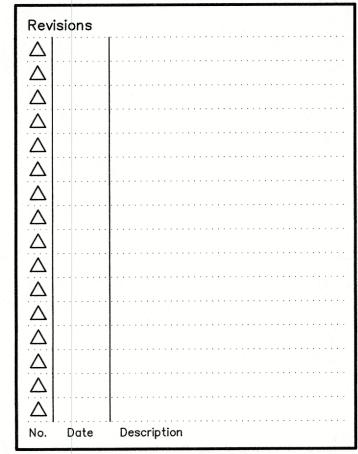
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Project

CIVIL NOTES

BKM 220-063

Project Director Project No.

SLP/LG BKM

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JANUARY 2022

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STANDARD TRAFFIC NOTES (2019) (CONT.)

10. ALL TRAFFIC SIGNS AND POSTS SHALL MEET THE REQUIREMENTS OF THE COUNTY OF HAWAI'I STANDARD DETAIL T-1 EXCEPT THAT FLANGED CHANNEL POSTS AND OCTAGONAL POSTS WILL NOT BE ACCEPTABLE. SIGNS SHALL BE ON ALUMINUM SHEETING OF 0.080-INCH MINIMUM THICKNESS. SIGN POSTS SHALL BE 2" SQUARE TELESPAR TUBING NO. 20 F 12 OR EQUIVALENT WITH 2 1/4" SQUARE TELESPAR ANCHOR POST.

FOR ALL COUNTY DEDICATED STREETS, THE CONTRACTOR SHALL PLACE A TRAFFIC DIVISION MAINTENANCE STICKER ON THE BACK OF EACH SINGLE—SIDED SIGN. STICKERS ARE TO BE ACQUIRED AT THE TRAFFIC DIVISION.

- 11. ALL TRAFFIC SIGNS SHALL BE HIGH INTENSITY RETROREFLECTIVE SHEETING, WITH TYPE IV FOR REGULATORY, WARNING, AND DIRECTIONAL SIGNS AND TYPE IX (FLUORESCENT YELLOW GREEN SHEETING) FOR PEDESTRIAN, SCHOOL, AND BICYCLE CROSSING SIGNS.
- 12. THE 2 1/4" SQUARE ANCHOR POST FOR SIGNS SHALL BE DRIVEN INTO THE GROUND, A.C. PAVEMENT OR CONCRETE SIDEWALK IN ACCORDANCE WITH THE PLANS. ALL DAMAGES TO THE SURROUNDING AREA SHALL BE REPAIRED TO ITS ORIGINAL CONDITION OR BETTER. BEFORE DRIVING INTO CONCRETE, A NEAT HOLE OF APPROXIMATELY 3 INCH DIAMETER SHALL BE DRILLED THROUGH THE CONCRETE PRIOR TO THE INSTALLATION OF THE ANCHOR POST. IF DRIVING INTO THE CONCRETE OR A.C. PAVEMENT IS NOT POSSIBLE WITHOUT DAMAGE TO THE SURROUNDING CONCRETE OR A.C. PAVEMENT, A 12" BY 12" SQUARE SHALL BE SAW—CUT AND REMOVED PRIOR TO THE INSTALLATION OF THE ANCHOR POST AND THEN PATCHED, WITH HOT MIX TO MATCH THE EXISTING A.C. PAVEMENT, OR CONCRETE TO MATCH THE EXISTING CONCRETE SIDEWALK.
- 13. UPON COMPLETION OF ALL CONSTRUCTION WORK, INCLUDING, BUT NOT LIMITED TO THE FINAL PAVING OF THE ENTIRE PROJECT AREA AND OFF—SITE CONSTRUCTION, THE CONTRACTOR SHALL RESTRIPE ALL PAVEMENT MARKINGS WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA AS APPROVED BY THE TRAFFIC DIVISION AND IN ACCORDANCE WITH ITEM 6 OF THE CURRENT STANDARD TRAFFIC NOTES. THE CONTRACTOR SHALL MAINTAIN ALL TEMPORARY PAVEMENT MARKINGS, PERMANENT PAVEMENT MARKINGS, AND ALL TRAFFIC SIGNS AND POSTS UNTIL THE PROJECT IS ACCEPTED BY THE COUNTY OF HAWAI'I.

ALL TRAFFIC SIGNS AND POSTS WITHIN AND IN THE VICINITY OF THE CONSTRUCTION AREA THAT HAVE BEEN DAMAGED, REMOVED, OR ADVERSELY AFFECTED BY THE CONSTRUCTION WORK SHALL BE REPLACED BY THE CONTRACTOR ACCORDING TO ITEM(S) 10, 11, AND 12 OF THE CURRENT STANDARD TRAFFIC NOTES AT NO COST TO THE COUNTY.

14. ALL DEDICATED STREETS MUST HAVE STREET NAMES WHICH HAVE BEEN APPROVED BY RESOLUTION BEFORE ACCEPTANCE OF THE STREET BY THE COUNTY OF HAWAI'I.

UNLESS OTHERWISE APPROVED BY THE TRAFFIC DIVISION, ALL STREET NAME SIGNS SHALL HAVE AN UPPERCASE FIRST LETTER/LOWER CASE FORMAT AND THE PROPER HAWAIIAN SPELLING FOR THE STREET NAMES AS APPROVED BY THE COUNTY OF HAWAI'I PLANNING DEPARTMENT.

PRIOR TO STREET NAME SIGN FABRICATION, STREET NAME SIGN SUBMITTALS SHALL BE REVIEWED AND APPROVED BY THE TRAFFIC DIVISION.

- 15. INSTALL "PRIVATE ROAD" SIGN(S) ON ALL PRIVATE ROAD(S). SIGN SHALL BE ON 18" WIDE BY 12" HIGH ALUMINUM PLATE WITH 4" BLACK LETTERING ON WHITE REFLECTORIZED SHEETING WITH BORDER.
- 16. ALL SIGNS & MARKINGS FOR PRIVATE ROADWAYS SHALL BE MAINTAINED BY THE PRIVATE OWNERS.

SPECIAL NOTES

- 1. TEMPORARY BARRIERS FOR TRAFFIC CONTROL MUST CONFORM WITH NCHRP 350 STANDARDS.
- 2. THE CONTRACTOR SHALL COORDINATE WITH THE HAWAII COUNTY FIRE AND POLICE DEPARTMENTS/CIVIL DEFENSE AGENCY, AREA RESIDENCES AND BUSINESSES. ACCESS TO PROPERTIES SHALL BE MAINTAINED UNLESS AN ALTERNATE ROUTE IS AVAILABLE OR PERMISSION IN WRITING IS OBTAINED FROM THE PROPERTY OWNER.
- 3. THE CONTRACTOR SHALL PROVIDE PUBLIC NOTICES OF CONSTRUCTION ACTIVITIES AS REQUIRED AND SHALL BE RESPONSIBLE FOR OBTAINING THE NECESSARY CONSTRUCTION PERMITS AND CONSTRUCTION RIGHT OF ENTRIES.
- 4. THE CONTRACTOR SHALL INFORM AND COORDINATE PROJECT CONSTRUCTION ACTIVITIES WITH THE HAWAII COUNTY FIRE AND POLICE DEPARTMENTS AND THE HAWAII COUNTY CIVIL DEFENSE AGENCY.
- 5. IN THE EVENT OF A MAJOR HAZARDOUS MATERIAL SPILL OCCURRING WITHIN THE PROJECT LIMITS DURING CONSTRUCTION ACTIVITIES, THE CONTRACTOR'S CLEANUP EFFORTS WILL BE COORDINATED THROUGH THE HAWAII COUNTY CIVIL DEFENSE AGENCY AND THE STATE OF HAWAII DEPARTMENT OF HEALTH.
- 6. CONTRACTOR SHALL MOVE AND ADJUST MAILBOXES ACCORDING TO FEDERAL STANDARDS AND COORDINATE WITH THE UNITED STATES POSTAL SERVICE AND THE PROPERTY OWNERS. RELOCATION OF NEWSPAPER BOXES AND TEMPORARY RELOCATION OF MAIL/NEWSPAPER BOXES SHALL BE INCIDENTAL.

- 7. THE USE OF CONSTRUCTION OR UNSHIELDED EQUIPMENT MAINTENANCE LIGHTING WILL NOT BE PERMITTED AFTER DARK.
- 8. WHEN STRIPING OVER EXISTING STRIPING, WITH THERMOPLASTIC, EXISTING STRIPING SHALL BE ERADICATED AS REQUIRED. THIS ERADICATION SHALL BE INCIDENTAL TO THE NEW STRIPING.
- 9. THE SITE SPECIFIC BMP AND MONITORING PLAN SHALL BE CONSIDERED A PART OF THE CONTRACT AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- 10. THE CONTRACTOR SHALL ENSURE CONTROL OF PETROLEUM PRODUCTS FROM SPILLAGE.
- 11. CONTRACTOR SHALL PROVIDE TOPSOIL & GRASS ON ALL CUT/FILL SLOPES WITHIN DAYLIGHT LINES AS SHOWN ON PLAN SHEETS. THIS WORK WILL BE INCIDENTAL TO THE VARIOUS ITEMS OF THE WORK IF THERE IS NO DESIGNATED ITEMS IN THE PROPOSAL.
- 12. WORK INCIDENTAL TO THE CONTRACT AND NECESSARY TO COMPLETE THE PROJECT, ALTHOUGH NOT SPECIFICALLY REFERRED TO ON THE CONTRACT DOCUMENTS, SHALL BE FURNISHED AND PERFORMED BY THE CONTRACTOR.
- 13. TEMPORARY RELOCATION AND RESTORATION OF MAIL/NEWSPAPER BOXES, UTILITY BOXES/LINES IF PERMITTED SHALL BE INCIDENTAL, OTHERWISE CONTRACTOR SHALL WORK AROUND THEM.
- 14. CONTRACTOR SHALL WORK AROUND TREES/SHRUBS/PLANTS AND OTHER EXISTING FEATURES TO REMAIN OR NOT DESIGNATED TO BE REMOVED.
- 15. THE 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, CHAPTER 11–54, "WATER QUALITY STANDARDS," CHAPTER 11–55, "WATER POLLUTION CONTROL," AND CHAPTER 10 OF THE "HAWAII COUNTY CODE, EROSION AND SEDIMENTATION CONTROL".
- 16. ALL EXISTING PRIVATE PROPERTY WALLS/FENCES SHALL REMAIN UNLESS OTHERWISE NOTED.
- 17. EXISTING PROPERTY PINS TO REMAIN. CONTRACTOR SHALL RESTORE AT OWN COST IF REMOVED/DAMAGED (TYPICAL).
- 18. CONTRACTOR SHALL VERIFY AND SHALL BE RESPONSIBLE FOR EXISTING PAVEMENT STRUCTURE CONDITION.
- 19. ALL EXCAVATED AREAS THAT CANNOT BE SAFELY PLATED AT THE END OF EACH WORK DAY TO PROVIDE ADEQUATE, SAFE, NON—SKID BRIDGING MATERIAL SHALL BE PROTECTED WITH CONNECTED CHAINLINK PANEL ENCLOSURES AND CONTINUOUS ORANGE FENCING MATERIAL. FENCING MATERIALS SHALL BE SELECTED AND PLACED SUCH THAT PROPER SIGHT DISTANCE IS MAINTAINED.
- 20. ALL DISTURBED UNPAVED SURFACES SHALL BE BACKFILLED AND GRADED TO MATCH THE SURROUNDING AREAS, OVERLAIN WITH 4" MINIMUM TOPSOIL, AND GRASSED AT NO COST TO THE OWNER. SODDED AREAS SHALL BE REPLANTED WITH THE SAME TYPE OF GRASS AT NO COST TO THE OWNER. FENCES AND OTHER IMPROVEMENTS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION.

WATER POLLUTION & EROSION CONTROL NOTES

- A. WASTE DISPOSAL:
- WASTE MATERIALS COLLECT AND STORE ALL WASTE MATERIALS IN A SECURELY LIDDED METAL DUMPSTER OR ROLL OFF CONTAINER WITH COVER TO KEEP RAIN OUT OR LOSS OF WASTE DURING WINDY CONDITIONS. THE DUMPSTER SHALL MEET ALL LOCAL AND STATE SOLID WASTE MANAGEMENT REGULATIONS, DEPOSIT ALL TRASH AND CONSTRUCTION DEBRIS FROM THE SITE IN THE DUMPSTER. EMPTY THE DUMPSTER WEEKLY OR WHEN THE CONTAINER IS TWO-THIRDS FULL, WHICHEVER IS SOONER. DO NOT BURY CONSTRUCTION WASTE MATERIALS ONSITE. THE CONTRACTOR'S SUPERVISORY PERSONNEL SHALL BE INSTRUCTED REGARDING THE CORRECT PROCEDURE FOR WASTE DISPOSAL. POST NOTICES STATING THESE PRACTICES IN THE OFFICE TRAILER, ON A WEATHERPROOF BULLETIN BOARD, OR OTHER ACCESSIBLE LOCATION ACCEPTABLE TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SEEING THAT THESE PROCEDURES ARE FOLLOWED. SUBMIT THE SOLID WASTE DISCLOSURE FORM FOR CONSTRUCTION SITES TO THE ENGINEER WITHIN 30 CALENDAR DAYS OF CONTRACT EXECUTION. PROVIDE A COPY OF ALL THE DISPOSAL RECEIPTS FROM THE FACILITY PERMITTED BY THE DEPARTMENT OF HEALTH TO RECEIVE SOLID WASTE TO THE ENGINEER MONTHLY. THIS SHOULD ALSO INCLUDE DOCUMENTATION FROM ANY INTERMEDIARY FACILITY WHERE SOLID WASTE IS HANDLED OR PROCESSED.
 - A. HAZARDOUS WASTE
 DISPOSE ALL HAZARDOUS WASTE MATERIALS IN THE MANNER SPECIFIED
 BY LOCAL OR STATE REGULATIONS AND BY THE MANUFACTURER. THE
 CONTRACTOR'S SITE PERSONNEL SHALL BE INSTRUCTED IN THESE
 PRACTICES AND SHALL BE RESPONSIBLE FOR SEEING THAT THESE
 PRACTICES ARE FOLLOWED.
 - B. SANITARY WASTE
 COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS A
 MINIMUM OF ONCE PER WEEK, OR AS REQUIRED. POSITION SANITARY
 FACILITIES WHERE THEY ARE SECURE AND WILL NOT BE TIPPED
 OVER OR KNOCKED DOWN.

- B. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:
- MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES IN GOOD WORKING ORDER. IF REPAIR IS NECESSARY, INITIATE REPAIR IMMEDIATELY AND COMPLETE BY THE CLOSE OF THE NEXT WORK DAY IF THE PROBLEM DOES NOT REQUIRE SIGNIFICANT REPAIR OR REPLACEMENT, OR IF THE PROBLEM CAN BE CORRECTED THROUGH ROUTINE MAINTENANCE. WHEN INSTALLATION OF A NEW EROSION OR SEDIMENT CONTROL OR A SIGNIFICANT REPAIR IS NEEDED, INSTALL THE NEW OR MODIFIED CONTROL OR COMPLETE THE REPAIR NO LATER THAN SEVEN (7) CALENDAR DAYS FROM THE TIME OF DISCOVERY. "IMMEDIATELY" MEANS THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO MINIMIZE OR PREVENT DISCHARGE OF POLLUTANTS UNTIL A PERMANENT SOLUTION IS INSTALLED AND MADE OPERATIONAL. IF A PROBLEM IS IDENTIFIED AT A TIME IN THE DAY IN WHICH IT IS TOO LATE TO INITIATE REPAIR, INITIATION OF REPAIR SHALL BEGIN ON THE FOLLOWING WORK DAY.
- 2. REMOVE BUILT-UP SEDIMENT FROM SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE. REMOVE SEDIMENT FROM OTHER PERIMETER SEDIMENT CONTROL DEVICES WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE DEVICE.
- 3. INSPECT SILT SCREEN OR FENCE FOR DEPTH OF SEDIMENT, TEARS, TO VERIFY THAT THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS OR CONCRETE SLAB AND TO VERIFY THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND. INSPECT AND VERIFY THE BOTTOM OF THE SILT SCREEN IS BURIED A MINIMUM OF 6 INCHES BELOW THE EXISTING GROUND.
- 4. INSPECT TEMPORARY AND PERMANENT SEEDING AND PLANTING FOR BARE SPOTS, WASHOUTS AND HEALTHY GROWTH.
- C. GOOD HOUSEKEEPING BEST MANAGEMENT PRACTICES:
- 1. MATERIALS POLLUTION PREVENTION PLAN
 - A. APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY.

TAR
FERTILIZERS
PETROLEUM BASED PRODUCTS

- B. USE MATERIAL MANAGEMENT PRACTICES TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. MAKE AN EFFORT TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
- C. STORE ALL MATERIALS STORED ONSITE IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE UNDER A ROOF OR OTHER ENCLOSURE.
- D. KEEP PRODUCTS IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- E. DO NOT MIX SUBSTANCES WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- F. WHENEVER POSSIBLE, USE A PRODUCT UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
- G. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL.
- H. CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

WASTEWATER COLLECTION SYSTEM NOTES (2017)

GENERAL REQUIREMENTS:

- THE GENERAL REQUIREMENTS AND COVENANTS OF THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF HAWAI'I (JULY 1972), THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (APPLICABLE NON—WASTEWATER SECTIONS, SEPTEMBER 1986), THE STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, DEPARTMENTS OF PUBLIC WORKS, COUNTY OF HAWAI'I (APPLICABLE NON—WATEWATER SECTIONS, SEPTEMBER 1984), WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU (JULY 2017), WASTEWATER SYSTEM STANDARD DETAILS, CITY AND COUNTY OF HONOLULU (JULY 2017) AND THE COUNTY OF HAWAI'I, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION (WWD) STANDARD DETAILS (WW-1 THRU WW-9, CURRENT VERSION) SHALL BE APPLICABLE AND INCORPORATED HEREIN UNLESS OTHERWISE NOTED.
- 2. BASIS OF BEARING (HORIZONTAL CONTROL): HALAI TRIG.
- 3. BASIS OF ELEVATION (VERTICAL CONTROL): A-100 BY VERNA'S DRIVE IN
- 4. SURVEY CONTROL AND LAYOUT, WHEN REQUIRED, SHALL BE PERFORMED BY, OR UNDER THE DIRECT SUPERVISION OF, A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF HAWAI'I.
- 5. THE CONTRACTOR SHALL PROCURE AND CONFORM TO ALL PERMITS AND LICENSES REQUIRED, PAY ALL ASSOCIATED CHARGES AND FEES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.

- A. THE CONTRACTOR SHALL PROCURE AND CONFORM TO A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE STATE OF HAWAI'I, DEPARTMENT OF HEALTH, CLEAN WATER BRANCH FOR ANY PROJECT WHERE CONSTRUCTION ACTIVITIES WILL DISTURB ONE (1) ACRE OR MORE OF TOTAL LAND AREA OR WHERE DEWATERING IS REQUIRED.
- B. ALL STORMWATER POLLUTION PREVENTION MEASURES SHALL BE INSTALLED SO AS TO PREVENT STORMWATER RUNOFF, CONSTRUCTION WATER, FUELS, CHEMICALS, OR OTHER LIQUIDS BEING DIRECTED INTO OR ONTO ANY SANITARY SEWER FACILITIES WITHIN THE PROJECT LIMITS. BEST MANAGEMENT PRACTICES (BMPS) MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, USE OF RAINSTOPPER MANHOLE INSERTS.
- 6. A MINIMUM HORIZONTAL SEPARATION OF 8 FEET BETWEEN WATER AND SEWER LINES ARE REQUIRED. IF NOT POSSIBLE, SECTION 2.4.12.B OF THE "WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU, JULY 2017" APPLIES.
- 7. A MINIMUM OF 18 INCH VERTICAL CLEARANCE AT WATER AND SEWER MAIN CROSSINGS WITH SEWER UNDERNEATH THE WATER IS REQUIRED. IF NOT POSSIBLE, SECTION 2.4.12.8 OF THE "WASTEWATER SYSTEM DESIGN STANDARDS, CITY AND COUNTY OF HONOLULU, JULY 2017" APPLIES.
- 8. THE CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, AND EQUIPMENT REQUIRED FOR THE COMPLETE INSTALLATION OF THE SUBJECT WORK UNLESS SPECIFICALLY NOTED OTHERWISE ON THE PLANS APPROVED BY THE WWD.
- 9. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL WORK NECESSARY TO COMPLETE CONSTRUCTION PER THE APPROVED PLANS AND SPECIFICATIONS AND SUCH INCIDENTALS AS MAY BE NECESSARY TO MEET APPLICABLE AGENCY REQUIREMENTS INCLUDING, BUT NOT LIMITED TO, OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REGULATIONS, AND PROVIDE A COMPLETED PROJECT. ONLY PLANS APPROVED BY WWD SHALL BE USED FOR CONSTRUCTION OF, OR CONNECTION TO, THE COUNTY'S PUBLIC WASTEWATER SYSTEM. ANY ADDITIONS, DELETIONS, OR CHANGES TO THE WASTEWATER SYSTEM SHALL MEET THE APPROVAL OF THE COUNTY OF HAWAI'I, DEPARTMENT OF ENVIRONMENTAL MANAGEMENT, WASTEWATER DIVISION PRIOR TO STARTING THE REVISED WORK.
- A. THE CONTRACTOR SHALL MAINTAIN ONE COMPLETE SET OF APPROVED PLANS ON THE CONSTRUCTION SITE AT ALL TIMES WHERE HE SHALL RECORD THE SIZES, MATERIALS, STATION LOCATIONS AND ELEVATIONS OF ALL EXISTING UTILITIES ENCOUNTERED. THESE FIELD RECORD DRAWINGS SHALL BE KEPT CONTINUOUSLY UP TO DATE AND SHALL BE AVAILABLE FOR INSPECTION BY THE WWD ON REQUEST.
- 10. INSPECTIONS SHALL BE REQUIRED FOR ALL WORK WHICH INVOLVES THE WWD'S SEWER MAINS, LATERALS, CLEANOUTS, AND ALL NEW SEWER CONSTRUCTION TO BE DEDICATED TO THE COUNTY OF HAWAII. CALL THE WASTEWATER DIVISION AT (808) 961-8338 DURING NORMAL BUSINESS HOURS (7:00A.M. TO 3:30P.M., MONDAY THROUGH FRIDAY, EXCEPT COUNTY OF HAWAII HOLIDAYS) AT LEAST TWO (2) WORKING DAYS IN ADVANCE TO SCHEDULE AN INSPECTION.
- A. WWD INSPECTION SHALL BE PERFORMED PRIOR TO BACKFILLING OR COVERING THE PIPE AND ASSOCIATED APPURTENANCES IN PUBLIC EASEMENTS OR RIGHTS—OF—WAY, BEFORE PRIVATE SEWER OR LATERALS ARE CONNECTED TO THE PUBLIC SEWER SYSTEM, AND AFTER ALL ASSOCIATED PLUMBING WORK ON PRIVATE PROPERTY IS COMPLETE, IN ACCORDANCE WITH THE PLUMBING PERMIT.
- B. WHEN WWD DETERMINES THROUGH INSPECTION THAT MATERIAL, EQUIPMENT OR WORKMANSHIP DOES NOT MEET REQUIREMENTS, THE CONTRACTOR WILL BE GIVEN WRITTEN NOTICE OF NONCOMPLIANCE. IMMEDIATE CORRECTION OF THE DEFICIENCIES SHALL BE ADDRESSED BY THE CONTRACTOR WITH THE WWD ENGINEER AND/OR THEIR REPRESENTATIVE.
- C. ANY INSPECTION BY WWD, HAWAI'I COUNTY OR OTHER AGENCIES SHALL NOT, IN ANY WAY, RELIEVE THE CONTRACTOR FROM ANY OBLIGATION TO PERFORM THE WORK IN STRICT COMPLIANCE WITH APPLICABLE REGULATIONS, CODES, CONTRACT DOCUMENTS, PLANS, SPECIFICATIONS, OR GOVERNING AGENCY REQUIREMENTS.
- 11. SEWER WORK SHALL BE SCHEDULED SUCH THAT WORK SHALL NOT BE PERFORMED ON SATURDAYS, SUNDAYS OR COUNTY OF HAWA'I HOLIDAYS. IF SUCH WORK DICTATES PERFORMANCE ON THESE NON—WORK DAYS, OR AFTER NORMAL HOURS OF OPERATION (3:30PM TO 7:00AM), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PAYMENT OF OVERTIME CHARGES TO THE WWD.
- 12. THE CONTRACTOR SHALL NOTIFY THE HAWAI'I ONE CALL CENTER OF ANY PLANNED EXCAVATION ON PUBLIC OR PRIVATE PROPERTY AT LEAST FIVE WORKING DAYS, BUT NOT MORE THAN TWENTY—EIGHT CALENDAR DAYS, PRIOR TO COMMENCING SUCH EXCAVATION (IN ACCORDANCE WITH HRS 269 E-7). CALL 1-866-423-7287 (OR 811). ERRORS IN ONE CALL'S SANITARY SEWER LOCATES SHALL BE REPORTED IMMEDIATELY TO THE WWD AT (808) 961-8338.

APPROVAL:

WASTEWATER DIVISION CHIEF
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

5/6/22 DATE

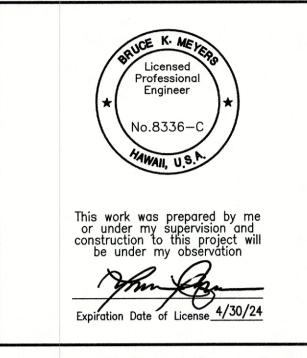
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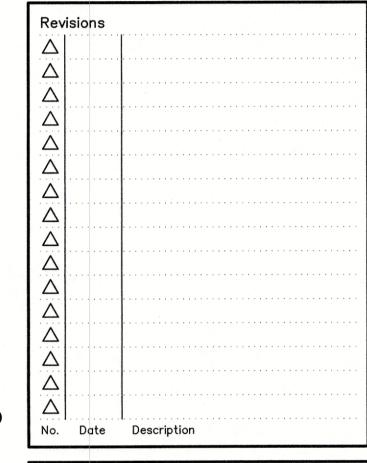


O: 200 KOHOLA STREET
HILO, HAWAII 96720
PH: (808) 961-5527
FAX: (808) 961-5529

HONOLULU: 677 AL

677 ALA MOANA BLVD., SUITE 703 HONOLULU, HAWAII 96813 PH: (808) 524—1224 FAX: (808) 521—3151





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N' (3) 2-1-021:029,
221:032, (3) 2-1-021:033,
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PHASE 1 - KEAUKAH DESHA AVENUE (ANDEWS AVENUE) ANDREWS AVENUE TMK: (3) 2-1-021:006, (3) 2-1-02 (3) 2-1-021:030, (3) 2-1-021:071, (3) 2 (3) 2-1-021:030, (3) 2-1-021:072, (3) 2

CIVIL NOTES

BKM 220-063

Project Director Project No.

SLP/LG BKM

Drawn By Checked By CAD File Name:

AS SHOWN

Scale:

JANUARY 2022

Date

C-1.1

3 Of 8 Sheets

WASTEWATER COLLECTION SYSTEM NOTES (2017) (CONT.)

- 13. LOCATIONS AND DESCRIPTIONS OF EXISTING UTILITIES SHOWN ON THE PLANS ARE COMPILED FROM AVAILABLE RECORDS AND/OR FIELD SURVEY. THE ENGINEER AND UTILITY PROVIDERS DO NOT GUARANTEE THE ACCURACY OR COMPLETENESS OF SUCH RECORDS. THE CONTRACTOR SHALL FIELD VERIFY LOCATIONS, SIZES, MATERIALS AND DEPTHS OF ALL EXISTING UTILITIES WHERE PROPOSED FACILITIES CROSS.
- 14. THE CONTRACTOR SHALL FIELD VERIFY EXISTING SANITARY SEWER LOCATIONS, ELEVATIONS, AND MATERIALS WITHIN THE PROJECT LIMITS PRIOR TO CONSTRUCTION. POT—HOLING MAY BE REQUIRED FOR SUCH VERIFICATION.
- 15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING POTENTIAL UTILITY CONFLICTS FAR ENOUGH AHEAD OF CONSTRUCTION TO MAKE NECESSARY LINE AND GRADE MODIFICATIONS WITHOUT DELAYING THE WORK.
- 16. ALL EXISTING UTILITIES EXCEPT THOSE SPECIFICALLY DESIGNATED FOR ABANDONMENT OR REMOVAL ON THE APPROVED PLANS, INCLUDING WASTEWATER LINE(S), WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE PROTECTED AND REPAIRED BY THE CONTRACTOR IF DAMAGED DURING CONSTRUCTION. THE CONTRACTOR SHALL LEAVE EXISTING FACILITIES IN AN EQUAL TO OR BETTER THAN ORIGINAL CONDITION. THE CONTRACTOR SHALL PAY ALL ASSOCIATED EXPENSES: IN THE EVENT OF DAMAGED TO EXISTING UTILITY FACILITIES OTHER THAN SANITARY SEWER, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE UTILITY SERVICE PROVIDER. IN THE EVENT OF DAMAGE TO EXISTING SANITARY SEWER FACILITIES, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE WWD AT (808) 961-8338.
- 17. THE CONTRACTOR SHALL NOTIFY AND COORDINATE WITH PRIVATE UTILITIES FOR ADJUSTMENT TO OR RELOCATION OF POWER POLES, VAULTS, ETC. TO AVOID CONFLICT WITH COUNTY SEWER STRUCTURES, LINES AND ASSOCIATED APPURTENANCES.
- 18. EXPOSED ENDS OF SEWER LINES THAT ARE ABANDONED OR TO BE ABANDONED IN PLACE SHALL BE CAPPED OR PLUGGED WITH CONCRETE FOR A MINIMUM LENGTH EQUAL TO TWO TIMES THE DIAMETER OF THE ABANDONED PIPE AND INTERFERING PORTIONS REMOVED BY THE CONTRACTOR TO THE EXTENT NECESSARY TO ACCOMPLISH THE WORK, UNLESS OTHERWISE SPECIFIED.
- 19. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL SANITARY SEWER STRUCTURES AND MANHOLES AT ALL TIMES.
- 20. BYPASSING OR SPILLING OF SEWAGE TO THE GROUND, DRAINAGE SYSTEM OR STATE WATERS IS PROHIBITED. IN SUCH CASES, THE CONTRACTOR SHALL IMMEDIATELY CALL THE WWD AT (808)961-8338, TAKE IMMEDIATE ACTION TO CONTAIN THE SEWAGE, AND PAY PENALTIES, INCLUDING LEGAL FEES AND OTHER COSTS RELATED TO THE BYPASS AND/OR SPILL.
- 21. THE CONTRACTOR SHALL BE IN PERSON ON THE JOB SITE OR BE REPRESENTED ON THE JOB SITE BY A RESPONSIBLE AGENT WITH AUTHORITY TO ACT FOR THE CONTRACTOR IN CONNECTION WITH THIS PROJECT AT ALL TIMES.
- 22. THE CONTRACTOR SHALL, AT ALL TIMES DURING THE WORK, KEEP THE PREMISES CLEAN AND ORDERLY. PUBLIC STREETS AND RIGHTS-OF-WAY SHALL BE KEPT CLEAN OF MUD, DUST AND DEBRIS. THE CONTRACTOR SHALL ADEQUATELY WATER DISTURBED AREAS ON-SITE FOR DUST ABATEMENT, AS NEEDED, UPON COMPLETION OF THE WORK, THE CONTRACTOR SHALL REPAIR ALL DAMAGE CAUSED BY EQUIPMENT AND LEAVE THE PROJECT FREE OF RUBBISH AND EXCESS MATERIALS OF ANY KIND DROPPING OR WASHING DEBRIS OR RUBBISH OF ANY KIND INTO THE SANITARY SEWER SYSTEM IS PROHIBITED.

EXISTING CONDITION ASSESSMENT:

1. THE CONTRACTOR SHALL KEEP ALL PROJECT ACTIVITIES WITHIN THE PROJECT AREA. IN THE EVENT THAT A PREVIOUSLY UNKNOWN ARCHAEOLOGICAL FEATURE, HISTORIC PROPERTY, OR HUMAN REMAINS (INCLUDING HUMAN SKELETAL REMAINS, CREMATIONS, CEREMONIAL OBJECTS, FUNERARY OBJECTS, BURIAL GOODS, ETC.) ARE EXPOSED BY CONSTRUCTION, THE CONTRACTOR SHALL CEASE WORK IN THE VICINITY IMMEDIATELY AND NOTIFY THE WWD, STATE OF HAWAI'I HISTORIC PRESERVATION DIVISION (SHPD), THE APPROPRIATE MEDICAL EXAMINER OR CORONER, AND THE APPROPRIATE POLICE DEPARTMENT, OF THE DISCOVERY. THE CONTRACTOR SHALL PROTECT THE AREA OF THE REMAINS WITH AN APPROPRIATE MATERIAL. THE CONTRACTOR SHALL COOPERATE WITH THE POLICE OR DEPARTMENT OF LAND AND NATURAL RESOURCES IN THE INVESTIGATION, RECORDING. PRESERVATION. AND SALVAGE.

SEWER SYSTEM REQUIREMENTS:

. SEWER MAIN PIPE AND FITTINGS

GRAVITY MAIN

- A. ALL SANITARY SEWER PIPE AND FITTINGS SHALL BE PVC SDR-26 BELL AND SPIGOT IN CONFORMANCE WITH THE LATEST VERSION OF ASTM D3034, UNLESS OTHERWISE NOTED ON THE APPROVED PLANS.
- B. LAYING OF PIPE SHALL GENERALLY COMMENCE AT THE LOWEST POINT, THE BELL END FACING UPSTREAM, REGARDLESS OF THE STATIONING SHOWN ON THE PLANS. PIPE SHALL BE FITTED TOGETHER AND MATCHED WITH GASKETS PROPERLY SEATED SO THAT WHEN LAID IT WILL FORM A UNIFORM AND SMOOTH INVERT.
- C. REFER TO THE DRAWINGS FOR DETAILED REQUIREMENTS FOR ALL CONNECTIONS TO EXISTING SANITARY SEWER PIPE. DETAILS SHALL BE PROVIDED TO AND APPROVED BY WWD.
- D. THE INTERIOR OF THE SEWER PIPE SHALL BE CLEARED OF ALL DEBRIS AND FOREIGN MATERIALS AS THE WORK PROGRESSES. BEFORE LEAVING THE WORKPLACE FOR THE NIGHT, EXPOSED ENDS OF SEWER PIPE SHALL BE CLOSED WITH TEMPORARY COVERS TO PREVENT EARTH AND DEBRIS FROM ENTERING THE PIPE.

- E. BECAUSE OR THE NATURE OF PLASTIC PIPE AND FITTINGS, THE CONTRACTOR IS CAUTIONED TO EXERCISE CARE IN HANDLING, LOADING, UNLOADING, AND STORING TO AVOID DAMAGE.
- i KEEP PIPE AND GASKETS CLEAN, AWAY FROM OIL, GREASE, EXCESSIVE HEAT AND ELECTRIC MOTORS, WHICH PRODUCE OZONE, AND PROTECTED FROM DIRECT SUNLIGHT AND TEMPERATURE CHANGE IN PROLONGED EXPOSURE TO AVOID CRACKING.
- II HEAVY IMPACT MAY CAUSE A SLIGHT LONGITUDINAL INDENTATION ON THE OUTSIDE OF THE PIPE AND A CRACK ON THE INSIDE. THIS WILL RESULT IN A SPLIT AS SOON AS THE PIPE IS PLACED UNDER LOADING. ANY PIPE THAT HAS BEEN IMPACTED SHALL BE EXAMINED CLOSELY FOR THIS TYPE OF DAMAGE

FORCE MAIN

- A. FORCE MAIN PIPING SHALL BE POLYVINYL CHLORIDE (PVC), CENTRIFUGALLY CAST FIBERGLASS REINFORCED POLYMER MORTAR (CCFRPM) OR HIGH DENSITY POLYETHYLENE (HDPE), UNLESS OTHERWISE APPROVED.
- B. HDPE PIPE SHALL UTILIZE BUTT FUSED JOINTS. APPROVED MECHANICAL JOINTS MAY BE USED FOR CONNECTION OF HDPE PIPING TO EXISTING DISSIMILAR PIPING (DUCTILE IRON, CAST IRON, AND REINFORCED CONCRETE PRESSURE PIPE). ELECTRO—FUSION JOINTS MAY BE UTILIZED WHEN AUTHORIZED BY THE WASTEWATER DIVISION. PLASTIC WELDING OF JOINTS SHALL NET BE ALLOWED.
- C. HDPE FORCE MAINS FOR SANITARY SEWER SHALL BE DARK GREEN IN COLOR.
- D. THRUST BLOCKS OR OTHER JOINT RESTRAINING SYSTEMS APPROVED BY WWD, SHALL BE PROVIDED FOR ALL FITTINGS SUCH AS TEES, PLUGS, CAPS, BENDS, OFFSETS, REDUCERS, AND VALVES AS WELL AS ALL OTHER PIPELINE APPURTENANCES THAT ARE SUBJECT TO UNBALANCED THRUSTS. DESIGN OF THRUST BLOCKS SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE WASTE WATER STANDARDS, DEPARTMENT OF WATER SUPPLY, COUNTY OF HAWAI'I, STATE OF HAWAI'I.
- E. FORCE MAINS SHALL BE DESIGNED WITH A CONTINUOUS UPWARD SLOPE TO ELIMINATE HIGH OR LOW POINTS IN THE PIPING AND THE NEED FOR INSTALLATION OF GAS RELIEF VALVES OR BLOW OFFS. DESIGNS INCORPORATING HIGH OR LOW POINTS IN THE FORCE MAIN SHALL NOT BE ALLOWED UNLESS SPECIFICALLY AUTHORIZED IN WRITING BY THE WASTEWATER DIVISION.
- F. IN THE EVENT THAT HIGH POINTS IN THE FORCE MAIN ARE AUTHORIZED BY THE WASTEWATER DIVISION, COMBINED AIR AND VACUUM RELIEF VALVES SHALL BE INSTALLED AT HIGH POINTS. SUCH VALVES SHALL BE INSTALLED IN REINFORCED CONCRETE VAULTS. VAULTS SHALL BE VENTED AND DRAINED TO AN ADJACENT SEWER SYSTEM WITH DRAINAGE OF THE VAULT TO THE SEWER SYSTEM TO THE MAXIMUM EXTENT AS POSSIBLE. IN THE EVENT THAT THE LOW POINTS IN THE FORCE MAIN ARE APPROVED BY WWD, BLOW OFFS MAY BE REQUIRED. BLOW OFFS SHALL CONSIST OF A VALVE CONNECTION ON THE FORCE MAIN AND PIPING TO A GRAVITY SEWER MANHOLE OR A MANHOLE WHERE A PUMP CAN BE USED TO DRAIN THE FORCE MAIN DESIGNED BY THE ENGINEER FOR THE SPECIFIC APPLICATION AND APPROVED BY WWD.
- G. DESIGN VELOCITY SHALL RANGE BETWEEN 3 AND 6 FEET PER SECOND UNLESS OTHERWISE APPROVED BY WWD. MAXIMUM FORCE MAIN VELOCITY AT PEAK CONDITION SHALL NOT EXCEED 8 FEET PER SECOND IN ANY CASE.
- H. ALL COMBINED AIR AND VACUUM RELIEF VALVES SHALL BE 316 STAINLESS STEEL VENT-O-MAT SERIES RGX PROVIDED WITH ISOLATION VALVES TO ALLOW MAINTENANCE AND REPAIR OF THE AIR RELIEF VALVE DURING PERIODS WHEN THE FORCE MAIN IS ACTIVE.
- . METALLIC TRACER TAPE SHALL BE INSTALLED ABOVE ALL BURIED PIPING. TRACER TAPE SHALL BE ACID AND ALKALI—RESISTANT, GREEN OR YELLOW, 6—INCHES (MINIMUM) WIDTH, 9—MIL (MINIMUM) THICKNESS AND BE REINFORCED FOR INCREASED BREAKING STRENGTH. METALLIC TRACER TAPE SHALL BE THORTEC DETECTABLE WARNING TAPE OR APPROVED EQUAL AND SHALL HAVE WORDING SIMILAR TO "CAUTION SEWER LINE BURIED BELOW". TRACER TAPE SHALL BE INSTALLED AT A DEPTH OF APPROXIMATELY 12—INCHES FROM GRADE (MINIMUM COVERAGE OF 6—INCHES REQUIRED). TAPE SHALL BE PLACED ON COMPACTED BACKFILL AND SHALL BE LAID IN CONTINUOUS LENGTHS WITH WORDING FACING UPWARDS.
- J. SCOTCHMARK 3M FULL RANGE MARKERS, 15—INCHES IN DIAMETER, PRODUCT NUMBER 1253, COLOR CODED TO APWA STANDARDS DESIGNED FOR APPLICATIONS UP TO EIGHT FEET IN DEPTH, SHALL BE INSTALLED ABOVE BURIED PIPING AT A MAXIMUM DEPTH OF 6—FEET. MARKERS SHALL BE PLACED AT ALL PIPING DIRECTIONAL CHANGES (HORIZONTAL AND/OR VERTICAL) AND AT MAXIMUM INTERVALS OF 50—FEET. ELECTRONIC MARKERS SHALL BE INSTALLED WITH 12—INCHES OF NO. 4 CRUSHED AGGREGATE SCREENING ALL AROUND (TOP, BOTTOM, SIDES) THE MARKER TO PROTECT IT FROM DAMAGE DURING BACKFILLING OPERATIONS. ELECTRONIC MARKERS SHALL BE INSTALLED IN THE HORIZONTAL POSITION TO MAXIMIZE LOCATOR EFFICIENTLY.
- K. <u>PRIOR TO EXCAVATION</u> WITHIN 6 FEET OF ACTIVE FORCE MAINS, THE CONTRACTOR SHALL PURCHASE AND HAVE <u>ON—SITE</u> THE FOLLOWING REPAIR ITEMS TO BE USED IN THE EVENT OF DAMAGE TO THE EXISTING LINES DURING EXCAVATION WORK:
- i. TWO (2) EACH STAINLESS STEEL PIPE REPAIR CLAMPS OF APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE THE EXCAVATION IS TAKING PLACE.

- ii. TWO (2) EACH "DRESSER" TYPE COUPLINGS OF THE APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE THE EXCAVATION IS TAKING PLACE.
- iii. ONE (1) EACH PIPE LENGTH OF THE APPROPRIATE SIZE AND PRESSURE RATING FOR EACH TYPE OF EXISTING FORCE MAIN WHERE EXCAVATION IS TAKING PLACE. AS AN ALTERNATIVE, THE CONTRACTOR MAY PROVIDE PIPING OF A DIFFERENT MATERIAL (PVC, HDPE, CAST IRON, OR DUCTILE IRON) PROVIDED THAT SUFFICIENT WWD APPROVED ADAPTERS ALSO AVAILABLE AT SITE.

2. TRENCHING, PIPE BEDDING, AND BACKFILL

- A. THE CONTRACTOR SHALL HAVE APPROPRIATE EQUIPMENT ON—SITE TO PRODUCE A DRY, FIRM, SMOOTH, UNDISTURBED SUBGRADE AT THE TRENCH BOTTOM THAT IS TRUE TO LINE AND GRADE. THE TRENCH BOTTOM SHALL BE FREE OF LOOSE MATERIALS OR TOOTH GROOVES FOR THE ENTIRE TRENCH WIDTH PRIOR TO PLACING PIPE BEDDING MATERIAL.
- B. THE CONTRACTOR SHALL FURNISH AND INSTALL SUFFICIENT TRENCH BOXES, SHORING, SHEETING, OR BRACING TO INSURE THE SAFETY OF WORKMEN AND THE PUBLIC, PROTECT THE WORK, AND PROTECT EXISTING FACILITIES.
- i. SHORING, SHEETING, AND BRACING SHALL COMPLY WITH OSHA RULES, ORDERS AND REGULATIONS.
- ii. WHERE REQUIRED BY OSHA, THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE DRAWINGS AND/OR CALCULATIONS FOR SPECIALLY DESIGNED BRACING AND SHORING, PREPARED AND STAMPED BY A HAWAI'I REGISTERED PROFESSIONAL ENGINEER, TO THE WWD A MINIMUM OF FIVE (5) WORKING DAYS PRIOR TO BEGINNING ASSOCIATED EXCAVATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE ADEQUACY OF ALL SHEETING, SHORING AND BRACING AND COMPLIANCE WITH THE LAW. FAILURE OF THE INSPECTOR TO SUSPEND THE WORK OR NOTIFY THE CONTRACTOR OF ANY INADEQUACY OF SHEETING, SHORING, BRACING OR NONCOMPLIANCE WITH THE LAW SHALL NOT RELIEVE THE CONTRACTOR OF THIS RESPONSIBILITY.
- iii. THE CONTRACTOR SHALL FURNISH AND MAINTAIN SHORING, SHEETING AND BRACING UNTIL AFTER THE PIPELINE AND APPURTENANCES HAVE BEEN INSTALLED AND THE INSPECTOR HAS APPROVED THE PLACEMENT OF SUFFICIENT BACKFILL. THE CONTRACTOR SHALL PROVIDE ADEQUATE SAFETY MEASURES TO ALLOW FOR ACCESS BY THE INSPECTOR OR TESTING PERSONNEL TO PERFORM COMPACTION TESTING AND INSPECTION OF THE LIFTS OF BACKFILL PLACED.
- C. NO TRENCHES IN ROADS OR DRIVEWAYS SHALL BE LEFT OPEN OVERNIGHT.
 ALL SUCH TRENCHES SHALL BE PLATED OR CLOSED AND NORMAL TRAFFIC
 FLOW RESTORED BEFORE THE END OF EACH WORK DAY.
- i. THE STEEL TRENCH PLATES SHALL BE CAPABLE OF SUPPORTING HS-20 LOADING.
- ii. THE PLATES MUST EXTEND BEYOND THE EDGE OF THE TRENCH WALL FAR ENOUGH TO ADEQUATELY SUPPORT HS-20 TRAFFIC LOADS. IN NO CASE SHALL THE PLATES EXTEND LESS THAN TWELVE (12) INCHES BEYOND THE TRENCH WALL.
- iii. EACH PLATE MUST BE FULLY SUPPORTED AROUND IT'S PERIMETER TO PREVENT WOBBLING OR ROCKING.
- iv. THE PLATES SHALL BE SECURED TO PREVENT ANY MOVEMENT.
- v. TRENCHES AND EXCAVATIONS BENEATH THE PLATES SHALL BE ADEQUATELY SHORED AND BRACED TO WITHSTAND HS-20 TRAFFIC LOADS.
- vi. TEMPORARY PAVING OR COLD-MIX ASPHALTIC CONCRETE (CUTBACK)
 SHALL BE PLACED AND CONTINUOUSLY MAINTAINED AROUND ALL OUTSIDE
 EDGES OF THE TRENCH PLATES UNTIL THEY ARE REMOVED.
- D. TRENCHES SHALL BE PROPERLY BACKFILLED AND COMPACTED AS SHOWN ON THE APPROVED PLANS.
- E. PIPE BEDDING SHALL BE CLASS B ¾" AGGREGATE BASE COURSE PLACED WITHIN THE DRY TRENCH, AT NOT LESS THAN 4 INCHES BUT NOT MORE THAN 5 INCHES IN COMPACTED THICKNESS. BEDDING SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY, UNLESS OTHERWISE NOTED ON PLANS, TO AVOID STRESS CONCENTRATIONS AND ASSOCIATED IRREGULAR PIPE DEFORMATIONS. RECESSES CONSTRUCTED IN THE BEDDING, FOLLOWED BY HAND COMPACTION OF BACKFILL AROUND THE BELLS, WILL PROVIDE CONTINUOUS LONGITUDINAL SUPPORT AND UNIFORM BEARING BELOW THE PIPE JOINTS.
- F. THE REMAINDER OF THE PIPE EMBEDMENT SHALL ALSO BE CLASS B ¾"
 AGGREGATE BASE COURSE, PROPERLY PLACED, IN LIFTS NOT TO EXCEED
 6", AROUND THE PIPE HAUNCHES AND EXTENDING TO A MINIMUM OF 12"
 COMPACTED THICKNESS OVER THE TOP OF THE PIPE. PIPE ZONE
 EMBEDMENT SHALL BE COMPACTED TO 95 PERCENT MAXIMUM DRY DENSITY,
 UNLESS OTHERWISE NOTED ON PLANS, TO PROVIDE ADEQUATE SIDE
 SUPPORT AND ENSURE THE PIPE'S FULL STRENGTH IS ACHIEVED WHILE
 AVOIDING PIPE DEFLECTION, VERTICAL AND LATERAL DISPLACEMENT.
- G. CONTROLLED LOW-STRENGTH MATERIAL (CLSM) SHALL BE USED AS THE FINAL TRENCH BACKFILL UNLESS OTHERWISE NOTED ON THE PLANS OR APPROVED IN WRITING BY THE WWD ENGINEER.

H. COMPACTION TESTING FOR BEDDING AND EMBEDMENT MATERIALS FOR SEWER MAIN INSTALLATION SHALL BE PERFORMED BY AN INDEPENDENT TESTING AND QUALITY CONTROL LABORATORY. COMPACTION TEST FREQUENCY SHALL BE A MINIMUM OF ONE (1) TEST PER 150 LINEAL FEET PER LIFT OR A FRACTION THEREOF ON ALTERNATING SIDES OF THE PIPE OR STRUCTURE. THE ENGINEER RESERVES THE RIGHT TO INCREASE OR DECREASE THE FREQUENCY OF COMPACTION TESTING TO MATCH FIELD CONDITIONS. TEST RESULTS SHALL BE SUBMITTED TO THE WWD ENGINEER FOR EVALUATION AS PART OF THE FINAL ACCEPTANCE PROCESS.

3. SEWER MANHOLES AND APPURTENANCES

- A. ALL PRECAST CONCRETE SEWER MANHOLES SHALL CONFORM TO THE LATEST VERSION OF ASTM C478.
- B. ALL SEWER MANHOLE BASE, SECTIONS, CONE, FLAT TOP, BENCHES, AND CHANNELS SHALL INCLUDE A CONCRETE WATERPROOFING, PROTECTION, AND IMPROVEMENT ADMIXTURE. ADMIXTURE SHALL BE XYPEX ADMIX C-1000 OR APPROVED EQUAL PRODUCT. DOSAGE SHALL BE PER MANUFACTURER'S INSTRUCTIONS AND SHALL NOT BE LESS THAN 3% OF THE WEIGHT OF THE PORTLAND CEMENT FRACTION OF THE MIX.
- C. ALL DROP SEWER MANHOLES, TRANSITIONAL SEWER MANHOLES (RECEIVING MANHOLE AND THE NEXT TWO MANHOLES DOWNSTREAM FROM THE DISCHARGE OF A FORCE MAINS), AND SEWER MANHOLES WITH CONNECTING PIPES GREATER THAN OR EQUAL TO 12 INCHES NOMINAL SHALL ALSO BE LINED WITH A PVC LINER, DURA-PLATE OR AN APPROVED EQUAL PRODUCT.
- D. ALL CONSTRUCTED (CAST—IN—PLACE) SEWER MANHOLE BENCHES AND CHANNELS SHALL BE COATED USING XYPEX MEGAMIX I OR AN APPROVED EQUAL PRODUCT.
- E. SEWER MANHOLE CHANNELS, INCLUDING THOSE AT CONNECTIONS TO EXISTING MANHOLES, SHALL PROVIDE A SMOOTH TRANSITION BETWEEN INLET AND OUTLET SEWERS. THE ANGLE BETWEEN THE INLET AND OUTLET SHALL BE A MINIMUM OF 90 DEGREES.
- F. UNLESS OTHERWISE APPROVED OR NOTED, ALL MANHOLES FOR CONNECTING SEWER LINES LESS THAN OR EQUAL TO 12-INCH NOMINAL DIAMETER SHALL BE PROVIDED WITH "ELECTRIC" CONE SECTIONS WITH TYPE SA FRAMES AND COVERS (STD. DETAIL S-22).
- G. UNLESS OTHERWISE APPROVED OR NOTED, ALL MANHOLES FOR CONNECTING SEWER LINES GRATER THAN 12-INCH NOMINAL DIAMETER OR LESS THAN 5 FEET DEEP SHALL BE PROVIDED WITH A FRAME AND COVER WITH A MINIMUM 48" CLEAR OPENING. THE 52-INCH COVER SHALL HAVE A SMALLER 25-5/16-INCH COVER INSTALLED FOR ROUTINE MAINTENANCE AND INSPECTION. THE SMALLER COVER SHALL BE PROVIDED WITH RECESSED STAINLESS STEEL BOLTS TO ALLOW SECURING. PERMANENT ALIGNMENT MARKS (MATCH MARKS) SHALL BE PROVIDED FOR THE BOLTS TO FACILITATE REINSTALLATION OF THE COVER. THE FRAME AND COVER SHALL BE AN ECCENTRIC CONFIGURATION, D&L FOUNDRY & SUPPLY: MODEL A-1428 OR APPROVED EQUAL.
- H. A FLEXIBLE PIPE MANHOLE CONNECTOR SHALL BE USED WHENEVER A PIPE PENETRATES INTO A PRECAST CONCRETE MANHOLE OR STRUCTURE. CONNECTIONS SHALL BE WATER—TIGHT AND SHALL PROVIDE FOR SMOOTH FLOW INTO AND THROUGH THE MANHOLE WITH NO PONDING.
- i. NEW SEWER PIPE CONNECTIONS TO NEW MANHOLES SHALL BE AN APPROVED CAST-IN-PLACE MANHOLE PIPE ADAPTER (A-LOK, ECONOSEAL, OR APPROVED EQUAL PRODUCT).
- ii. EXISTING SEWER PIPE CONNECTIONS TO NEW MANHOLES SHALL BE AN APPROVED MANHOLE PIPE ADAPTER (A-LOK, ECONOSEAL, OR APPROVED EQUAL PRODUCT).
- iii. SEWER PIPE CONNECTIONS TO EXISTING MANHOLES SHALL BE AN APPROVED MANHOLE PIPE ADAPTER (A-LOK FIELD SLEEVE OR APPROVED EQUAL PRODUCT). OPENINGS FOR NEW CONNECTIONS TO EXISTING MANHOLES SHALL BE CORE-DRILLED AND SURFACE ROUGHENED, SMALL CHIPPING HAMMERS OF SIMILAR LIGHT TOOLS MAY BE USED TO ENLARGE EXISTING OPENINGS OR SHAPE CHANNELS IN EXISTING MANHOLES. USE OF PNEUMATIC JACKHAMMERS OR OTHER HEAVY TOOLS WHICH COULD DAMAGE OR CRACK THE MANHOLE BASE IS PROHIBITED.
- I. ONE HAND GRAB RUNG AT THE TOP OF THE MANHOLE SHALL BE STAINLESS STEEL TYPE "SA" PER DPW STANDARD DETAIL S-42. SEWER MANHOLE RUNGS SHALL BE TYPE "SP" COPOLYMER POLYPROPYLENE PLASTIC, BOWCO INDUSTRIES INC./MEADOW BURKE PART NO. 93810R IN ACCORDANCE WITH WASTEWATER STANDARD DETAIL WW-7.
- J. RUNGS AND ECCENTRIC CONES OR COVERS SHALL NOT BE ALIGNED ABOVE FLOW LINES. THEY SHALL BE PLACED ON THE SIDE OF THE MANHOLE WITH THE LARGEST SHELF.
- K. SEWER MANHOLES LOCATED IN UNPAVED AREAS SHALL BE PROVIDED A REINFORCED 3000 PSI CLASS "A" CONCRETE COLLAR. THE REINFORCED CONCRETE COLLAR SHALL BE A MINIMUM OF 12" THICK, AND EXTEND A MINIMUM OF 12" BEYOND THE FRAME AND COVER. REINFORCE, ENT SHALL CONSIST OF AT LEAST ONE (1) #4 BAR PLACED AT LEAST 3" CLEAR FROM THE EDGE OF CONCRETE AND WRAPPED AROUND THE MANHOLE TOP SECTION (WITH AT LEAST 15" LAP). CENTERED VERTICALLY IN THE COLLAR.
- L. ALL MANHOLE SECTIONS SHALL BE JOINED USING RAM-NEK RN103 OR APPROVED EQUAL.

APPROVAL:

WASTEWATER DIVISION CHIEF
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII

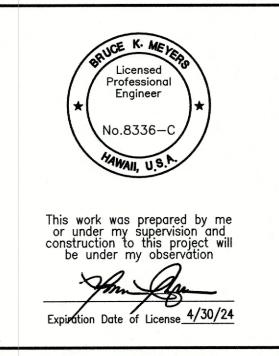
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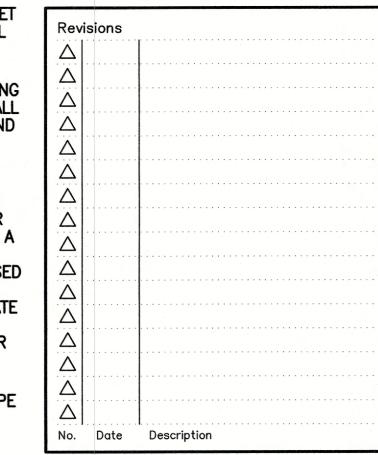
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1 - KEAUKAHA SEWERLI 14 AVENUE CONNECT TO WS AVENUE 10" SEWERL (3) 2-1-021:006, (3) 2-1-021:007, (3) 2-1-021:008, 1:009, (3) 2-1-021:010, (3) 2-1-021:03 (3) 2-1-021:072, (3) 2-1-021:108

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Sheet Title

CIVIL NOTES

BKM 220-063

Project Director Project No.

BKM 220-063

Project Director Project No.

SLP/LG BKM

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Scale:

Const. Issue Date

JANUARY 2022
Date

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4 _{Of} 8 Sheets

WASTEWATER COLLECTION SYSTEM NOTES (2017) (CONT.)

- SEWER LATERAL PIPE AND FITTINGS
 - A. NEW SEWER LATERALS AND CLEANOUTS SHALL BE 6" DIAMETER, PVC SDR26 PIPE AND FITTINGS.
 - B. SEWER CLEANOUTS SHALL BE LOCATED IN THE COUNTY RIGHT-OF-WAY OR EASEMENT WITHIN ONE FOOT OF THE PROPERTY LINE OR BOUNDARY. THE CLEANOUT SHALL BE EASILY ACCESSIBLE (I.E. NOT BE BURIED OR LOCATED UNDER OR CLOSE TO ROCK WALLS, FENCES OR OTHER OBSTRUCTIONS).
 - i. COMMERCIAL PROPERTIES SHALL INSTALL A SEWER MANHOLE IN LIEU OF A CLEANOUT AT THE PROPERTY LINE.
 - C. SEWER LATERAL CONNECTIONS TO AN EXISTING SANITARY MAIN SHALL BE MADE WITH A WYE CONFIGURED FLEXIBLE SADDLE (FERNCO TSW-6 OR APPROVED EQUAL) ROTATED 45 DEGREES ABOVE THE MAIN SPRING LINE UNLESS OTHERWISE DIRECTED BY THE WWD.
 - SEWER LATERAL SADDLE CONNECTIONS AND CORED SEWER MAIN ENTRY, WHEN DIRECTED BY THE WWD, SHALL PROVIDE A SMOOTH TRANSITION AND UNOBSTRUCTED FLOW TO THE MAIN WITH STAINLESS STEEL STRAPS AND JACKETED WITH CLASS B REINFORCED CONCRETE IN ACCORDANCE WITH DPW STANDARD DETAIL S-5. THE REINFORCED CONCRETE JACKET SHALL COMPLETELY ENCASE THE EXISTING SEWER MAIN, BE A MINIMUM OF 6" THICK, AND EXTEND A MINIMUM OF 6" EACH WAY BEYOND THE SADDLE.
- SEWER LINE ACCEPTANCE TESTS
 - A. THE CONTRACTOR SHALL PROVIDE AND PAY FOR ALL MATERIALS, EQUIPMENT AND FACILITIES NECESSARY FOR TESTING ALL UTILITY BACKFILL, PIPE AND STRUCTURES IN ACCORDANCE WITH THESE PLANS AND COUNTY STANDARD SPECIFICATIONS AND REQUIREMENTS.
 - B. ALL NEWLY INSTALLED SEWER MAINS AND LATERALS ARE SUBJECT TO LEAKAGE TESTING-AND CCTV INSPECTION PRIOR TO FINAL ACCEPTANCE AS DIRECTED BY THE WWD.
 - C. LEAKAGE TESTING SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION 21.3 D OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR SUCH TESTING SHALL BE BORNE BY THE CONTRACTOR.
 - D. DEFLECTION TESTING WHEN REQUIRED BY WWD, SHALL BE ACCOMPLISHED IN ACCORDANCE WITH SECTION-21.3 E OF THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986. ALL COSTS FOR SUCH TESTING SHALL BE BORNE BY THE CONTRACTOR.
 - E. AN INITIAL CCTV INSPECTION WILL BE PERFORMED BY THE COUNTY AT NO COST TO THE CONTRACTOR SUBJECT TO THE CONDITIONS BELOW.
 - i. THE CONTRACTOR SHALL OBTAIN A COPY OF THE SEWER LINE ACCEPTANCE TEST CRITERIA FROM THE WWD PRIOR TO REQUESTING OR SCHEDULING A CCTV INSPECTION
 - ii. THE CONTRACTOR SHALL ASSIST THE COUNTY IN THE PERFORMANCE OF THE CCTV INSPECTION, SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL REQUIREMENTS DURING CCTV INSPECTION, AND SHALL BE RESPONSIBLE FOR CLEANING AND REMOVING ALL DIRT, GRIT, ROCK, DEBRIS AND FOREIGN MATERIALS FROM THE PIPES AND MANHOLES PRIOR TO CCTV INSPECTION. IN THE EVENT THAT PIPES OR MANHOLES ARE FOUND TO HAVE BEEN INADEQUATELY CLEANED, THE COUNTY WILL TERMINATE THE CCTV INSPECTION. THE COST OF SUBSEQUENT CCTV INSPECTION(S) WILL BE CHARGED TO THE CONTRACTOR.
 - iii. THE CONTRACTOR SHALL HAVE A SUPERVISORY REPRESENTATIVE PRESENT DURING PERFORMANCE OF THE CCTV INSPECTION.
 - iv. IF THE CCTV INSPECTION REVEALS CONDITIONS SUCH AS DENTS, OUT-OF-ROUND, AND ETC. THE WORK SHALL BE CONSIDERED DEFECTS AND SUBJECT TO REPAIR.
 - v. IF THE CCTV INSPECTION REVEALS PIPE SAGS EXCEEDING THE SEWER LINE ACCEPTANCE TEST CRITERIA BELOW THEY SHALL BE CONSIDERED DEFECTS SUBJECT TO CORRECTION OR A DEDUCTIVE PAYMENT FOR THE ENTIRE RUN OF THE PIPING FROM STRUCTURE-TO-STRUCTURE ACCORDING TO THE FOLLOWING TABLE:

SAG TOLERANCES

	NOM. PIPE SIZE	COMPLIES W/ SPECIFICATIONS	SO% PAYMENT OF BID AMOUNT	RECONSTRUCTION REQUIRED	
	6"	<1/2"	1/2" - 1"	>1"	
<0.4%	8"	<1/2"	1/2" - 1"	>1"	
	10"	<1"	1" - 1-1/2"	>1-1/2"	
	12"	<1"	1" - 1-1/2"	>1-1/2"	
	>12"	<1"	1" - 1-1/2"	>1-1/2"	
A CONTRACTOR OF THE CONTRACTOR	6"	<1/2"	1/2" - 1-1/2"	>1-1/2"	
0.4% TO 0.7%	8"	<1/2"	1/2" - 1-1/2"	>1-1/2"	
	10"	<1"	1" - 2"	2"	
	12"	<1"	1" - 2"	2"	
	>12"	<1"	1" - 2"	2"	
	6"	<1"	1" - 1-1/2"	>1-1/2"	
>0.7%	8"	<1"	1" - 2"	>2"	
	10"	<1-1/2"	1-1/2" - 2"	>2"	
	12"	<1-1/2"	1-1/2" - 2-1/2"	>2-1/2"	
	>12"	<1-1/2"	1-1/2" - 3"	3"	

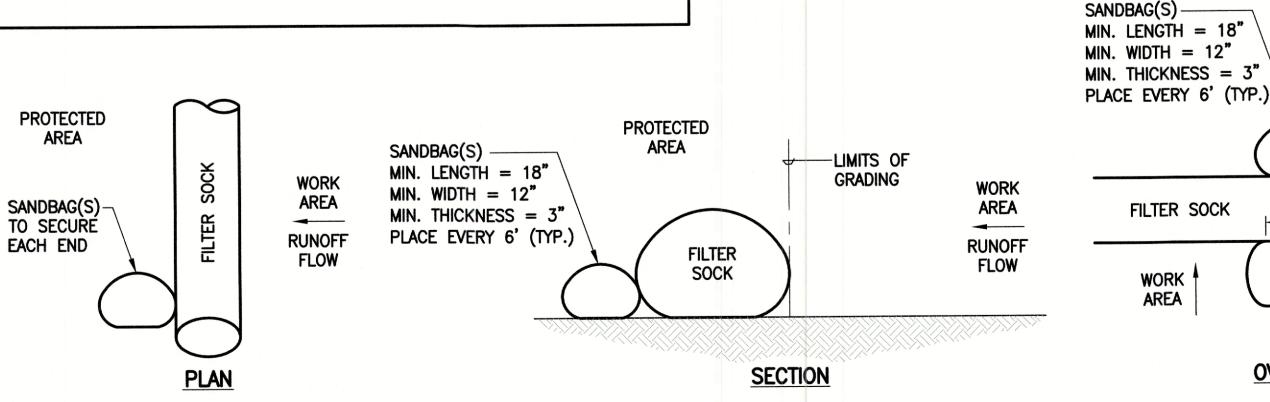
vi. CCTV INSPECTIONS WILL BE RECORDED. IN THE EVENT THAT THE CONTRACTOR REQUESTS A COPY OF THE CCTV INSPECTION, THE CONTRACTOR WILL BE CHARGED FOR THE COPY AT A RATE OF \$25.00.

- 6. FINAL PROJECT SUBMITTALS:
 - A. "AS-BUILT" PLANS AND CERTIFIED EASEMENTS RECORDED WITH THE BUREAU OF CONVEYANCES, IF APPLICABLE ARE REQUIRED FOR FINAL CONTRACT ACCEPTANCE OF SEWER CONSTRUCTION BY WWD. UPON FINAL PROJECT INSPECTION AND DECLARATION OF SATISFACTORY COMPLETION BY THE WASTEWATER DIVISION CHIEF, SUBMIT TO WWD ONE (1) SET OF FIELD RECORD DRAWINGS AND ONE (1) SET OF "AS-BUILT" PLANS ONE (1) ELECTRONIC SET IN AUTOCAD 2009 OR NEWER VERSION AND ONE (1 ELECTRONIC SET IN ADOBE PDF FORMAT.
 - B. IT IS MANDATORY THAT THE "AS-BUILT" PLANS SHOW CORRECTLY IDENTIFIED PROPERTY TMK NUMBERS, LOCATION OF SEWER MANHOLES LATERALS, CLEANOUTS AND ALL OTHER MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM INCLUDING RIM AND INVERT ELEVATIONS AT ALL SEWER MANHOLES, LATERAL CONNECTIONS AT THE MAIN, LATERAL ELEVATIONS AT THE CLEANOUT. SUBMITTED DOCUMENTATION SHALL BE CERTIFIED BY A LICENSED PROFESSIONAL LAND SURVEYOR ATTESTING TO THE LOCATION AND ELEVATIONS OF ALL MAJOR COMPONENTS OF THE WASTEWATER COLLECTION SYSTEM AS SHOWN ON THE AS-BUILT PLANS.

EROSION AND SEDIMENT CONTROL NOTES

CONSTRUCTION MANAGEMENT TECHNIQUES

- 1. CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION. LIMITS OF THE CLEARING AND GRUBBING SHALL BE STAKED PRIOR TO THE START OF CONSTRUCTION.
- 2. CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF THE CLEARED SURFACE AREA.
- CONSTRUCTION SHALL BE STAGED OR PHASED FOR LARGE PROJECTS. AREAS OF ONE PHASE SHALL BE STABILIZED BEFORE ANOTHER PHASE IS INITIATED. STABILIZATION SHALL BE ACCOMPANIED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF.
- EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. PERMANENT RETENTION AREAS SHOULD BE CONSTRUCTED PRIOR TO ANY OTHER CLEARING, GRUBBING, OR GRADING OPERATION. SILT FENCES SHALL BE INSTALLED ALONG THE ENTIRE DOWNSLOPE SIDE OF THE ACTIVE CONSTRUCTION ZONE IN AREAS WHERE ON-SITE RUNOFF FLOWS OFF THE PROJECT SITE.
- 5. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN TWENTY-FOUR HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24 HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE PERMITTEE SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.
- THE PERMITTEE SHALL MAINTAIN RECORDS OF THE DURATION AND ESTIMATED VOLUME OF STORM WATER DISCHARGE(S).
- 7. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.
- 8. NO HYDRO-TESTING EFFLUENT SHALL BE DISPOSED OF OFF-SITE.
- PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN TWENTY CALENDAR DAYS PRIOR TO LAND DISTURBANCE.
- 10. TEMPORARY SOIL STABILIZATION WITH APPROPRIATE VEGETATION SHALL BE APPLIED ON AREAS THAT WILL REMAIN UNFINISHED FOR MORE THAN THIRTY CALENDAR DAYS.
- 11. PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION OR PAVEMENT SHALL BE APPLIED AS SOON AS PRACTICAL AFTER FINAL GRADING. IRRIGATION AND MAINTENANCE OF THE PERENNIAL VEGETATION SHALL BE PROVIDED FOR NINETY CALENDAR DAYS OR UNTIL THE VEGETATION TAKES ROOT, WHICHEVER IS SHORTER.
- 12. STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING APPROPRIATE CONTROL MEASURES, AS PRACTICAL.
- 13. EROSION CONTROL MEASURES SHALL BE DESIGNED ACCORDING TO THE SIZE OF DISTURBED OR DRAINAGE AREAS TO DETAIN RUNOFF AND TRAP SEDIMENT AND APPROVED BY THE DESIGNER OF RECORD.
- 14. WATER MUST BE DISCHARGED IN A MANNER THAT THE DISCHARGE SHALL NOT CAUSE OR CONTRIBUTE TO A VIOLATION OF THE BASIC WATER QUALITY CRITERIA AS SPECIFIED IN SECTION 11-54-04 OF THE HAR.



ABBREVIATIONS APPROX. - APPROXIMATE ASPHALT CONCRETE - AMERICANS WITH DISABILITIES ACT - BEST MANAGEMENT PRACTICES CONCRETE

- CLEANOUT TO GRADE DRAINLINE DET. - DETAIL DIA DIAMETER - DEPARTMENT OF PUBLIC WORKS - DEPARTMENT OF WATER SUPPLY EXIST. EXISTING FEET FINISHED GRADE HORIZONTAL - HAWAII ADMINISTRATIVE RULES - HAWAII REVISED STATUTES INVERT INV.

- LINEAR FOOT - NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM

COUPLER-

OR WIRE

SECTION B

2"X4" WOOD POST AT-

4' O.C. STANDARD

POSTS AT 6' O.C.

36" WIDE ROLLS

LIMITS OF ~

COMPACTED NATIVE

BURY FILTER MATERIAL-

IN 6"X6" TRENCH AS

BACKFILL

SHOWN

GRADING

MAXIMUM.

ALTERNATIVE: STEEL

FENCE POSTS, PLACE

FILTER FABRIC FENCE—

RUNOFF ---

JOINING SECTIONS

OF SILT FENCE

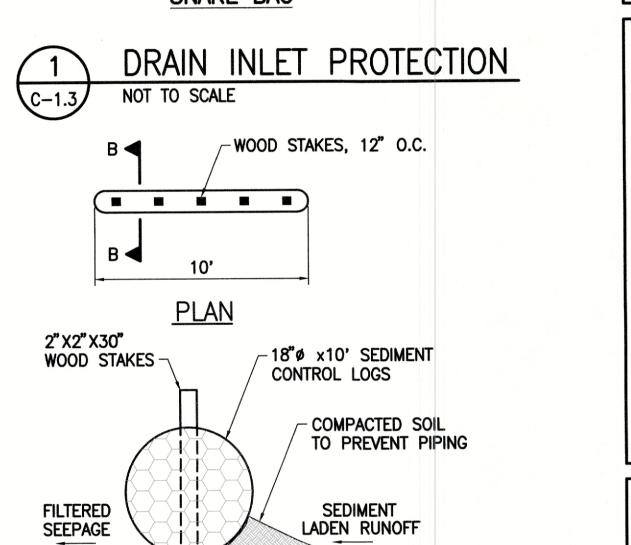
SECTION A

 NOTICE TO PROCEED - POLYVINYL CHLORIDE **PVC** SHT SHEET - SEWER LINE SL SEWER MANHOLE

STD. STANDARD SDR - STANDARD DIMENSION RATIO S.Y. SQUARE YARD TYP. TYPICAL

- WASTEWATER DIVISION WWD

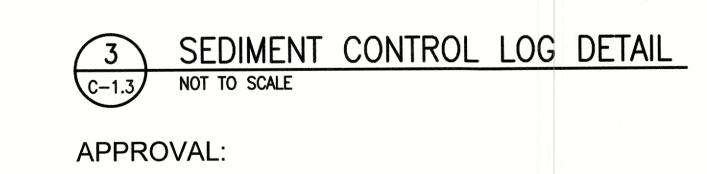
THIS SHEET) OR EXISTING DRAIN INLET GRATE -Mono-filament weave bag FILLED W/SAND OR GRAVEL FOR SEDIMENT BARRIER SNAKE BAG



 STAKE SEDIMENT LOGS IN PLACE WITH 2"X2"X30" WOOD STAKES SPACE NO LESS THAN 24" APART UNLESS OTHERWISE NOTED. DRIVE STAKES INTO GROUND A MINIMUM OF 6".

SECTION "B"

2. INSTALL SEDIMENT CONTROL LOGS DIRECTLY ON GROUND MAKING SURE BOTTOM OF LOG IS IN FULL CONTACT WITH GROUND. TAMP SOIL BACKFILL AGAINST UPSTREAM SIDE OF LOG TO ASSURE STORM WATER IS FORCED FLOW THROUGH LOG RATHER THAN UNDER IT.

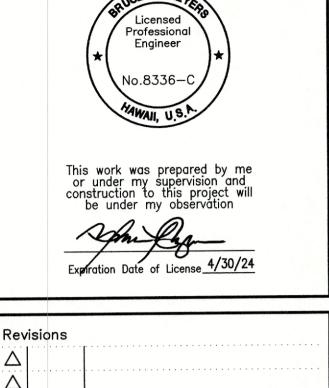


WASTEWATER DIVISION CHIEF DEPARTMENT OF ENVIRONMENTAL MANAGEMENT COUNTY OF HAWAII

DATE

Sheet Title CIVIL NOTES, ABBREVIATIONS AND BMP DETAILS 220-063 Project No. CAD File Name AS SHOWN JANUARY 2022 C - 1.3

Okahara and Associates, Inc. ENGINEERS AND LANDSCAPE ARCHITECTS 200 KOHOLA STREET HILO: HILO, HAWAII 96720 PH: (808) 961-5527 FAX: (808) 961-5529 677 ALA MOANA BLVD., SUITE 703 HONOLULU: HONOLULU, HAWAII 96813 PH: (808) 524-1224 FAX: (808) 521-3151



Δ Δ Date Description Project

TO RLINE SCT WE 0

DES NDRI

(3)

5 Of 8 Sheets

BIOFILTER SOCK DETAIL

COMPOST C - 1.3

NOT TO SCALE

OVERLAP

WORK

FILTER SOCK

MIN.

SILT FENCE DETAIL

SECTION VIEW

NOT TO SCALE

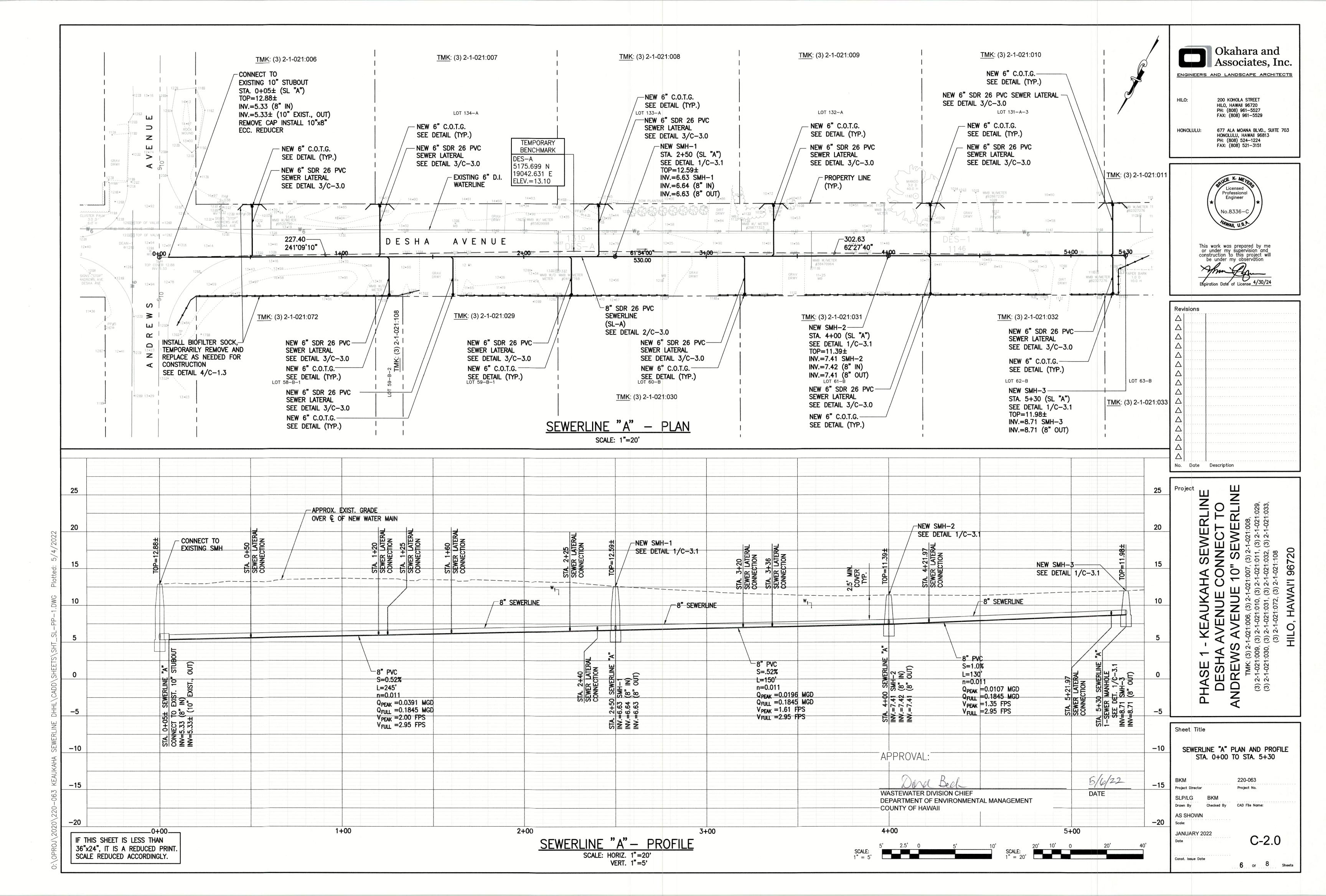
FLOW

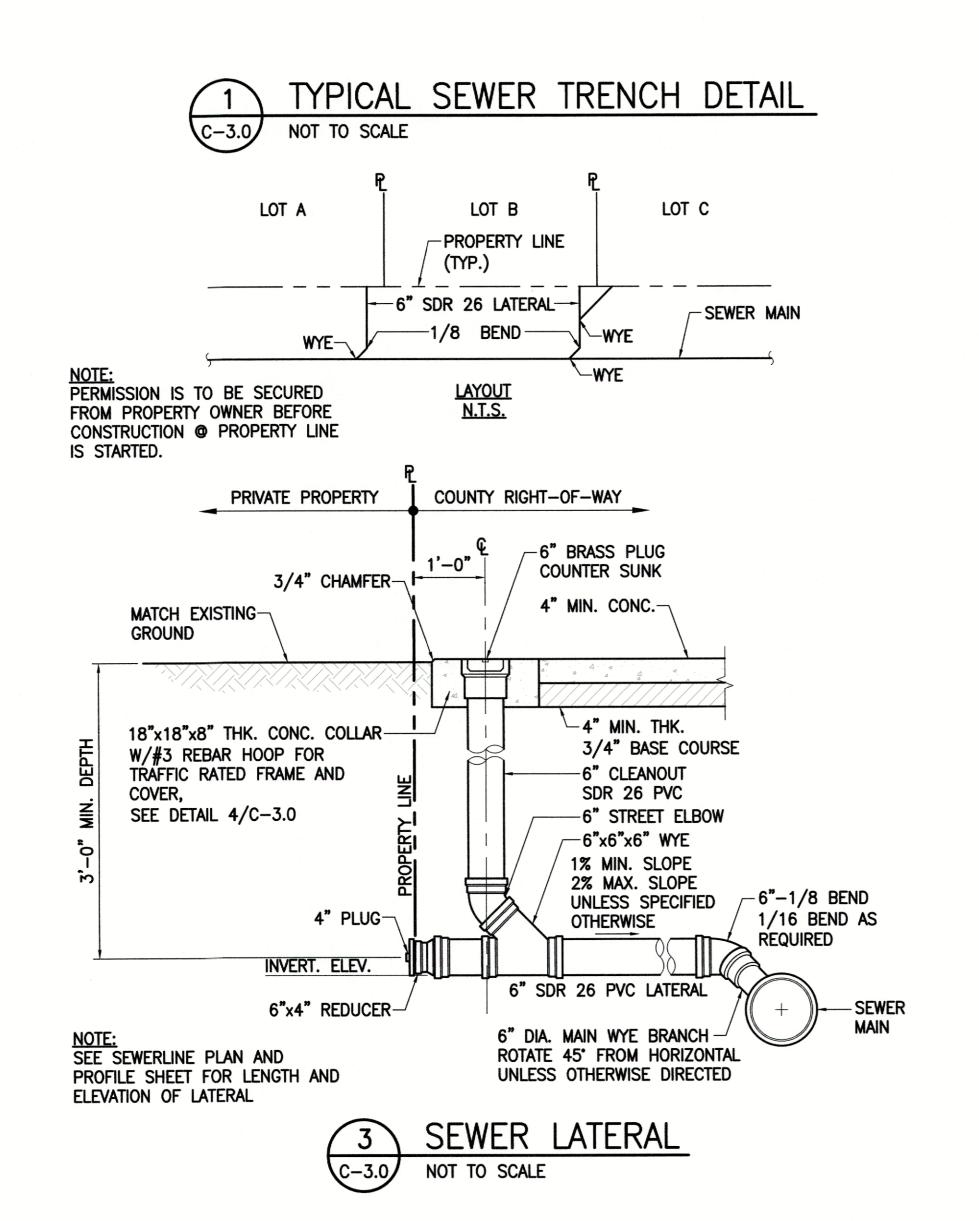
RUNOFF

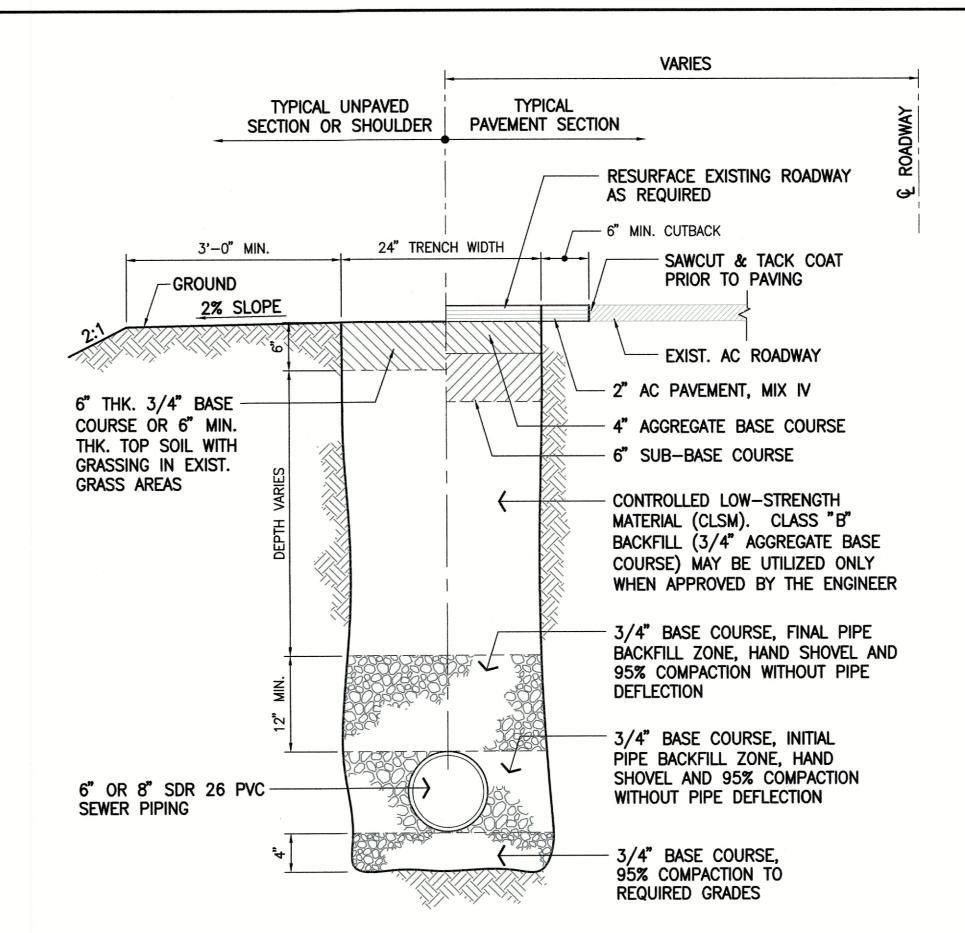
OVERLAP

FILTER SOCK

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TYPICAL SEWER TRENCH IN COUNTY ROAD DETAIL

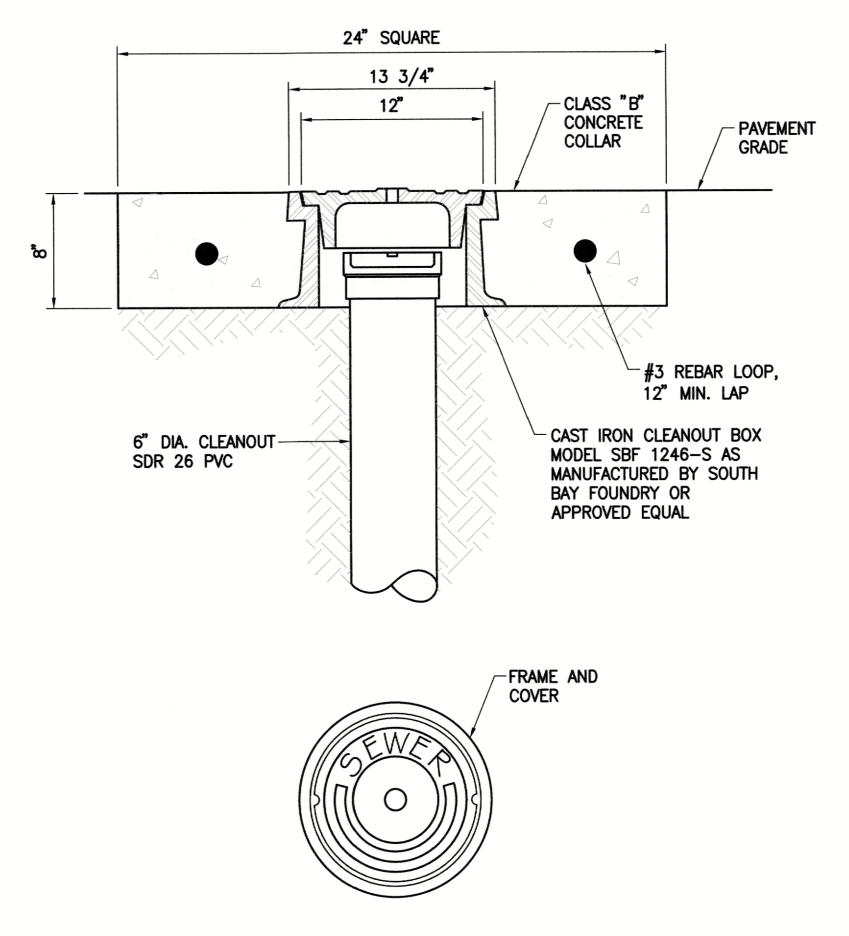
Output

Output

Description:

Output

Descri



TRAFFIC RATED FRAME AND COVER

Output

APPROVAL:

WASTEWATER DIVISION CHIEF
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
COUNTY OF HAWAII



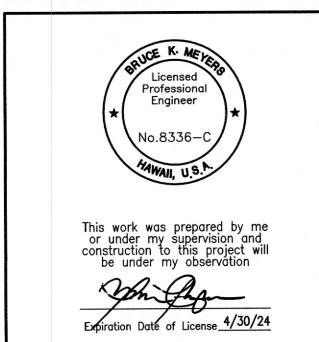
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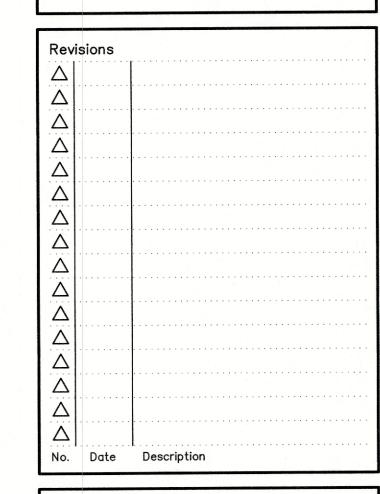
Okahara and Associates, Inc.

ENGINEERS AND LANDSCAPE ARCHITECTS

200 KOHOLA STREET HILO, HAWAII 96720 PH: (808) 961-5527 FAX: (808) 961-5529

JLU: 677 ALA MOANA BLVD., SUITE 703 HONOLULU, HAWAII 96813 PH: (808) 524-1224 FAX: (808) 521-3151

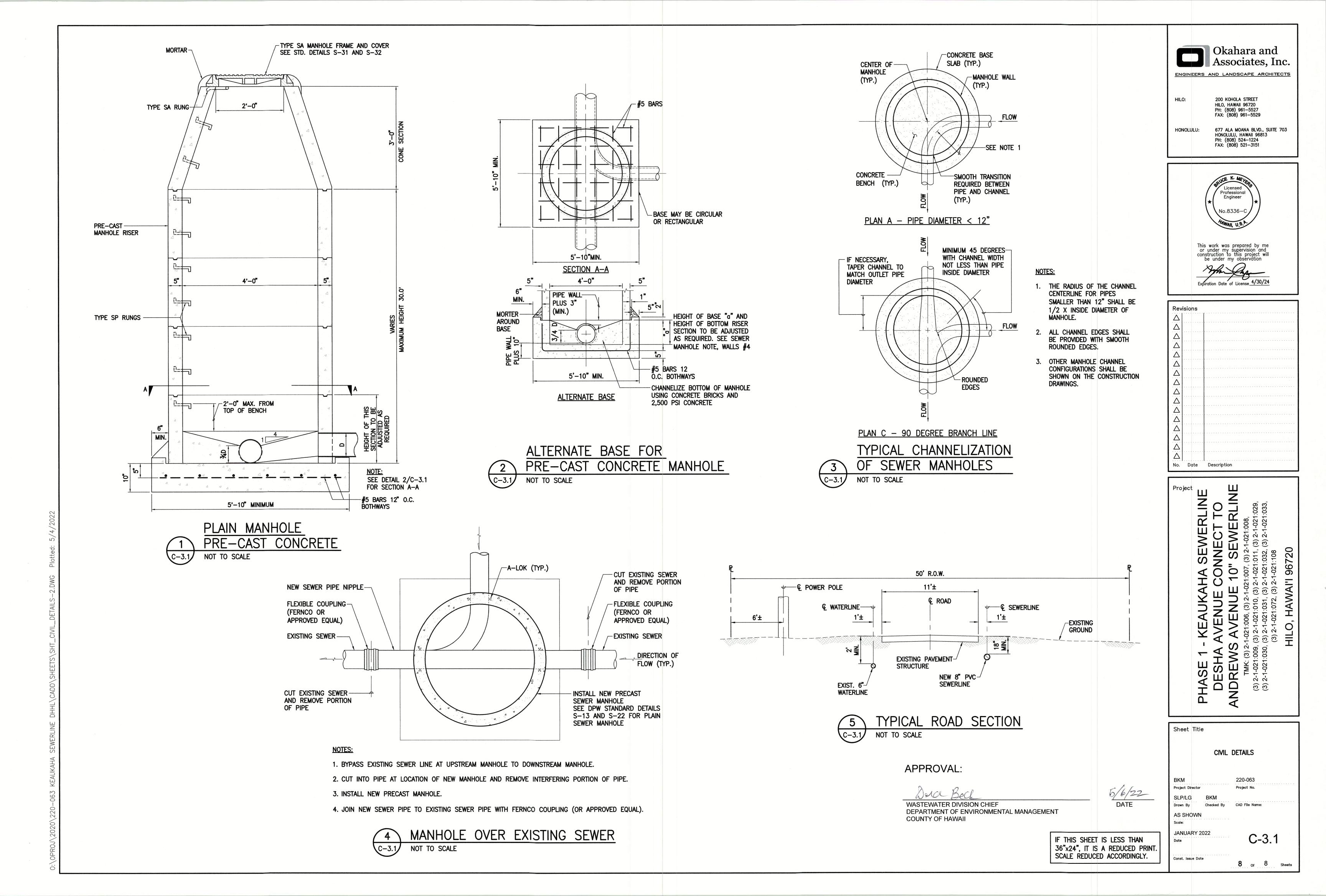


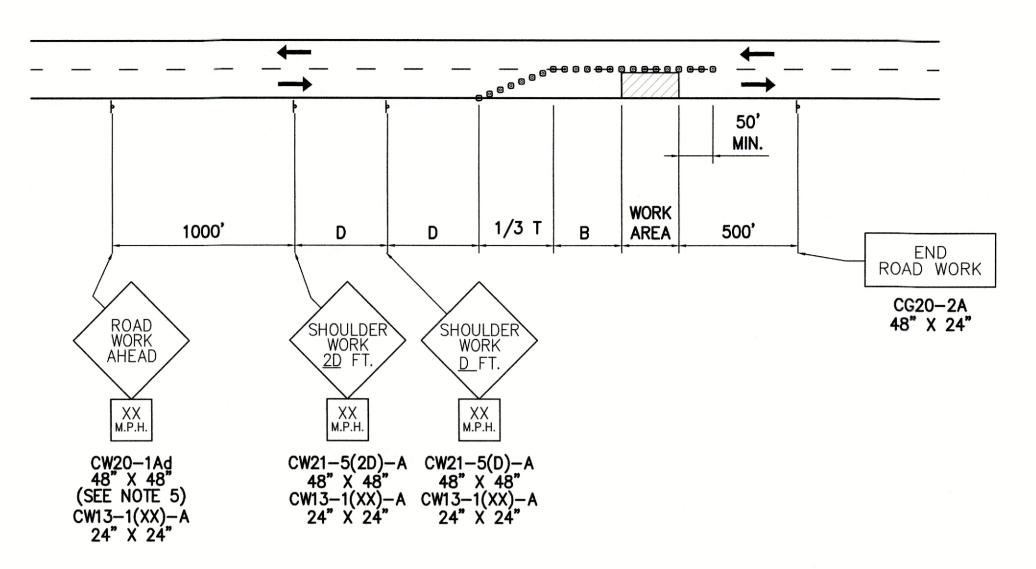


PHASE 1 - KEAUKAHA SEWERLINE
DESHA AVENUE CONNECT TO
ANDREWS AVENUE 10" SEWERLINI
TMK: (3) 2-1-021:006, (3) 2-1-021:007, (3) 2-1-021:008,
(3) 2-1-021:009, (3) 2-1-021:010, (3) 2-1-021:033,
(3) 2-1-021:030, (3) 2-1-021:031, (3) 2-1-021:033,
(3) 2-1-021:030, (3) 2-1-021:072, (3) 2-1-021:038

	CIVIL	DETAILS
вкм		220-063
Project Director		Project No.
SLP/LG Drawn By	BKM Checked By	CAD File Name:
AS SHOWN		

T. Const. Issue Date 7 Of 8 Sheets





LEGEND

CONE OR DELINEATOR

→ DIRECTION OF TRAFFIC

▶ SIGN

NOTES:

1. THIS PLAN MAY BE USED ONLY IF ALL ROAD WORK, INCLUDING EQUIPMENT AND WORKERS ARE OFF THE TRAVEL WAY.

SEE TABLE 1 FOR ADDITIONAL DIMENSIONS.
 ENGINEER WILL DETERMINE IF ADVISORY SPEED SIGN IS

4. CONTRACTOR WILL PROVIDE NECESSARY ADJUSTMENTS TO

ACCOMMODATE BICYCLISTS AND PEDESTRIANS. 5. CW20-1AD SIGN REQUIRED FOR POSTED SPEED LIMIT OF 45 MPH

6. SIGNING IS REQUIRED IF THE WORK AREA INCLUDING EQUIPMENT AND WORKERS, IS OUTSIDE THE CLEAR ZONE DISTANCE, AS SPECIFIED IN THE LATEST AASHTO ROADSIDE DESIGN GUIDE.

TYPICAL TRAFFIC CONTROL PLAN -WORKING ON SHOULDER OR ROADSIDE NOT TO SCALE

TABLE I FOR TRAFFIC CONTROL PLAN									
POSTED SPEED	SIGN	TAPER LENGTH (T) (FEET)		LONGITUDINAL BUFFER	SPACING OF CONES OR DELINEATORS (FEET) ③				
LIMIT ① (M.P.H.)	SPACING (L) (FEET)	W=12' OR LESS ②	W=GREATER THAN 12' ②	SPACE (B) (FEET)	TAPER	TANGENT	WORK AREA		
20	250	200	W X 17	35	20	20	10		
25	250	200	W X 17	55	25	30	10		
30	250	250	W X 20	85	30	30	10		
35	250	250	W X 20	120	35	35	10		
40	500	350	W X 30	170	40	40	10		
45	500	550	W X 45	220	45	45	10		
50	1000	600	W X 50	280	50	50	10		
55	1000	700	W X 55	335	55	55	10		

① USE ADVISORY SPEEDS WHEN POSTED.

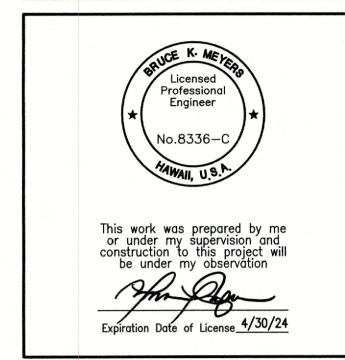
W=WIDTH OF LANE OR OFFSET.

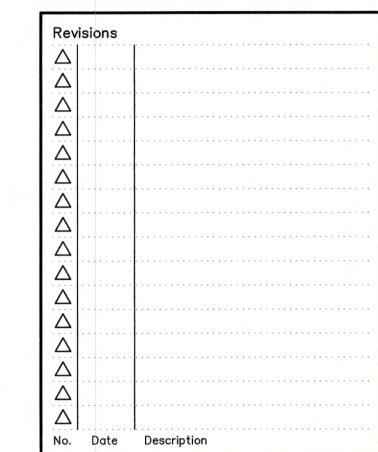


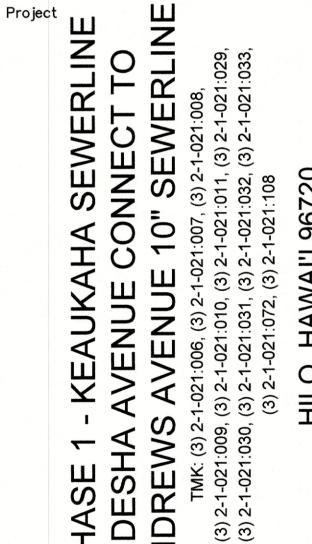


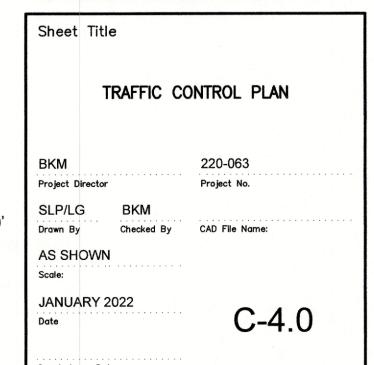
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