

NOTES FOR GENERAL CONSTRUCTION

(Revised July 26, 2022)

- ALL CONSTRUCTION WORK IS TO BE CONSTRUCTED IN ACCORDANCE WITH THE CURRENT VERSIONS OF THE PUBLICATIONS "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION", THE "HAWAII DEPARTMENT OF TRANSPORTATION HIGHWAYS DIVISION STANDARD PLANS", AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII." THE STANDARD DETAILS ARE AVAILABLE AT THE COUNTY OF KAUAI CLERK'S OFFICE.
- APPROVAL BY THE COUNTY SHALL IN NO WAY RELIEVE THE DESIGN ENGINEER OF THEIR RESPONSIBILITIES AND PROFESSIONAL OBLIGATIONS. THEY SHALL BE HELD RESPONSIBLE FOR THE ADEQUACY OF THE DESIGN AND ACCURACY AND COMPLETENESS OF THE PLANS AND SPECIFICATIONS. CHANGES OR REVISIONS TO CORRECT ANY DEFICIENCIES SHALL BE MADE BY AND AT THE EXPENSE OF THE DESIGNER. SUCH CHANGES AND REVISIONS SHALL REQUIRE APPROVAL BY THE COUNTY.
- NO GRADING BETWEEN 7 P.M. TO 7 A.M. ON ANY GIVEN DAY OR ON SATURDAYS, SUNDAYS, AND HOLIDAYS WITHOUT WRITTEN PERMISSION FROM THE COUNTY ENGINEER AND THE STATE DEPARTMENT OF HEALTH.
- CONTRACTOR TO NOTIFY PUBLIC WORKS DEPARTMENT FIVE (5) BUSINESS DAYS PRIOR TO COMMENCING ANY GRADING WORK. WHEN COMPLETED AND READY FOR FINAL INSPECTION; NOTIFY PUBLIC WORKS DEPARTMENT INSPECTION SECTION.
- CONSTRUCTION PLANS ARE VALID FOR A PERIOD OF ONE YEAR FROM THE DATE OF APPROVAL. IF CONSTRUCTION DOES NOT COMMENCE WITHIN THE ONE-YEAR TIME FROM THE DATE OF APPROVAL, THE CONSTRUCTION PLANS SHALL BE RESUBMITTED TO ALL REVIEWING AND APPROVING AGENCIES FOR REVIEW, APPROVAL, AND RECERTIFICATION OF THE PLAN.
- ALL GRADING, GRUBBING, AND STOCKPILING WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE COUNTY OF KAUAI ORDINANCE NO. 808.
- AFTER EACH RAINFALL EVENT, THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS, AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE COUNTY ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
- DURING CLEANING OPERATIONS, THE CONTRACTOR SHALL SUPPLY A WATER TRUCK FOR DUST CONTROL PURPOSES UNTIL THE VEGETATION HAS RE-ESTABLISHED ITSELF. EXCESS WATER, INCLUDING SILT AND DIRT, SHALL NOT BE ALLOWED TO RUN-OFF THE PROPERTY.
- BENCHMARKS THAT ARE DISTURBED OR DESTROYED SHALL BE RESTORED UNDER A LICENSED LAND SURVEYOR'S DIRECTION. COPIES OF FIELD NOTES, DESCRIPTIONS AND NEW VALUES OF THE NEW BENCHMARK SHALL BE SENT TO THE DEPARTMENT OF PUBLIC WORKS SURVEY SECTION FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME AND/OR NIGHT WORK PAYMENTS FOR THE COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING CONSULTANTS, WHEN THE CONTRACT REQUIRES OVERTIME OR NIGHT WORK TO BE PERFORMED, OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE.
- BEST MANAGEMENT PRACTICES (BMP'S) SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATERCOURSES, NATURAL AREAS AND THE PROPERTY OF OTHERS.
- SURVEYS, AND ALL CONSTRUCTION STAKE OUT FOR MASS GRADING, FINAL ROADWAY AND SHOULDER IMPROVEMENTS, AND UTILITIES (SEWER, DRAIN, WATER, ELECTRICAL, ETC.) SHALL BE DONE UNDER THE SUPERVISION OF A LAND SURVEYOR LICENSED IN THE STATE OF HAWAII. IF THE CONTRACTOR ELECTS TO PERFORM THE SURVEY AND CONSTRUCTION STAKE OUTS WITHOUT THE SUPERVISION OF A LAND SURVEYOR, THE CONTRACTOR SHALL SUBMIT FINAL AS-BUILT PLANS CERTIFIED BY A LAND SURVEYOR THAT ALL UTILITIES AND ALL GRADING WORK FOR FINAL ROAD AND SHOULDER ELEVATIONS WERE CONSTRUCTED IN THE LOCATION AND ELEVATIONS (INCLUDED BUT NOT LIMITED TO TOP AND INVERTS FOR UTILITIES) AS SHOWN ON THE AS-BUILT PLANS AND CERTIFIED BY THE DESIGN ENGINEER THAT THE AS-BUILT LOCATION AND ELEVATIONS FOR THE IMPROVEMENTS MEETS MINIMUM DESIGN STANDARDS AND REGULATORY REQUIREMENTS.
- IF SYSTEM CONDITIONS REQUIRE NON-EMERGENCY NIGHTTIME WORK DURING THE AUTUMN SEABIRD FALL SEASON (SEPTEMBER 15 THROUGH DECEMBER 15), USE OF LIGHTING SHALL BE RESTRICTED BETWEEN 9:00 P.M. TO 4:30 A.M. IF LIGHTING OF THE WORK AREA IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARDS THE SKY) AND DIRECTED DOWNWARDS TO THE MAXIMUM EXTENT PRACTICABLE. MINIMUM REQUIREMENTS FOR LIGHTING BY HIOSH AND OSHA SHALL BE PROVIDED AND ASSURED BY THE CONTRACTOR. THE CONTRACTOR SHALL TRAIN ALL EMPLOYEES WORKING AT NIGHT (RECORDS RETAINED BY THE CONTRACTOR) ON HOW TO HANDLE ANY RETRIEVED DOWNED BIRDS AND SHALL HAVE APPROPRIATE EQUIPMENT AS APPROVED BY SAVE OUR SHEARWATERS (SOS) ON SITE TO HOLD AND TRANSPORT ANY RETRIEVED BIRDS TO AN SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.
- PRIOR TO STARTING ANY EXCAVATION ACTIVITIES, THE CONTRACTOR SHALL CONTACT THE HAWAII ONE CALL CENTER AT 1-866-423-7287.
- PRIOR TO INSTALLATION OF ANY NEW SEWER LINES, DRAIN LINES, MANHOLES, AND STRUCTURES THAT WILL BE TRANSFERRED TO THE COUNTY OR REQUIRED FOR THE SUBDIVISION OF THE PROPERTY, THE CONTRACTOR SHALL HAVE ALL IMPROVEMENTS (MAINS, PIPES, APPURTENANCES AND STRUCTURES) SURVEYED AND STAKED OUT BY A LICENSED PROFESSIONAL LAND SURVEYOR AND THE CONTRACTOR SHALL EXPOSE, VERIFY, AND BACKFILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES IN CLOSE PROXIMITY TO CROSSINGS AND CONNECTIONS PRIOR TO EXCAVATION OF PIPELINE TRENCH. CONTRACTOR SHALL PROVIDE THE LICENSED SURVEYOR CUT SHEET AND PROBING INFORMATION TO THE PUBLIC WORKS ENGINEERING CONSTRUCTION ENGINEER FOR REVIEW AND APPROVAL BEFORE MOVING FORWARD WITH INSTALLATION VIA THE SUBMITTAL REVIEW PROCESS.
- PRIOR TO INSTALLATION OF FINAL ROADWAY IMPROVEMENTS (SUBGRADE, BASE COURSE, AND FINAL CONCRETE OR AC PAVEMENT, CURBS, GUTTERS, SIDEWALK, ETC.) AND/OR ANY NEW RIGHT OF WAY IMPROVEMENTS THAT WILL BE TRANSFERRED TO THE COUNTY OR REQUIRED FOR THE SUBDIVISION OF THE PROPERTY, THE CONTRACTOR SHALL HAVE ALL IMPROVEMENTS SURVEYED AND STAKED OUT BY A LICENSED PROFESSIONAL LAND SURVEYOR AND THE CONTRACTOR SHALL EXPOSE, VERIFY, AND BACKFILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES IN CLOSE PROXIMITY TO CONNECTIONS PRIOR TO ESTABLISHING ROAD SUBGRADE. CONTRACTOR SHALL PROVIDE THE LICENSED SURVEYOR ROAD CENTERLINE (AND/OR CURB OFFSETS) CUT SHEET OF FINAL SUBGRADE TO THE PUBLIC WORKS ENGINEERING CONSTRUCTION ENGINEER FOR REVIEW AND APPROVAL BEFORE MOVING FORWARD WITH THE INSTALLATION VIA THE SUBMITTAL REVIEW PROCESS.
- THE DEPARTMENT OF PUBLIC WORKS SHALL BE PROVIDED TWENTY (20) WORKING DAYS FOR ALL SUBMITTAL REVIEWS FROM THE TIME OF SUBMISSION BY THE CONTRACTOR.
- THE DEPARTMENT OF PUBLIC WORKS SHALL HAVE ACCESS TO THE WORK AT ALL TIMES DURING CONSTRUCTION AND SHALL BE FURNISHED WITH EVERY REASONABLE FACILITY (INCLUDING BUT NOT LIMITED TO LAYOUT UNDER THE SUPERVISION OF A LAND SURVEYOR LICENSED IN THE STATE OF HAWAII) FOR ASCERTAINING THAT THE MATERIALS USED AND THE WORKMANSHIP ARE IN ACCORDANCE WITH THE REQUIREMENTS OF THE CHAPTER 9 SUBDIVISION ORDINANCE; ORDINANCE NO. 808, ARTICLE 7, GRADING, GRUBBING AND STOCKPILING; AND THE STANDARDS ESTABLISHED BY THE DEPARTMENT OF PUBLIC WORKS.

NOTES FOR GENERAL CONSTRUCTION

(CONT):

- FOR GRADING WORK EXCEEDING ONE (1) ACRE, WITH EMBANKMENTS IN EXCESS OF FIVE HUNDRED (500) CUBIC YARDS, AND WITH A DEPTH OF MORE THAN FOUR (4) FEET, THE CONTRACTOR SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER FOR QUALITY CONTROL. CERTIFICATION FROM THE GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS AT THE COMPLETION OF THE GRADING WORK. THE GEOTECHNICAL ENGINEER SHALL CERTIFY THAT THE GRADING WORK MEETS THE REQUIREMENTS OF THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS; THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, COUNTY OF KAUAI, CITY AND COUNTY OF HONOLULU, COUNTY OF MAUI, AND THE COUNTY OF HAWAII DATED SEPTEMBER 1984" OR AS AMENDED; ORDINANCE NO. 808, ARTICLE 7, GRADING GRUBBING, AND STOCKPILING; AND THE APPROVED CONSTRUCTION PLANS. THE GEOTECHNICAL ENGINEER SHALL ALSO SUBMIT TEST RESULTS AS REQUESTED BY THE DEPARTMENT OF PUBLIC WORKS.
- UPON COMPLETION OF CONSTRUCTION, THE CONTRACTOR WILL PREPARE AND CERTIFY AS-BUILT DRAWINGS THAT REPRESENT ALL CHANGES TO THE ORIGINAL APPROVED CONSTRUCTION PLANS. THE OWNER'S LICENSED DESIGN ENGINEER WILL CERTIFY THAT ALL OF THE CHANGES SHOWN ON THE AS-BUILT DRAWINGS HAVE BEEN APPROVED BY THE DESIGN ENGINEER AND MEET MINIMUM STANDARDS IN ACCORDANCE WITH THE REQUIREMENTS OF THE ORIGINAL APPROVED CONSTRUCTION PLANS. THE DEPARTMENT OF PUBLIC WORKS MAY REQUIRE EVERY REASONABLE FACILITY TO VERIFY ANY IMPROVEMENT ON THE FINAL AS-BUILT PLANS PRIOR TO THE CERTIFICATION BY THE OWNER'S ENGINEER, INCLUDING BUT NOT LIMITED TO HAVING A LAND SURVEYOR LICENSED IN THE STATE OF HAWAII CONFIRM AND CERTIFY THE FINAL LOCATION AND ELEVATIONS.

GRADING NOTES

- THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION SHALL BE AT NO ADDITIONAL COST TO THE OWNER AND COUNTY OF KAUAI.
- ANY REMAINING SEDIMENT AND DEBRIS IN WATERWAYS AND DRAINAGE FACILITIES SHALL BE REMOVED UPON COMPLETION OF GRADING OPERATIONS.
- 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 AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH AND THE GRADING ORDINANCE OF THE COUNTY OF KAUAI.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS", AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
- ALL SLOPES SHALL BE 2:1 OR FLATTER.
- WHERE EXISTING GROUND IS STEEPER THAN 5 HORIZONTAL TO 1 VERTICAL, (5:1) BENCHING AND KEYING ARE REQUIRED TO PROPERLY BOND THE NEW FILL TO THE SLOPE.
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANYTIME WITHOUT PRIOR NOTICE TO THE OWNER'S REPRESENTATIVE AND A WRITTEN PERMISSION FROM THE COUNTY ENGINEER.
- THE LIMITS OF THE GRADED AREA SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRADING WORK.
- ALL GRADING GRUBBING AND STOCKPILING WORK SHALL BE DONE IN ACCORDANCE WITH THE COUNTY OF KAUAI'S SEDIMENT AND EROSION CONTROL ORDINANCE NO. 808 AND THE CONTRACT SPECIFICATIONS.
- FOR WATER POLLUTION AND EROSION CONTROL NOTES, SEE THIS SHEET.
- BURNING OF GRUBBED MATERIAL ON THE PROJECT SITE SHALL NOT BE PERMITTED.
- ISSUANCE OF A GRADING, GRUBBING OR STOCKPILING PERMIT SHALL BE DEEMED TO INCLUDE THE RIGHT OF THE COUNTY ENGINEER OR HIS REPRESENTATIVE TO ENTER UPON THE PROPERTY TO INSPECT OPERATIONS.
- HOURS OF OPERATION - 7:00 A.M. TO 7:00 P.M. DAILY EXCEPT SATURDAYS, SUNDAYS AND HOLIDAYS AND AS AUTHORIZED IN WRITING BY THE COUNTY ENGINEER.
- THE PERMITTEE SHALL NOTIFY THE DIVISION OF ENGINEERING INSPECTIONS SECTION, FIVE (5) DAYS BEFORE THE PERMITTEE OR HIS AGENT BEGINS ANY GRADING, GRUBBING OR STOCKPILING.
- THE PERMITTEE OR HIS AGENT SHALL NOTIFY THE DIVISION OF ENGINEERING INSPECTION SECTION, WHEN THE OPERATIONS ARE READY FOR FINAL INSPECTION.
- A FINAL AS-BUILT PLAN SHALL BE SUBMITTED TO THE DIVISION OF ENGINEERING INSPECTION SECTION.
- ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE COUNTY OF KAUAI SEDIMENT AND EROSION CONTROL ORDINANCE NO. 808 AND THE HAWAII ADMINISTRATIVE RULES, DEPARTMENT OF HEALTH, WATER QUALITY STANDARDS AND WATER POLLUTION CONTROL (HAR, CHAPTERS 11-54 AND 11-55) TO PREVENT DISCHARGE OF SEDIMENTS, EROSION, AND RUNOFF VIOLATIONS TO NATURAL DRAINAGE WAYS AND STATE WATERS.
- GRUBBED MATERIAL, DEMOLITION WASTES SHALL BE DISPOSED OF IN ACCORDANCE TO THE REQUIREMENTS OF THE STATE DEPARTMENT OF HEALTH SOLID WASTE MANAGEMENT PERMIT. OPEN BURNING IS PROHIBITED. THE CONTRACTOR SHALL INFORM THE COUNTY ENGINEER OF THE LOCATION OF DISPOSAL SITES. THE BORROW SITES SHALL COMPLY WITH THE SEDIMENT AND EROSION CONTROL ORDINANCE NO. 808.
- EARTHWORK QUANTITIES ARE:
GRADED AREA = 1.11 AC
EXCAVATION = 1,300 CY
EMBANKMENT = 1,100 CY
EARTHWORK QUANTITIES ARE FOR GRADING PERMIT ONLY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING HIS OWN QUANTITIES.
- THE COUNTY SHALL BE INFORMED OF THE LOCATION OF THE DISPOSAL SITE FOR THE EXCESS MATERIAL FROM THIS PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE DISPOSAL SITE SHALL COMPLY WITH SEDIMENT AND EROSION CONTROL ORDINANCE NO. 808.
- WHEN GRADING WORK IS DONE IN PHASES, THE ENGINEER MUST ACCEPT THE COMPLETED PHASE PRIOR TO START OF WORK ON THE NEXT PHASE. EVEN AFTER A COMPLETED PHASE HAS BEEN ACCEPTED, THE GRASSING OR OTHER MEANS OF STABILIZATION MUST BE MAINTAINED UNTIL PROJECT COMPLETION.

TEMPORARY DUST CONTROL

MEASURES FOR GRADING

- THE GRADED OR PROJECT SITE THAT IS CLEARED OF VEGETATION SHALL BE KEPT DAMP WITH WATER CONTINUOUSLY FOR SEVEN (7) DAYS A WEEK. AT THE END OF EACH DAY, THE SITE SHALL BE SUFFICIENTLY DAMPENED WITH WATER ON A CONTINUAL BASIS SO THAT THE SITE WILL REMAIN MOISTENED DURING THE NIGHT.
- THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO THAT EXCAVATION, EMBANKMENT, AND IMPORTED MATERIAL SHALL BE DAMPENED WITH WATER ON A CONTINUAL BASIS TO PREVENT DUST PROBLEMS.
- IN APPLYING FOR A GRADING PERMIT, THE CONTRACTOR SHALL SUBMIT PLANS, SCHEDULES AND/OR WRITTEN MEASURES WHICH PROVIDES FOR DUST CONTROL. THE DUST CONTROL MEASURES SHALL CONTAIN POSITIVE STATEMENTS WHICH REQUIRE ACTIONS OR WORK THAT PREVENT DUST PROBLEMS. NO PERMITS WILL BE ISSUED UNLESS THE COUNTY IS ASSURED THAT DUST AND EROSION PROBLEMS WILL BE MINIMIZED.

TEMPORARY EROSION CONTROL

MEASURES FOR GRADING

- TEMPORARY VEGETATIVE COVER SHALL BE PLANTED WITHIN A PERIOD OF 30 CALENDAR DAYS AFTER THE SITE HAS BEEN GRADED OR BARED OF VEGETATION OR IF THE SITE WILL BE SUSPENDED FOR MORE THAN 30 CALENDAR DAYS.
- TEMPORARY VEGETATIVE COVER SHALL CONSIST OF 40 LBS. COMMON RYE GRASS SEED PER ACRE, 400 LBS. PER ACRE 10-10-10 OR EQUIVALENT FERTILIZER WORKED INTO THE SEED BED BEFORE PLANTING. TEMPORARY SPRINKLER SYSTEM IS TO BE INSTALLED CONCURRENTLY WITH ALL PLANTINGS. PLANTING AND MAINTENANCE OF GRASS SHALL CONFORM TO THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.

PERMANENT EROSION CONTROL

MEASURES FOR GRADING

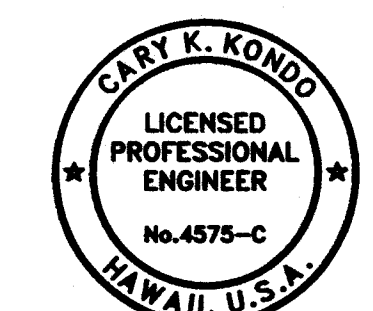
- THE CONTRACTOR SHALL GRASS THE ENTIRE PROJECT SITE, EXCEPT PAVED AREAS AND LANDSCAPE AREAS (SEE LANDSCAPE PLANS) WITH BERMUDA GRASS SPRIGS. THE GRASS SHALL BE PLANTED, FERTILIZED, AND MAINTAINED IN ACCORDANCE WITH THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2005" AND ITS AMENDMENTS.
- THE CONTRACTOR SHALL GRASS ALL EXPOSED AREAS THAT HAVE BEEN CONSTRUCTED TO FINAL GRADES WITHIN A PERIOD OF 30 CALENDAR DAYS.
- IN LIEU OF GRASS SPRIGS (NOTE 1), THE CONTRACTOR MAY USE HYDROMULCH WITH SEEDINGS AND IRRIGATION SPRINKLER SYSTEM.

ENVIRONMENTAL CONTROL NOTES

FOR GRADING

- IN ACCORDANCE WITH CHAPTER 11-60.1, AIR POLLUTION CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT EFFECTIVE CONTROL MEASURES ARE PROVIDED TO MINIMIZE OR PREVENT ANY VISIBLE DUST EMISSION CAUSED BY THE CONSTRUCTION WORK FROM IMPACTING THE SURROUNDING AREAS INCLUDING THE OFF-SITE ROADWAYS USED TO ENTER/EXIT THE PROJECT. THESE MEASURES INCLUDE BUT ARE NOT LIMITED TO THE USE OF WATER WAGONS, SPRINKLER SYSTEMS, DUST FENCES, ETC.
- IN ACCORDANCE WITH CHAPTER 11-55, WATER POLLUTION CONTROL AND CHAPTER 11-54, WATER QUALITY STANDARDS, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT THE BEST MANAGEMENT PRACTICE (BMP) TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENTS, DEBRIS AND OTHER WATER POLLUTANT INTO STATE WATERS ARE PROVIDED AT ALL TIMES.
- IN ACCORDANCE WITH CHAPTER 11-58, SOLID WASTE MANAGEMENT CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT GRUB MATERIAL DEMOLITION WASTE AND CONSTRUCTION WASTE GENERATED BY THE PROJECT ARE DISPOSED OF IN A MANNER OR AT A SITE APPROVED BY THE STATE DEPARTMENT OF HEALTH. DISPOSAL OF ANY OF THESE WASTES BY BURNING IS PROHIBITED.
- THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING AND PAYING FOR ALL APPLICABLE PERMITS FROM THE DEPARTMENT OF HEALTH INCLUDING BUT NOT LIMITED TO NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES), NOTICE OF INTENT AND GENERAL PERMIT FOR STORM WATER, HYDROSTATIC TEST AND DEWATERING DISCHARGES PRIOR TO COMMENCING CONSTRUCTION. NPDES PERMIT SHALL BE REQUIRED PRIOR TO GRADING OR GRUBBING WORK OVER AN AREA OF ONE ACRE OR MORE.
- AFTER EACH RAINFALL EVENT, THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM THIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE COUNTY ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
- BEST MANAGEMENT PRACTICES (BMPs) SHALL BE EMPLOYED AT ALL TIMES TO THE MAXIMUM EXTENT PRACTICABLE TO PREVENT DAMAGE BY SEDIMENTATION, EROSION OR DUST TO STREAMS, WATERCOURSES, NATURAL AREAS AND THE PROPERTY OF OTHERS.
- THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS FOR ALL PROJECTS WHICH WILL DISTURB ONE (1) ACRE OR MORE OF LAND. THE CONTRACTOR SHALL NOT START CONSTRUCTION UNTIL NOTICE OF GENERAL PERMIT COVERAGE (NGPC) IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII AND HAS SATISFIED ANY OTHER PERMITTING REQUIREMENTS OF THE NPDES PERMIT PROGRAM.
- IN ACCORDANCE WITH CHAPTER 11-46, COMMUNITY NOISE, HAWAII ADMINISTRATIVE RULES, THE CONTRACTOR AND THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING EFFECTIVE CONTROL MEASURES TO MINIMIZE OR PREVENT CONSTRUCTION RELATED NOISE FROM IMPACTING THE RESIDENTS IN THE IMMEDIATE AREA. IF REQUIRED, NOISE REDUCTION MEASURES SHALL BE IMPLEMENTED BY THE CONTRACTOR DURING THE CONSTRUCTION WORK.
- THE PROPERTY MAY HARBOR RODENTS WHICH WILL BE DISPERSED TO THE SURROUNDING AREAS WHEN THE SITE IS CLEARED. IN ACCORDANCE WITH CHAPTER 11-26, VECTOR CONTROL TITLE 11, HAWAII ADMINISTRATIVE RULES, THE APPLICANT SHALL ASCERTAIN THE PRESENCE OR ABSENCE OF RODENTS ON THE PROPERTY. SHOULD THE PRESENCE OF RODENTS BE DETERMINED, THE APPLICANT SHALL ERADICATE THE RODENTS PRIOR TO CLEARING THE SITE.
- A COPY OF THE PLANS, CONSTRUCTION SCHEDULE AND/OR WRITTEN MEASURES THAT IS REQUIRED TO BE SUBMITTED BY THE CONTRACTOR (DUST CONTROL MEASURES/PLANS) SHOULD ALSO BE SENT TO THE DEPARTMENT OF HEALTH FOR MONITORING PURPOSES.

TMK: 4 - 6 - 011-003



Cary K. Kondo
 THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII CONSTRUCTION NOTES-1			
APPROVED: <i>[Signature]</i> COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY R/W)			
APPROVED: <i>[Signature]</i> COUNTY ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE: 2/3/23

DRAWING NO.
C-1

NOTES FOR CONSTRUCTION WITHIN RIGHT-OF-WAY

- ALL DAMAGED PAVEMENT SHALL BE RESTORED TO ITS ORIGINAL CONDITION IN ACCORDANCE WITH THE MOST CURRENT VERSIONS OF THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984", THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUAI, MAUI, AND HAWAII" WITH 2" MINIMUM HOT MIX ASPHALT CONCRETE PAVEMENT (STATE DESIGN MIX V) AND 8" MINIMUM BASE COURSE.
- 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 AND FOR THE CONVENIENCE AND SAFETY OF THE PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE RULES AND REGULATIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS ADOPTED BY THE HIGHWAY SAFETY COORDINATOR AND U.S. FEDERAL HIGHWAY ADMINISTRATION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS DATED 2009 AND ITS AMENDMENTS.
- THE CONTRACTOR SHALL, WHENEVER NECESSARY, PROPERLY SHEET AND BRACE ALL EXCAVATIONS TO RENDER IT SECURE AND SHALL REMOVE ALL SUCH SHEETING AND BRACING BEFORE COMPLETION OF THE BACKFILL FOR WATER MAINS. THE MINIMUM COVER REQUIREMENTS (FROM TOP OF PIPE TO FINISHED GRADE OVER PIPE) IS THREE (3) FEET.
 - A PERMIT SHALL BE OBTAINED BY THE CONTRACTOR FROM THE DEPARTMENT OF PUBLIC WORKS, COUNTY OF KAUAI BEFORE WORK ON A PUBLIC STREET OR HIGHWAY MAY BEGIN. PERMIT FEES SHALL BE AT THE CONTRACTOR'S EXPENSE.
 - DRIVEWAYS SHALL BE KEPT OPEN UNLESS OWNERS OF THE ABUTTING LOTS USING THESE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
 - ALL WORK INCLUDING REPAIR OF DAMAGED PAVEMENT AND SHOULDERS SHALL BE INSPECTED AND APPROVED BY THE DEPARTMENT OF PUBLIC WORKS. ALL UNAPPROVED WORK SHALL BE CONSIDERED UNACCEPTABLE AND SHALL BE REWORKED AND CORRECTED AS DIRECTED BY THE DEPARTMENT OF PUBLIC WORKS, AT THE CONTRACTOR'S EXPENSE.
 - DAMAGED SHOULDERS SHALL BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION.
 - WORK ON A PUBLIC STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:00 A.M. TO 3:30 P.M. MONDAY THROUGH FRIDAY, EXCEPT ON HOLIDAYS RECOGNIZED BY THE COUNTY OF KAUAI, UNLESS OTHERWISE PERMITTED IN WRITING BY THE COUNTY ENGINEER.
 - DURING NON-WORKING HOURS, ALL TRENCHED SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING MATERIAL AND ALL LANES SHALL BE OPENED TO PUBLIC VEHICULAR AND PEDESTRIAN TRAFFIC.
 - NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN COUNTY RIGHT-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE COUNTY ENGINEER.
 - THE CONTRACTOR SHALL CONDUCT HIS OPERATIONS SO AS TO OFFER THE LEAST POSSIBLE OBSTRUCTIONS AND INCONVENIENCE TO THE PUBLIC AND HE SHALL HAVE UNDER CONSTRUCTION NO GREATER LENGTH OR AMOUNT OF WORK THAT HE CAN EXECUTE PROPERLY WITH DUE REGARD TO THE RIGHTS OF THE PUBLIC.
- ALL EXISTING DRAINAGE FLOW CONDITIONS SHALL BE MAINTAINED.
- THE CONTRACTOR SHALL RETAIN THE SERVICES OF A GEOTECHNICAL ENGINEER FOR QUALITY CONTROL. CERTIFICATION FROM THE GEOTECHNICAL ENGINEER SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS AT THE COMPLETION OF THE CONSTRUCTION WORK. THE GEOTECHNICAL ENGINEER SHALL CERTIFY THAT THE CONSTRUCTION WORK MEETS THE "STANDARD SPECIFICATIONS", THE GEOTECHNICAL ENGINEER SHALL ALSO SUBMIT TEST RESULTS AS REQUESTED BY THE DEPARTMENT OF PUBLIC WORKS.
- THE CONTRACTOR SHALL HOLD A PRECONSTRUCTION MEETING WITH THE CONSTRUCTION - DESIGN SECTIONS OF THE DEPARTMENT OF PUBLIC WORKS BEFORE COMMENCING ANY WORK.
- THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION TO PRESERVE BENCHMARKS (SURVEY MONUMENTS) WHENEVER THE CENTER OF A SURVEY MONUMENT IS LESS THAN THREE (3) FEET FROM THE EDGE OF CONSTRUCTION. THE CONTRACTOR SHALL RETAIN A LICENSED SURVEYOR TO REFERENCE THE LOCATION OF SAID SURVEY MONUMENT.
- BENCHMARKS THAT ARE DISTURBED OR DESTROYED SHALL BE RESTORED UNDER A LICENSED LAND SURVEYOR'S DIRECTION. COPIES OF FIELD NOTES, DESCRIPTIONS AND NEW VALUES OF THE NEW BENCHMARK SHALL BE SENT TO THE DEPARTMENT OF PUBLIC WORKS SURVEY SECTION FOR REVIEW AND APPROVAL PRIOR TO FINAL ACCEPTANCE OF THE PROJECT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL OVERTIME OR NIGHT WORK PAYMENTS FOR COUNTY'S STAFF AND INSPECTION PERSONNEL INCLUDING CONSULTANTS WHEN THE CONTRACT REQUIRES OVERTIME OR NIGHT WORK TO BE PERFORMED OR DIRECTS THE CONTRACTOR TO WORK ADDITIONAL SHIFTS OR OVERTIME FOR COUNTY'S CONVENIENCE.
- IF SYSTEM CONDITIONS REQUIRE NON-EMERGENCY NIGHTTIME WORK DURING THE AUTUMN SEABIRD FALL SEASON (SEPTEMBER 15 THROUGH DECEMBER 15), USE OF LIGHTING SHALL BE RESTRICTED BETWEEN 9:00 P.M. TO 4:30 A.M. IF LIGHTING OF THE WORK AREA IS REQUIRED IN SUCH SITUATION, ALL LIGHTS SHALL BE SHIELDED (MINIMUM LIGHT SPILL TOWARDS THE SKY) AND DIRECTED DOWNWARDS TO THE MAXIMUM EXTENT PRACTICABLE. MINIMUM REQUIREMENTS FOR LIGHTING BY HIOSH AND OSHA SHALL BE PROVIDED AND ASSURED BY THE CONTRACTOR. THE CONTRACTOR SHALL TRAIN ALL EMPLOYEES WORKING AT NIGHT (RECORDS RETAINED BY THE CONTRACTOR) IN HOW TO HANDLE ANY RETRIEVED DOWNED BIRDS AND SHALL HAVE APPROPRIATE EQUIPMENT AS APPROVED BY SAVE OUR SHEARWATERS (SOS) ON SITE TO HOLD AND TRANSPORT ANY RETRIEVED BIRDS TO AN SOS FACILITY. THIS REQUIREMENT DOES NOT ALLOW LIGHTING AS MAY BE RESTRICTED BY OTHER GOVERNMENT AGENCIES.

TOPOGRAPHIC SURVEY NOTES

- TOPOGRAPHIC SURVEY WAS PREPARED BY ESAKI SURVEYING & MAPPING, INC. SURVEY MAPS TITLES: JOB NUMBER 18-186 BF 11/13/18.
- HORIZONTAL CONTROL SHOWN ON THE PLANS ARE BASED ON BENCHMARK CENTERLINE MONUMENT ON PO'IPU ROAD AND "Y" CUT ON CONCRETE BELT-4.
- LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE ONLY AND ARE BASED ON RECORD INFORMATION.
- ALL ELEVATIONS AND DISTANCES ARE IN FEET.
- ELEVATION DATUM FOR THESE CONSTRUCTION PLANS IS BASED ON MEAN SEA LEVEL.
- ELEVATIONS TRANSFERRED FROM RM 110 (INTERSECTION MONUMENT AT PO'IPU ROAD AND PEE ROAD, ELEV=57.76 MSL)

HISTORICAL PRESERVATION NOTES

(REVISED MAY 30, 2013)

- SHOULD HISTORIC REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATIONS OF SHELL OR CHARCOAL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR SHALL CORDON OFF THE AREA AND IMMEDIATELY NOTIFY THE PLANNING DEPARTMENT AT (808) 241-4050 AND THE STATE HISTORIC PRESERVATION DIVISION AT (808) 692-8015, WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND THE APPROPRIATE MITIGATION MEASURES, IF NECESSARY. IN ADDITION, IF HUMAN BURIALS ARE FOUND, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE COUNTY OF KAUAI POLICE DEPARTMENT.

HAWAIIAN TELCOM NOTES

- THE CONTRACTOR SHALL EXERCISE CAUTION AND MAINTAIN PROPER CLEARANCES WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF HAWAIIAN TELCOM FACILITIES INCLUDING OVERHEAD CABLES AND SERVICE WIRES. THE CONTRACTOR SHALL BE LIABLE FOR ANY DAMAGE TO HAWAIIAN TELCOM FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO HAWAIIAN TELCOM'S REPAIR SECTION AT 611. AS A RESULT OF HIS OPERATIONS, ADJUSTMENTS IN THE NEW CONSTRUCTION, IF REQUIRED, SHALL BE MADE TO PROVIDE THE REQUIRED CLEARANCES.
- THE CONTRACTOR SHALL BRACE ALL EXISTING POLES THAT MAY BE COMPROMISED BY THE OPERATIONS. IF IN DOUBT, CONTACT HT ENGINEER SEVERINO URUBIO 933-6459 OR HT CONSTRUCTION SUPERVISOR LIANI SUNIGA AT 652-2804.
- THE CONTRACTOR SHALL NOTIFY RICK RAMONES, HAWAIIAN TELCOM'S INSPECTOR AT 651-2260, SHOULD ANY HAWAIIAN TELCOM FACILITIES BE AFFECTED BY THE PROPOSED WORK.

KAUAI ISLAND AND UTILITY COOPERATIVE (KIUC) NOTES

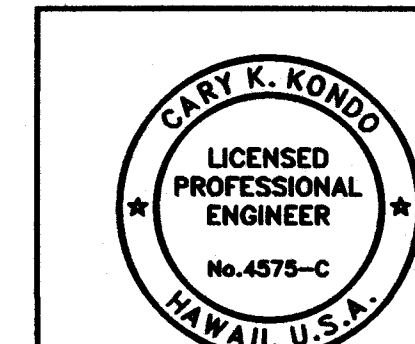
- THE LOCATION OF EXISTING KAUAI ISLAND UTILITIES COOPERATIVE FACILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD.
- THE CONTRACTOR SHALL CALL "BEFORE YOU DIG" NUMBER AT 1-866-423-7287 FOR UNDERGROUND UTILITY LOCATIONS TEN DAYS BEFORE START OF CONSTRUCTION.
- MAINTAIN MINIMUM 5'-0" HORIZONTAL CLEARANCE BETWEEN WATERLINES AND KIUC POLES.
- WATERLINE SHALL NOT RUN DIRECTLY UNDER OVERHANGING POWERLINES.
- THE CONTRACTOR SHALL NOTIFY THE KIUC'S CONSTRUCTION COORDINATOR AT 246-4343 AT LEAST FIVE DAYS IN ADVANCE, IF KIUC FACILITIES WILL BE AFFECTED.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COST TO ADJUST OR RELOCATE KIUC'S FACILITIES AND TO TEMPORARILY RELOCATE FACILITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO KIUC FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO KIUC TROUBLE CALL AT 246-8200.
- A MINIMUM OF 15 FEET RADIAL CLEARANCE IS REQUIRED WHEN WORKING WITHIN THE VICINITY OF ENERGIZED OVERHEAD ELECTRICAL LINES.

ABBREVIATIONS

AC, A.C.	ASBESTOS CEMENT,	FE	FLANGED END	REQ'D	REQUIRED
AC	ASPHALTIC CONCRETE	FIPT	FEMALE IRON PIPE THREAD	ROW	RIGHT-OF-WAY
ACP	ASBESTOS CEMENT PIPE	FL	FLANGED LENGTH	RP	RADIUS POINT
ADAAG	AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES	FT	FEET	RPM	REFLECTIVE PAVEMENT MARKER
APPROX	APPROXIMATE	GALV	GALVANIZED	RT	RIGHT
B	BOTTOM	GV	GATE VALVE	R/W, ROW	RIGHT-OF-WAY
BC	BOTTOM OF CURB	G.S.	GALVANIZED STEEL	S	SLOPE/SEWER SUPERVISORY CONTROL AND DATA ACQUISITION SYSTEMS
BL	BASE LINE	H	HEIGHT/HORIZONTAL	SCADA	SQUARE FEET
BLK	BLOCK	HB	HOSE BIBB	S/W	SIDEWALK
BLDG	BUILDING	HORIZ	HORIZONTAL	SDMH	STORM DRAIN MANHOLE
BMP	BEST MANAGEMENT PRACTICES	HP	HIGH POINT	SHT	SHEET
BOT	BOTTOM	HSS	HOLLOW STRUCTURAL SECTION	SMH	SEWER MANHOLE SPECIFICATIONS
BV	BOTTOM VERTICAL	HTCO	HAWAIIAN TELCOM	SQ	SQUARE
BVC	BEGIN VERTICAL CURVE	HW	HEADWALL	ST STL,	STAINLESS STEEL
CB	CATCH BASIN	HYD	HYDRANT	S.S.	STREET
CEN	CENTER	ID	INSIDE DIAMETER/IDENTIFICATION	STA	STATION
CH	CHORD	INV	INVERT	STD	STANDARD
CI	CAST IRON	IRR	IRRIGATION	T	TANGENT/TOP
CIG	CHANGE IN GRADE	ICV	IRRIGATION CONTROL VALVE	TBM	TEMPORARY BENCH MARK
CL	CENTER LINE/CLASS	L	LENGTH	TEMP	TEMPORARY
CLR	CLEAR	Lc	LENGTH OF CURVE	TC	TOP OF CURB
CMU	CONCRETE MASONRY UNIT	LF	LINEAL FEET	TMK	TAX MAP KEY
CO	CLEANOUT	LP	LOW POINT	TP	TOP OF PAVEMENT
CONC	CONCRETE	LT	LEFT	TRANS	TRANSITION
CONN	CONNECT/CONNECTION	MAX	MAXIMUM	TS	TRAFFIC SIGNAL
CONT	CONTINUATION	ME	MACHINE END	TV	TOP VERTICAL
CORP	CORPORATION	MG	MILLION GALLON	TW	TOP OF WALL
CRM	CONCRETE RUBBLE MASONRY	MH	MANHOLE	TYP	TYPICAL
CV	CONTROL VALVE	MIN	MINIMUM	V	VENT
CY	CUBIC YARD	MIPT	MALE IRON PIPE THREAD	VC	VERTICAL CURVE
DI	DRAIN INLET/DUCTILE IRON	MJ	MECHANICAL JOINT	VERT	VERTICAL
DIA	DIAMETER	MPH	MILES PER HOUR	W	WIDE
DIP	DUCTILE IRON PIPE	MSL	MEAN SEA LEVEL	W/	WITH
DIST	DISTANCE	N	NORTHING	W1*	1" WATER LINE
DL	DRAIN LINE	N/A	NOT APPLICABLE	WL	WATER LINE
DMH	DRAIN MANHOLE	NO	NUMBER	WM	WATER METER
DOW	DEPARTMENT OF WATER	OC	ON CENTER	WT	WEIGHT
DPP	DEPARTMENT OF PLANNING AND PERMITTING	OD, O.D.	OUTSIDE DIAMETER	WV	WATER VALVE
DTL	DETAIL	ofs	OFFSET		
DWGS	DRAWINGS	PAVT	PAVEMENT		
DWY	DRIVEWAY	PC	POINT OF CURVATURE		
E	EASTING	PE	PLAIN END		
EL, ELEV	ELEVATION	PVC	POINT OF INTERSECTION		
EOP	EDGE OF PAVEMENT	PL	VERTICAL CURVE		
EPLP	EDGE OF PAVEMENT LOW POINT	PL	PROPERTY LINE/PLATE		
EQ	EQUAL	POC	POINT OF CONNECTION		
EVC	END VERTICAL CURVE	PRV	PRESSURE REDUCING VALVE		
EW	EACH WAY	PSI	POUNDS PER SQUARE INCH		
EXIST	EXISTING	PVC	POLYVINYL CHLORIDE		
FC	FLANGED CONNECTION	PT	POINT OF TANGENCY/POINT QUANTITY		
		QTY	QUANTITY		
		R	RADIUS		
		RCP	REINFORCED CONCRETE PIPE		
		REINF	REINFORCED		

1/27/2023 3:44:45 PM T:\KAPPA HOMESTEADS TANK\2004740\DD MAPS\HAWAIIAN TELCOM SHEETS\CONSTRUCTION PLAN-CA-3-1 CONSTRUCTION NOTES-3 AND ABBREVIATIONS.DWG

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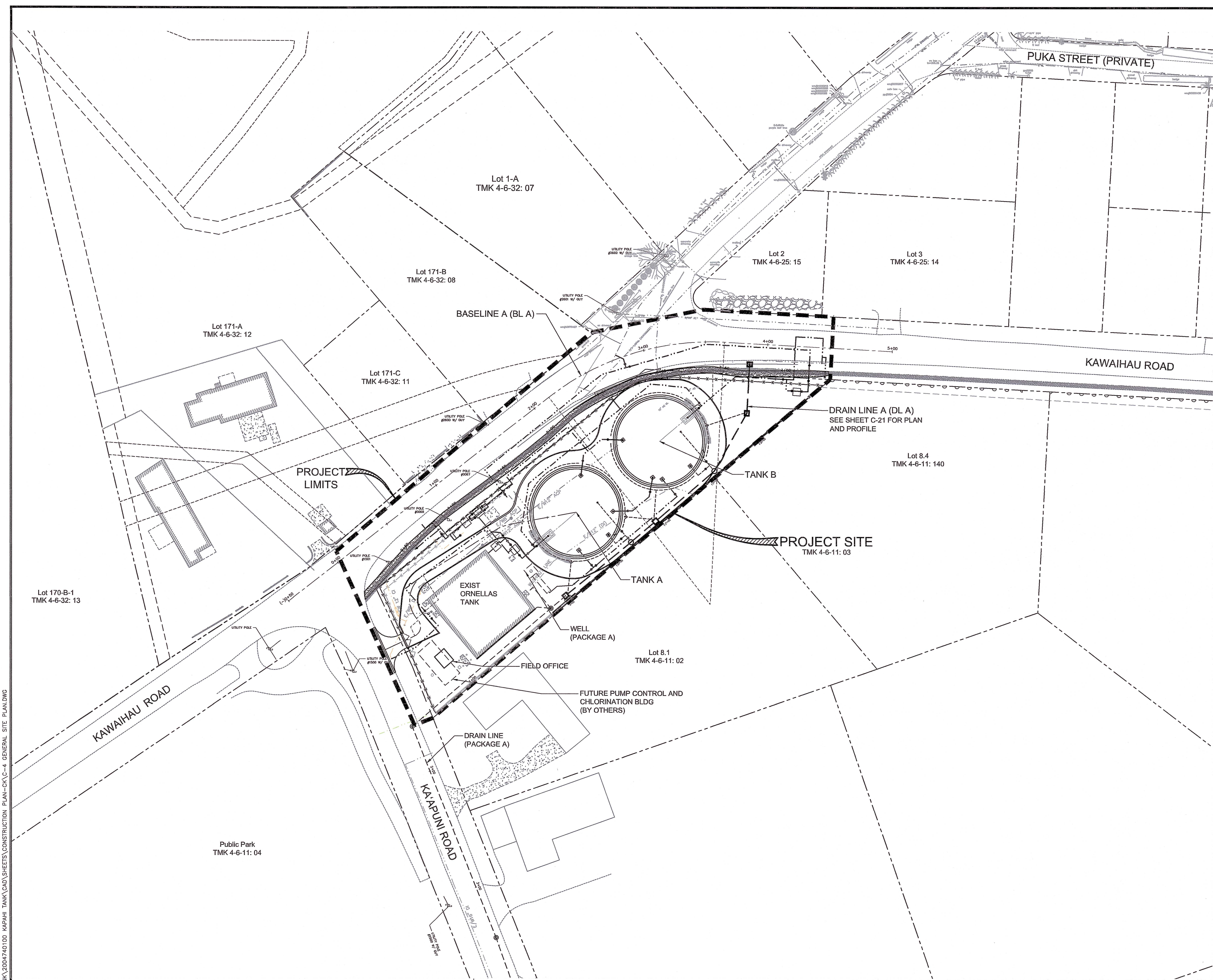
Cary K. Kondo
APPROVED:

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII CONSTRUCTION NOTES-3 AND ABBREVIATIONS			
APPROVED:		DATE	
<i>Jason Kaganoto</i>		2/3/23	
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			

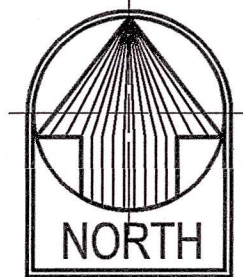
DRAWING NO.
C-3

2/7/2023 3:14:06 PM T:\KAPAA HOMESTEADS TANK\2004740100 KAPAAI TANK\CAD\SHEETS\CONSTRUCTION PLAN-CK-C-4 GENERAL SITE PLAN.DWG

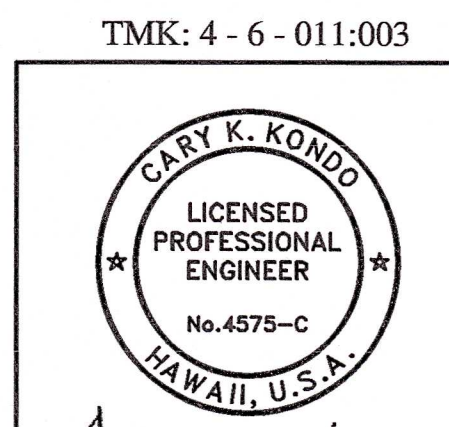


LEGEND:

EXISTING	PROPOSED	DESCRIPTION
— 5" W8" —	— W8" —	WATER LINE
— F/0.12" —	— D12" —	EDGE OF PAVEMENT
	— —	DRAIN LINE
	— —	PERIMETER DRAIN
	— —	PROJECT LIMITS
— 0+00 —	— 0+00 —	CENTER LINE/BASE LINE
— — —	— — —	FENCE
	— — —	CONCRETE CURB/GRADE ADJUSTMENT WALL
	— — —	CONCRETE
— 304 —	— 304 —	GROUND CONTOUR
— — —	— — —	PROPERTY LINE
	— — —	RUNOFF FLOW DIRECTION



GENERAL SITE PLAN
 SCALE: 1"=40'
 0 10' 20' 40'
 SCALE IN FEET



Cary K. Kondo
 APPROVED:

DRAWING NO.
C-4

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003

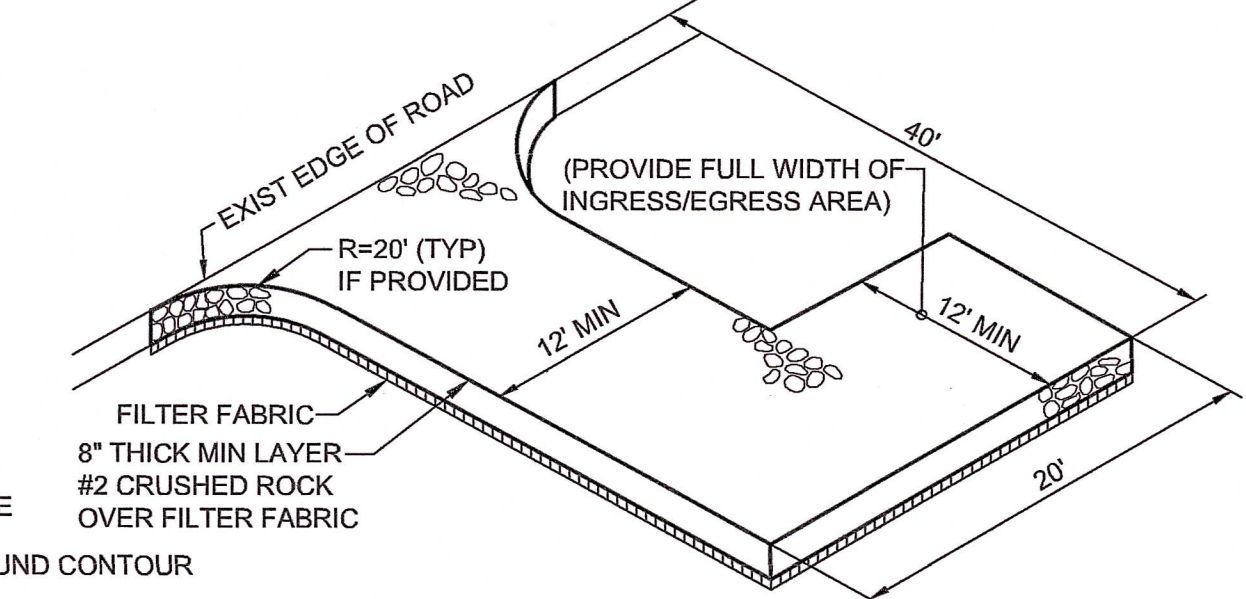
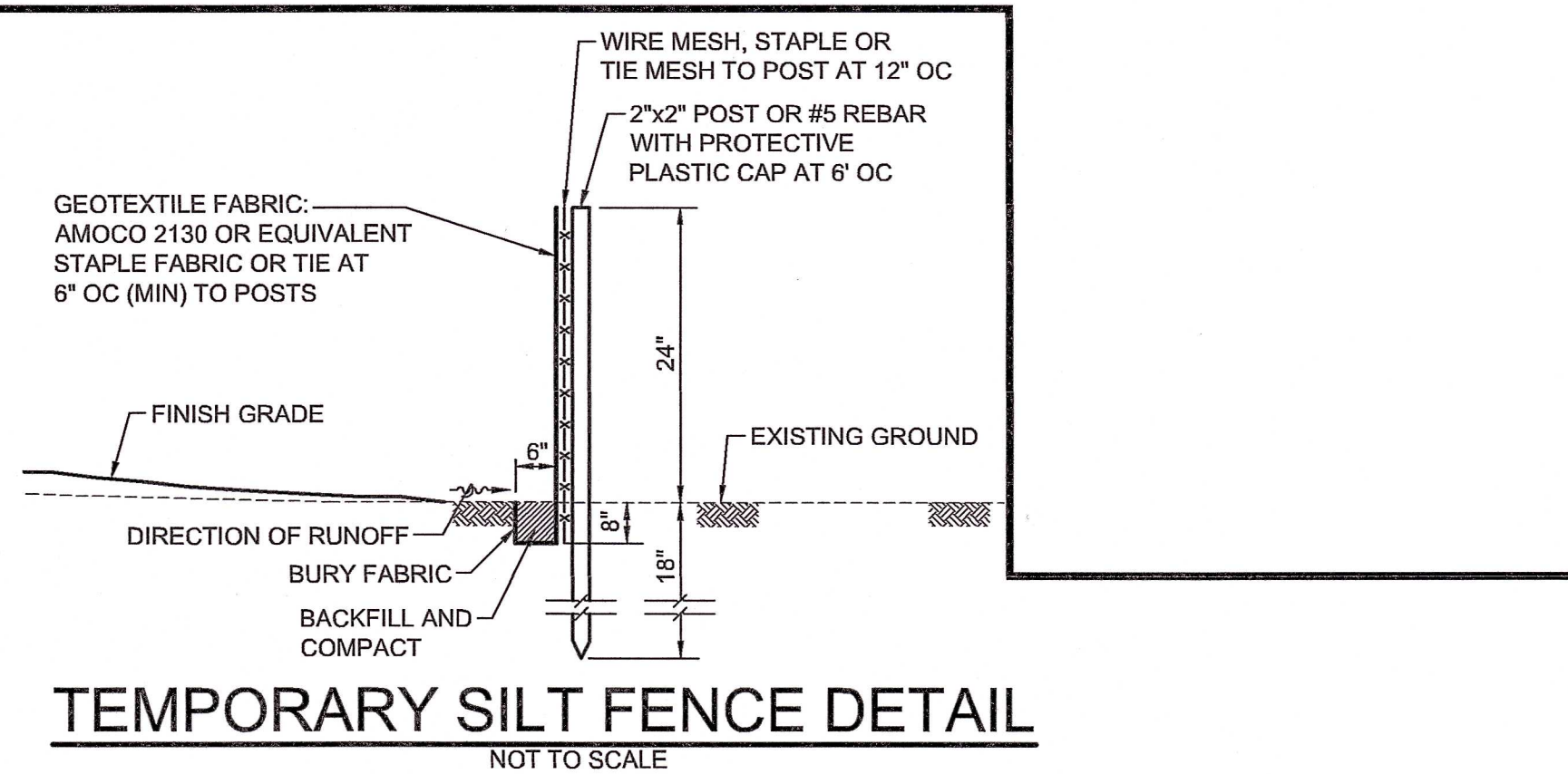
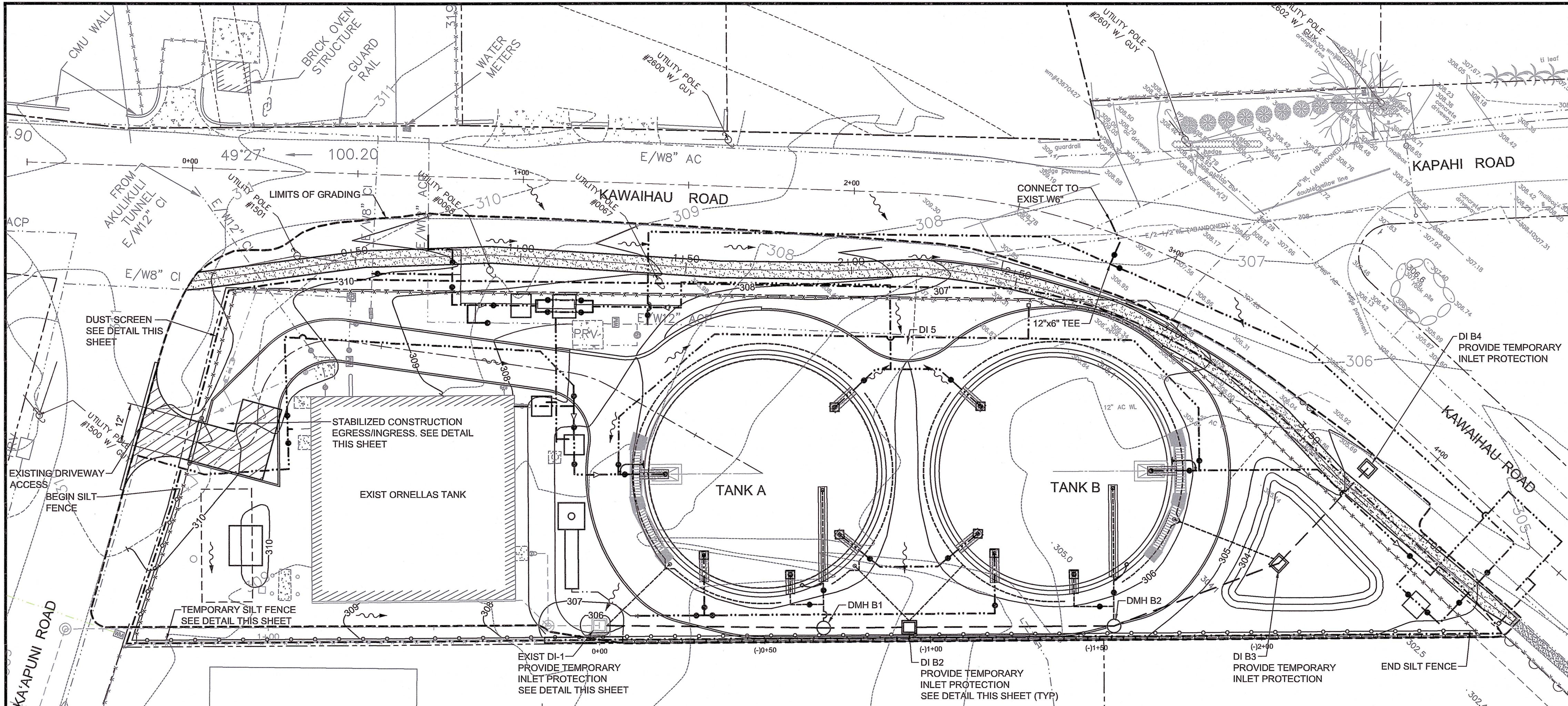
BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
 JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

GENERAL SITE PLAN

APPROVED: *Jason Kaginoto*
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI (FOR WORK IN COUNTY BAW)

DATE: 2/9/23

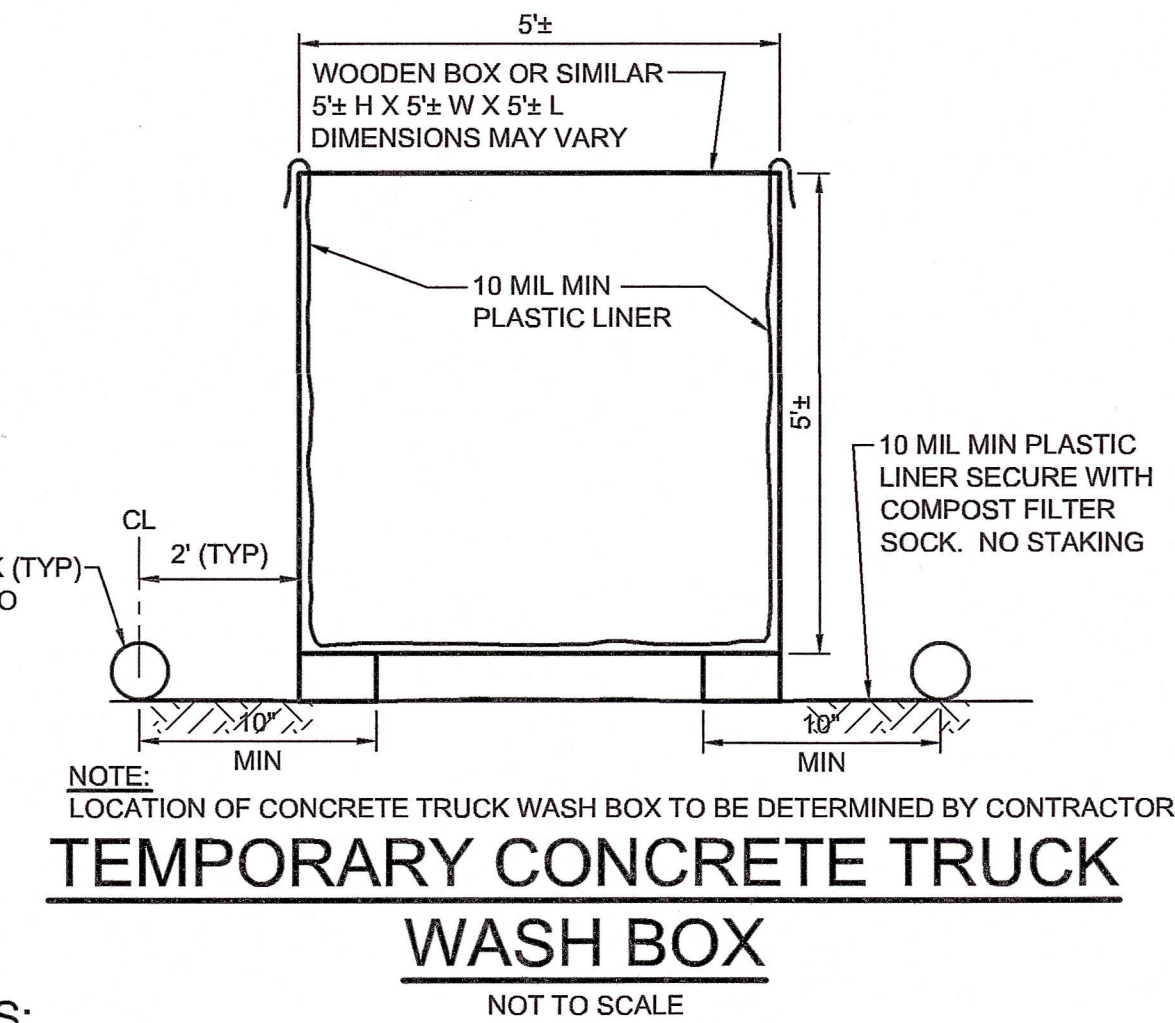
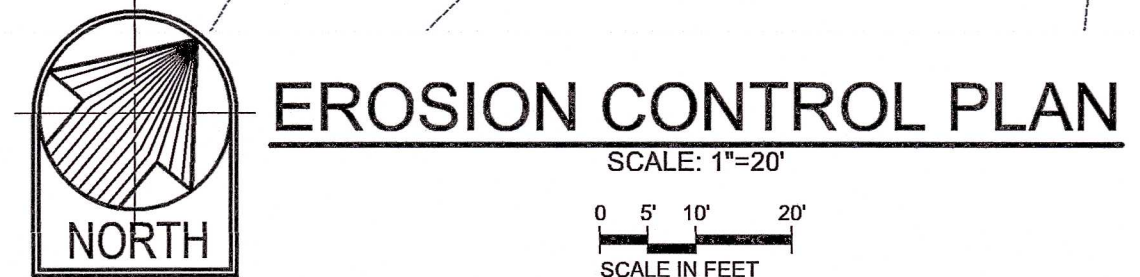
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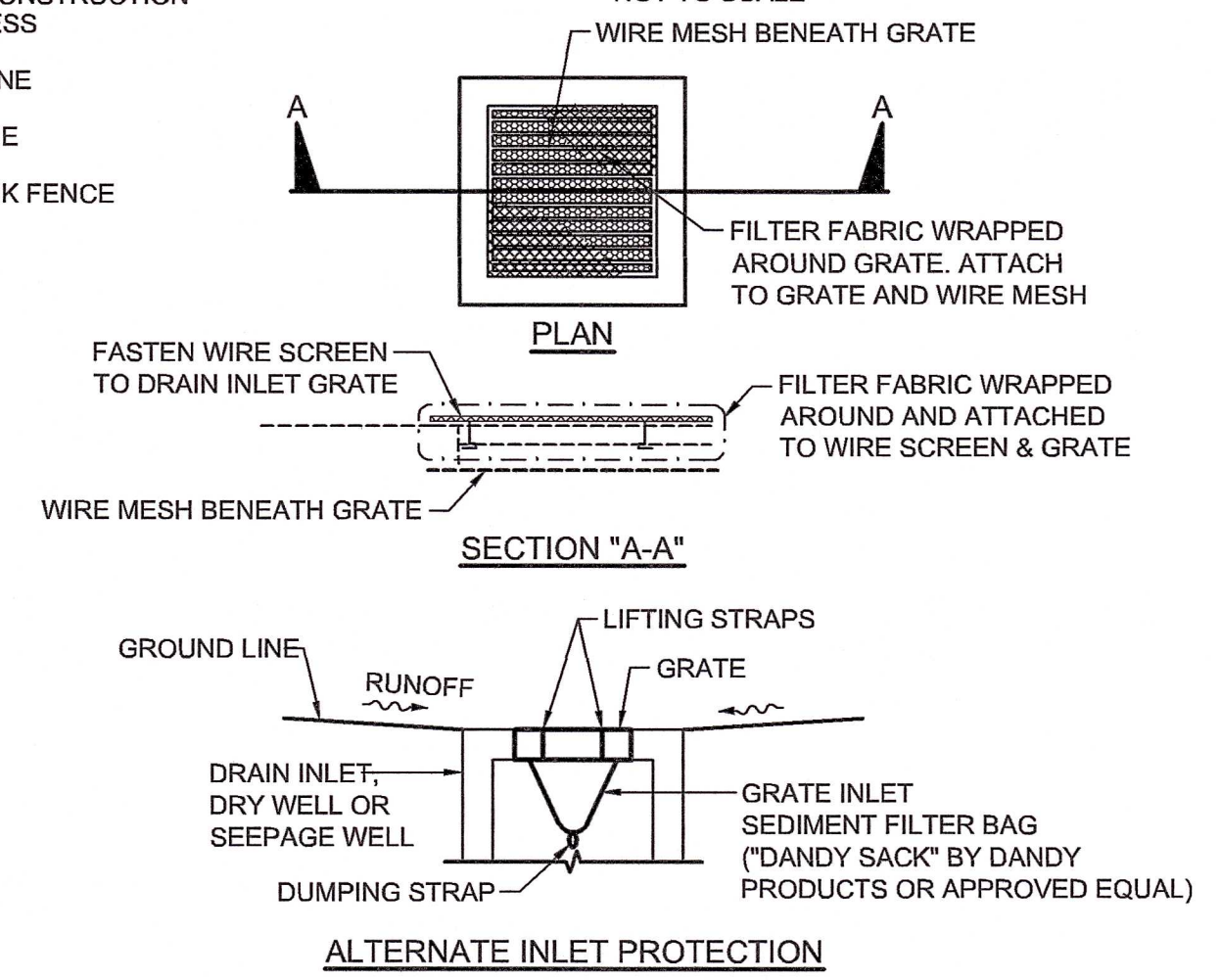
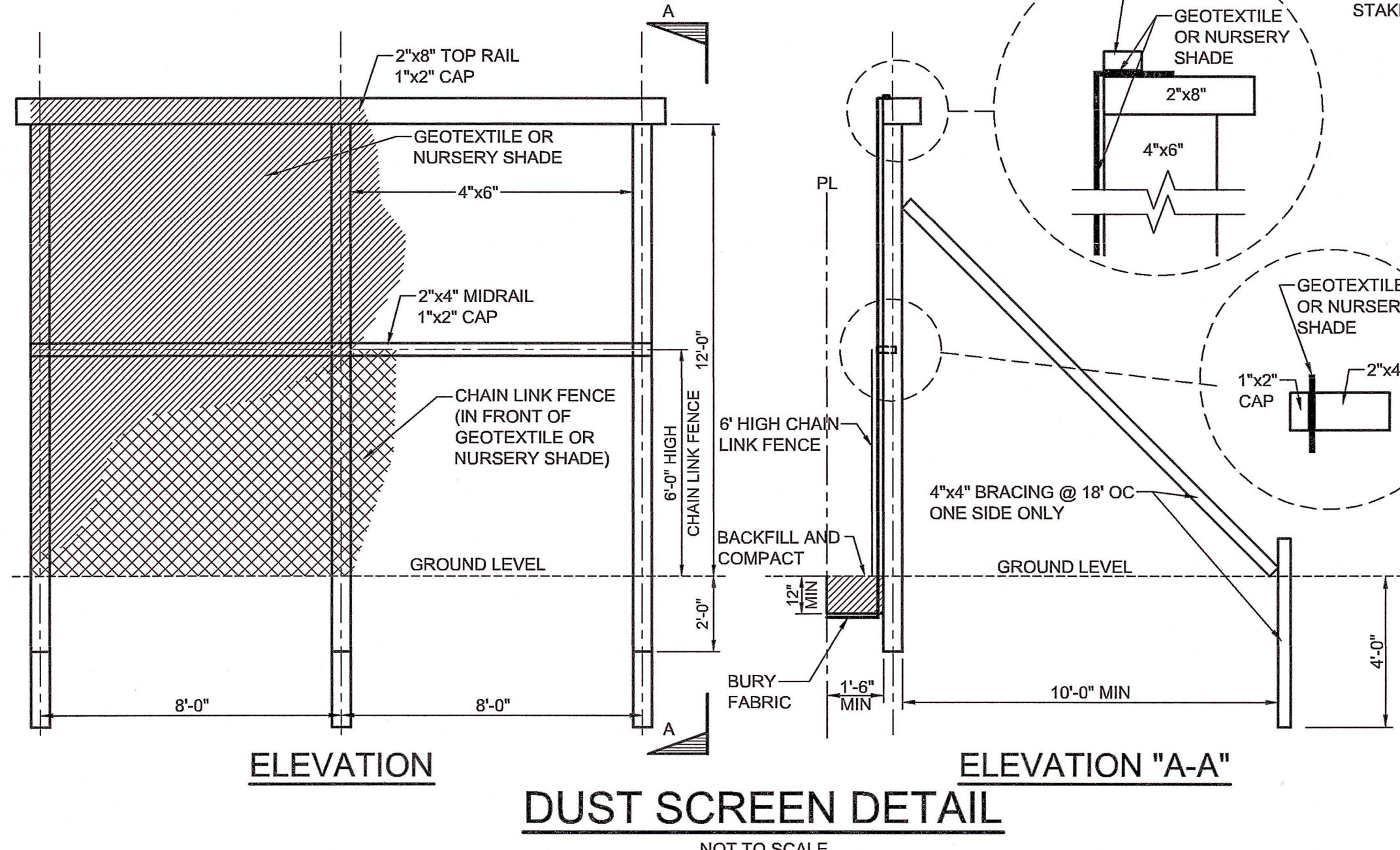
- LEGEND:**
- PROPERTY LINE
 - EXISTING GROUND CONTOUR
 - FINISH GRADE CONTOUR
 - LIMITS OF GRADING
 - RUNOFF FLOW DIRECTION
 - DUST SCREEN
 - TEMPORARY SILT FENCE
 - TEMPORARY CONSTRUCTION EGRESS/INGRESS
 - NEW WATER LINE
 - NEW DRAIN LINE
 - NEW CHAIN LINK FENCE

EROSION CONTROL/BMP NOTES

- MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY CONSTRUCTION WORK IS INITIATED. THESE MEASURES SHALL BE PROPERLY CONSTRUCTED AND MAINTAINED THROUGHOUT THE ENTIRE PROJECT. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED AS NECESSARY.
- INSTALL PERIMETER PROTECTION (TEMPORARY SILT FENCE AND DUST SCREEN) AS SHOWN ON THE EROSION CONTROL PLAN. PERIMETER PROTECTION MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS.
- ALL STORM DRAIN INLETS THAT MAY RECEIVE RUNOFF AS A RESULT OF THE CONSTRUCTION WORK SHALL PROVIDE AN INLET FILTER DEVICE. INLET FILTERS SHALL REMAIN UNTIL COMPLETION OF CONSTRUCTION WORK. CONTRACTOR SHALL PERIODICALLY INSPECT INLET FILTERS, ESPECIALLY DURING HEAVY RAINFALL, TO ENSURE DRAINAGE THROUGH MATERIAL IS MAINTAINED. AT THE END OF THE GRADING OPERATION, STORM DRAIN INLETS SURROUNDING THE PROJECT SITE SHALL BE INSPECTED AND ANY ACCUMULATED SEDIMENT AND DEBRIS FOUND IN THE STORM DRAIN INLETS SHALL BE REMOVED. FLUSHING INTO THE STORM DRAINS IS PROHIBITED. GOOD HOUSEKEEPING SHALL BE UTILIZED TO ENSURE PROTECTION OF ROADWAYS FROM MUD, DIRT, AND DEBRIS.
- THE CONTRACTOR SHALL ENSURE THAT ALL TIRES OF CONSTRUCTION VEHICLES ARE SUFFICIENTLY CLEANED OFF SO THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. WASHING OF TIRES WITH WATER WILL NOT BE ACCEPTABLE UNLESS THE RUNOFF IS CONTAINED AND DOES NOT ENTER THE STORM DRAIN SYSTEM OR ONTO THE ROAD ROW.
- THE CONTRACTOR SHALL ENSURE THAT EXISTING ROADWAYS USED TO ACCESS THE PROJECT ARE CLEANED OF ALL DEBRIS, TRASH, DIRT, MUD, ETC., THROUGHOUT THE WORK DAY.
- THE FINAL LIFT OF EACH DAY'S WORK SHALL BE COMPACTED TO PREVENT EROSION OF FILL MATERIAL.
- ANY DIRT OR GRASSED AREA DISTURBED DURING CONSTRUCTION SHALL BE RESTORED BY SEEDED HYDRO-MULCH. CONTRACTOR TO ENSURE GRASS IS FULLY ESTABLISHED.
- CONSTRUCT TEMPORARY STABILIZED CONSTRUCTION EGRESS/INGRESS AS SHOWN ON THE EROSION CONTROL PLAN. ALL VEHICLES EXITING THE SITE ARE TO BE SUFFICIENTLY CLEANED OFF SUCH THAT DIRT OR DEBRIS IS NOT TRACKED OFF THE CONSTRUCTION SITE. CONSTRUCTION EGRESS/INGRESS MAY BE ADJUSTED TO FIT THE CONTRACTOR'S OPERATIONS AS APPROVED BY DOW ENGINEER.
- THE EROSION CONTROL MEASURES AND BMPs THAT ARE REFLECTED ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR THE PROJECT. THE CONTRACTOR MAY INSTALL AND IMPLEMENT NEWER/BETTER PRODUCTS TO CONTROL AND PREVENT EROSION AND POLLUTANT LOSS FROM THE SITE.
- SEE ADDITIONAL EROSION CONTROL DETAILS ON SHEET C-25.



- NOTES:**
- FABRIC SHALL NOT HAVE HORIZONTAL SEAM.
 - FABRIC VERTICAL SEAMS SHALL BE ON UPRIGHTS ONLY.
- MAINTENANCE NOTES:**
- INSPECT THE BARRIER AT LEAST ONCE A WEEK. MAKE ANY REQUIRED REPAIRS IMMEDIATELY.
 - SHOULD THE FABRIC COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
 - REMOVE SEDIMENT DEPOSITS AS NECESSARY TO PROVIDE ADEQUATE STORAGE. AVOID UNDERMINING THE FENCE DURING CLEANING.
 - REMOVE ALL FENCING MATERIALS AND UNSTABLE SEDIMENT DEPOSITS AND BRING THE AREA TO GRADE AND STABILIZE IT AFTER THE PROJECT SITE HAS BEEN PROPERLY STABILIZED.



NOTE: THE CONTRACTOR SHALL REMOVE THE INLET FILTER DURING TIMES OF ABOVE NORMAL RAINFALL EVENTS AND SHALL REPLACE THE FILTER WHEN THE EVENT HAS PASSED.

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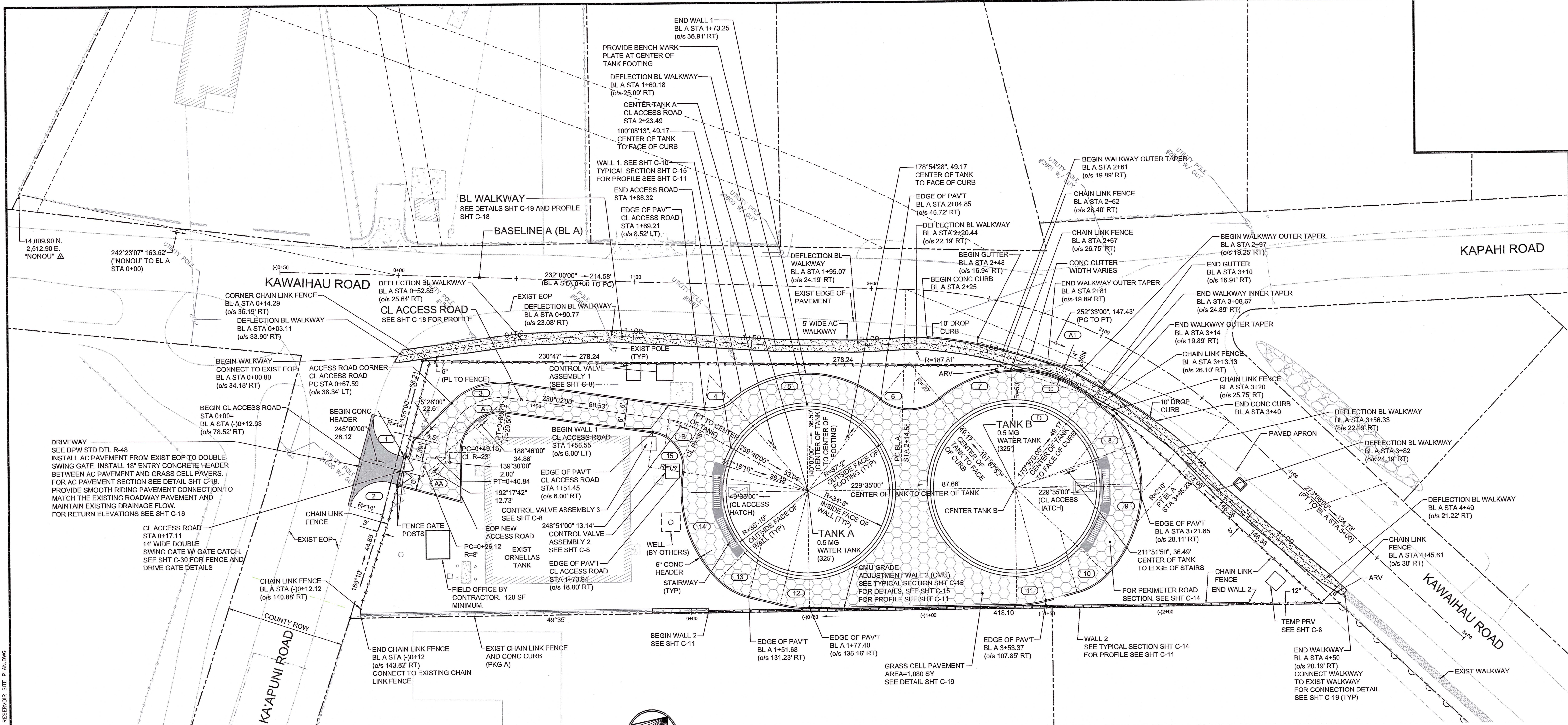
CARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

APPROVED: *Jason Kapimoto*

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08			
KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
EROSION CONTROL PLAN			
DATE: 2/9/23			DATE:

DRAWING NO. C-7



RESERVOIR SITE PLAN

SCALE: 1"=20'
SCALE IN FEET

NORTH

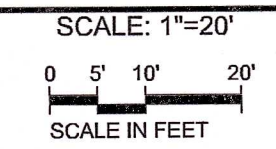
BASELINE A		CL ACCESS ROAD		CL ACCESS ROAD		CL ACCESS ROAD		CL WALKWAY		CHAIN LINK FENCE	
A1	CURVE DATA	AA	CURVE DATA	A	CURVE DATA	B	CURVE DATA	C	CURVE DATA	D	CURVE DATA
Δ	41°06'00"	Δ	105°24'37"	Δ	98°32'00"	Δ	21°38'00"	Δ	36°52'00"	Δ	40°30'26.7"
Δ/2	20°33'00"	Δ/2	52°42'18.50"	Δ/2	49°16'00"	Δ/2	10°49'00"	Δ/2	18°26'00"	Δ/2	20°15'13.40"
R=	210.00'	R=	8.00'	R=	23.00'	R=	35.00'	R=	187.81'	R=	50.00'
T=	78.72'	T=	10.50'	T=	26.71'	T=	6.69'	T=	62.60'	T=	18.45'
Ch=	147.43'	Ch=	12.73'	Ch=	34.86'	Ch=	13.14'	Ch=	118.77'	Ch=	34.62'
Lc=	150.64'	Lc=	14.72'	Lc=	39.55'	Lc=	13.22'	Lc=	120.85'	Lc=	35.35'

EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT	
1	CURVE DATA	2	CURVE DATA	3	CURVE DATA	4	CURVE DATA	5	CURVE DATA	6	CURVE DATA	7	CURVE DATA
Δ	89°55'24.5"	Δ	89°16'06.7"	Δ	52°36'00"	Δ	47°53'47"	Δ	78°46'15"	Δ	78°38'56"	Δ	78°44'28"
Δ/2	44°57'42.25"	Δ/2	44°38'03.35"	Δ/2	26°18'00"	Δ/2	23°56'53.5"	Δ/2	39°23'07.5"	Δ/2	39°19'28"	Δ/2	39°22'14"
R=	14.00'	R=	14.00'	R=	29.50'	R=	15.00'	R=	49.17'	R=	20.00'	R=	49.17'
T=	13.98'	T=	13.82'	T=	14.33'	T=	6.66'	T=	40.37'	T=	16.38'	T=	40.34'
Ch=	19.79'	Ch=	19.67'	Ch=	25.70'	Ch=	12.18'	Ch=	62.40'	Ch=	25.35'	Ch=	62.38'
Lc=	21.97'	Lc=	21.81'	Lc=	26.62'	Lc=	12.54'	Lc=	67.59'	Lc=	27.45'	Lc=	67.57'

EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		BUILDING SETBACK	
8	CURVE DATA	9	CURVE DATA	10	CURVE DATA	11	CURVE DATA	12	CURVE DATA	13	CURVE DATA	14	CURVE DATA
Δ	31°30'31"	Δ	62°58'59"	Δ	31°30'31"	Δ	14°35'00"	Δ	14°35'00"	Δ	31°30'31"	Δ	53°13'10"
Δ/2	15°45'15.5"	Δ/2	31°29'29.5"	Δ/2	15°45'15.5"	Δ/2	7°17'30"	Δ/2	7°17'30"	Δ/2	15°45'15.5"	Δ/2	26°36'35"
R=	27.00'	R=	53.00'	R=	27.00'	R=	49.17'	R=	49.17'	R=	27.00'	R=	53.00'
T=	7.62'	T=	32.47'	T=	7.62'	T=	6.29'	T=	6.29'	T=	7.62'	T=	26.55'
Ch=	14.66'	Ch=	55.37'	Ch=	14.66'	Ch=	12.48'	Ch=	14.66'	Ch=	47.48'	Ch=	21.37'
Lc=	14.85'	Lc=	58.26'	Lc=	14.85'	Lc=	12.51'	Lc=	12.51'	Lc=	14.85'	Lc=	49.23'

EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		EDGE OF PAVT		BUILDING SETBACK	
15	CURVE DATA	16	CURVE DATA	17	CURVE DATA	18	CURVE DATA	19	CURVE DATA	20	CURVE DATA	21	CURVE DATA
Δ	90°51'40"	Δ	44°58'45"	Δ	44°58'45"	Δ	44°58'45"	Δ	44°58'45"	Δ	44°58'45"	Δ	44°58'45"
Δ/2	45°25'50"	Δ/2	22°29'22.50"	Δ/2	22°29'22.50"	Δ/2	22°29'22.50"	Δ/2	22°29'22.50"	Δ/2	22°29'22.50"	Δ/2	22°29'22.50"
R=	15.00'	R=	53.50'	R=	53.50'	R=	53.50'	R=	53.50'	R=	53.50'	R=	53.50'
T=	15.23'	T=	22.15'	T=	22.15'	T=	22.15'	T=	22.15'	T=	22.15'	T=	22.15'
Ch=	21.37'	Ch=	40.93'	Ch=	40.93'	Ch=	40.93'	Ch=	40.93'	Ch=	40.93'	Ch=	40.93'
Lc=	23.79'	Lc=	42.00'	Lc=	42.00'	Lc=	42.00'	Lc=	42.00'	Lc=	42.00'	Lc=	42.00'

RESERVOIR SITE PLAN



LEGEND:

- PROPERTY LINE
- - - - - EXISTING FENCE
- x - x - x - CHAIN LINK FENCE
- (1) EDGE OF PAVEMENT CURVE DATA
- (A) CENTERLINE CURVE DATA
- (100) BUILDING SETBACK LINE- DETENTION BASIN CURVE DATA
- [Hatched Pattern] GRASS CELL PAVEMENT
- [Solid Grey] AC PAVEMENT
- [Diagonal Lines] CONC ENTRY HEADER
- [Dotted Pattern] AC WALKWAY

TMK: 4 - 6 - 011:003

CLARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

APPROVED: _____
DATE: 2/9/23

DRAWING NO. **C-8**

SHEET 9 OF 66 SHEETS

2/7/2023 3:14:31 PM T:\KAPAA-HOMESTEADS-TANK\2024\740100 KAPAAI TANK\CAD\SHEETS\CONSTRUCTION PLAN-C\K-C-8 RESERVOIR SITE PLAN.DWG

LEGEND:

	EXISTING GROUND CONTOUR
	EXISTING WATER LINE
	NEW WATER LINE
	NEW DRAIN LINE
	CORRUGATED DRAIN LINE
	FENCE
	PROPERTY LINE
	ACCESS HATCH ON TANK ROOF
	OBSERVATION HATCH ON TANK ROOF

CONTROL VALVE NOTES:

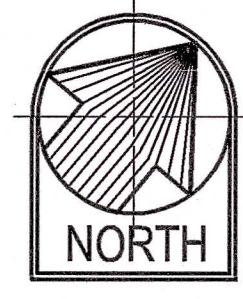
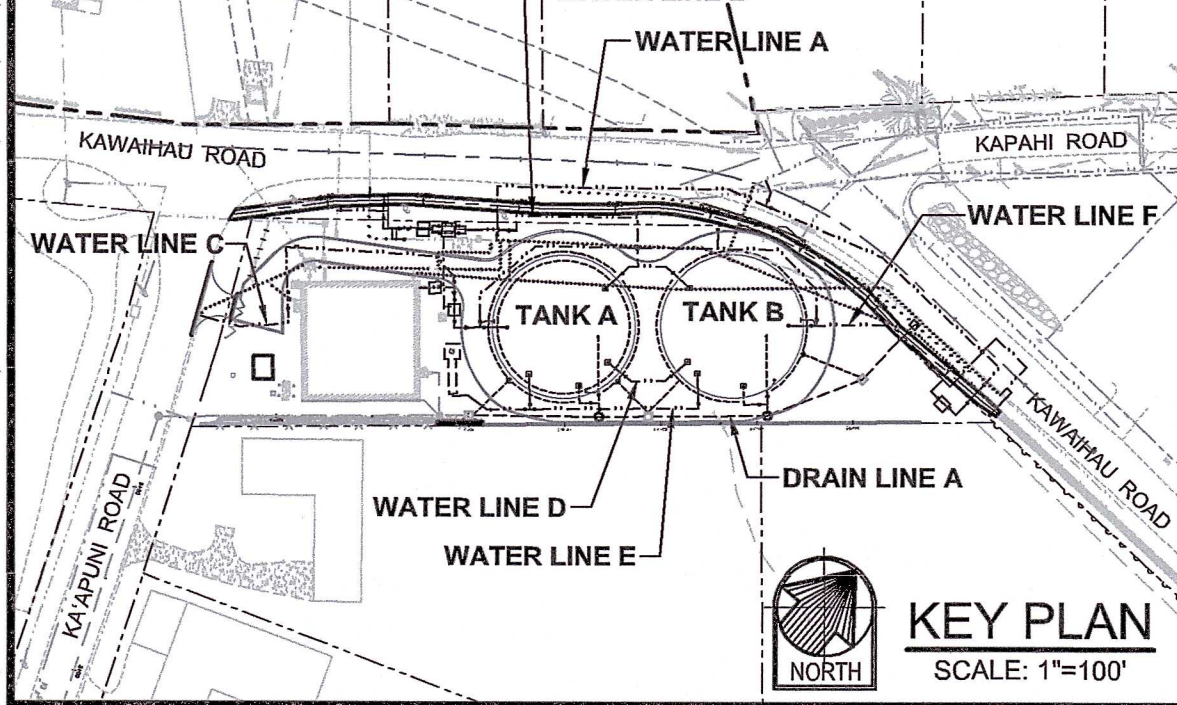
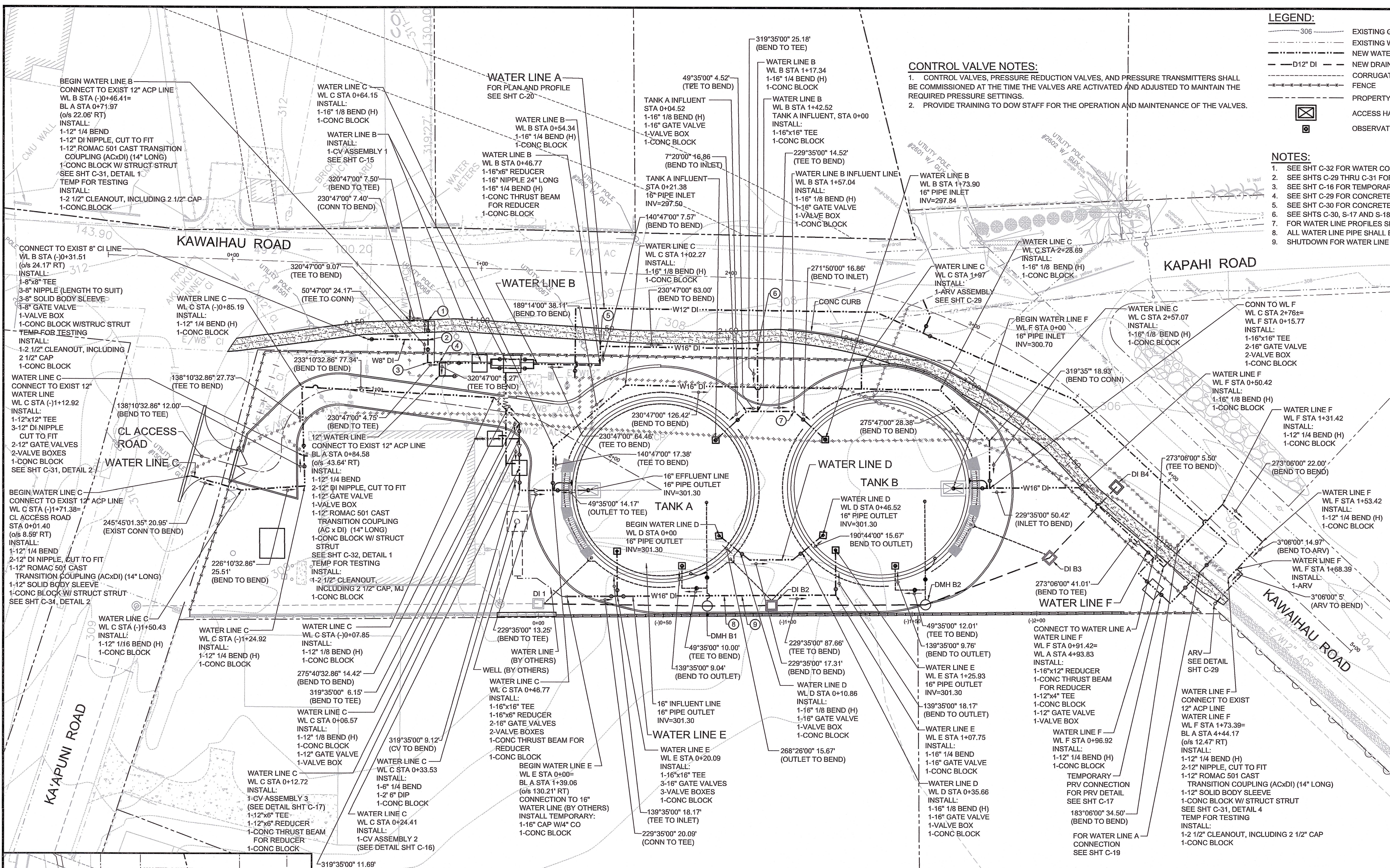
- CONTROL VALVES, PRESSURE REDUCTION VALVES, AND PRESSURE TRANSMITTERS SHALL BE COMMISSIONED AT THE TIME THE VALVES ARE ACTIVATED AND ADJUSTED TO MAINTAIN THE REQUIRED PRESSURE SETTINGS.
- PROVIDE TRAINING TO DOW STAFF FOR THE OPERATION AND MAINTENANCE OF THE VALVES.

- NOTES:**
- SEE SHT C-32 FOR WATER CONNECTION DETAILS.
 - SEE SHTS C-29 THRU C-31 FOR WATER DETAILS.
 - SEE SHT C-16 FOR TEMPORARY CLEANOUT DETAIL.
 - SEE SHT C-29 FOR CONCRETE THRUST BLOCK DETAIL.
 - SEE SHT C-30 FOR CONCRETE THRUST BEAM FOR REDUCER DETAIL.
 - SEE SHTS C-30, S-17 AND S-18 FOR CONCRETE BLOCK WITH STRUCTURAL STRUT DETAIL.
 - FOR WATER LINE PROFILES SEE SHTS C-11 THRU C-13.
 - ALL WATER LINE PIPE SHALL BE DUCTILE IRON (ANSI/AWWA A-21.51/C151).
 - SHUTDOWN FOR WATER LINE CONNECTIONS SHALL BE BETWEEN 9:00 PM AND 5:00 AM.

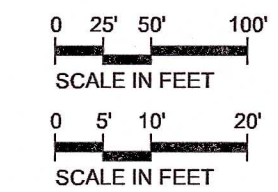
WATER LINE DESCRIPTION:

WATER LINE A (WL A) - KAWAIHAU ROAD
 WATER LINE B (WL B) - 530 INFLUENT
 WATER LINE C (WL C) - TANK EFFLUENT (325)
 WATER LINE D (WL D) - TANK INTERCONNECT (425)
 WATER LINE E (WL E) - WELL EFFLUENT
 WATER LINE F (WL F) - TANK EFFLUENT (425)

- WATER LINE B WL B STA (-)0+39.01
INSTALL: 1-12" 1/4 BEND (H) 1-CONC BLOCK
- WATER LINE B WL B STA (-)0+31.51
INSTALL: 1-12" x8" TEE 4-12" DI NIPPLE, CUT TO FIT 2-12" GATE VALVES 2-VALVE BOXES 1-CONC BLOCK
- WATER LINE B WL B STA (-)0+22.44
INSTALL: 1-12" 1/4 BEND 1-CONC BLOCK
- WATER LINE B WL B STA (-)0+17.69
INSTALL: 1-12" x12" TEE 4-12" DI NIPPLE, CUT TO FIT 1-12" x8" REDUCER 1-6" GATE VALVE 1-VALVE BOX 1-12" COUPLING, 12" LONG 1-CONC THRUST BEAM FOR REDUCER 1-CONC BLOCK
- WATER LINE B WL B STA 0+54.34
INSTALL: 1-16" 1/4 BEND (TV) 1-CONC BLOCK
- WATER LINE B WL B STA 1+17.34
INSTALL: 1-16" 1/4 BEND (BV) 1-CONC BLOCK
- WATER LINE B WL B STA 1+57.04
INSTALL: 1-16" 1/16 BEND (BV) 1-CONC BLOCK
- WATER LINE E WL E STA 0+63
INSTALL: 1-16" 1/8 BEND (BV) 1-CONC BLOCK
- WATER LINE E WL E STA 0+70
INSTALL: 1-16" 1/8 BEND (TV) 1-CONC BLOCK



RESERVOIR SITE PIPING PLAN
SCALE: 1"=20'



TMK: 4 - 6 - 011:003



APPROVED: *[Signature]*
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI, FOUR WORK W/IN COUNTY B/W

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325 TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

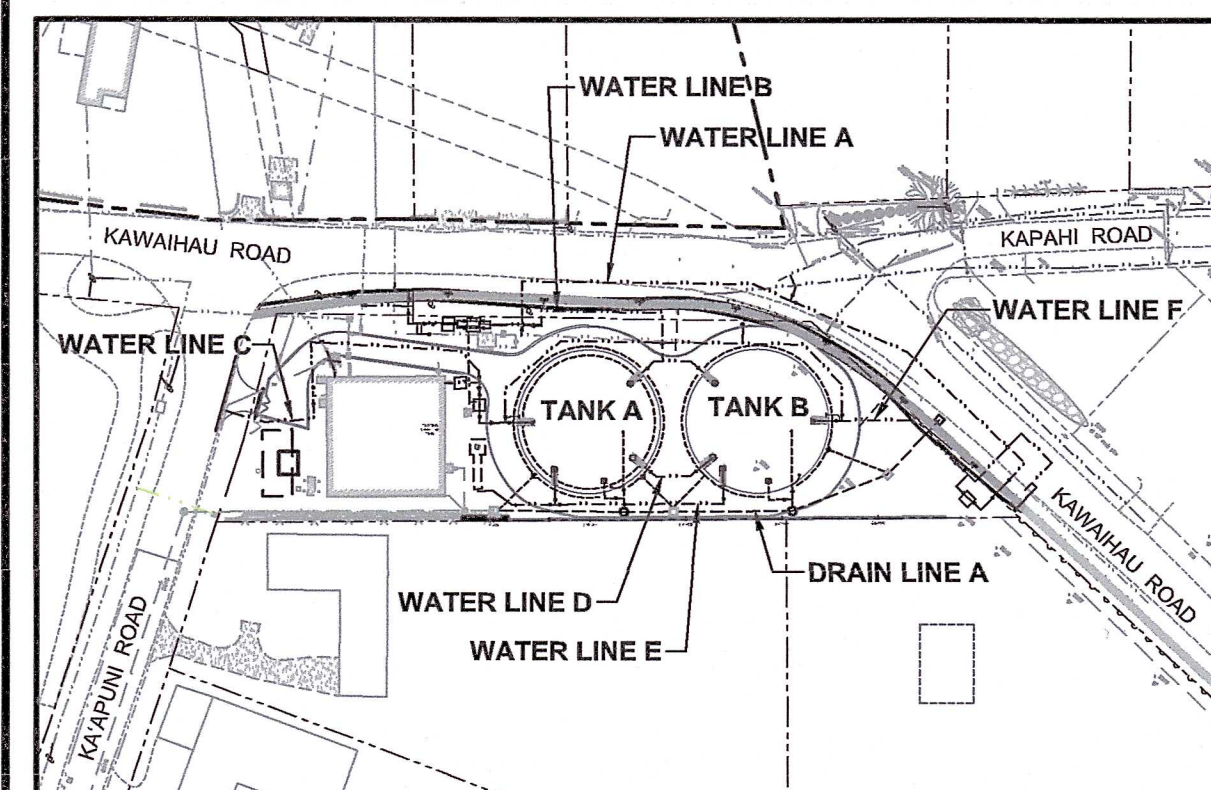
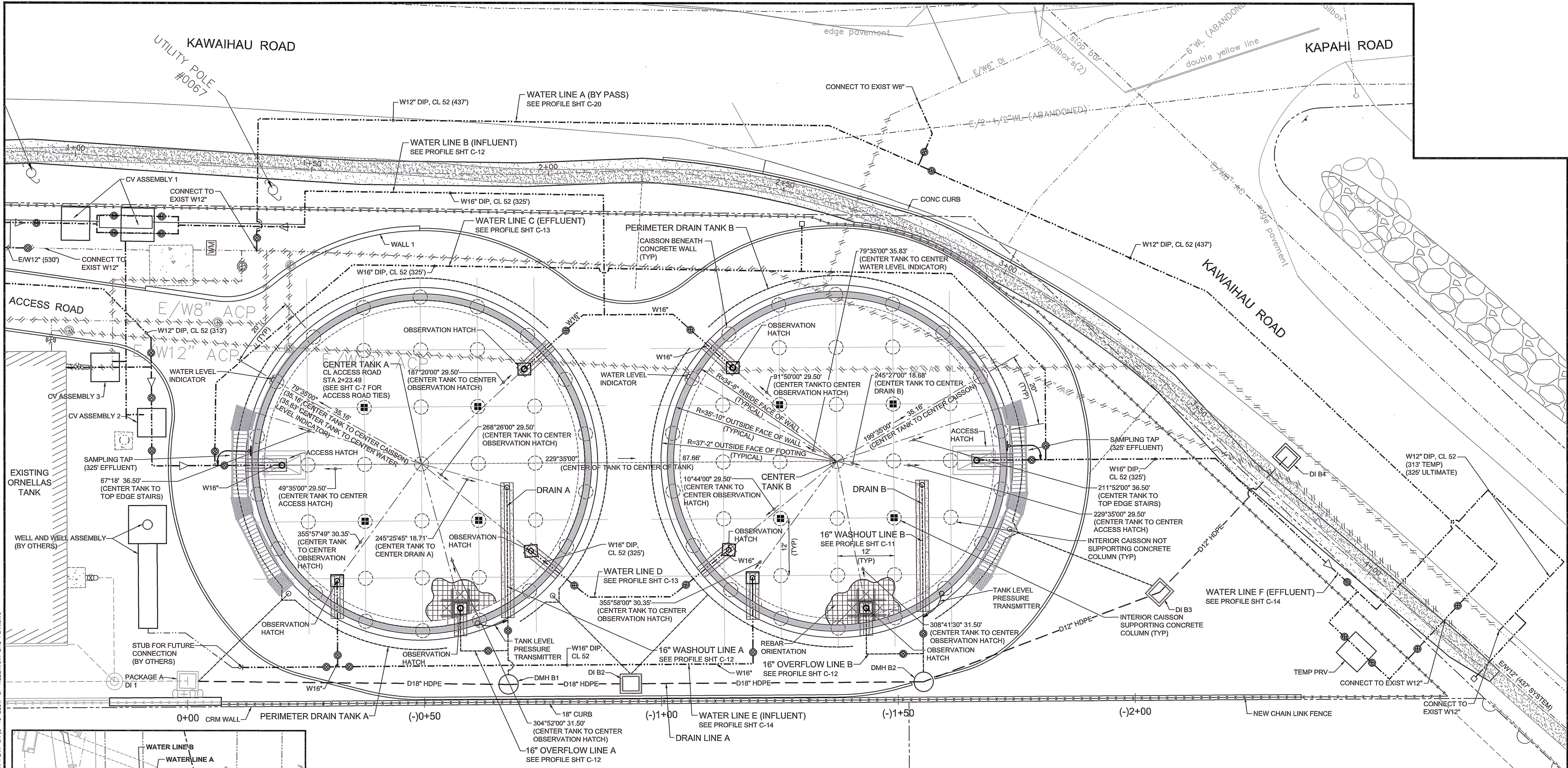
RESERVOIR SITE PIPING PLAN

APPROVED: *[Signature]*
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI

Jason Kagimoto
OWNER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DATE: 2/9/23

2/7/2023 3:14:12 PM T:\KAPA'A HOMESTEADS TANK\2004\0100 KAPAHI TANK\CAD SHEETS\CONSTRUCTION PLAN\CK-C-9 RESERVOIR SITE PIPING PLAN.DWG

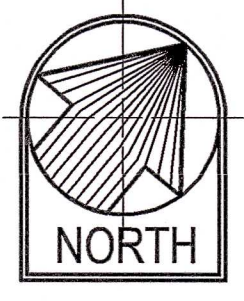


KEY PLAN
SCALE: 1"=100'

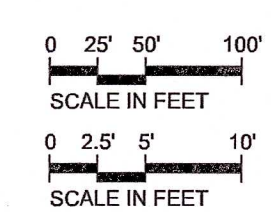
- LEGEND:**
- EXISTING WATER LINE
 - W12" DI--- WATER LINE
 - D12" DI--- DRAIN LINE
 - PERIMETER DRAIN LINE
 - FENCE
 - PROPERTY LINE
 - GRADE ADJUSTMENT WALL 1
 - GRADE ADJUSTMENT WALL 2
 - EXISTING ITEM TO BE REMOVED
 - EXISTING ITEM TO BE ABANDONED

- WATER LINE DESCRIPTION:**
- WATER LINE A (WL A) - KAWAIIHAU ROAD
 - WATER LINE B (WL B) - 530 INFLUENT
 - WATER LINE C (WL C) - TANK EFFLUENT (325)
 - WATER LINE D (WL D) - TANK INTERCONNECT (425)
 - WATER LINE E (WL E) - WELL EFFLUENT
 - WATER LINE F (WL F) - TANK EFFLUENT (425)

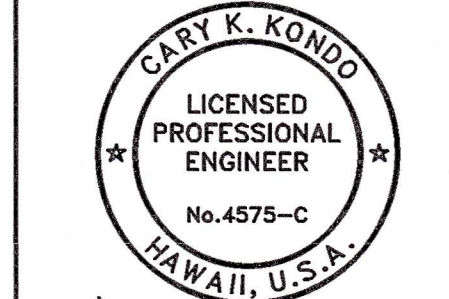
BLOW-UP RESERVOIR SITE PLAN
SCALE: 1"=10'



- NOTES:**
1. FOR TANK LEVEL PRESSURE TRANSMITTER AND SAMPLING TAP, SEE SHT C-19.
 2. FOR WATER LEVEL INDICATOR, SEE SHT S-10.
 3. FOR PERIMETER DRAIN INVERTS, SEE SHTS C-11 AND C-21.
 4. FOR WALL 1 AND WALL 2 INFORMATION, SEE SHT C-11.
 5. FOR DRAIN LINE PLAN AND PROFILE, SEE SHT C-21.



DRAWING NO.
C-10



APPROVED:
Cary K. Kondo
CARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08

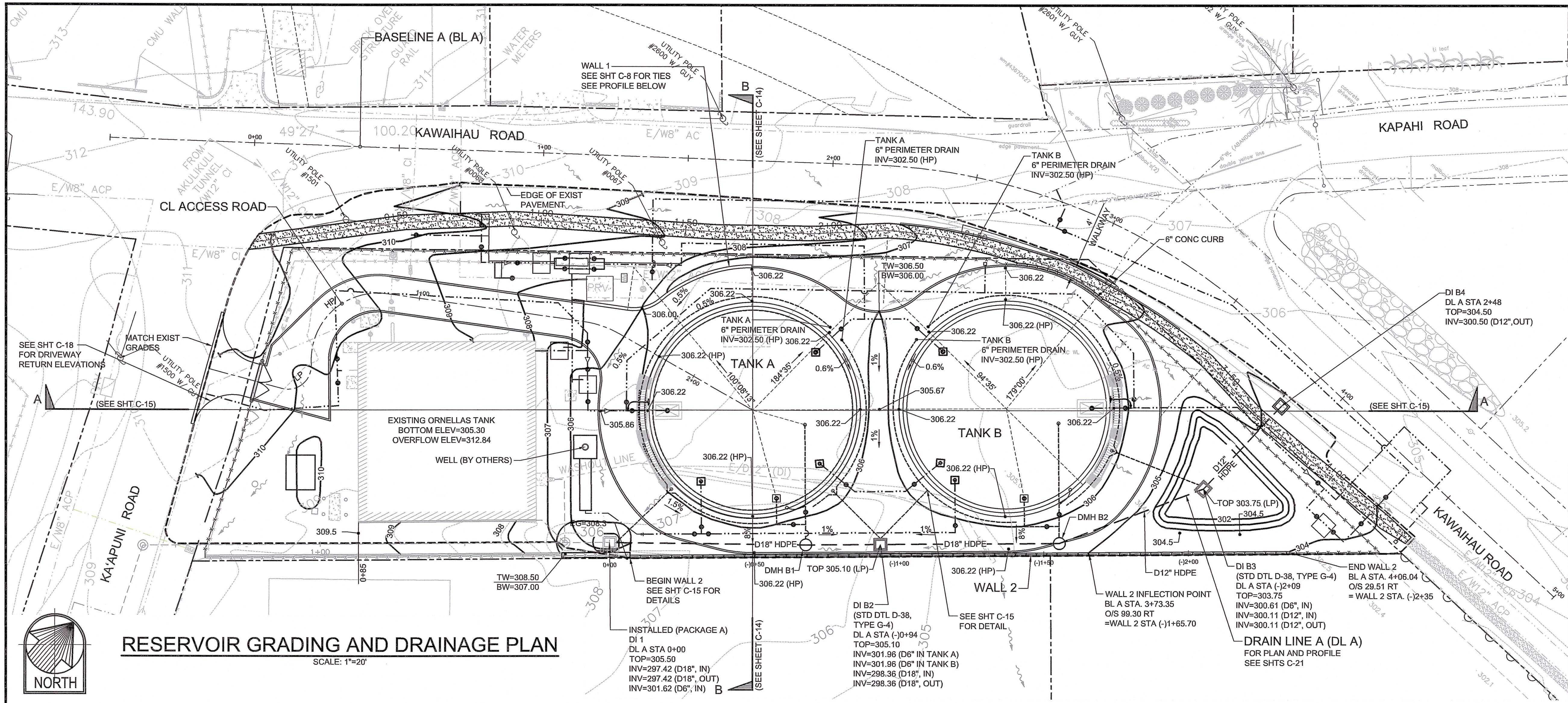
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS

PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

BLOW-UP RESERVOIR SITE PLAN

APPROVED:
Jason Kagimoto
JASON KAGIMOTO
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

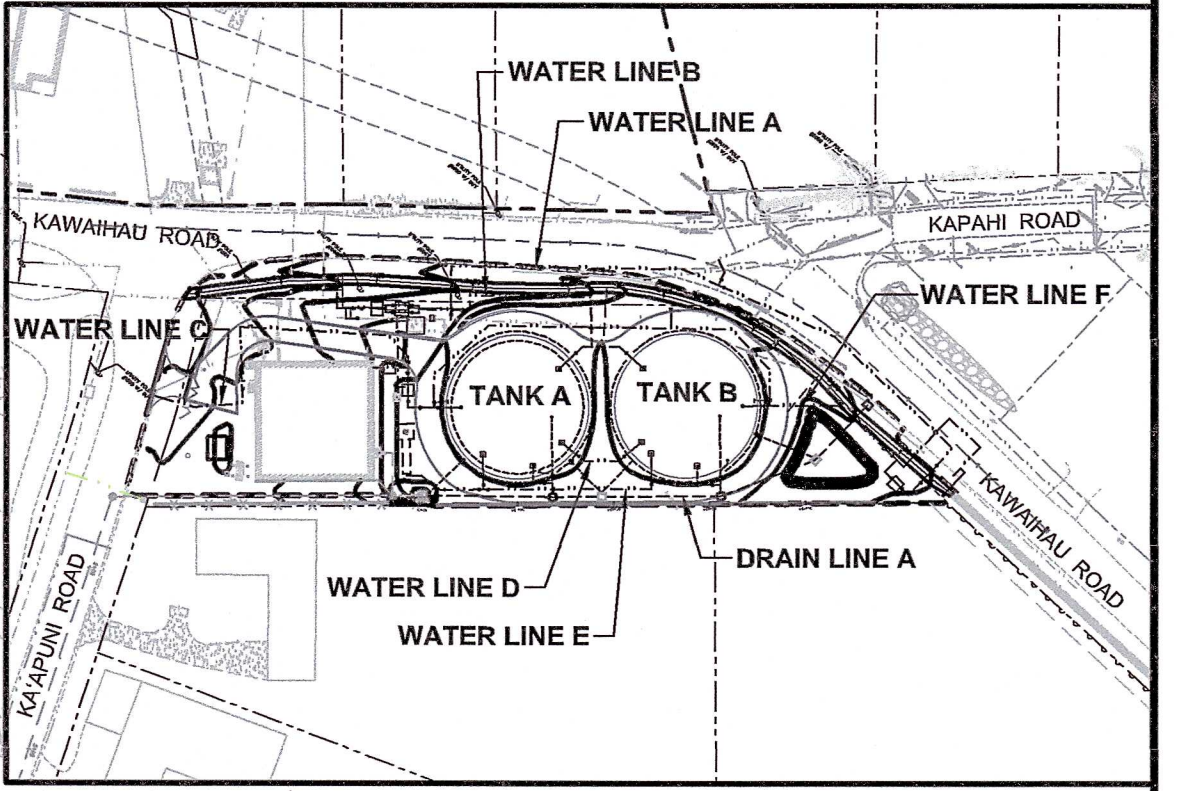
DATE: 2/9/23



- LEGEND:**
- PROPERTY LINE
 - - - EXISTING GROUND CONTOUR
 - FINISH GRADE CONTOUR
 - - - LIMITS OF GRADING
 - ~ RUNOFF FLOW DIRECTION
 - - - D12" DI
 - - - CORRUGATED DRAIN LINE
 - TEMPORARY SILT FENCE

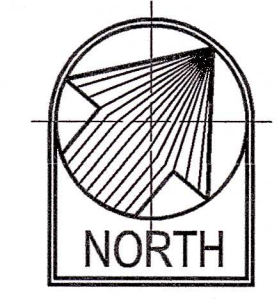
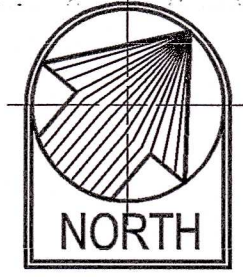
- NOTES:**
1. FOR OVERFLOW LINE AND WASHOUT LINE PROFILE, SEE SHT C-12.
 2. FOR DRAIN LINE A PLAN AND PROFILE, SEE SHT C-21.
 3. FOR SITE SECTIONS A-A AND B-B, SEE SHT C-15.
 4. SEE SHEET S-3 FOR ADDITIONAL DETAIL FOR PERIMETER DRAIN.

- WATER LINE DESCRIPTION:**
- WATER LINE A (WL A) - KAWAIHAU ROAD
 - WATER LINE B (WL B) - 530 INFLUENT
 - WATER LINE C (WL C) - TANK EFFLUENT (325)
 - WATER LINE D (WL D) - TANK INTERCONNECT (425)
 - WATER LINE E (WL E) - WELL EFFLUENT
 - WATER LINE F (WL F) - TANK EFFLUENT (425)



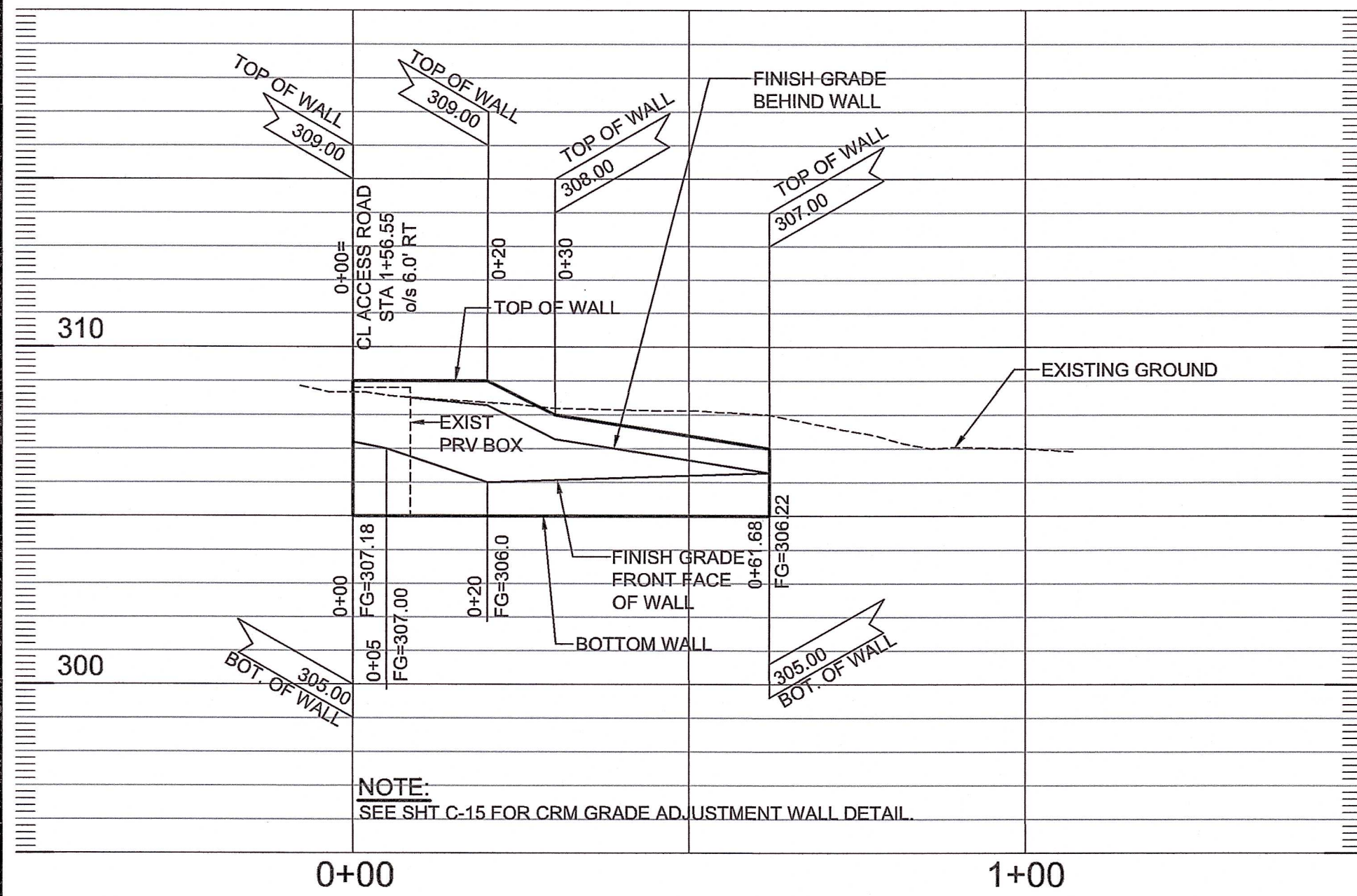
RESERVOIR GRADING AND DRAINAGE PLAN

SCALE: 1"=20'



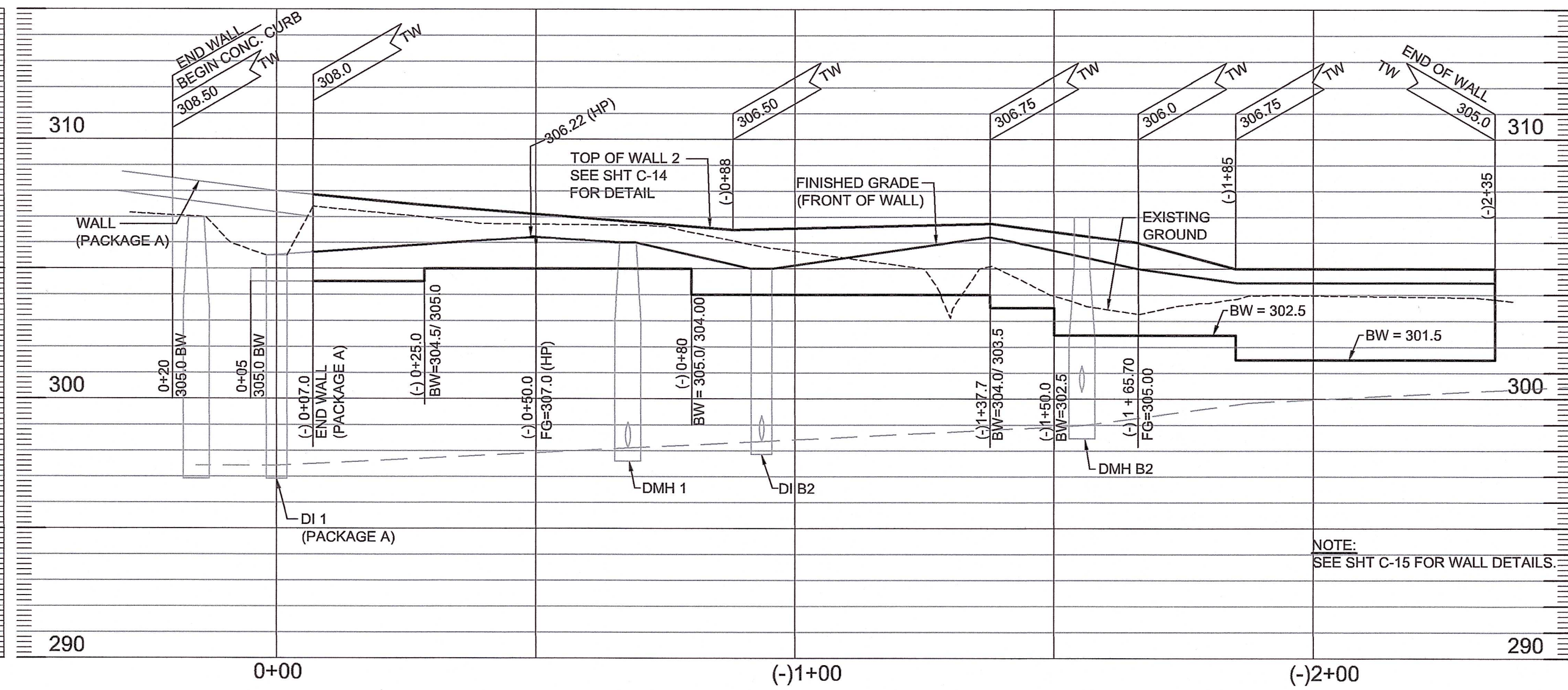
KEY PLAN

SCALE: 1"=100'



PROFILE - WALL 1 (CRM)

SCALE: HORIZ 1"=20'
VERT 1"=4'



PROFILE - WALL 2

SCALE: HORIZ 1"=20'
VERT 1"=4'

EARTHWORK QUANTITIES:

- GRADED AREA = 0.90 ACS
- EXCAVATION = 594 CY
- EMBANKMENT = 52 CY

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011-003



Cary K. Kondo

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

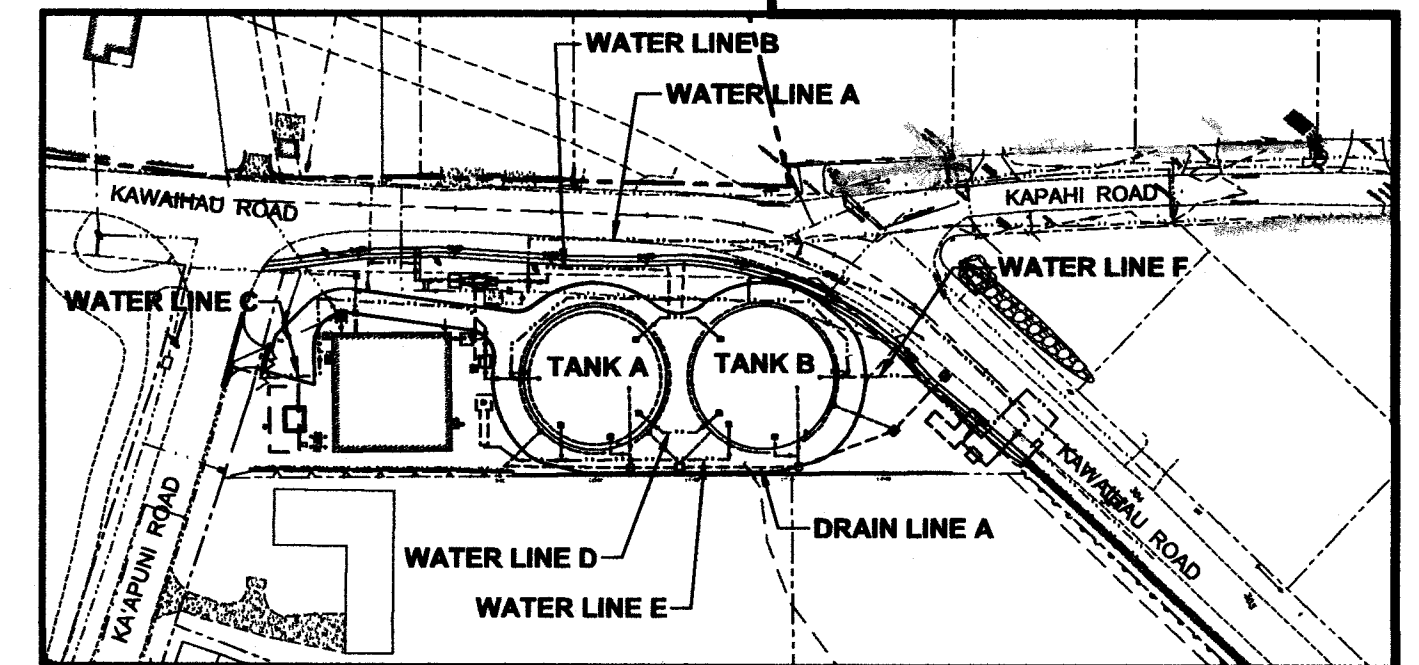
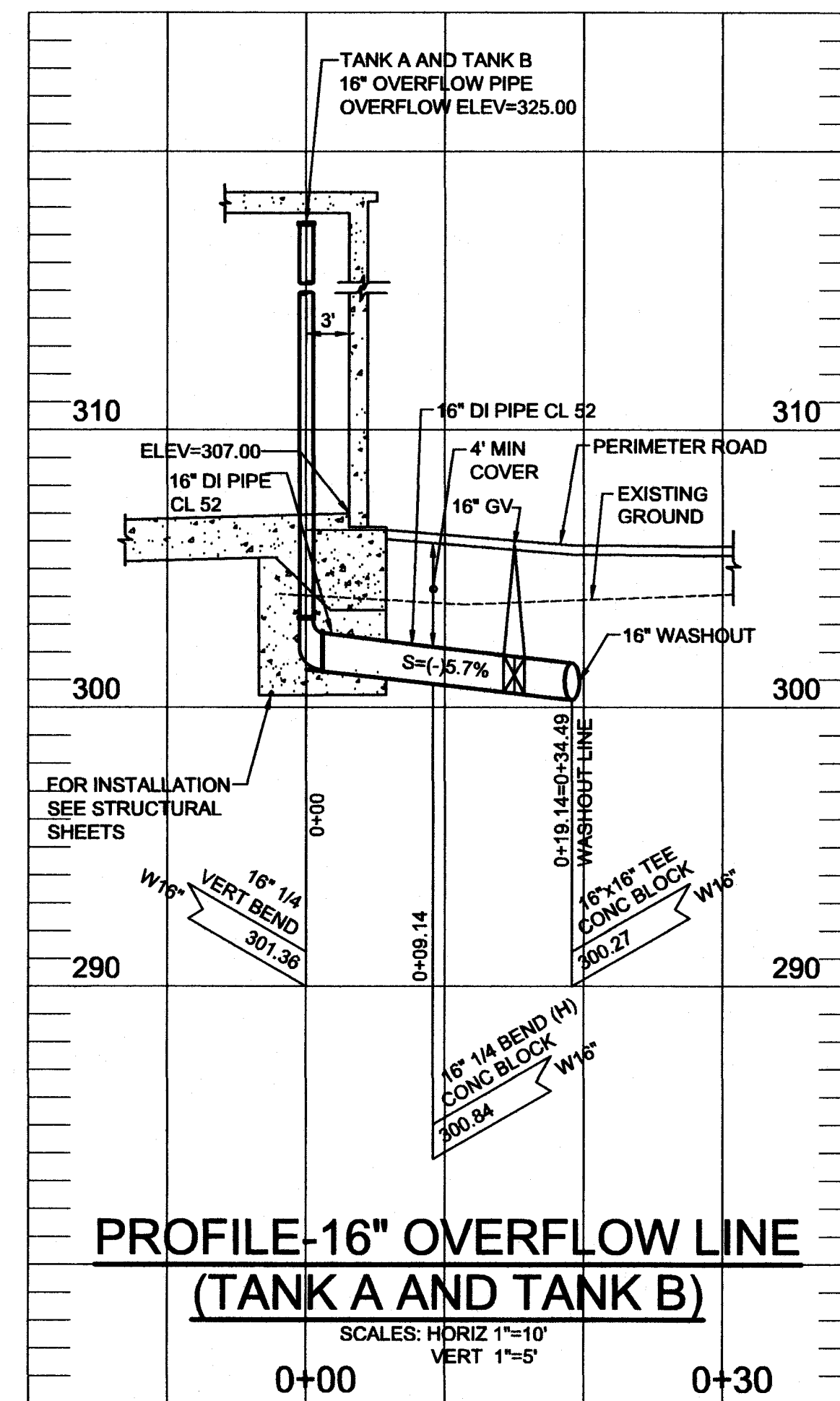
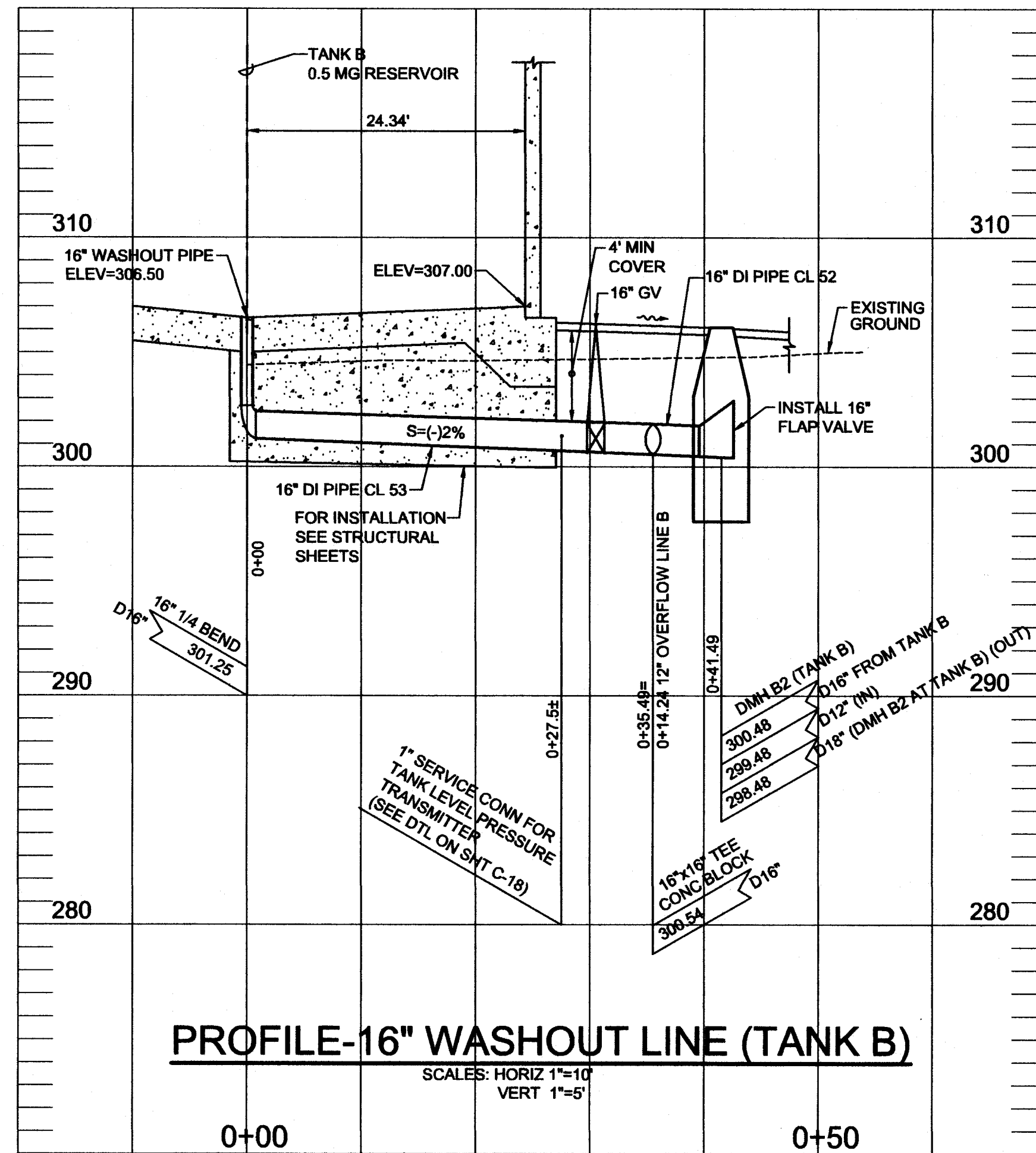
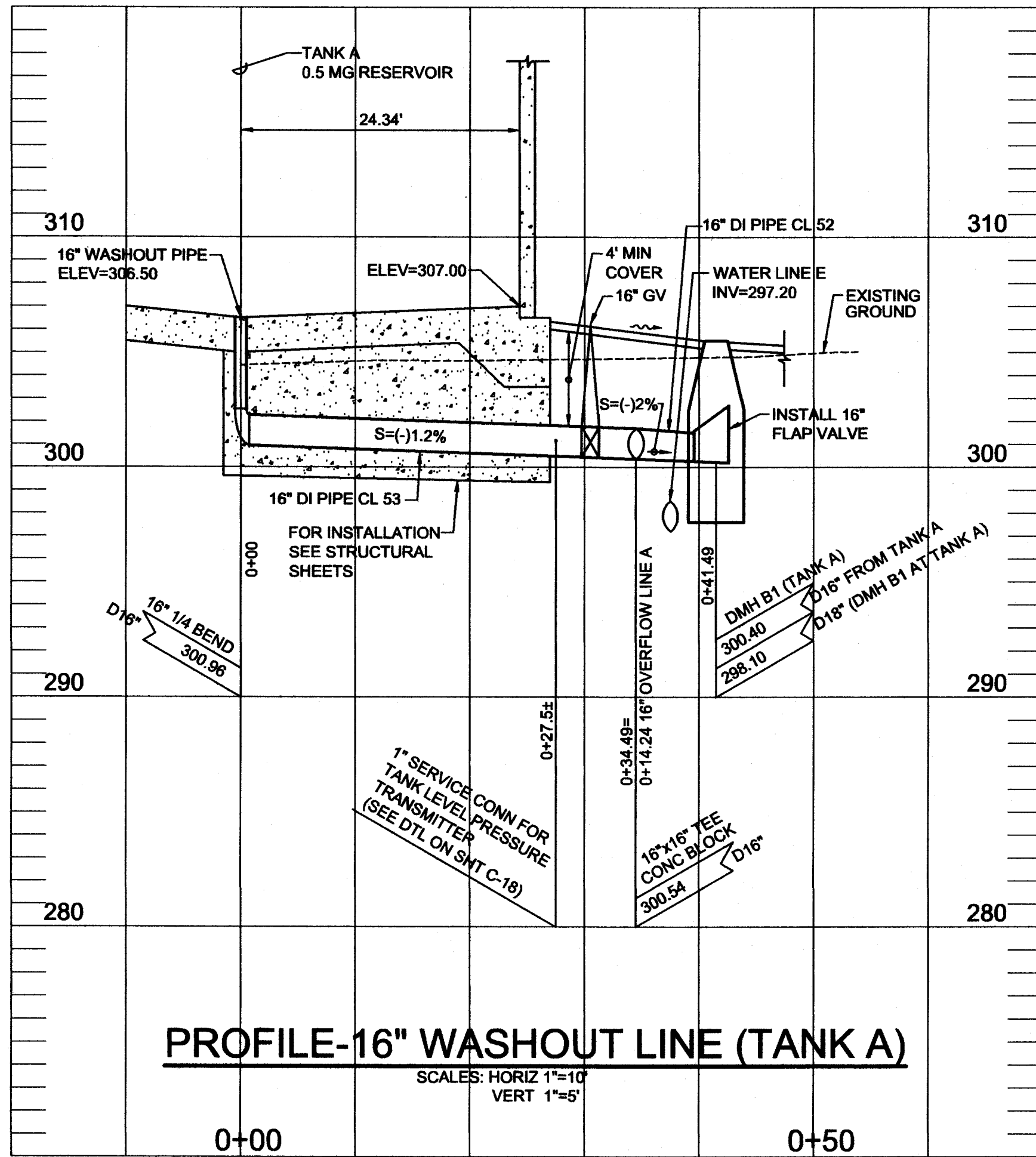
RESERVOIR GRADING AND DRAINAGE PLAN

APPROVED: *Jason Kagimoto*
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DATE: 2/9/23

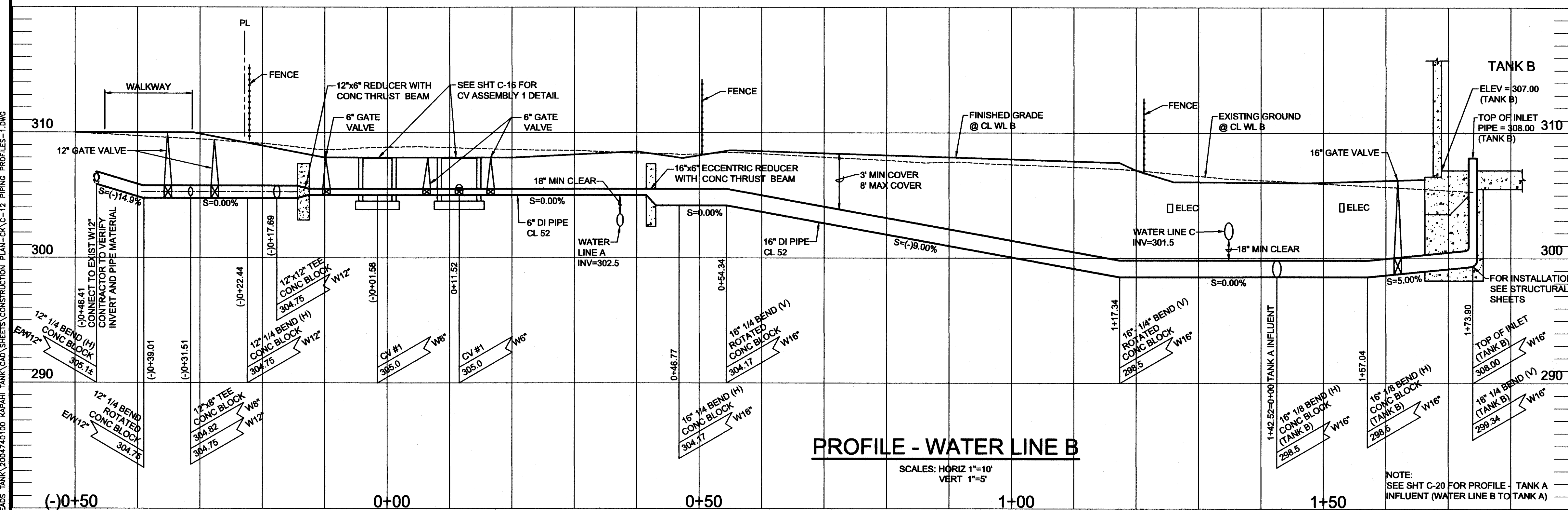
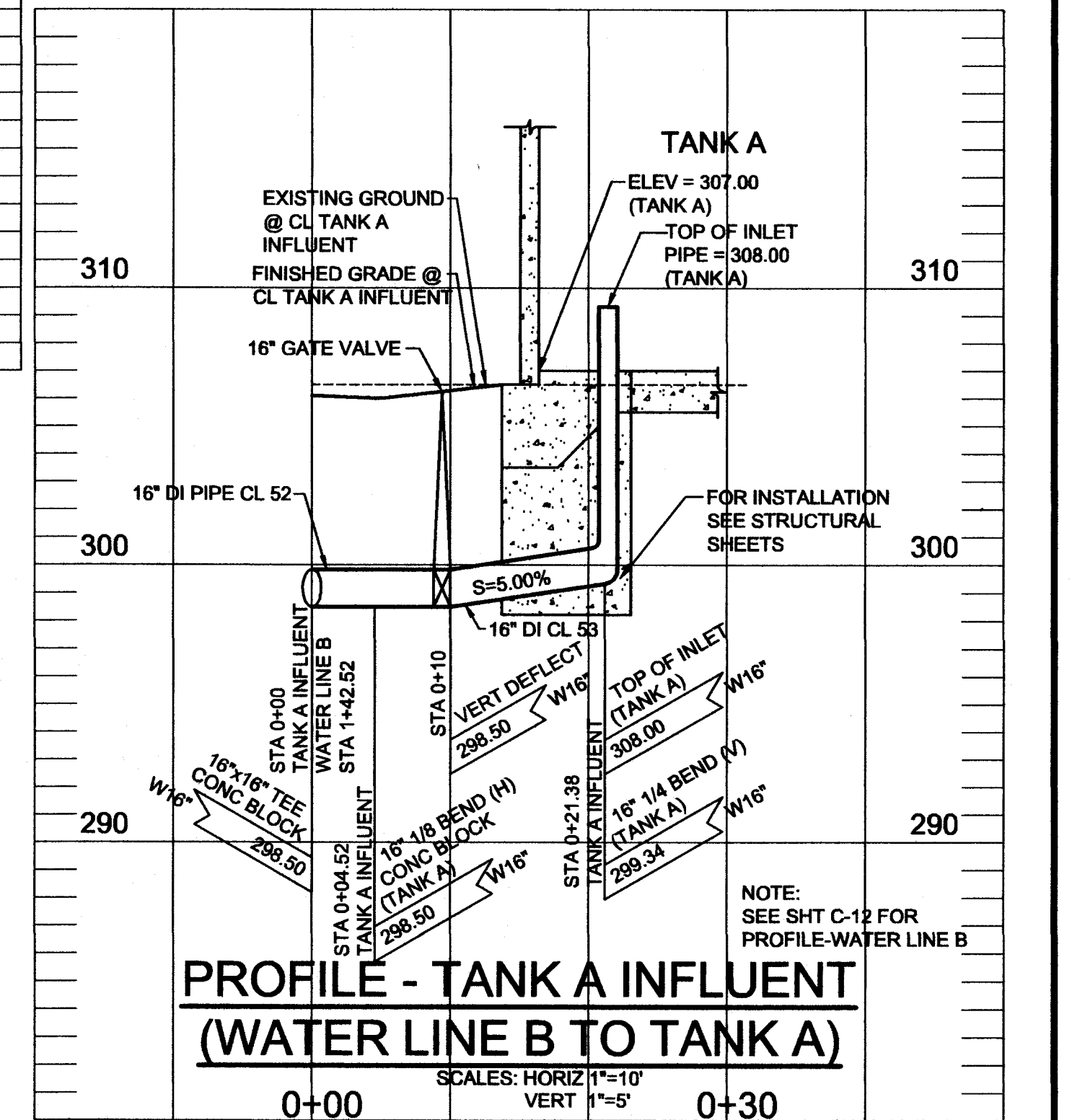
DRAWING NO.
C-11

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KEY PLAN
 SCALE: 1"=100'

WATER LINE DESCRIPTION:
 WATER LINE A (WL A) - KAWAHAU ROAD
 WATER LINE B (WL B) - 530 INFLUENT
 WATER LINE C (WL C) - TANK EFFLUENT (325)
 WATER LINE D (WL D) - TANK INTERCONNECT (425)
 WATER LINE E (WL E) - WELL EFFLUENT
 WATER LINE F (WL F) - TANK EFFLUENT (425)



REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011.003

CARY K. KONDO
 LICENSED PROFESSIONAL ENGINEER
 HAWAII, U.S.A.

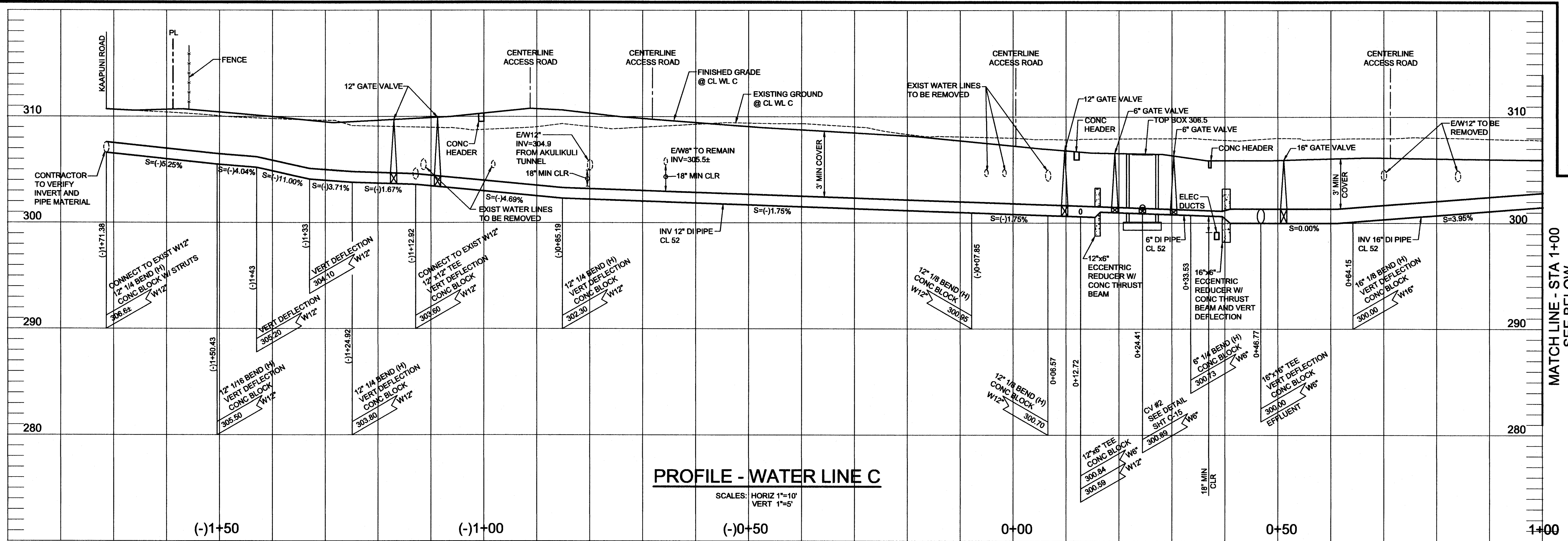
BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
 JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

PIPING PROFILES-1

APPROVED: *Jason Kagimoto*
 JASON KAGIMOTO
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

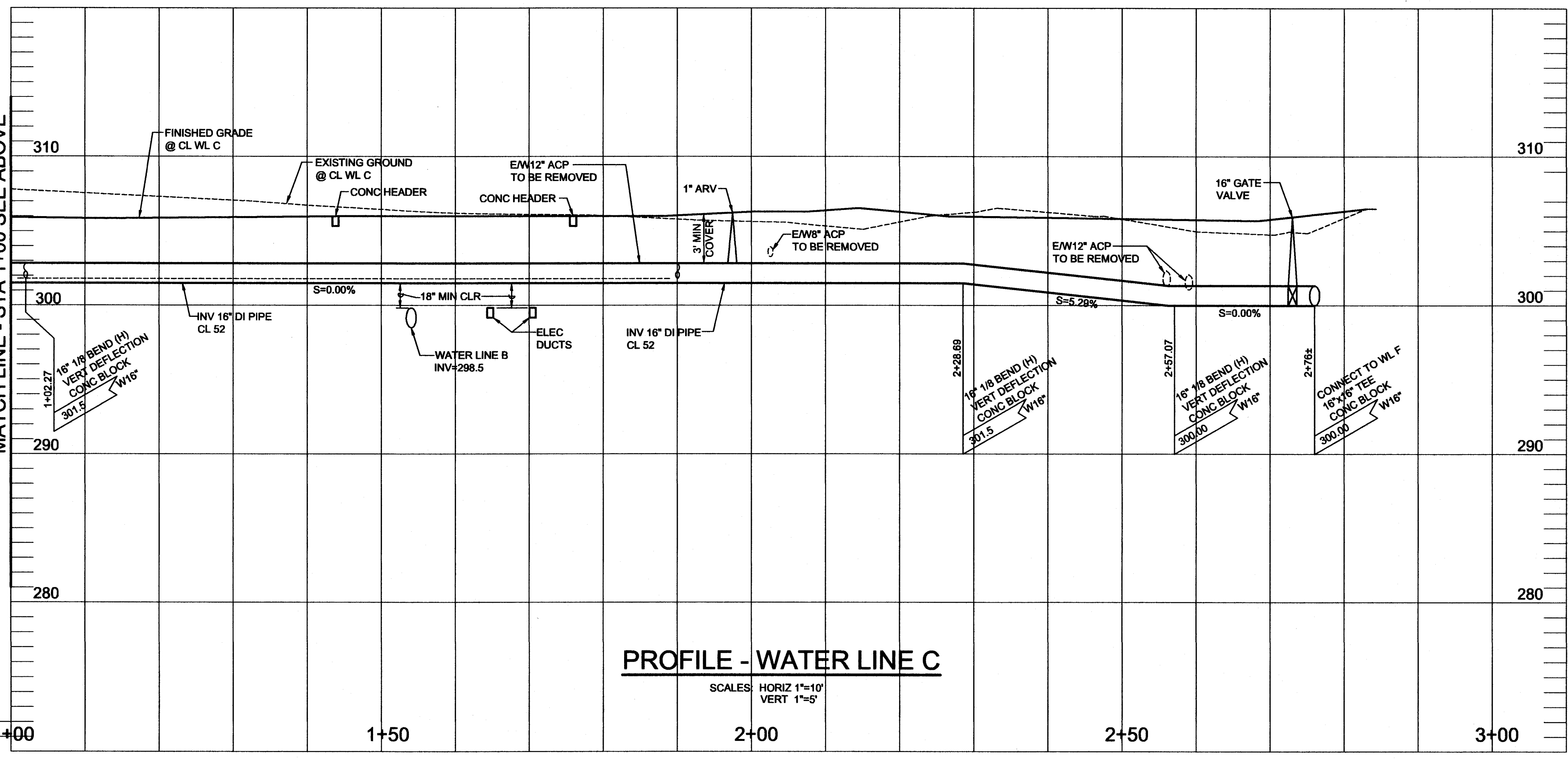
DATE: 2/3/23

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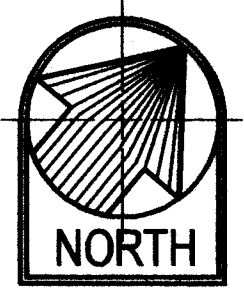
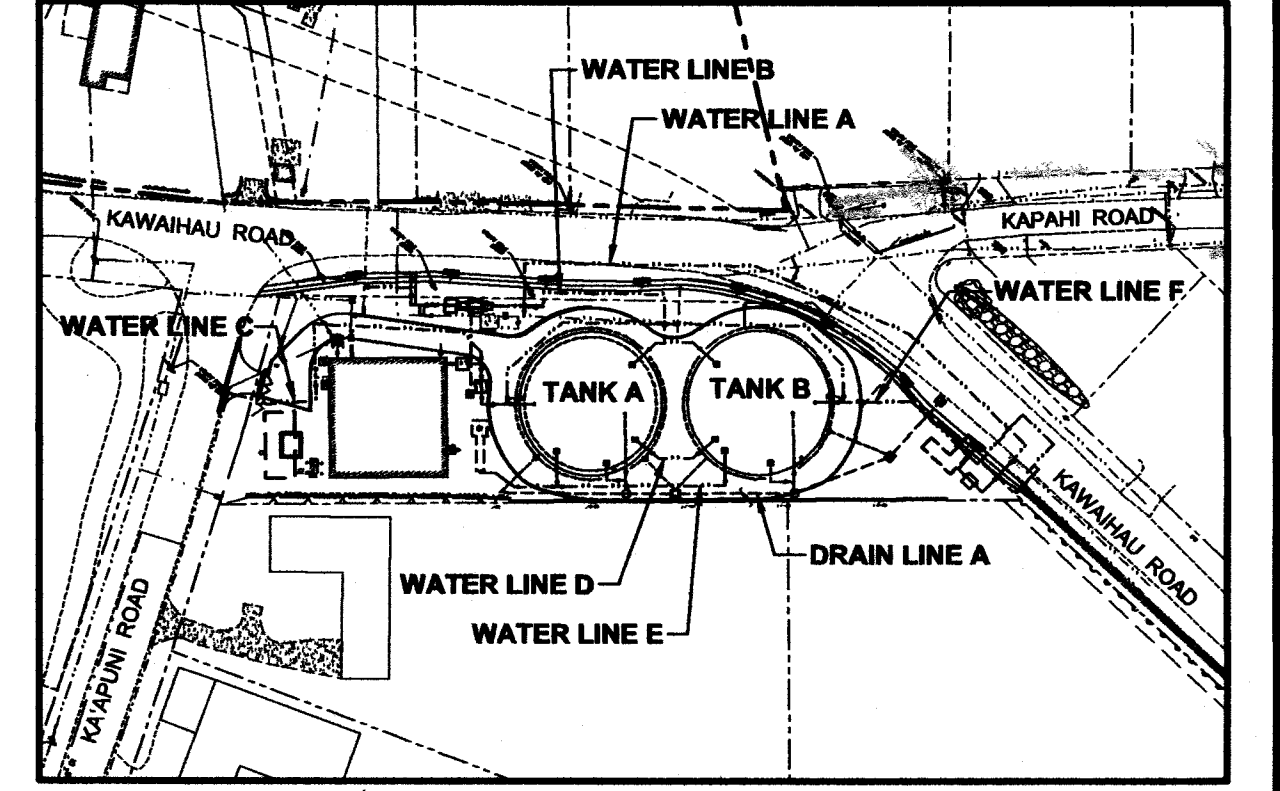
PROFILE - WATER LINE C
 SCALES: HORIZ 1"=10'
 VERT 1"=5'

MATCHLINE - STA 1+00
 SEE BELOW



PROFILE - WATER LINE C
 SCALES: HORIZ 1"=10'
 VERT 1"=5'

- WATER LINE DESCRIPTION:**
- WATER LINE A (WL A) - KAWAII ROAD
 - WATER LINE B (WL B) - 530 INFLUENT
 - WATER LINE C (WL C) - TANK EFFLUENT (325)
 - WATER LINE D (WL D) - TANK INTERCONNECT (425)
 - WATER LINE E (WL E) - WELL EFFLUENT
 - WATER LINE F (WL F) - TANK EFFLUENT (425)

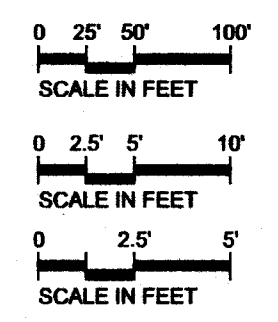


KEY PLAN
 SCALE: 1"=100'

REVISION	DATE	DESCRIPTION	APPROVED
<p>BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819</p> <p>JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII</p> <p>PIPING PROFILES-2</p>			
<p>APPROVED: <i>Michael M. ...</i> COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)</p>			DATE
<p>APPROVED: <i>Jason K. ...</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI</p>			DATE

TMK: 4 - 6 - 011:003

Cary K. Kondo
 LICENSED PROFESSIONAL ENGINEER
 No. 4575-C
 HAWAII, U.S.A.

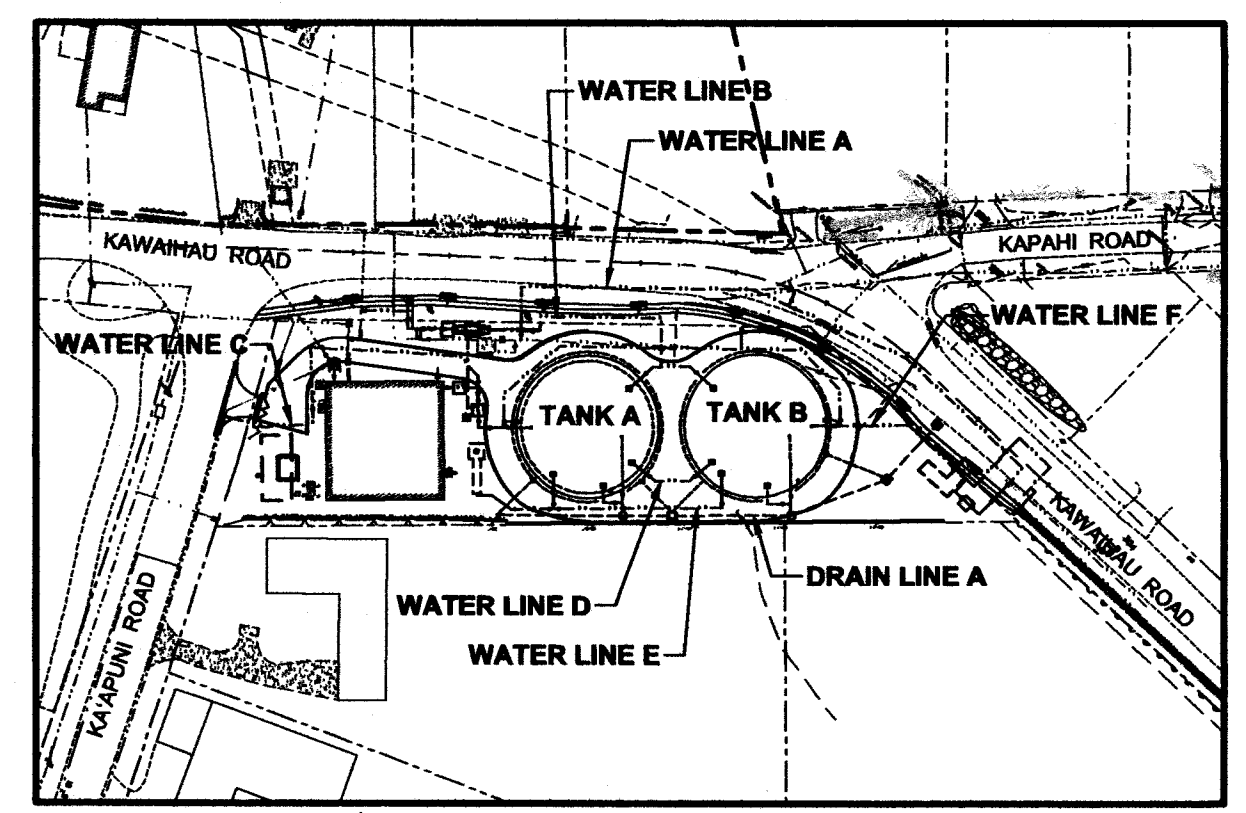
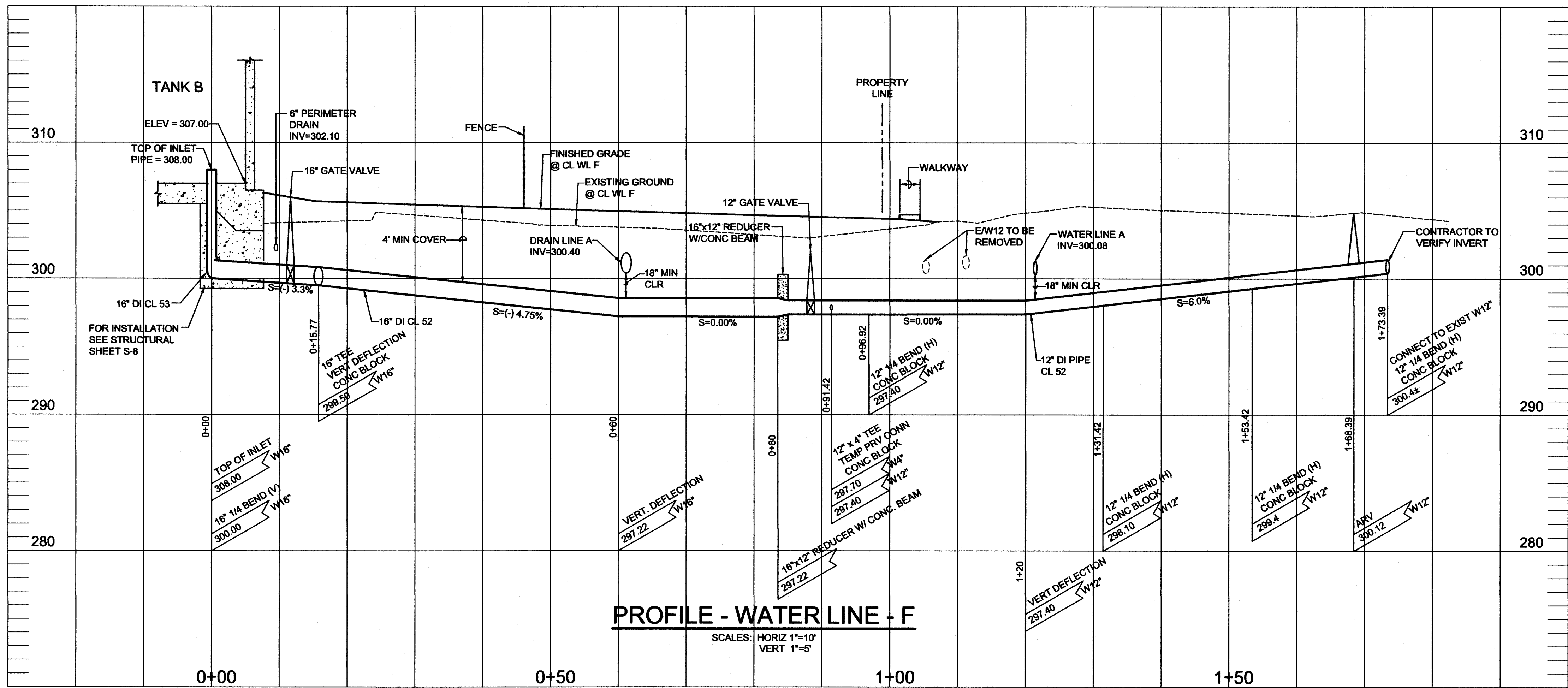
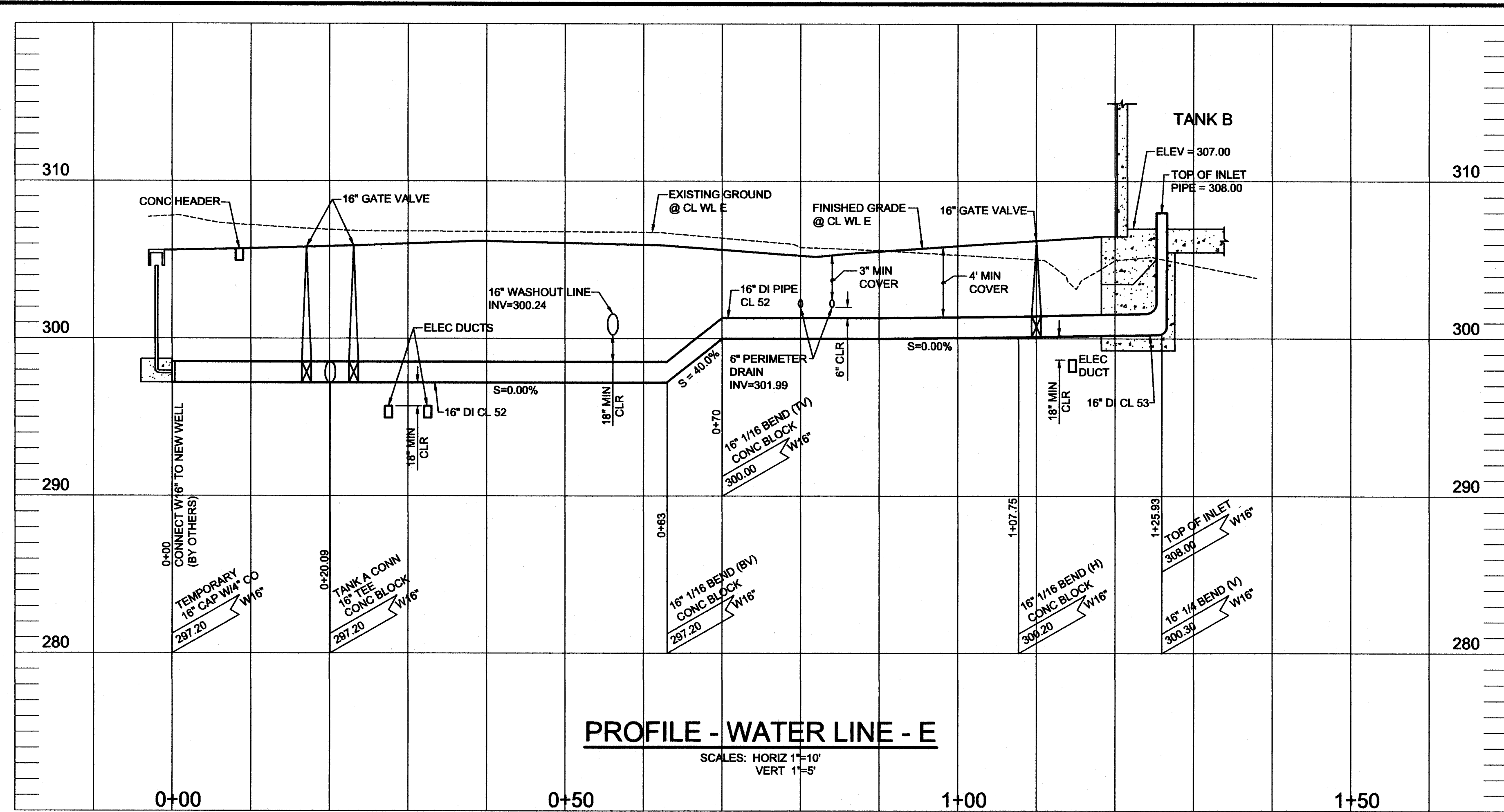
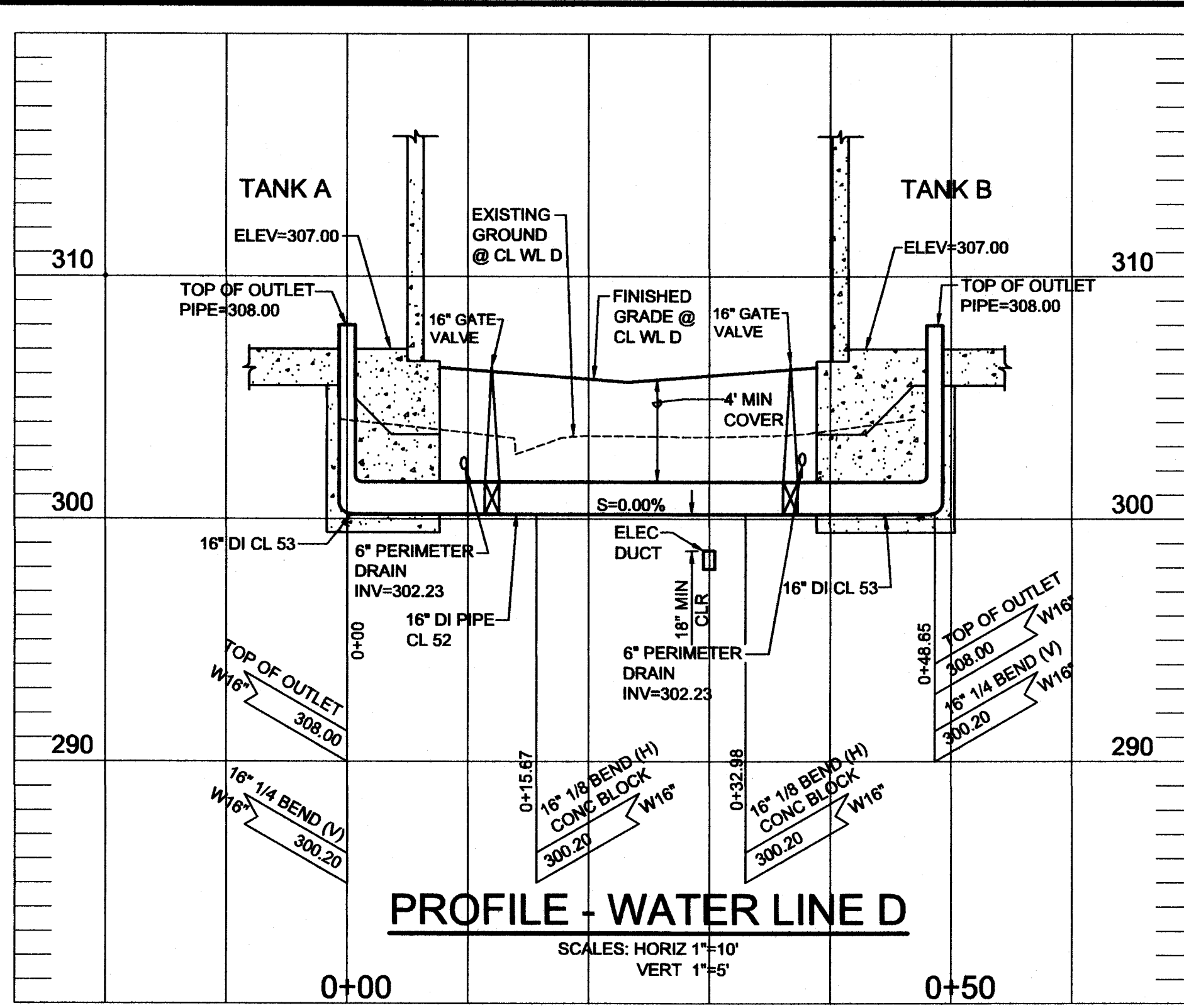


DRAWING NO.
C-13

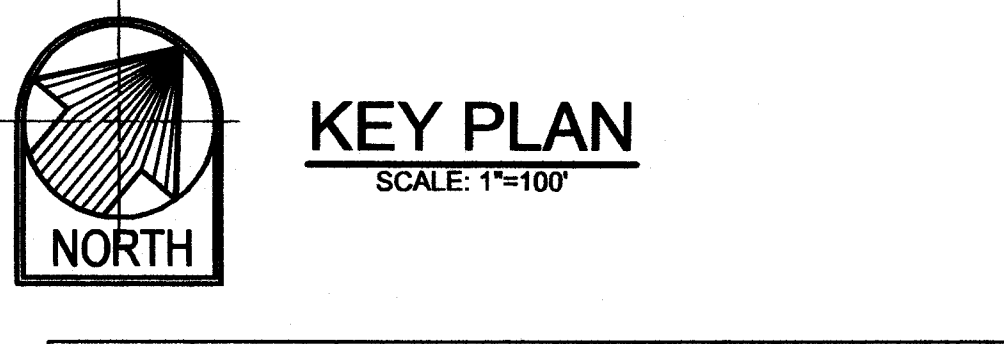
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

DATE: 2/3/23

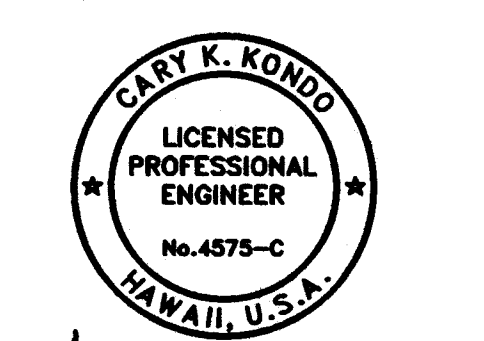
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- WATER LINE DESCRIPTION:**
- WATER LINE A (WL A) - KAWAIIHUA ROAD
 - WATER LINE B (WL B) - 530 INFLUENT
 - WATER LINE C (WL C) - TANK EFFLUENT (325)
 - WATER LINE D (WL D) - TANK INTERCONNECT (425)
 - WATER LINE E (WL E) - WELL EFFLUENT
 - WATER LINE F (WL F) - TANK EFFLUENT (425)



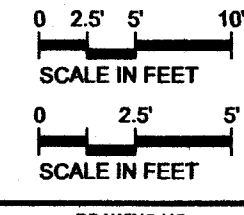
REVISION	DATE	DESCRIPTION	APPROVED



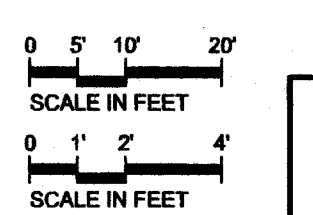
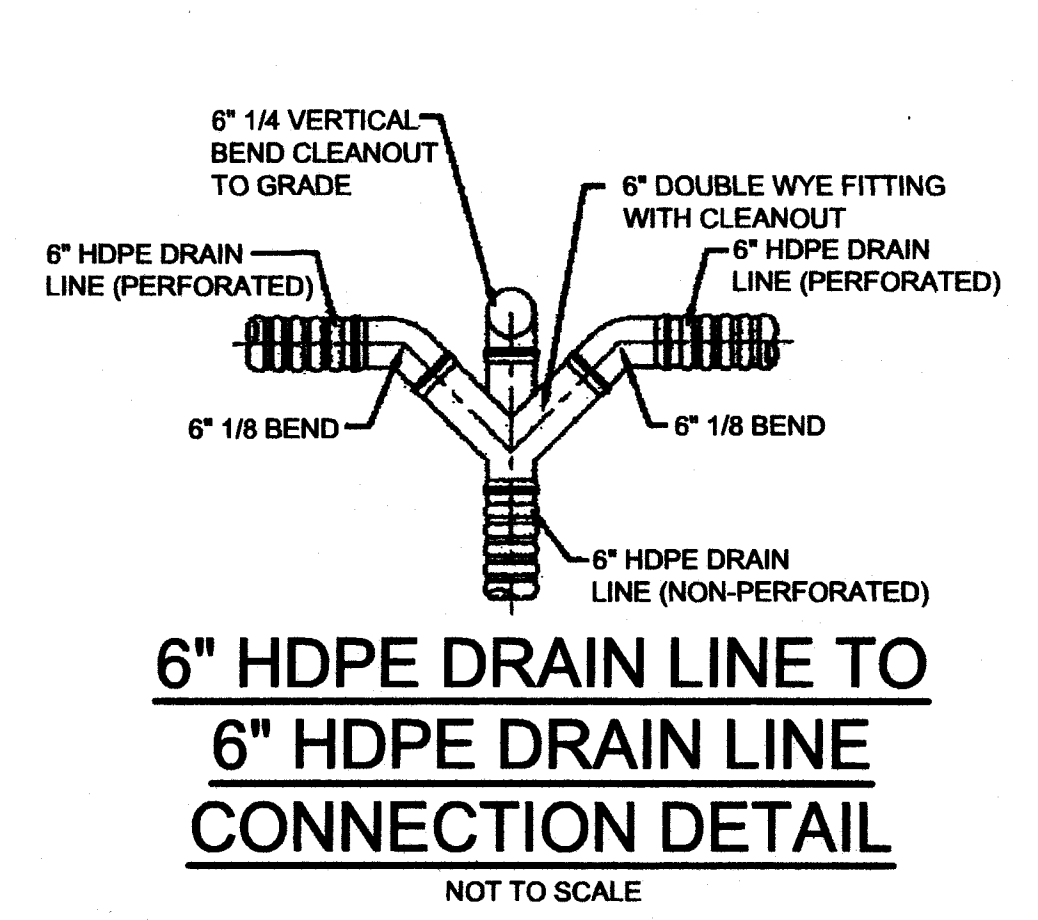
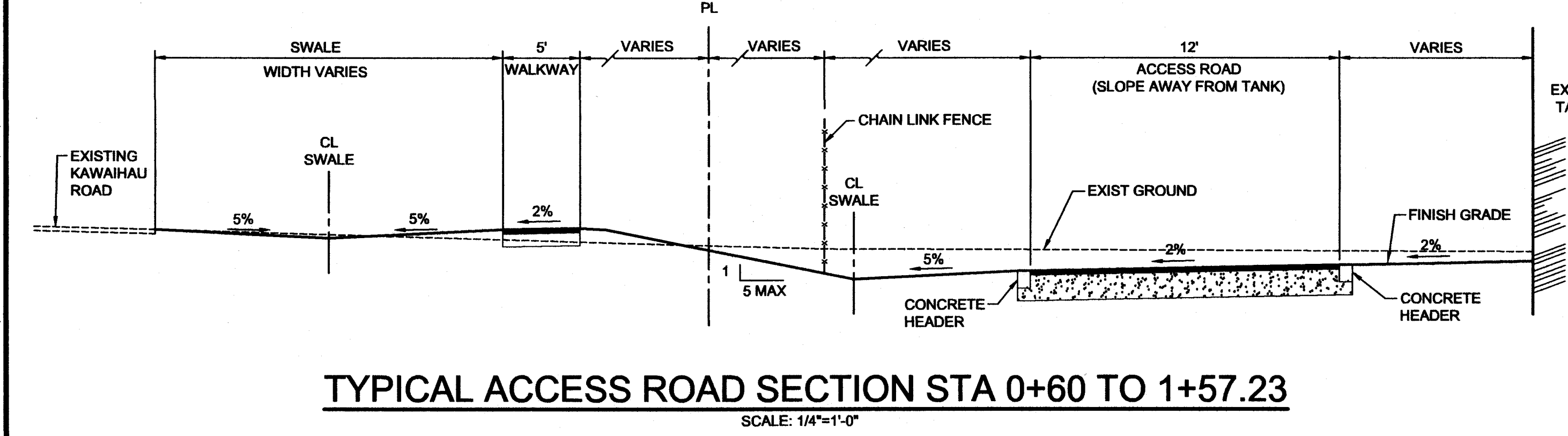
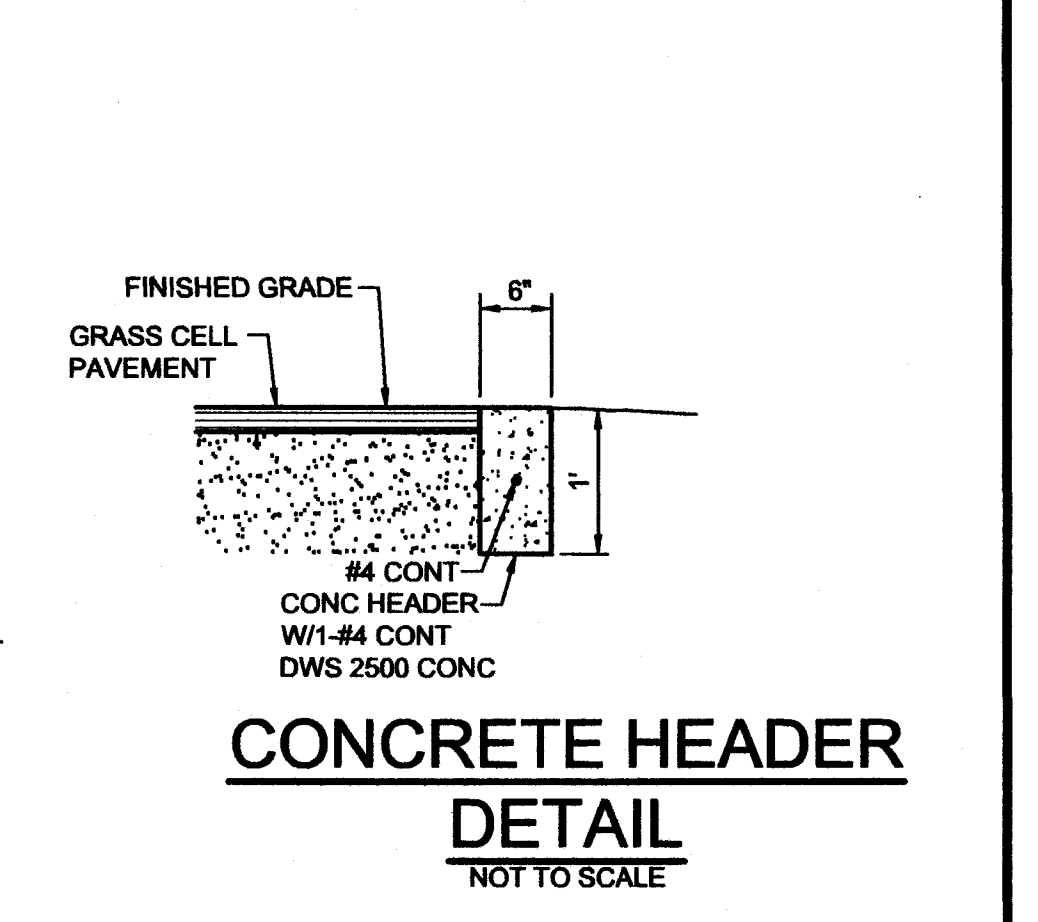
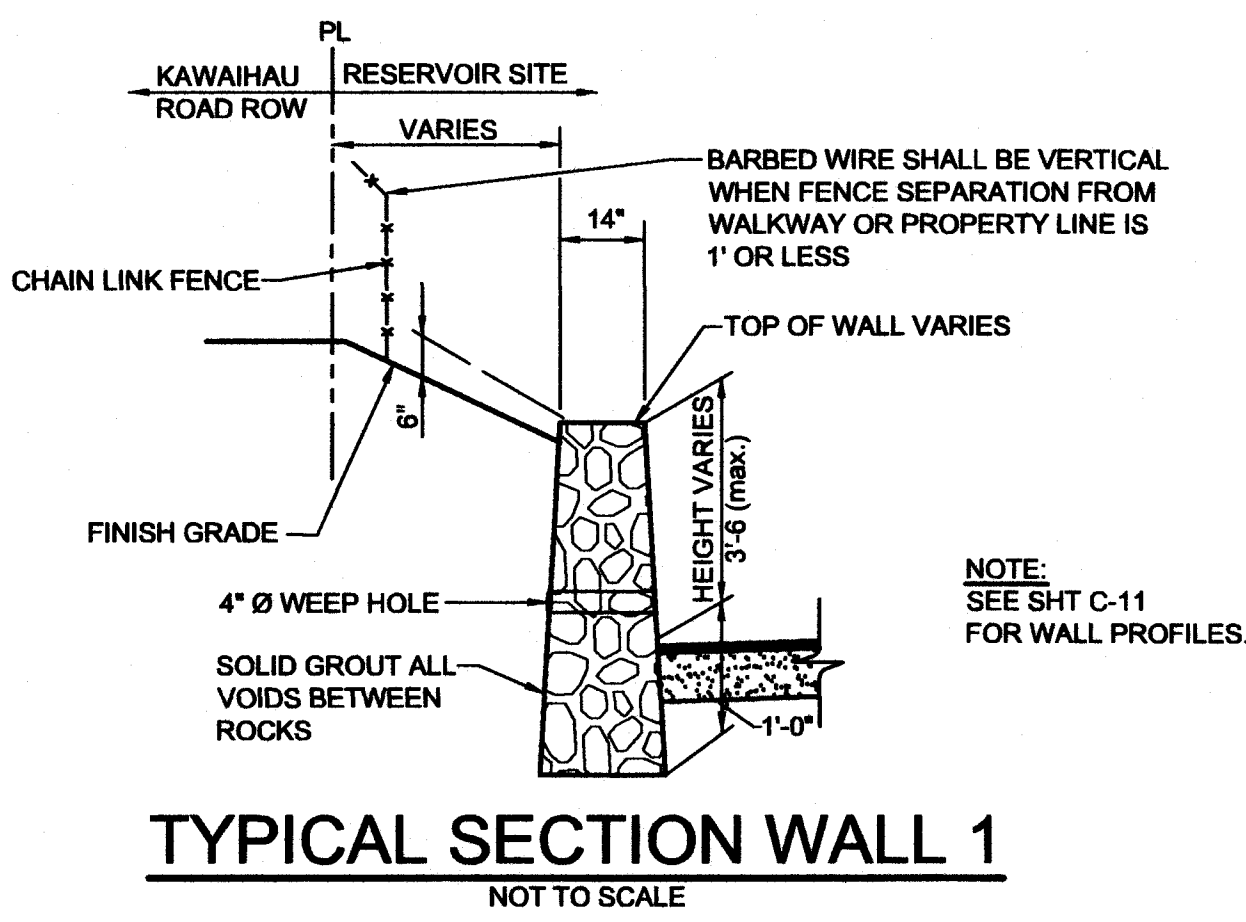
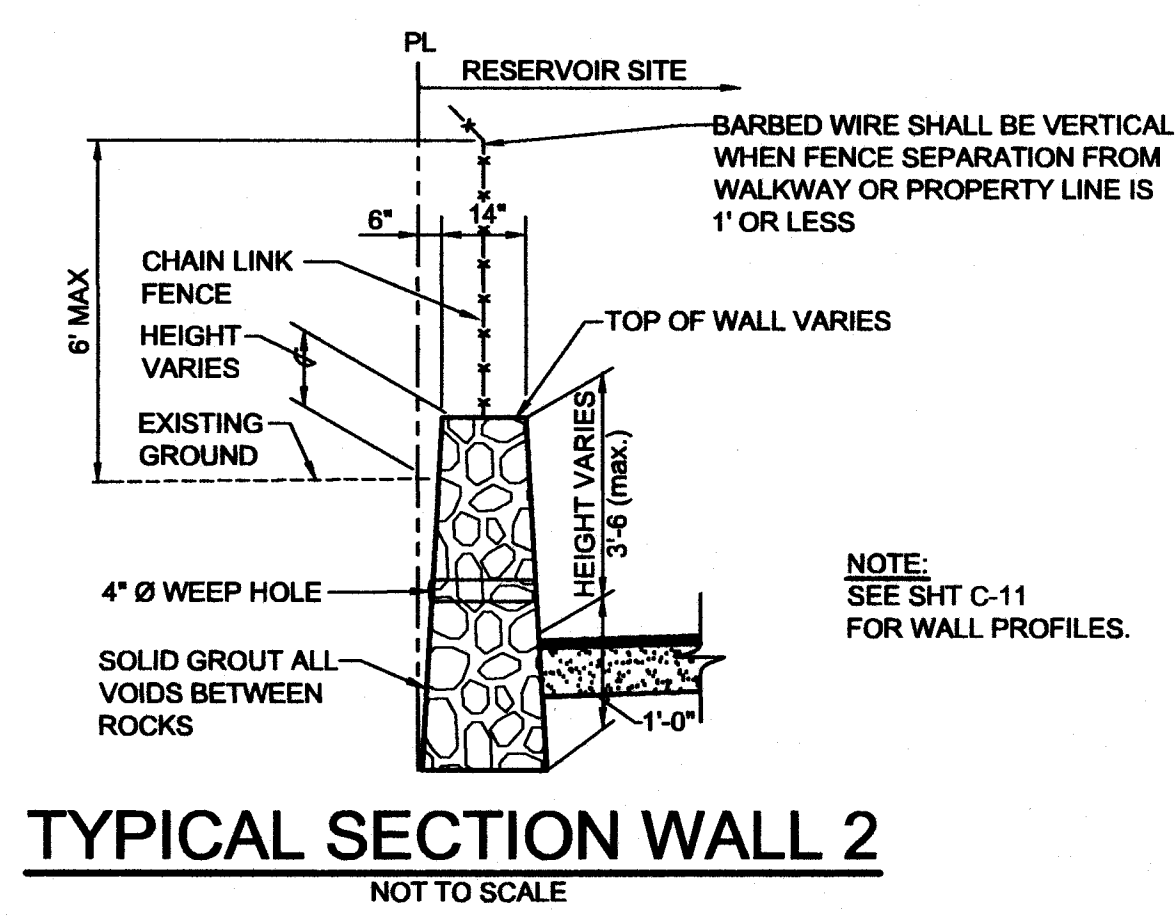
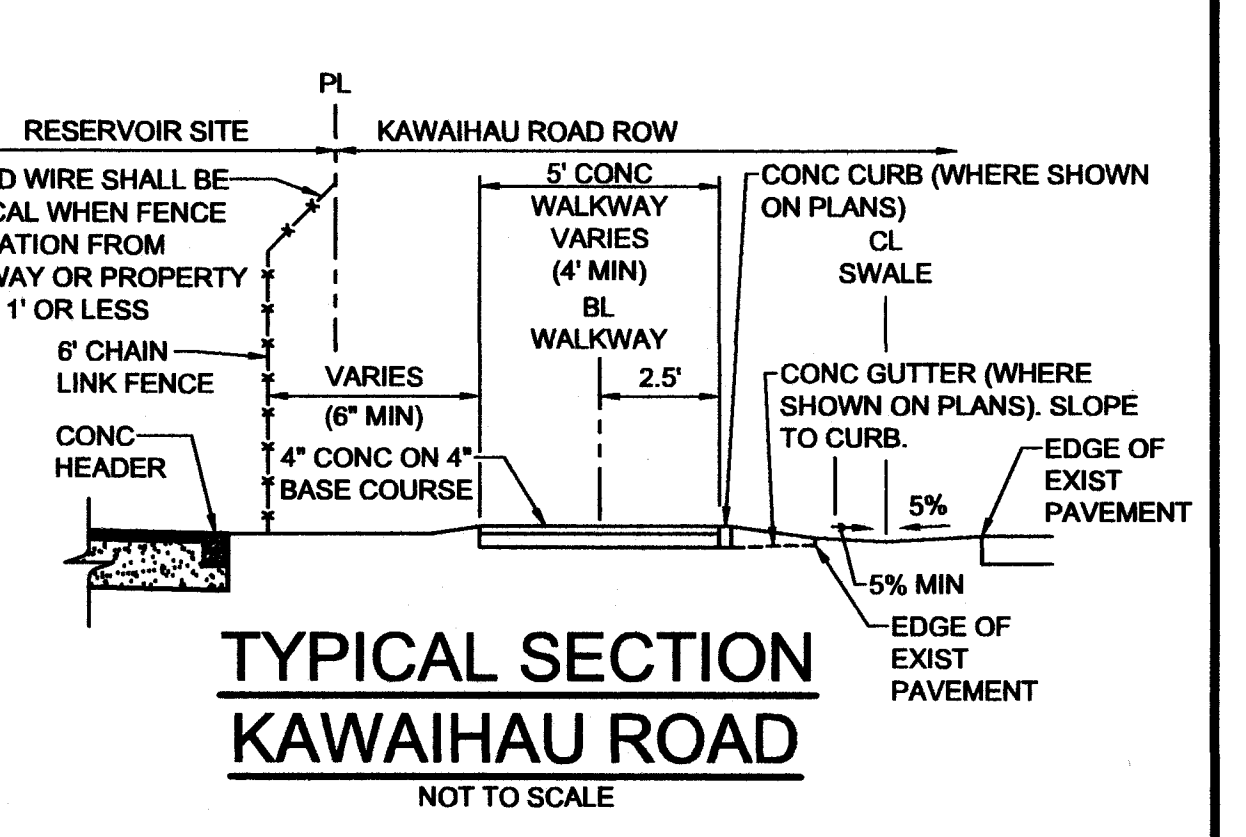
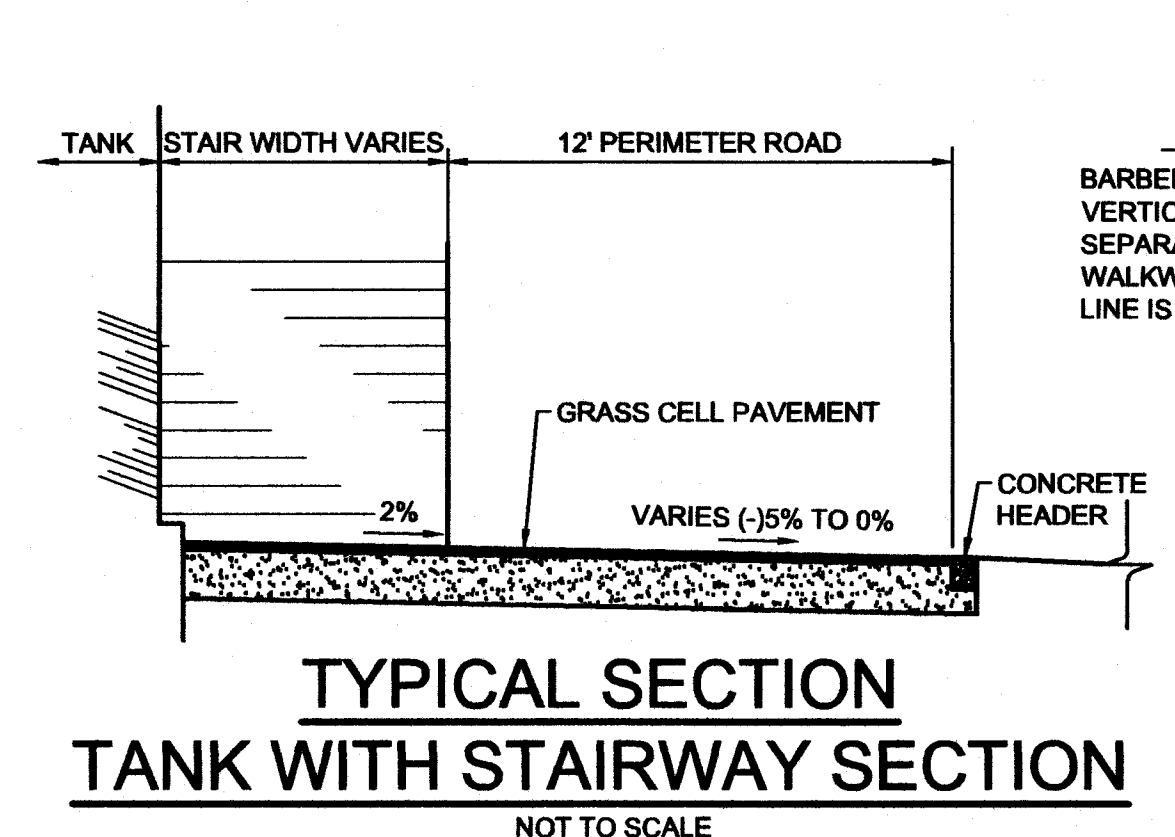
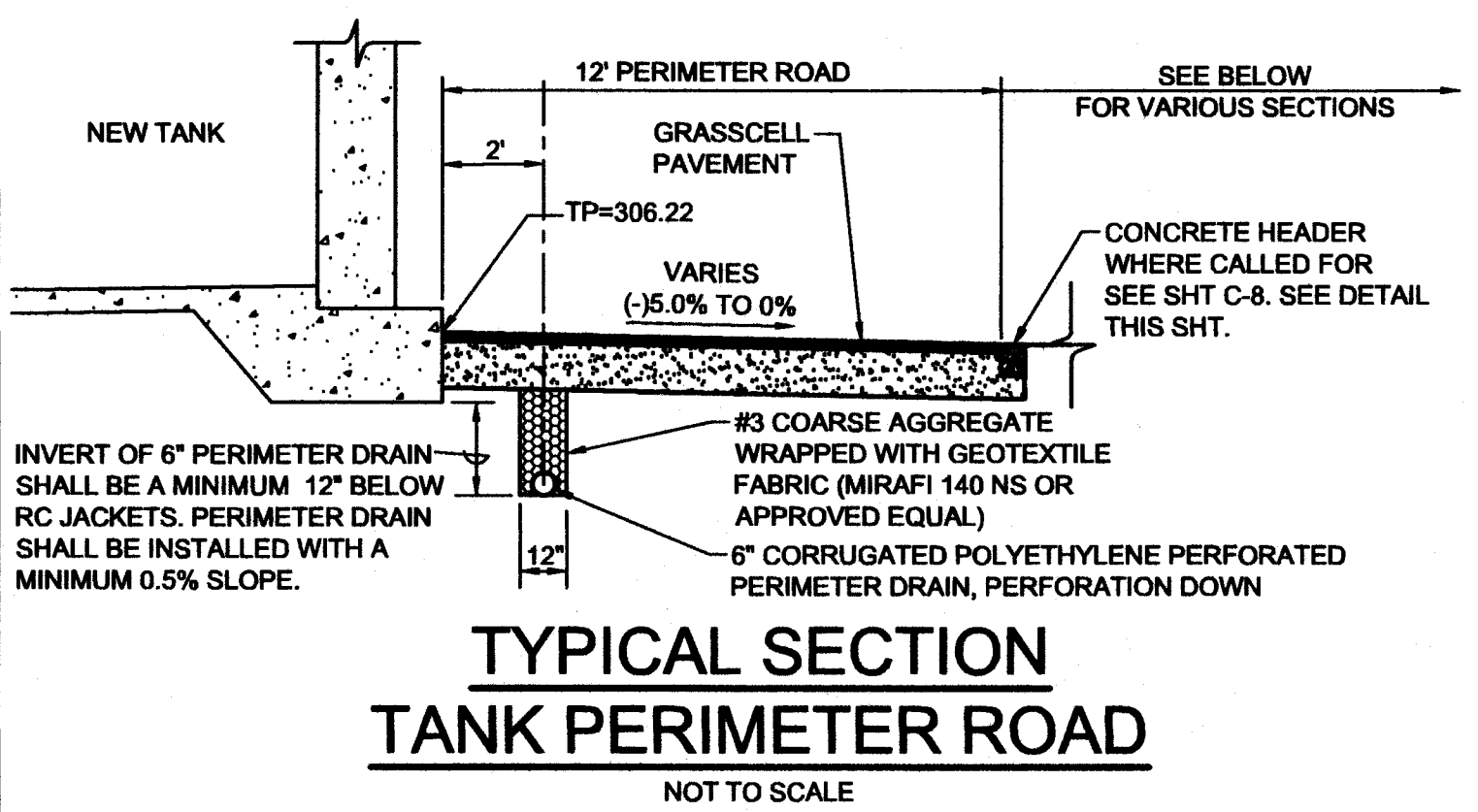
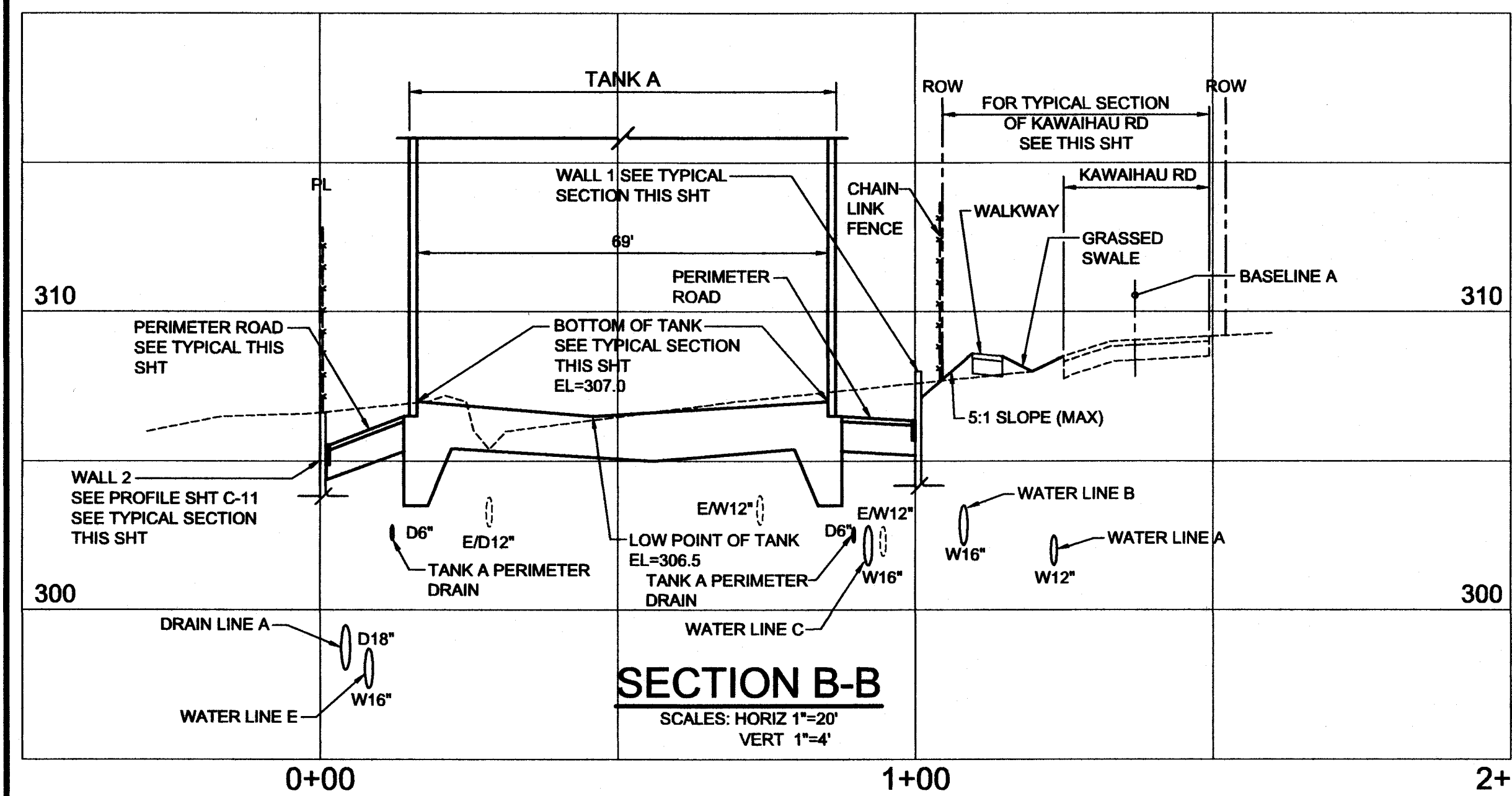
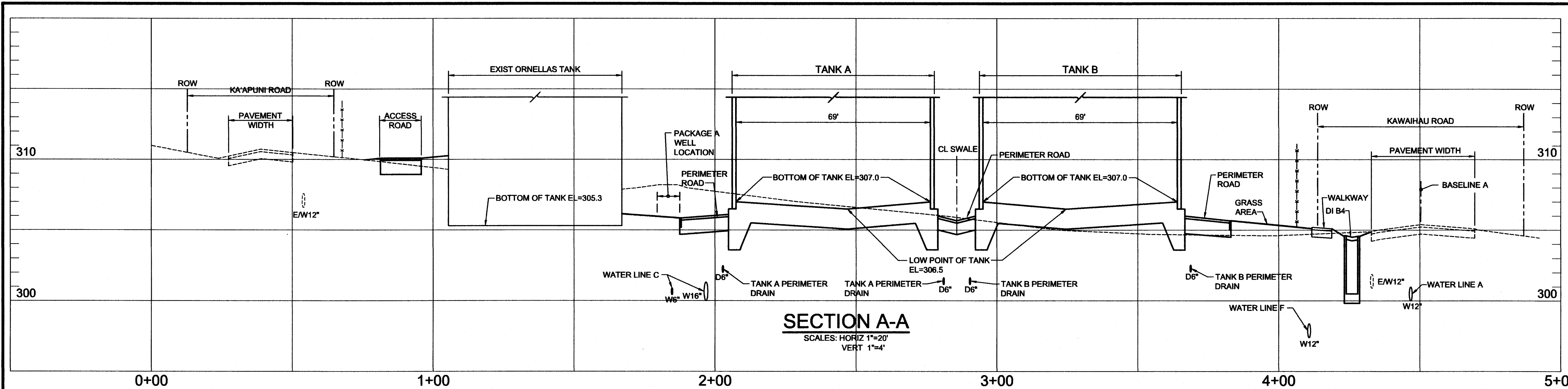
APPROVED: *Gary K. Kondo*
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY R/W)
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96815
 JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

PIPING PROFILES-3
 APPROVED: *Jason Kagimoto*
 COUNTY ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI
 DATE: 2/3/23



DRAWING NO. **C-14**

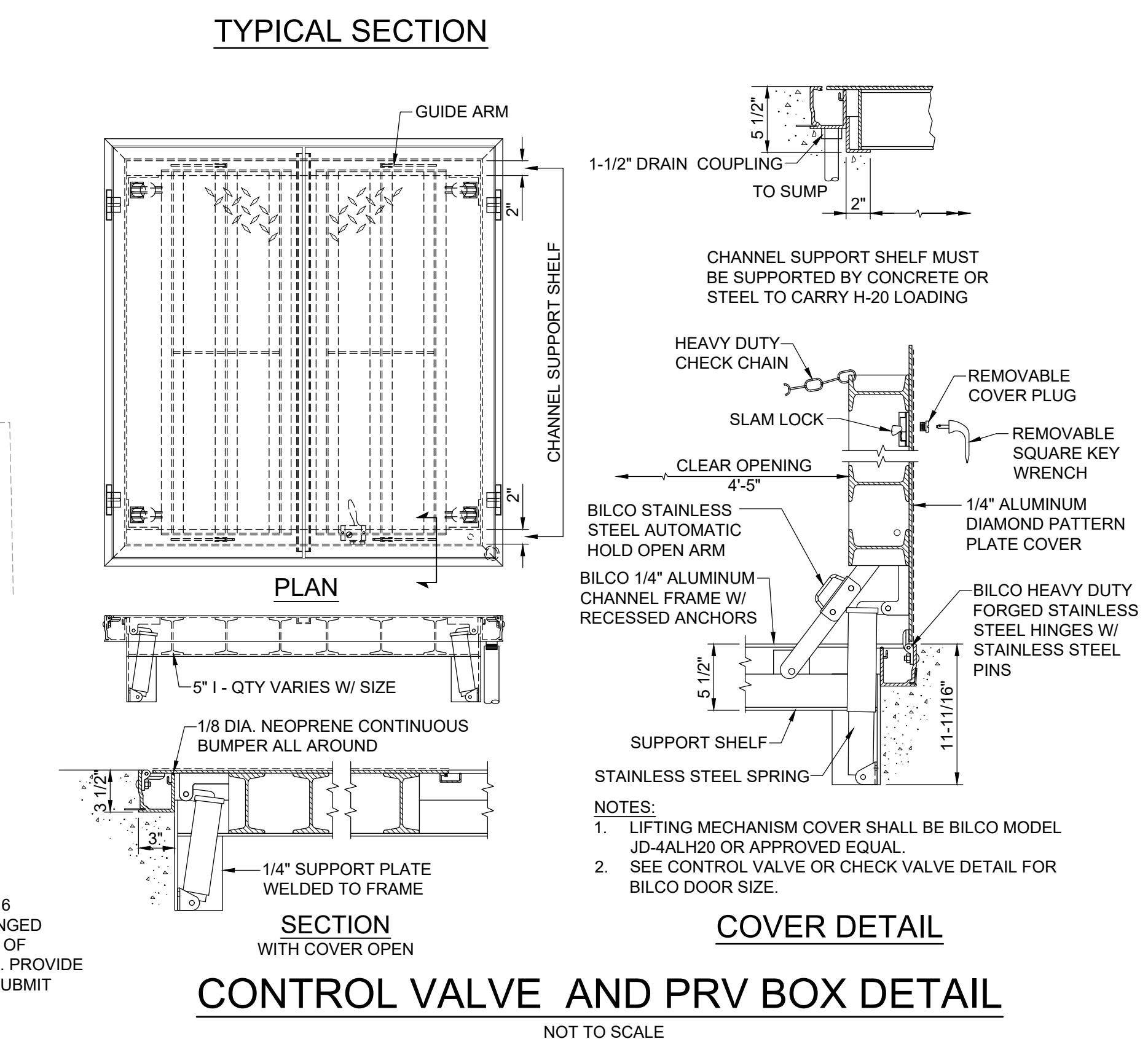
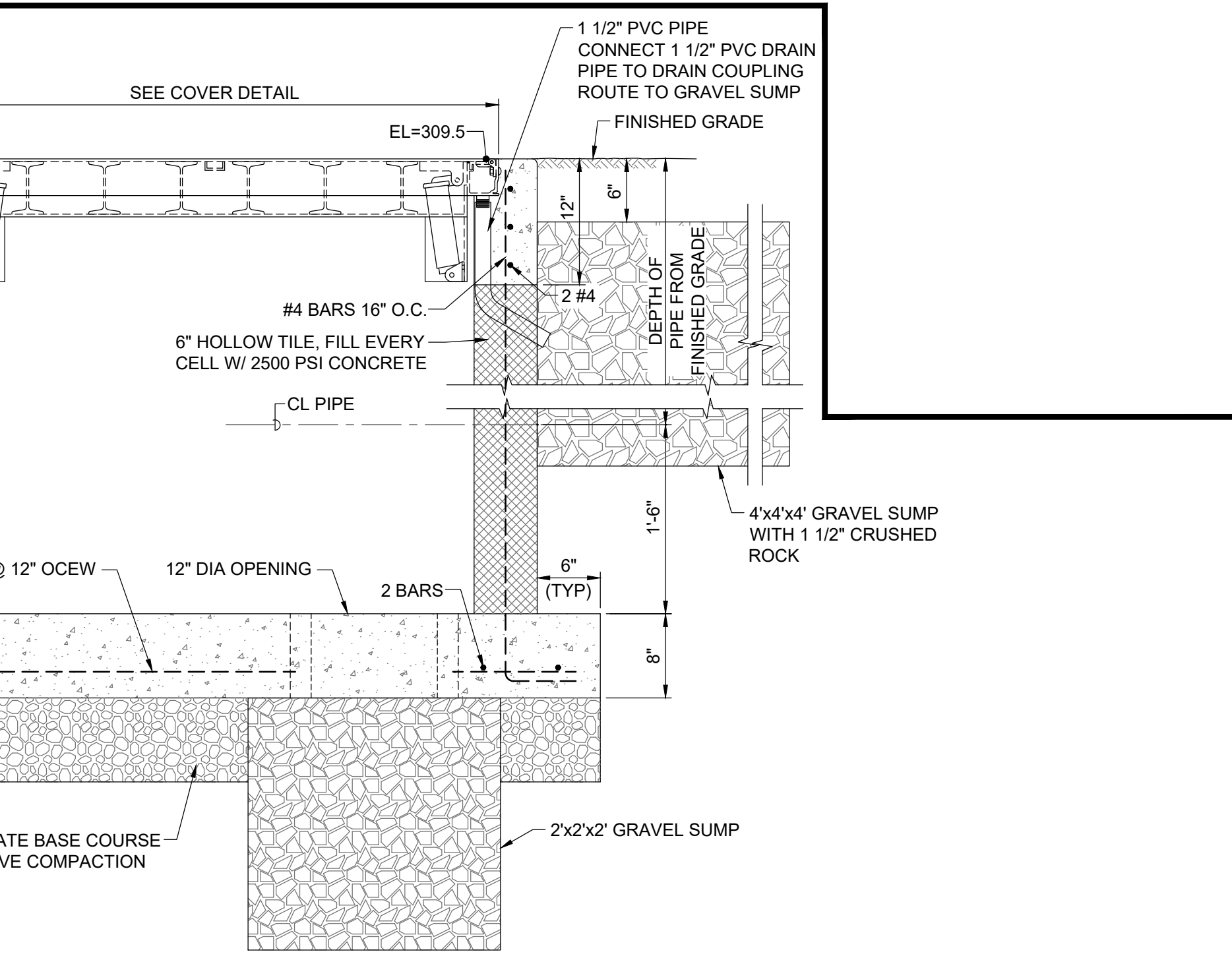
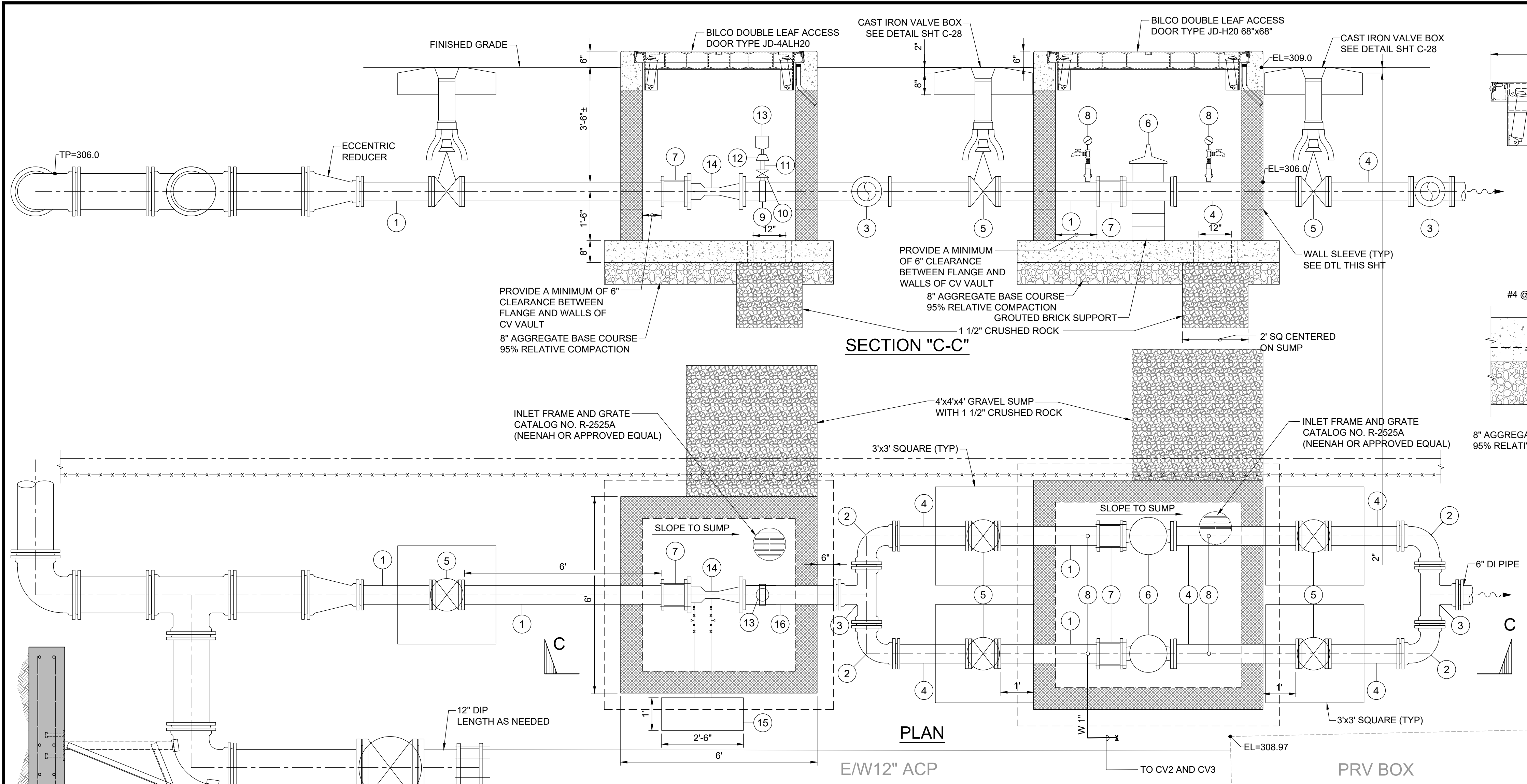


DRAWING NO. C-15

TMK: 4 - 6 - 011:003
CARY K. KONDO
 LICENSED PROFESSIONAL ENGINEER
 No. 4575-C
 HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII RESERVOIR SITE SECTIONS			
APPROVED: <small>Jason Kapimata COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY ROW)</small> DATE: 2/9/23 <small>MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI</small>			

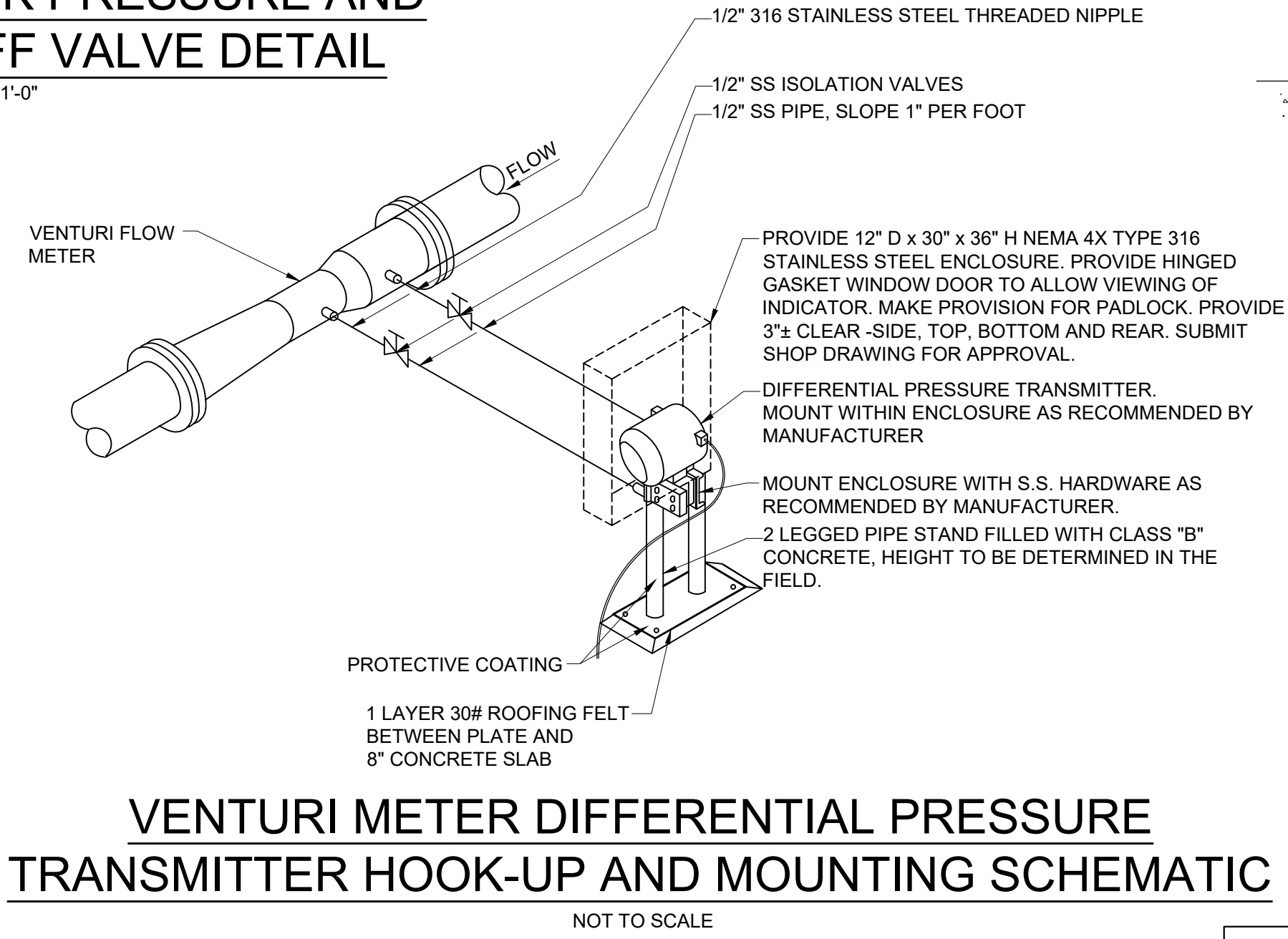
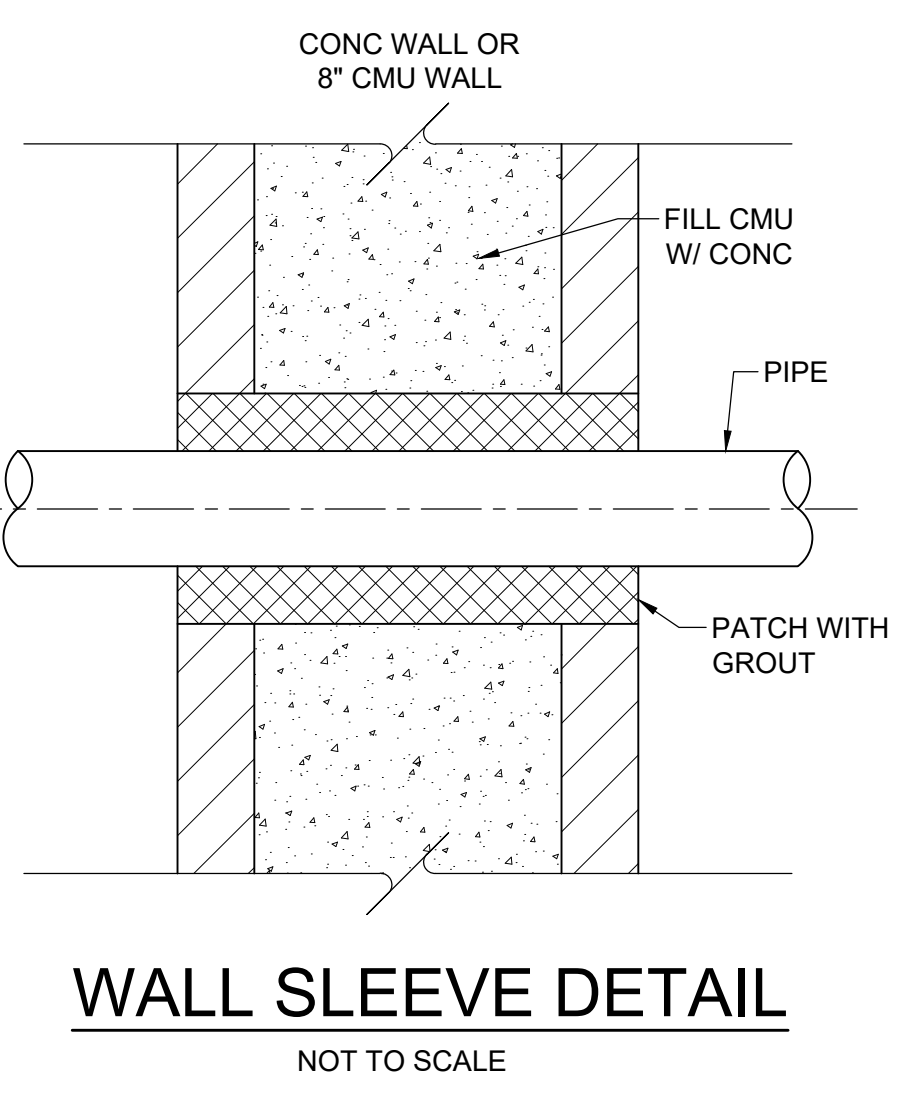
2/7/2023 3:14:23 PM
 T:\KAPA HOMESTEADS TANK\2004740.DD KAPAHU TANK\CAD SHEETS CONSTRUCTION PLAN-CX-C-15 RESERVOIR SITE SECTIONS.DWG



- NOTES**
1. FITTINGS BELOW GROUND SHALL BE MECHANICAL JOINT WITH MEGA-LUG RESTRAINT GLANDS.
 2. ALL FLANGED JOINTS SHALL HAVE SILICON BRONZE BOLTS.

**CONTROL VALVE ASSEMBLY 1
6" COMBINATION BACK PRESSURE AND
SOLENOID SHUT-OFF VALVE DETAIL**

SCALE: 1/2"=1'-0"



ITEM NO.	DESCRIPTION
1	6" NIPPLE, 24" MIN, PE&PE
2	6" 1/4 BEND, W/CONC BLOCK, FE
3	6" TEE, W/CONC BLOCK, FE
4	6" PIPE, LENGTH TO FIT, FE&PE
5	6" GATE VALVE WITH HAND WHEEL, MJ W/MEGALUG RETAINER GLANDS
6	*6" CLA-VAL COMBINATION BACK PRESSURE AND SOLENOID SHUT-OFF VALVE, MODEL 6" 658-01 WITH 4-20 MA POSITION TRANSMITTER. SET BACK PRESSURE TO 55 PSI
7	6" FLANGED COUPLING ADAPTER WITH SS RODS
8	MARSH STANDARD PRESSURE GAUGE, TYPE 1, 0-125 PSI OR EQUAL AND 3/4" HOSE BIBB W/O CHECK (WITH INSECT SCREEN)
9	6" SS DOUBLE STRAP SERVICE SADDLE - STAINLESS STEEL
10	1" CORP STOP, BALL TYPE, THREADED 1"MIPTx1"FIPT
11	1" NIPPLE, BRASS
12	1"x1/2" REDUCER, BRASS
13	*ROSEMOUNT PRESSURE TRANSMITTER, 1/2 MIPT, 4-20mA MODEL NUMBER 3051TG2A2A21 JB4Q4-T1
14	*6" BIF UNIVERSAL VENTURI TUBE, MODEL 6B 20181 OR 6" PFS HALMI VENTURI METER, MODEL HVT-FV, BOTH WITH STAINLESS STEEL TYPE 316, FE
15	DIFFERENTIAL PRESSURE TRANSMITTER (SEE DETAIL THIS SHEET) 2 LEGGED PIPE STAND ABB 266DSH TRANSMITTER W/ 3-VALVE MANIFOLD
16	6" SPOOL, LENGTH TO FIT, FE

* OR DEPARTMENT OF WATER APPROVED EQUAL

CONTROL VALVE ASSEMBLY 1 MATERIAL SCHEDULE

ITEM NO.	DESCRIPTION
1	6" NIPPLE, 24" MIN, PE&PE
2	6" 1/4 BEND, W/CONC BLOCK, FE
3	6" TEE, W/CONC BLOCK, FE
4	6" PIPE, LENGTH TO FIT, FE&PE
5	6" GATE VALVE WITH HAND WHEEL, MJ W/MEGALUG RETAINER GLANDS
6	*6" CLA-VAL COMBINATION BACK PRESSURE AND SOLENOID SHUT-OFF VALVE, MODEL 6" 658-01 WITH 4-20 MA POSITION TRANSMITTER. SET BACK PRESSURE TO 55 PSI
7	6" FLANGED COUPLING ADAPTER WITH SS RODS
8	MARSH STANDARD PRESSURE GAUGE, TYPE 1, 0-125 PSI OR EQUAL AND 3/4" HOSE BIBB W/O CHECK (WITH INSECT SCREEN)
9	6" SS DOUBLE STRAP SERVICE SADDLE - STAINLESS STEEL
10	1" CORP STOP, BALL TYPE, THREADED 1"MIPTx1"FIPT
11	1" NIPPLE, BRASS
12	1"x1/2" REDUCER, BRASS
13	*ROSEMOUNT PRESSURE TRANSMITTER, 1/2 MIPT, 4-20mA MODEL NUMBER 3051TG2A2A21 JB4Q4-T1
14	*6" BIF UNIVERSAL VENTURI TUBE, MODEL 6B 20181 OR 6" PFS HALMI VENTURI METER, MODEL HVT-FV, BOTH WITH STAINLESS STEEL TYPE 316, FE
15	DIFFERENTIAL PRESSURE TRANSMITTER (SEE DETAIL THIS SHEET) 2 LEGGED PIPE STAND ABB 266DSH TRANSMITTER W/ 3-VALVE MANIFOLD
16	6" SPOOL, LENGTH TO FIT, FE

* OR DEPARTMENT OF WATER APPROVED EQUAL

1/27/2023 3:44:49 PM
KAPAA HOMESTEADS TANK 2004740100 WAPAH TANK (CAD) SHEETS CONSTRUCTION PLAN-CK-C-16 PIPING DETAILS-1 DWG

TMK: 4 - 6 - 011:003

CARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

APPROVED:
N/A

Jason Kagimoto
ENGINEER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

DRAWING NO. **C-16**

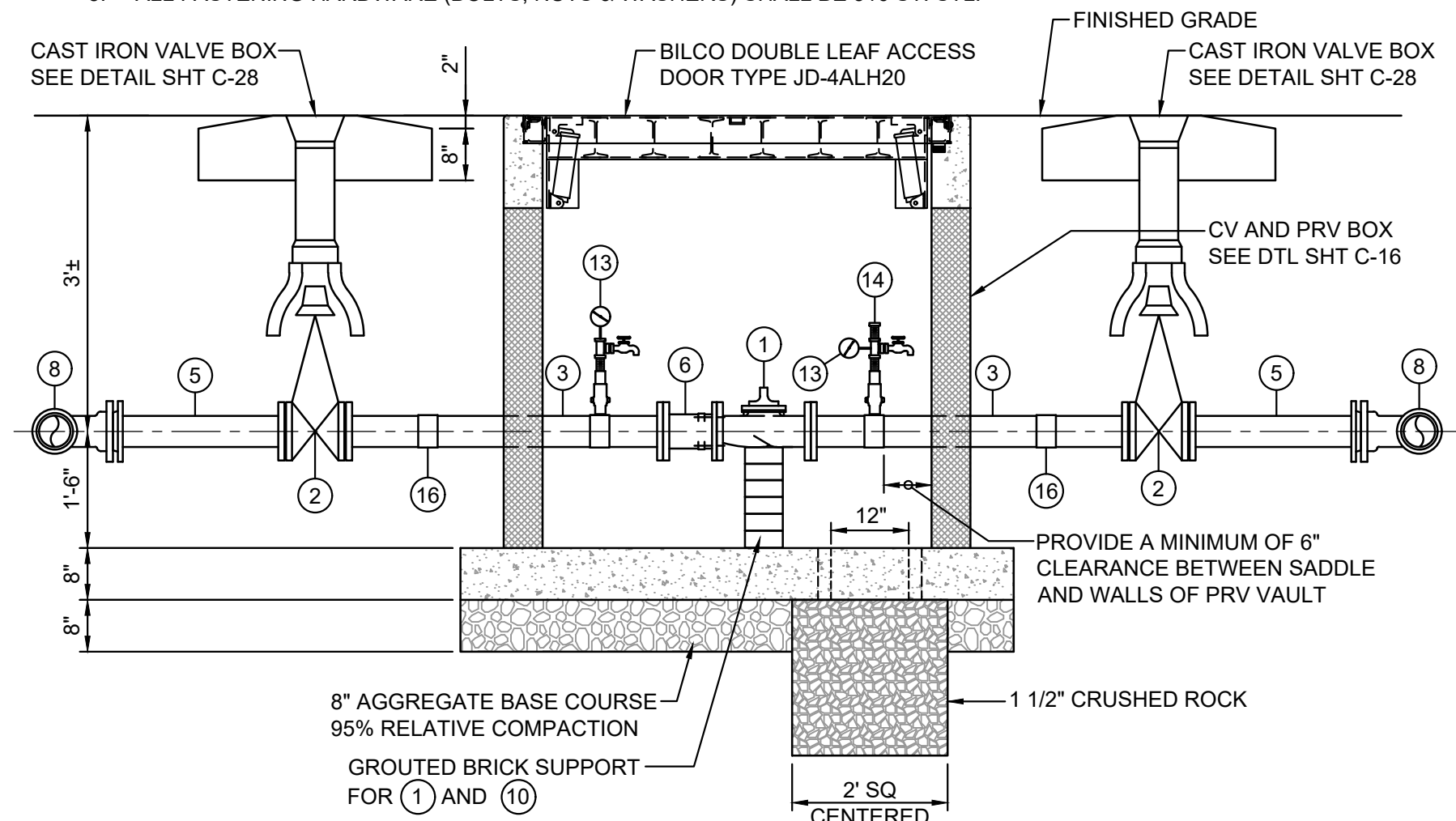
SHEET 17 OF 66 SHEETS

REVISION	DATE	DESCRIPTION	APPROVED
<p>BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII</p>			
<p>PIPING DETAILS-1</p>			

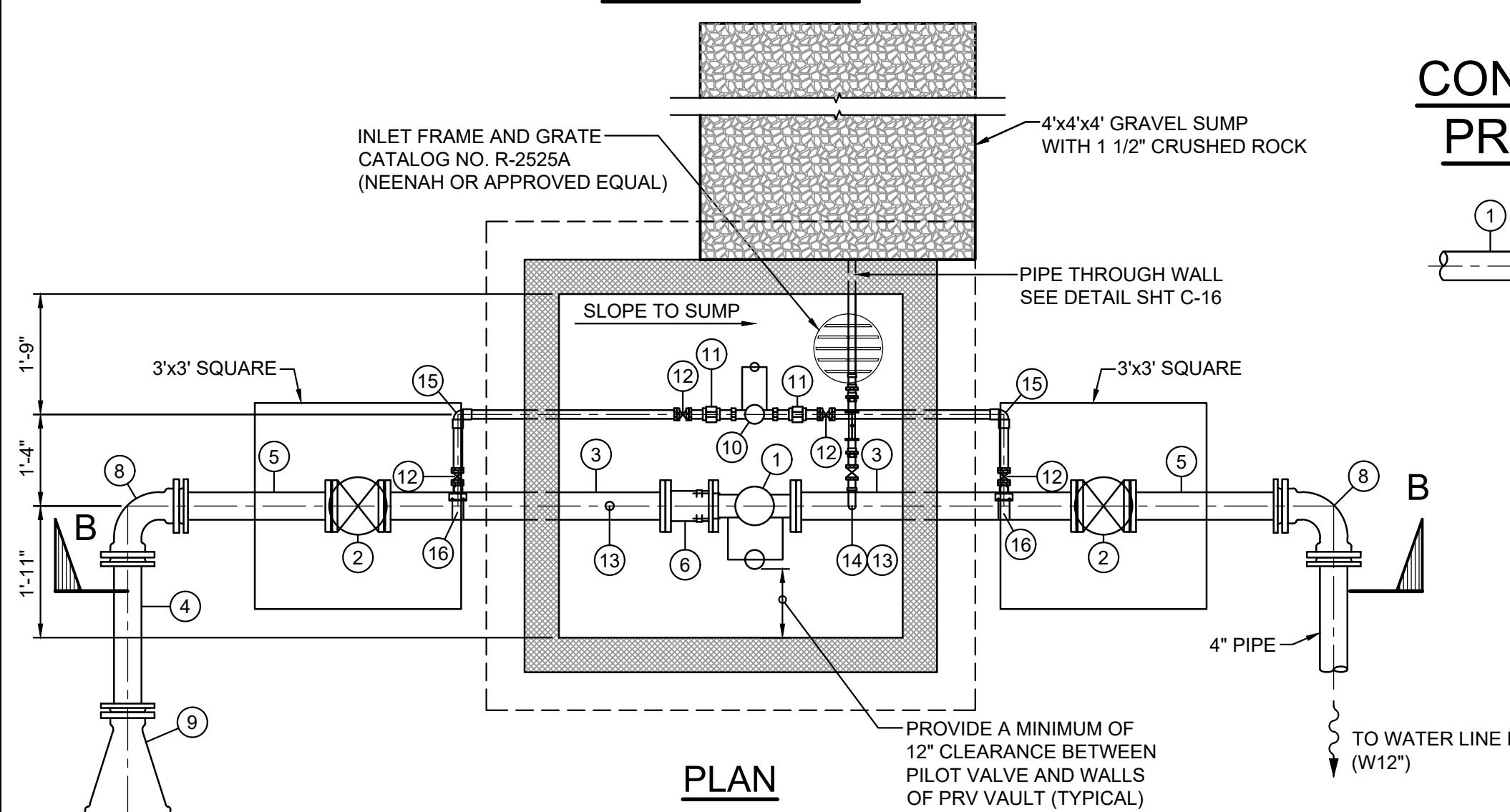
TEMPORARY PRV VAULT MATERIAL SCHEDULE	
ITEM NO.	DESCRIPTION
1	4" PRESSURE REDUCING VALVE CLA-VAL 690-01 (G) AB,
2	4" GATE VALVE, FE, AND VALVE BOX WITH COVER
3	4" D.I. NIPPLE, LENGTH AS NEEDED
4	4" D.I. PIPE, PE, LENGTH AS NEEDED (24" MIN)
5	4" D.I. 24" NIPPLE
6	4" FLANGED COUPLING ADAPTOR
7	NOT USED
8	4" 1/4 BEND, MJ
9	12"x4" REDUCER, MJ WITH CONC THRUST BEAM FOR REDUCER
10	2" PRESSURE REDUCING VALVE CLA-VAL 90-01 (G) ABS, SCREWED,
11	2" BRASS UNION, FIPT
12	2" x 2" MPT BALL CORP
13	MARSH PRESSURE STANDARD GAUGE, TYPE I, 0-125 PSI OR EQUAL & 3/4" HOSE BIBB W/O CHECK THREADED WITH CAP
14	PRESSURE RELIEF VALVE ASSEMBLY, SEE DETAIL THIS SHEET
15	2" 1/4 BRASS BEND, FIPT
16	2" CORP STOP WITH SS SERVICE SADDLE, FIPT

PRV NOTES:

- CLAYTON VALVES SHALL BE EQUIPPED WITH EPOXY COATING (KC), VALVE POSITION INDICATORS (X101), ST. STL. COVER NUTS AND STUDS (KX), PILOT SYSTEM ISOLATION COCKS (B), CLOSING SPEED CONTROL (C), AND OPENING SPEED CONTROL (S).
- UPSTREAM STATIC PRESSURE: 110 PSI
- PRESSURE REDUCER SETTINGS:
2": 43 PSI
4": 38 PSI
- CRD RANGE: 15-75 PSI
CRL RANGE: N/A
- ALL FASTENING HARDWARE (BOLTS, NUTS & WASHERS) SHALL BE 316 ST. STL.



SECTION "B-B"

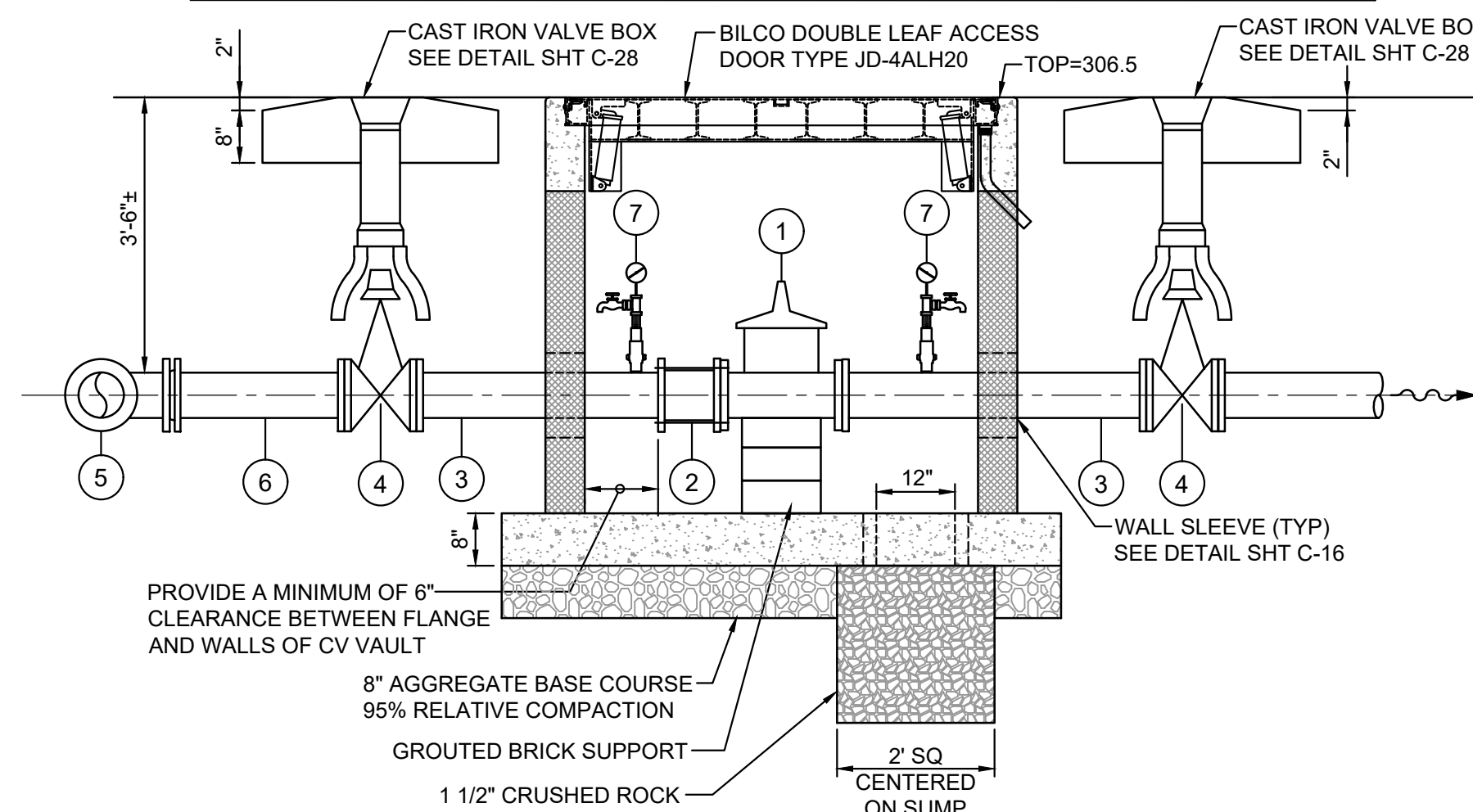


PLAN

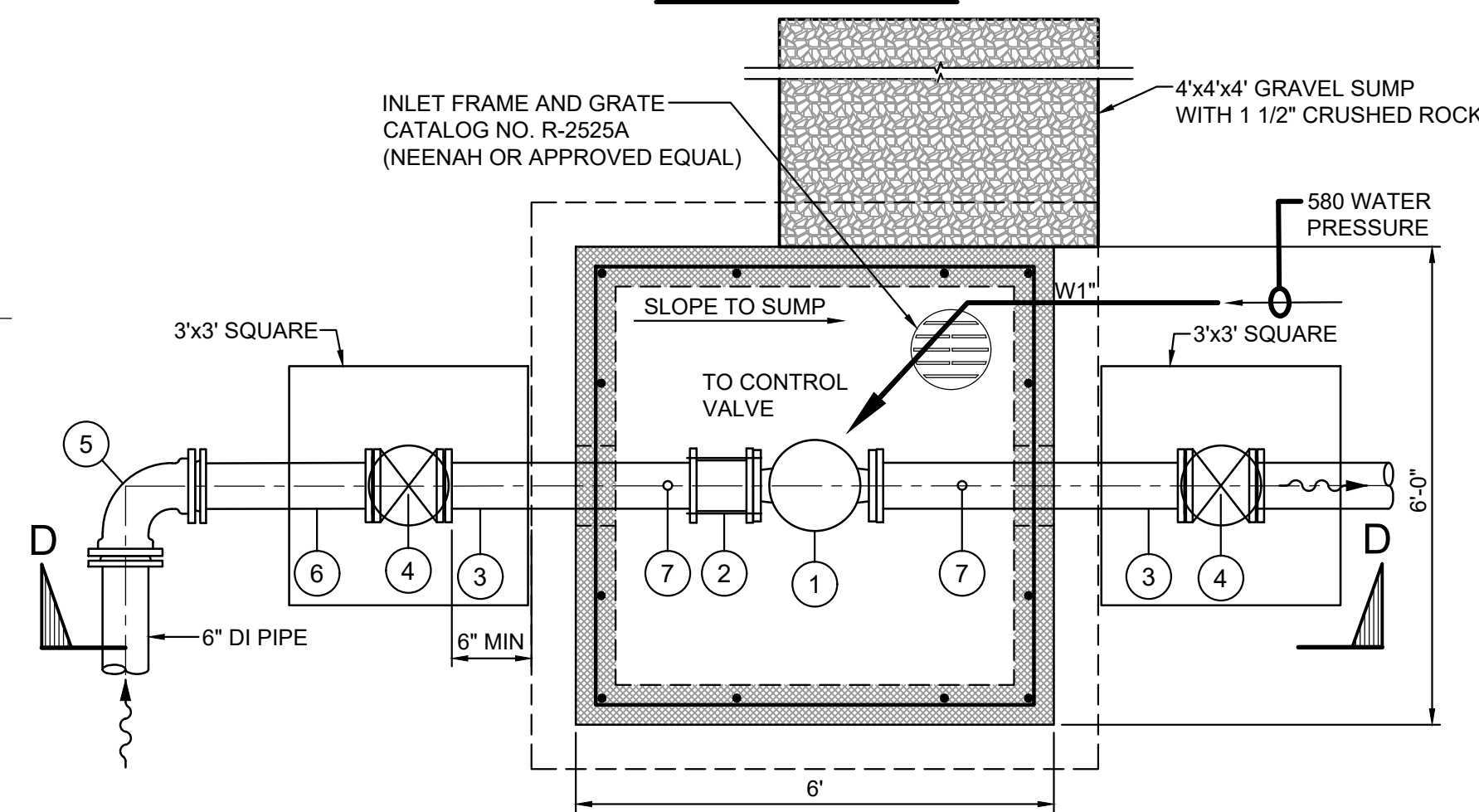
TEMPORARY PRV VAULT

SCALE: 1/2"=1'-0"

CONTROL VALVE ASSEMBLY 2 MATERIAL SCHEDULE	
ITEM NO.	DESCRIPTION
1	6" CLAVAL COMBINATION BACK PRESSURE AND SOLENOID SHUT OFF VALVE, MODEL 6" 658-01 (REDUCED INTERNAL PORT) SET BACK PRESSURE TO 7 PSI
2	6" FLANGE COUPLING ADAPTER
3	6" NIPPLE, LENGTH AS NEEDED
4	6" GATE VALVE, FE, AND VALVE BOX
5	6" 1/4 BEND, MJ W/CONC BLOCK
6	6" NIPPLE, 24" LONG (MIN)
7	MARSH PRESSURE STANDARD GAUGE, TYPE 1, 0-75 PSI OR EQUAL AND 3/4" HOSE BIBB W/O CHECK (WITH INSECT SCREEN, THREADED AND CAP)



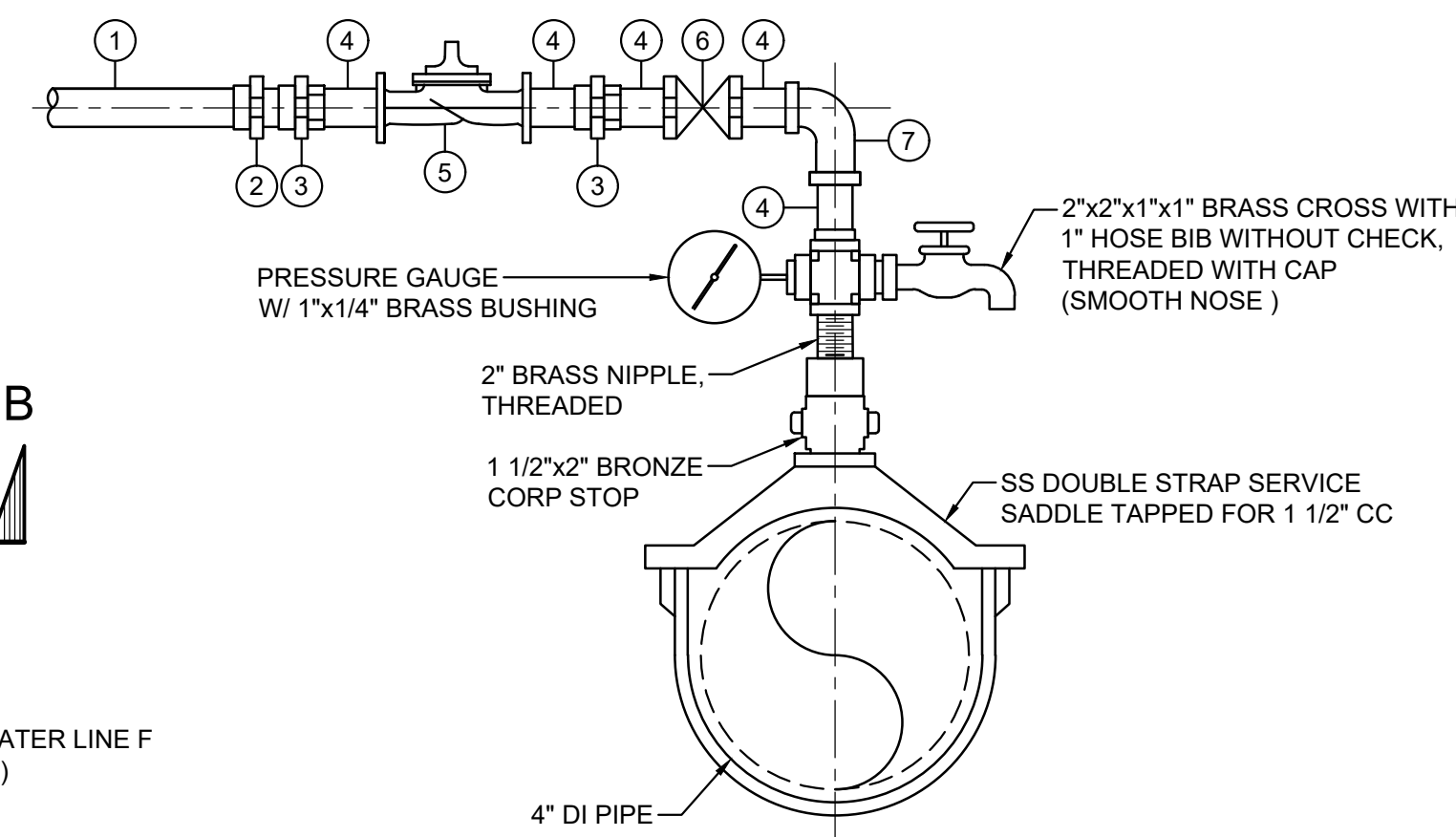
SECTION "D-D"



PLAN

CONTROL VALVE ASSEMBLY 2 - 6" COMBINATION BACK PRESSURE AND SOLENOID SHUT-OFF VALVE DETAIL

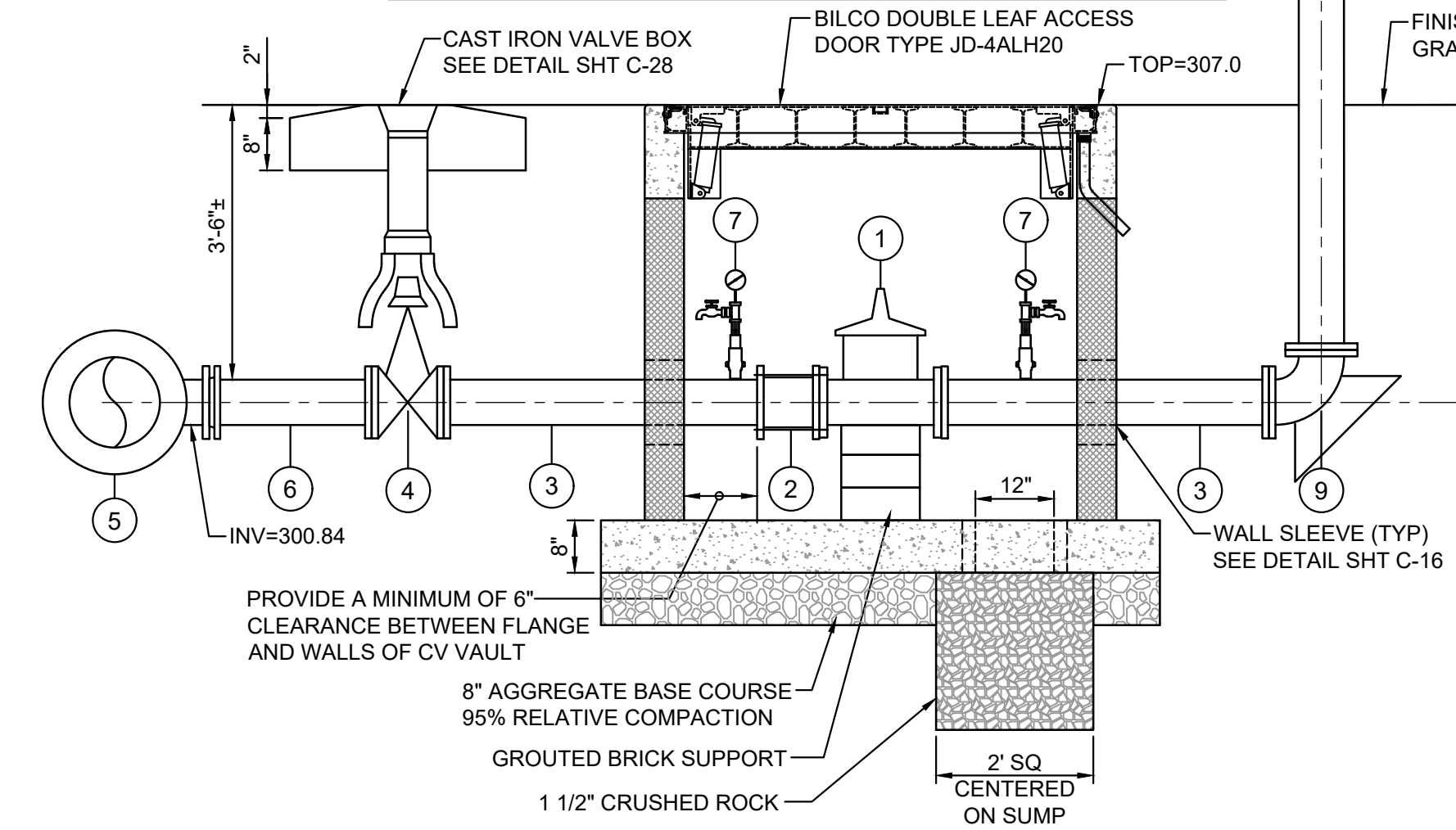
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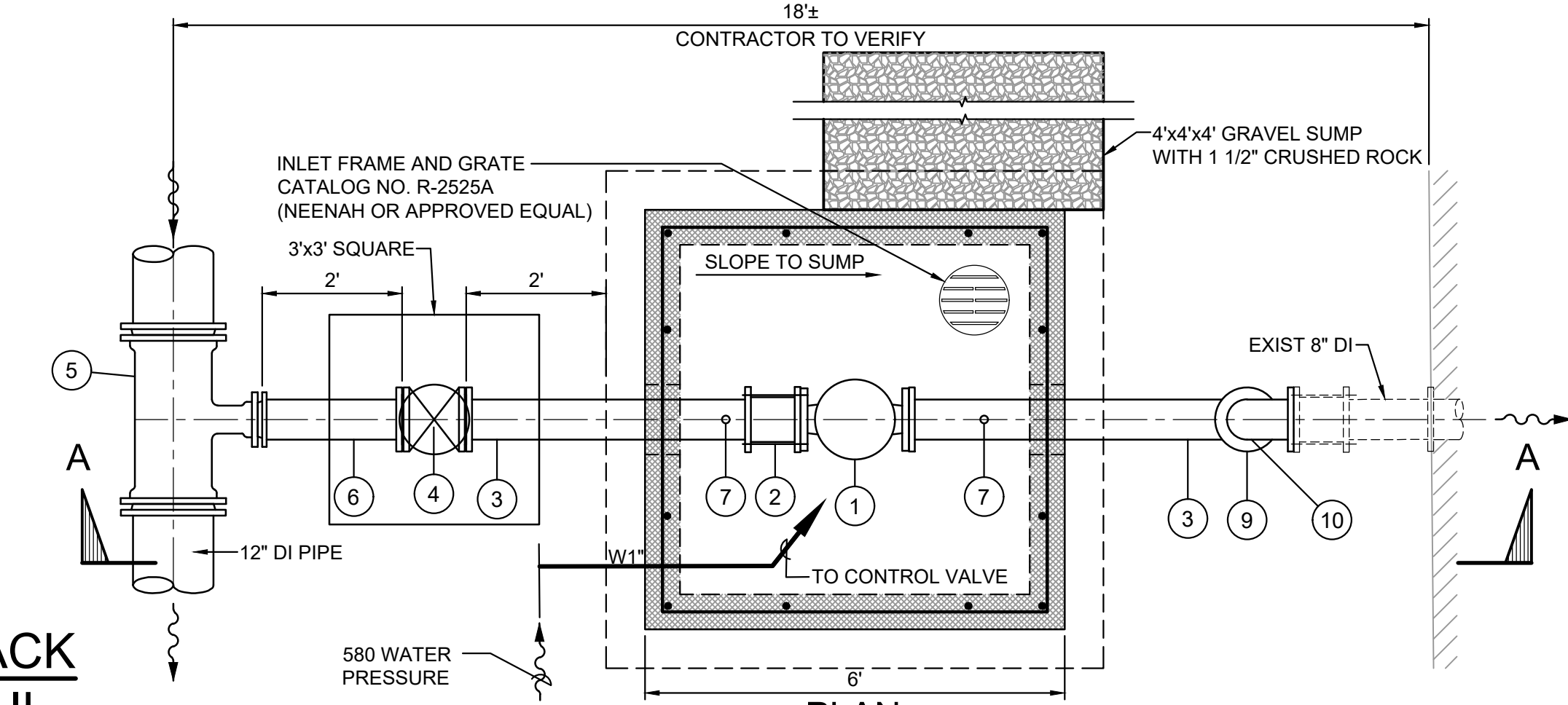
PRESSURE RELIEF VALVE ASSEMBLY FOR PRV STATION

NOT TO SCALE

CONTROL VALVE ASSEMBLY 3 MATERIAL SCHEDULE	
ITEM NO.	DESCRIPTION
1	6" ALTITUDE VALVE MODEL 210-01 W/ SOLENOID
2	6" FLANGE COUPLING ADAPTER
3	6" NIPPLE, LENGTH AS NEEDED
4	6" GATE VALVE, MJ, AND VALVE BOX WITH COVER
5	12"x6" TEE, MJ W/CONC BLOCK
6	6" NIPPLE, 24" LONG
7	MARSH PRESSURE STANDARD GAUGE, TYPE 1, 0-75 PSI OR EQUAL AND 3/4" HOSE BIBB W/O CHECK (WITH INSECT SCREEN, THREADED AND CAP)
8	12"x6" REDUCER, MJ WITH CONC THRUST BEAM FOR REDUCER
9	6" 1/4 BEND, MJ WITH CONC BLOCK
10	6"x8" REDUCING 1/4 BEND, FE



SECTION "A-A"



PLAN

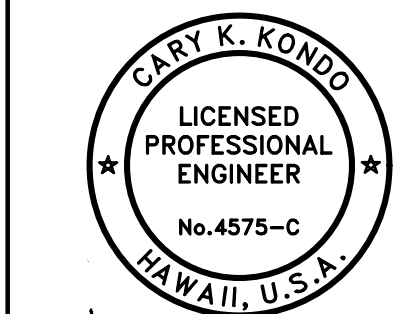
CONTROL VALVE ASSEMBLY 3 6" ELECTRIC CONTROL VALVE DETAIL

SCALE: 1/2"=1'-0"

COMBINATION AIR RELIEF VALVE ASSEMBLY MATERIAL SCHEDULE	
ITEM NO.	DESCRIPTION
1	2" COPPER PIPE, LENGTH AS REQUIRED
2	2" ADAPTOR, C-F
3	2" BRASS UNION
4	2" BRASS NIPPLE
5	2" PRESSURE RELIEF VALVE, CLAYTON #50G-01 B(2), KG, KC, RANGE 20-200
6	2" BALL VALVE
7	2" BRASS ELBOW

DRAWING NO. C-17

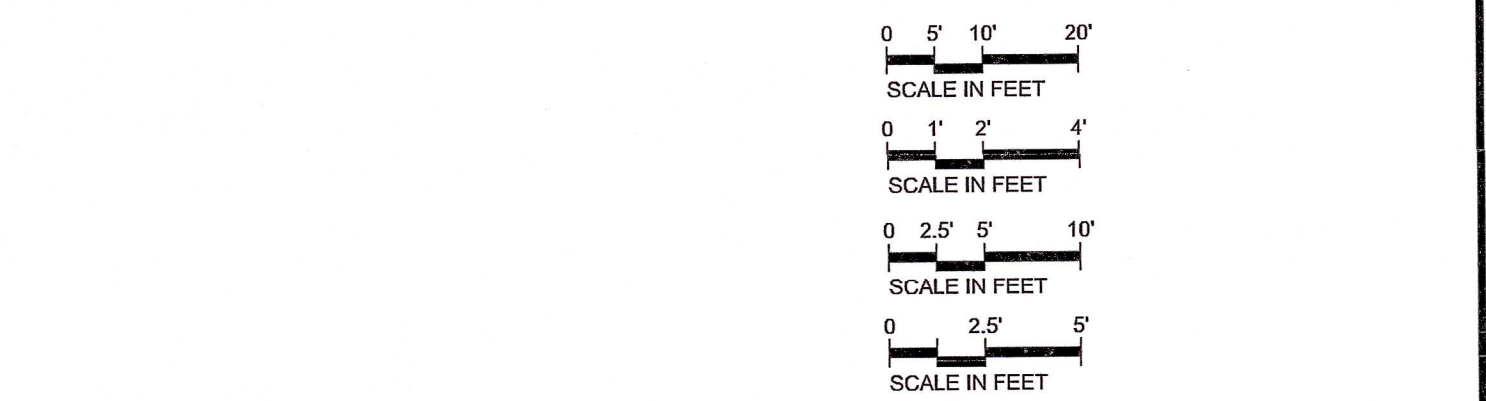
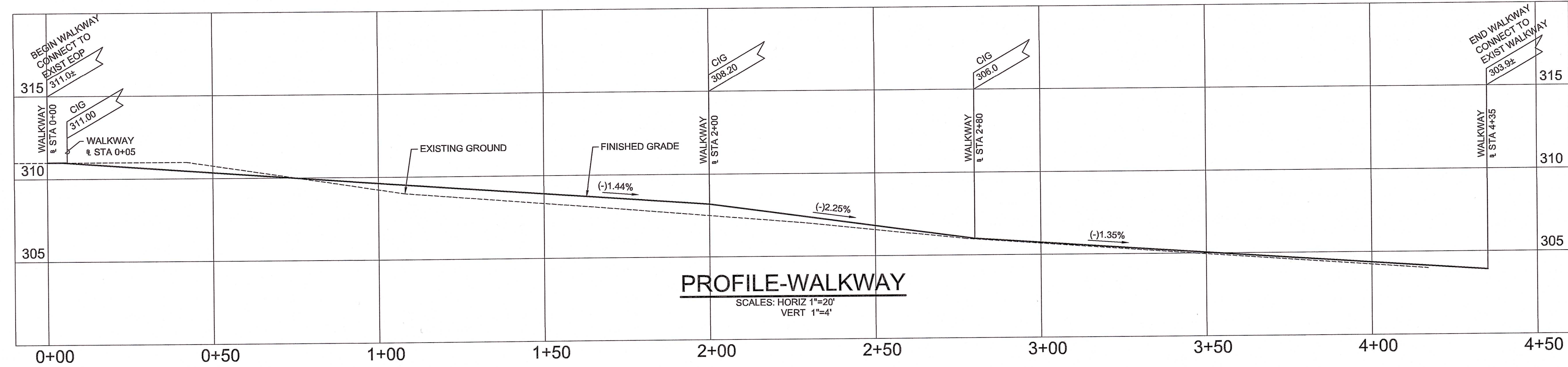
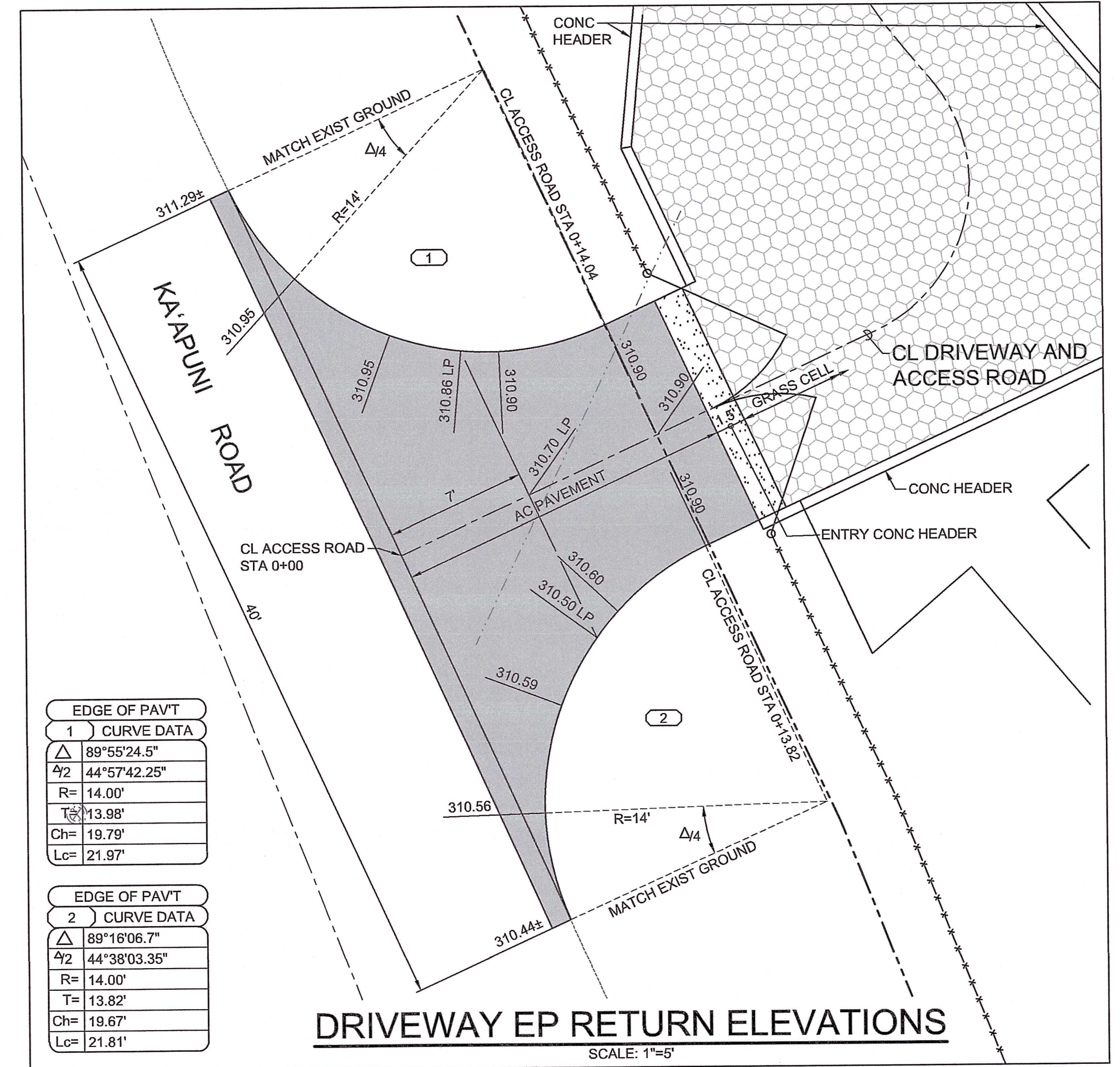
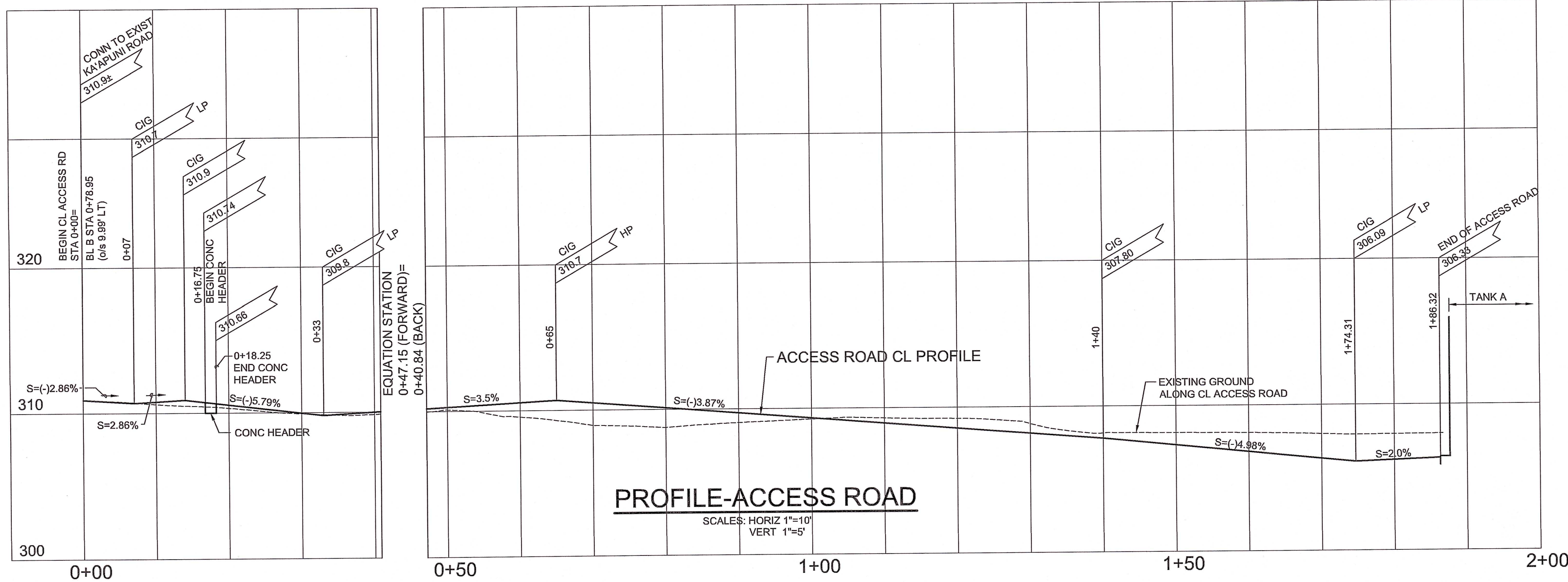
TMK: 4 - 6 - 011:003



Cary K. Kondo
 LICENSED PROFESSIONAL ENGINEER
 HAWAII, U.S.A.
 THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII PIPING DETAILS-2			
APPROVED:		DATE	
N/A			
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)		DATE	
<i>Jason Kagimoto</i>			
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI		DATE	
FILE	POCKET	FOLDER	NO.

1/27/2023 3:44:21 PM T:\0000\HOMESTEADS TANK\2004740.DWG KAPAHI TANK\CAD\DWG\CONSTRUCTION PLAN-C\18 RESERVOIR SITE DETAILS-1.DWG



TMK: 4 - 6 - 011:003

CARY K. KONDO
 LICENSED PROFESSIONAL ENGINEER
 No. 4575-C
 HAWAII, U.S.A.

APPROVED: *Jason Kagimoto*
 JASON KAGIMOTO
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DATE: 2/3/23

DRAWING NO. C-18

SHEET 19 OF 66 SHEETS

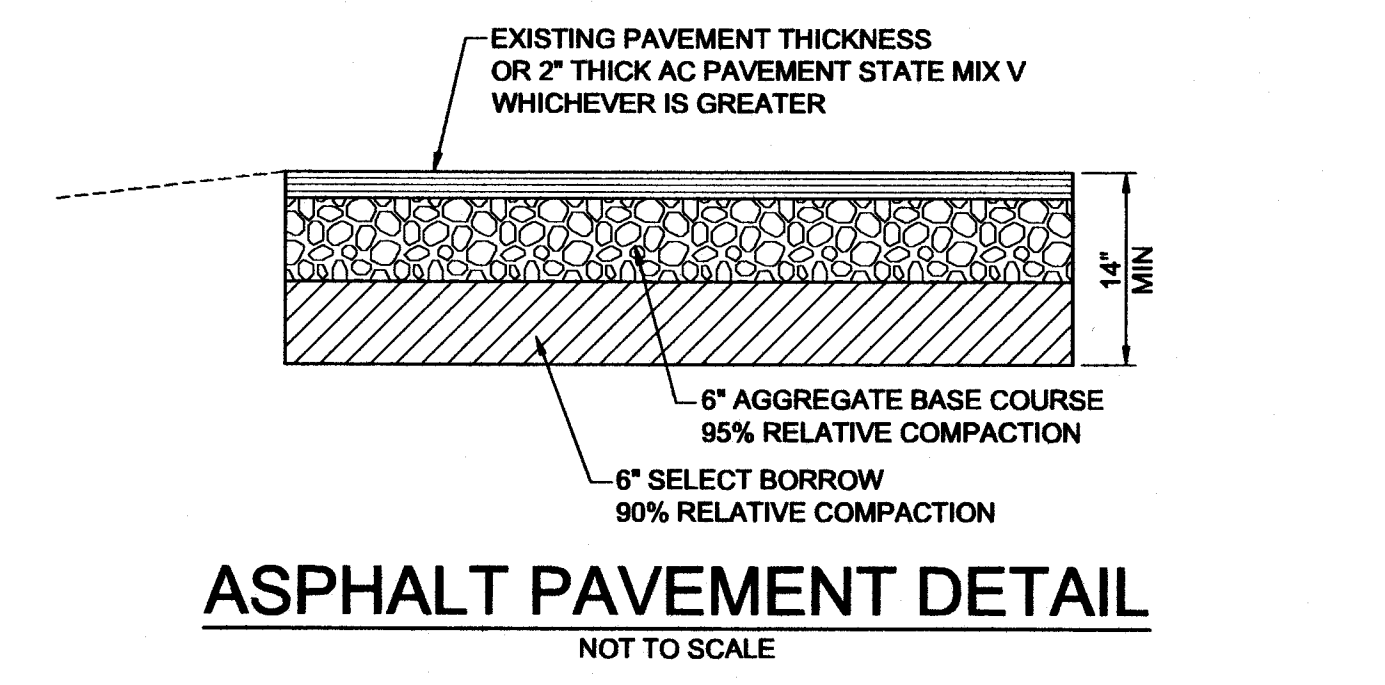
REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819

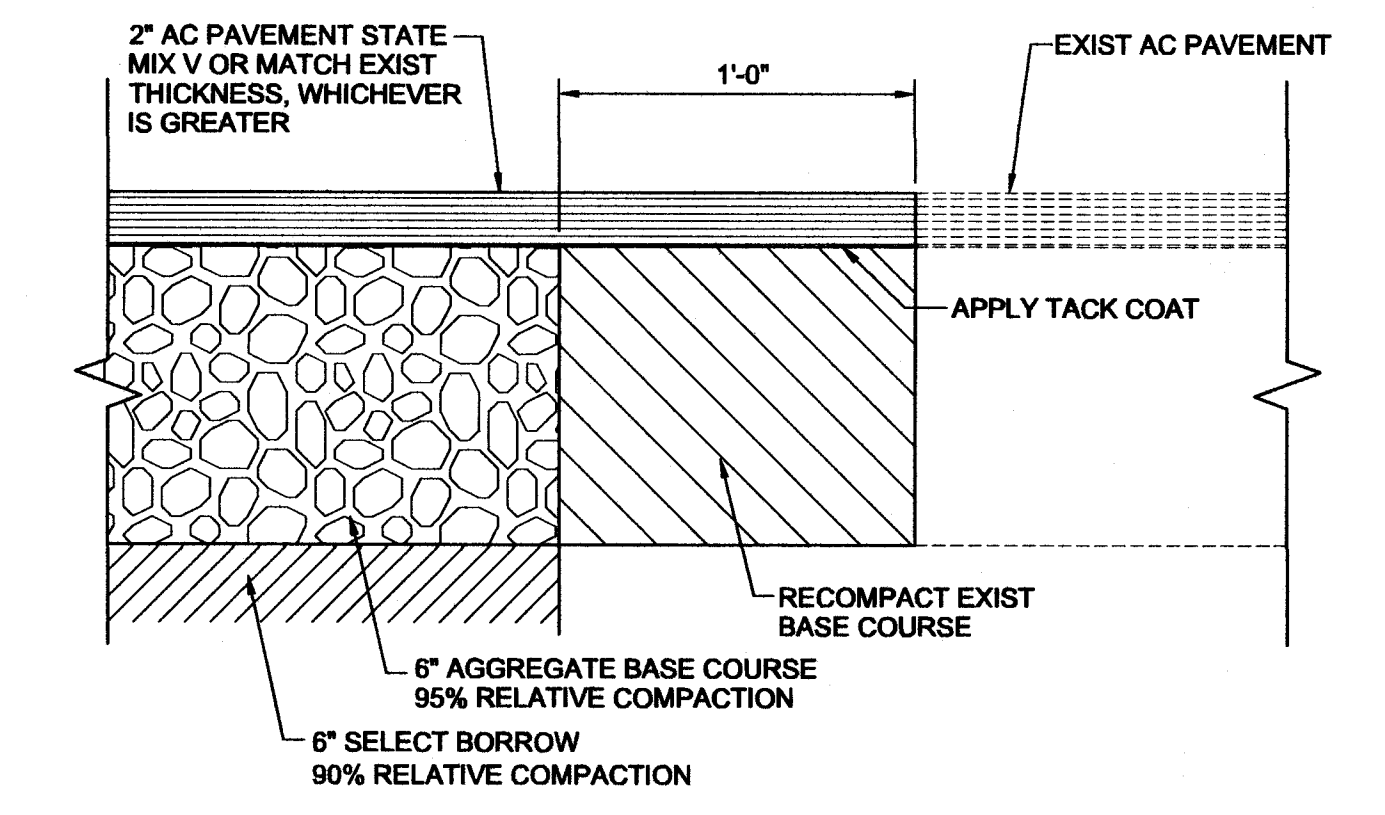
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

RESERVOIR SITE DETAILS-1

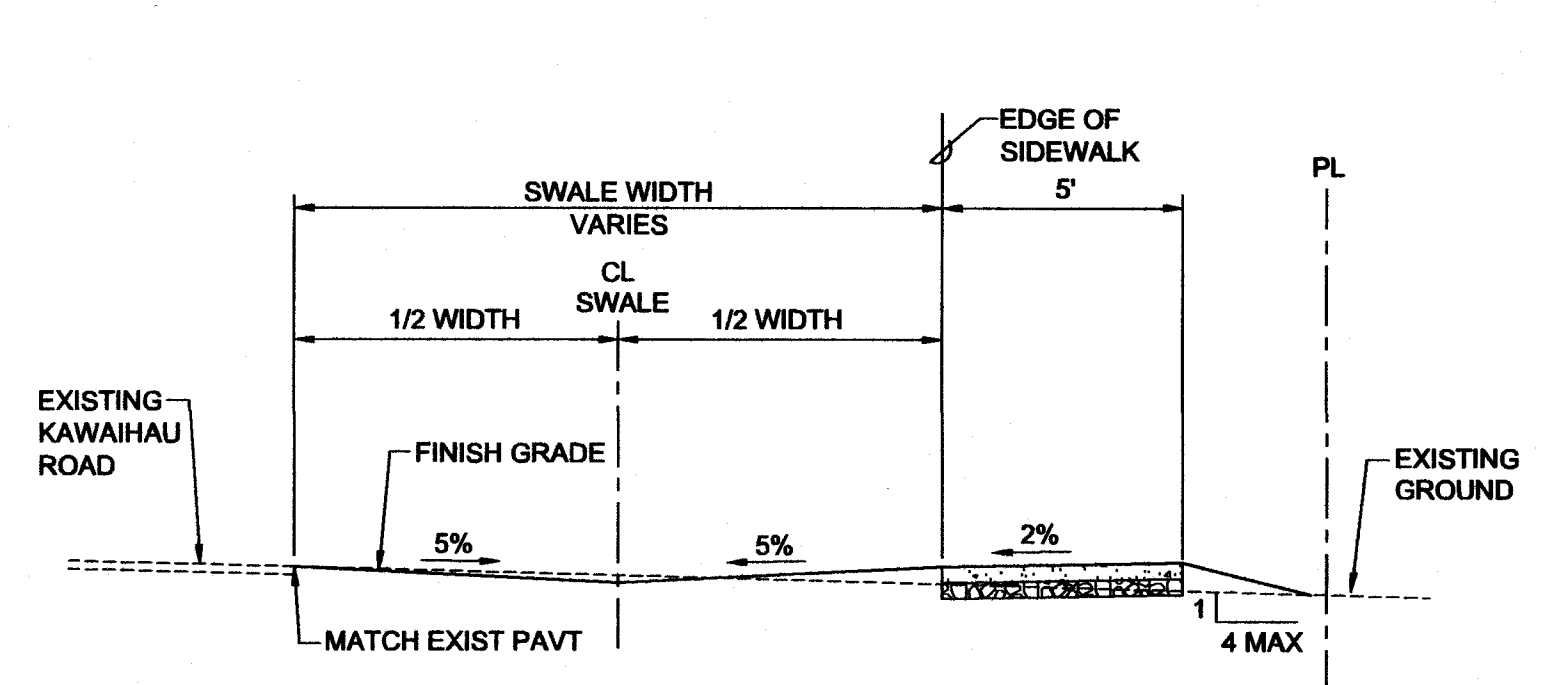
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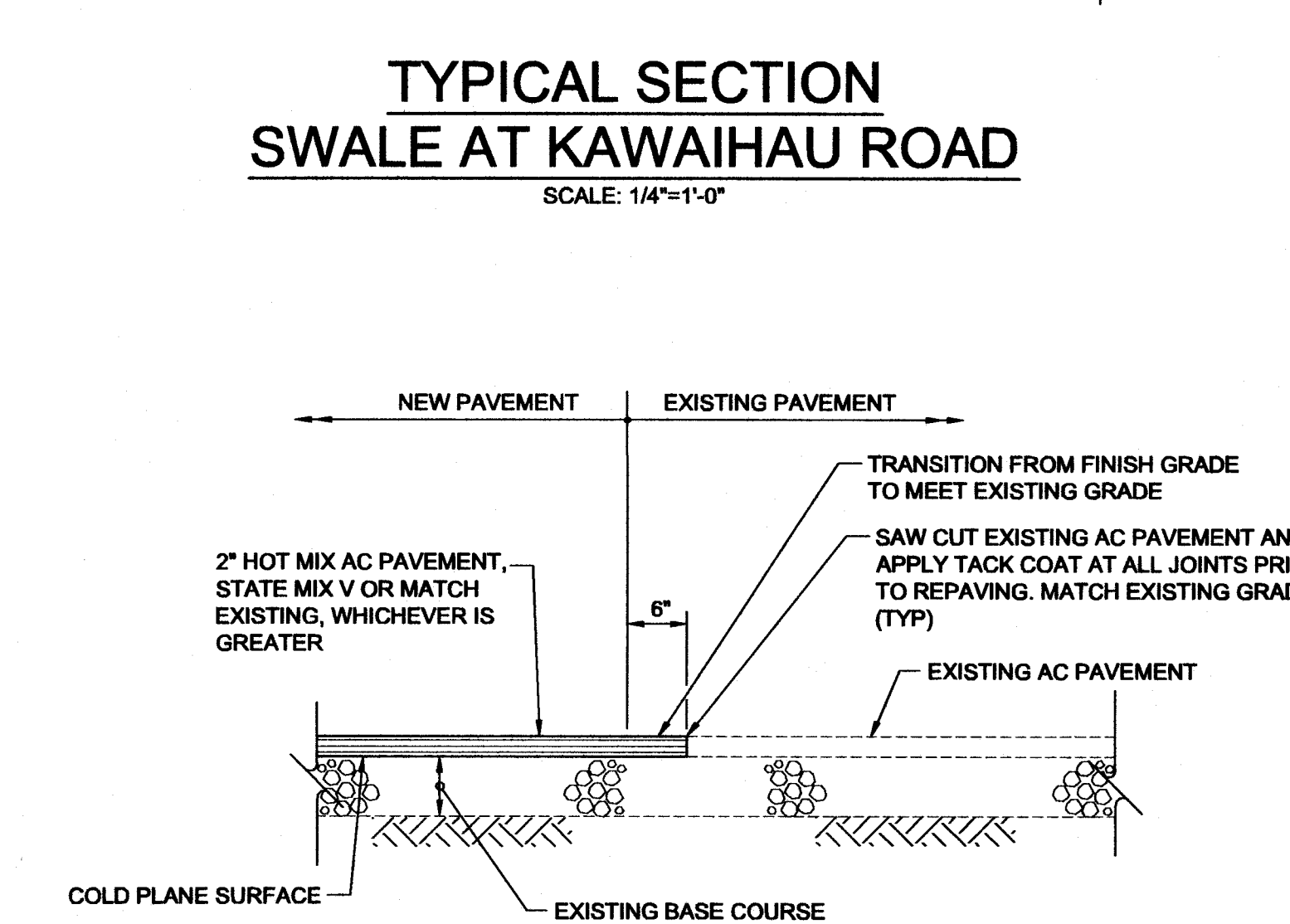
ASPHALT PAVEMENT DETAIL
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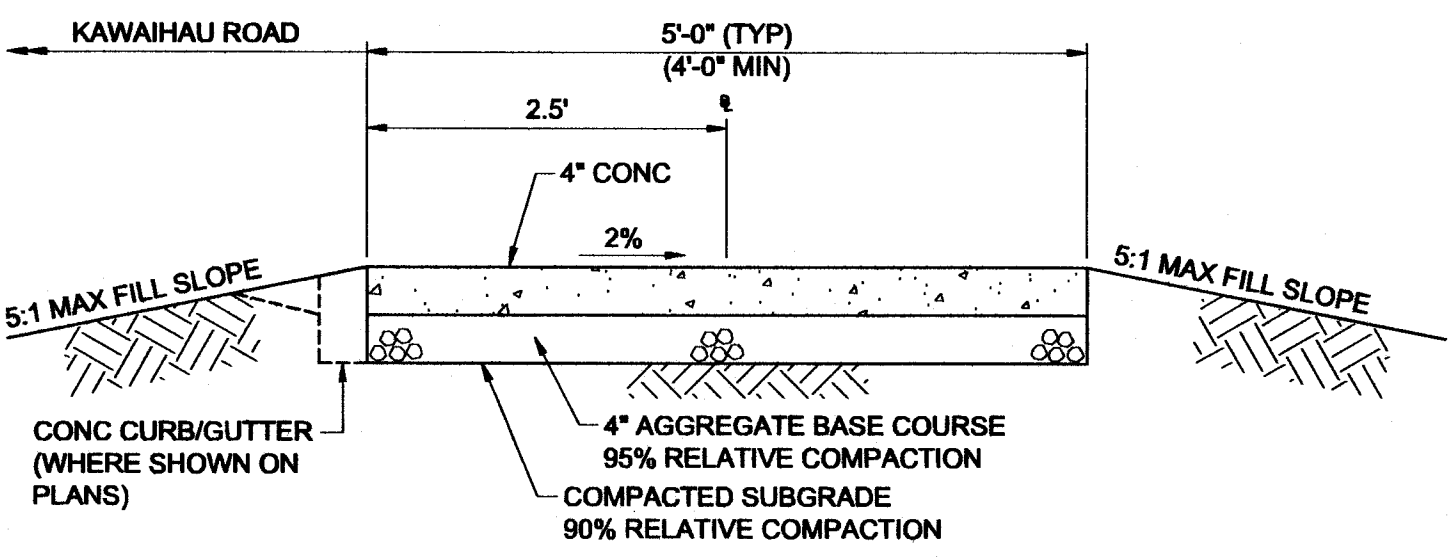
CONNECTION TO EXISTING ASPHALT PAVEMENT DETAIL
NOT TO SCALE



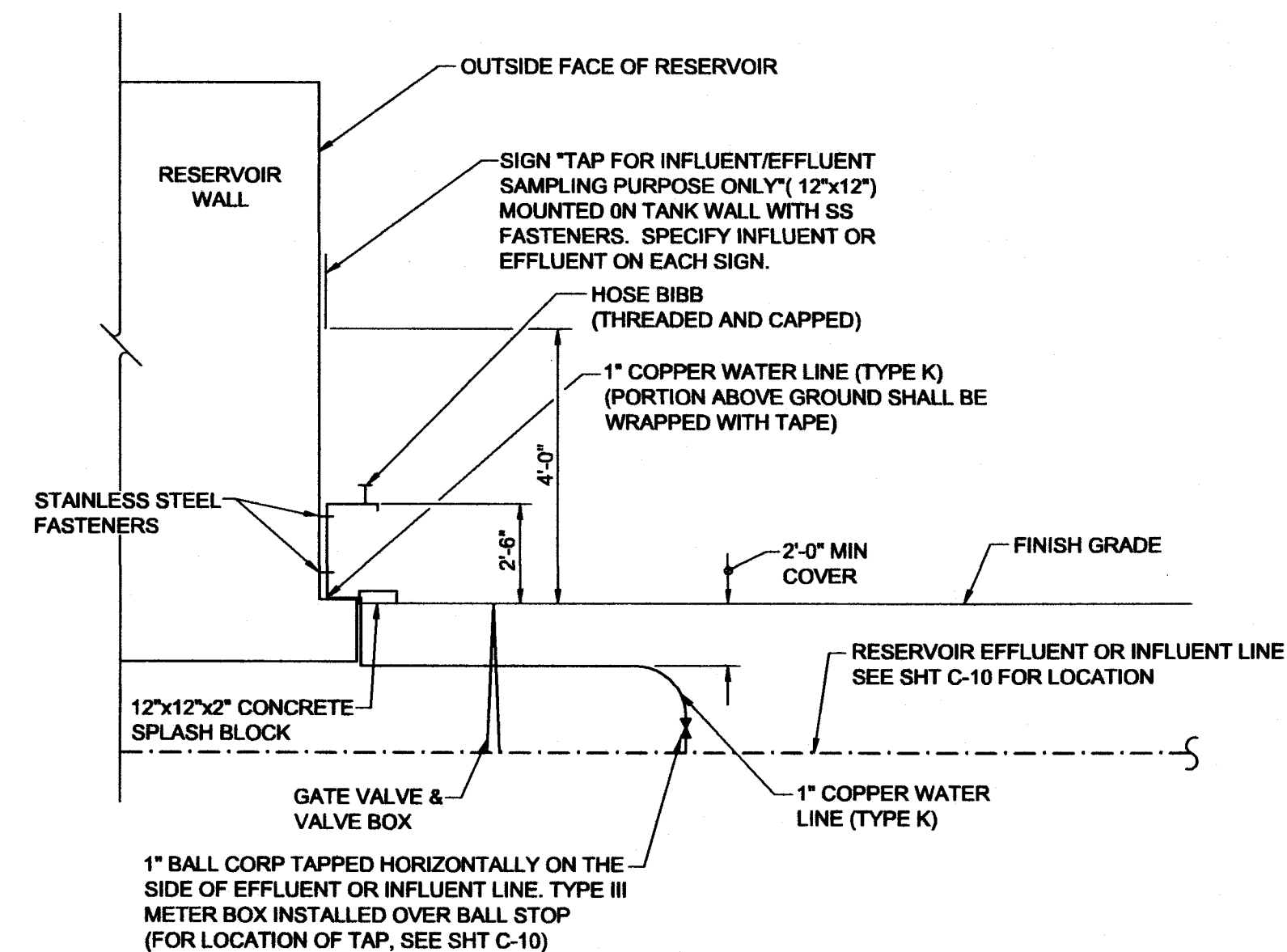
TYPICAL SECTION SWALE AT KAWAIHAU ROAD
SCALE: 1/4"=1'-0"



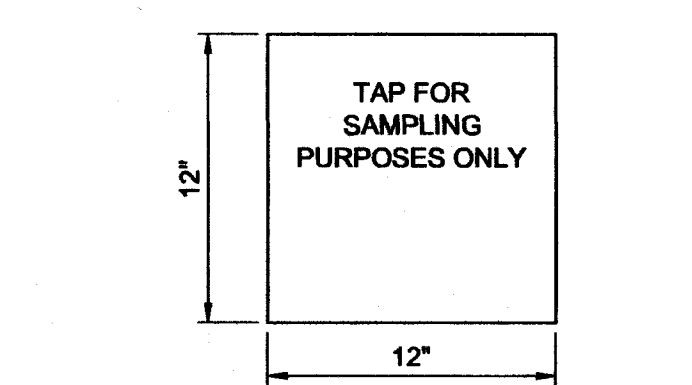
SMOOTH RIDING CONNECTION DETAIL
SCALE: 3/4"=1'-0"



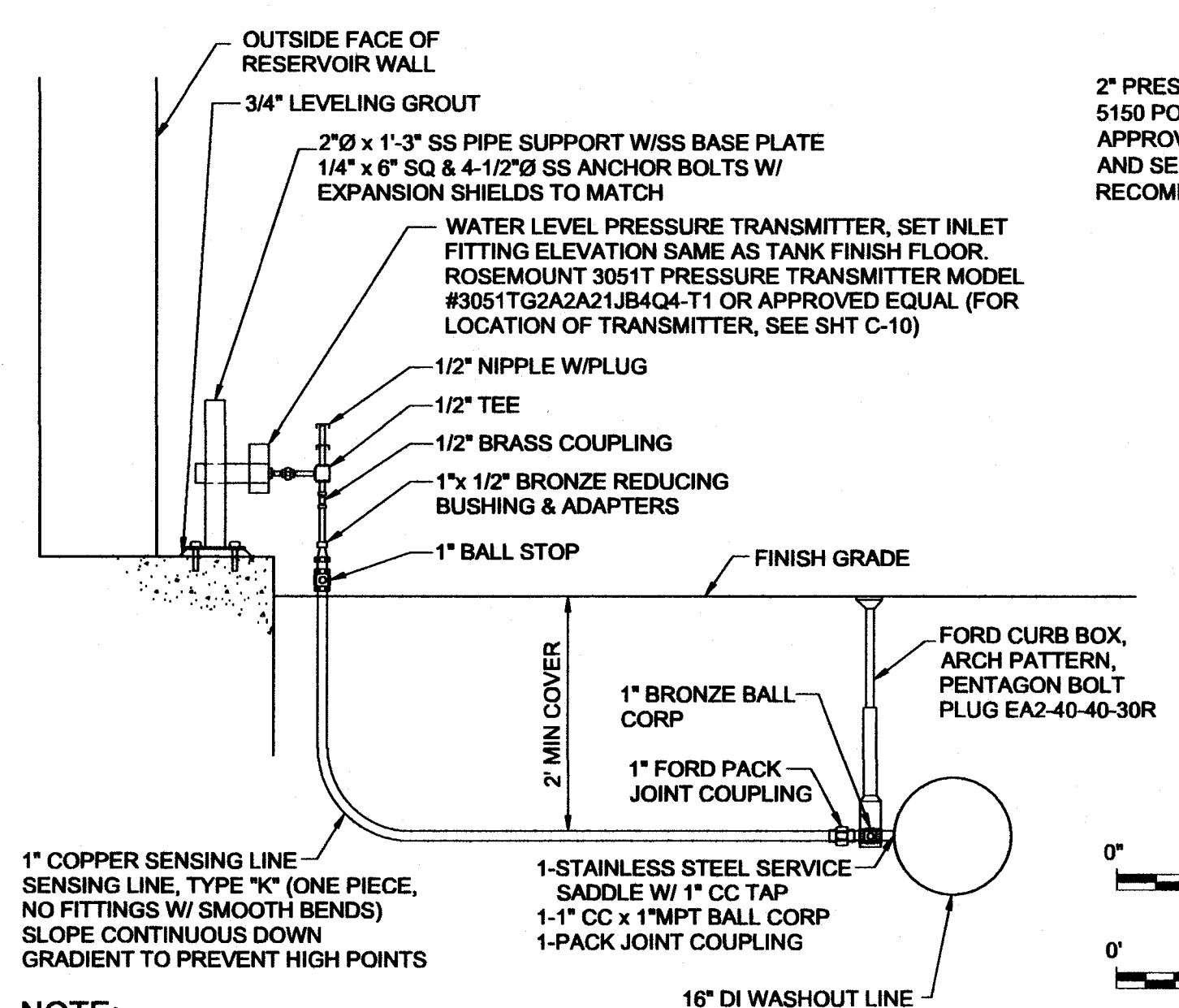
CONC WALKWAY DETAIL
SCALE: 3/4"=1'-0"



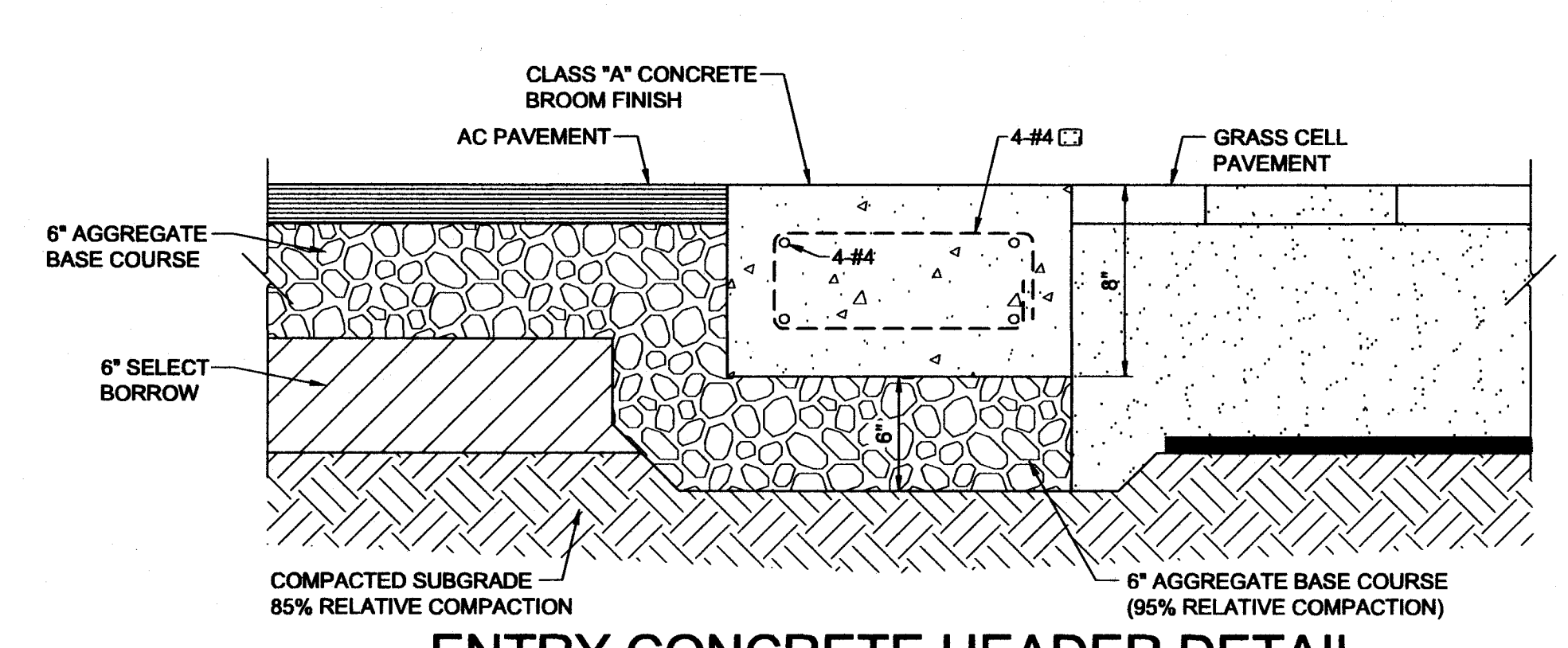
SAMPLING TAP SCHEMATIC
NOT TO SCALE



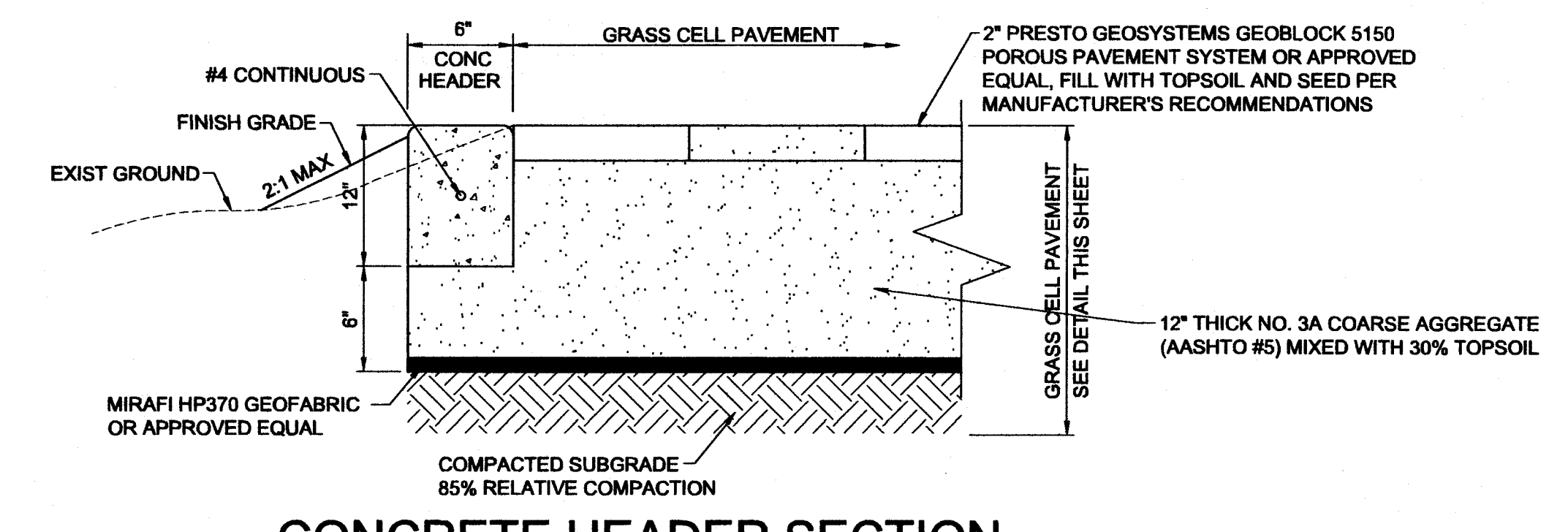
TYPICAL SIGN DETAIL SAMPLING TAP
NOT TO SCALE



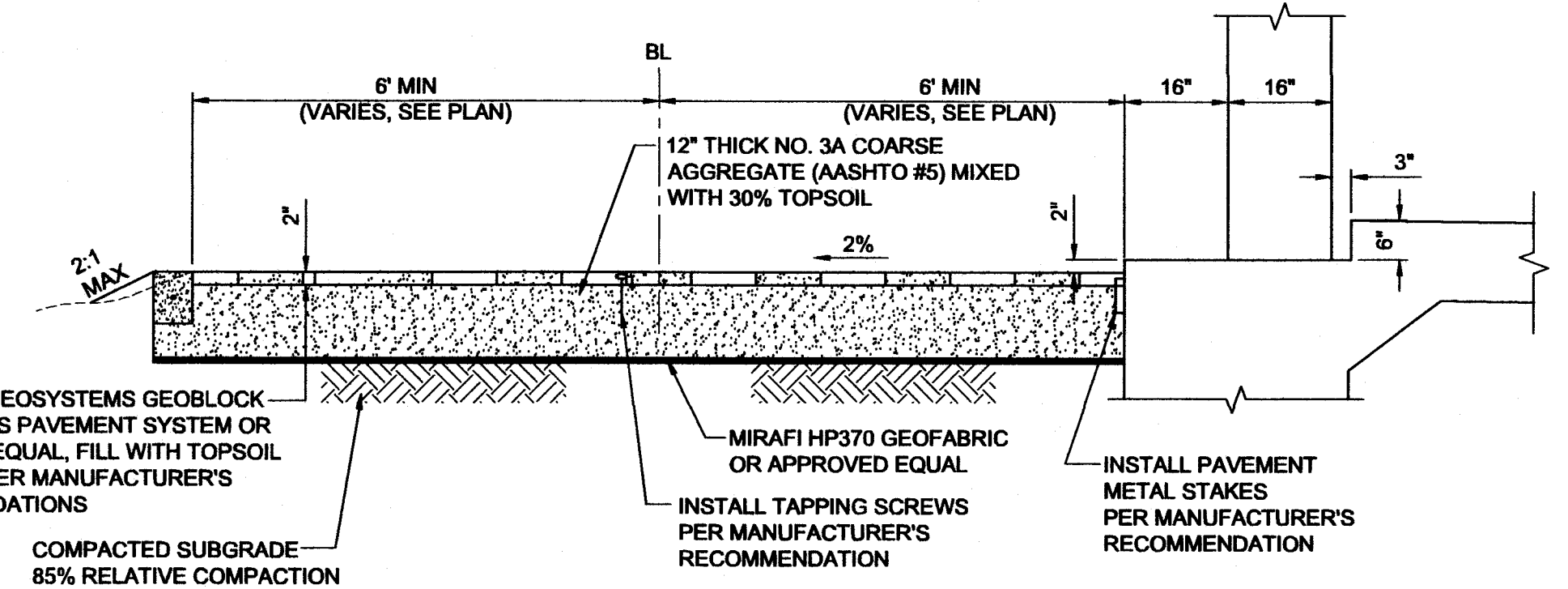
TYPICAL SECTION @ EDGE OF TANK TANK LEVEL PRESSURE TRANSMITTER DETAIL
SCALE: 3/4"=1'-0"



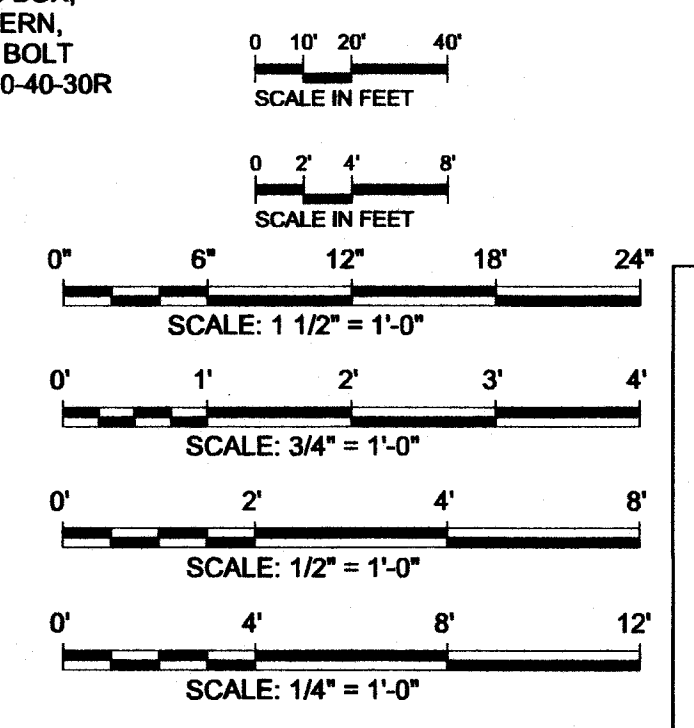
ENTRY CONCRETE HEADER DETAIL
SCALE: 1 1/2"=1'-0"



CONCRETE HEADER SECTION
NOT TO SCALE



TYPICAL GRASS CELL PAVEMENT
SCALE: 1/2"=1'-0"



TMK: 4 - 6 - 011:003
CARY K. KONDO
 LICENSED PROFESSIONAL ENGINEER
 No. 4575-C
 HAWAII, U.S.A.
Cary K. Kondo

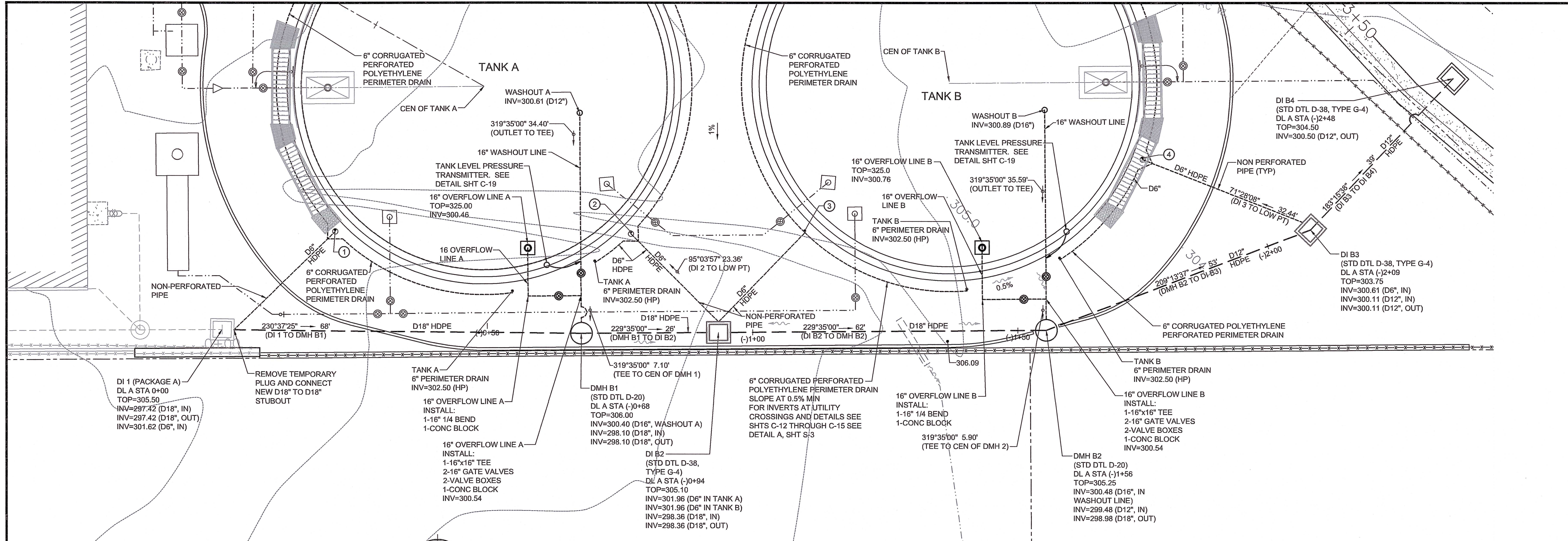
REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
 JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
 TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII
RESERVOIR SITE DETAILS-2

APPROVED: *Jason Kaganoto*
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RAW)
 JASON KAGANOTO
 LICENSED PROFESSIONAL ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DATE: 2/9/23

2/7/2023 3:14:30 PM T:\KAPA'A - HOMESTEADS TANK\20047401.DWG KAPAHAI TANK\CAD SHEETS\CONSTRUCTION PLAN-C-K-19 RESERVOIR SITE DETAILS-2.DWG

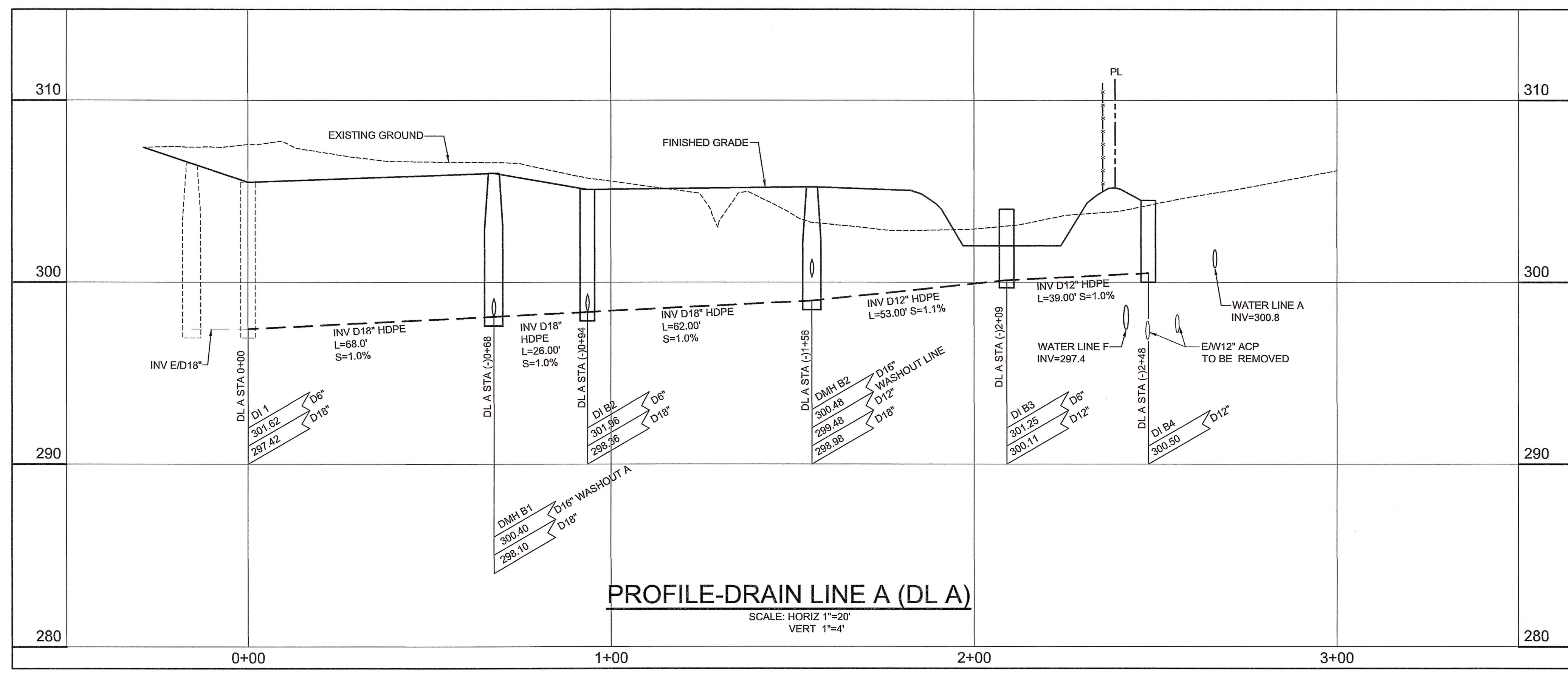
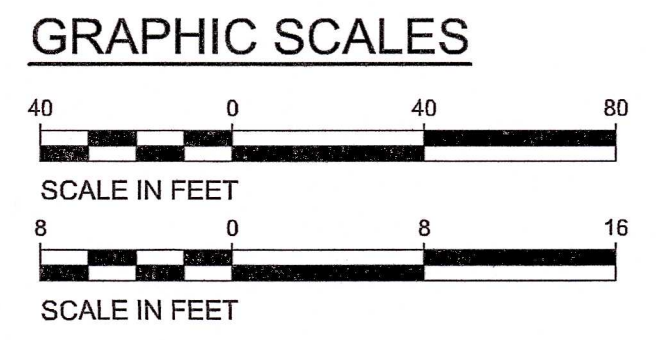


**DRAIN LINE A (DL A),
 PERFORATED PIPE, OVERFLOW, AND WASHOUT PLAN**

SCALE: 1"=10'

1. TANK A
 6" PERIMETER DRAIN
 INV=301.89 (LP)
 END CORRUGATED PERFORATED HDPE PIPE
 BEGIN CORRUGATED NON-PERFORATED HDPE PIPE
 INSTALL:
 1-6" DOUBLE WYE
 2-6" 1/8 BEND (H)
 1-COTG
 FOR COTG DETAIL, SEE SHT C-28
 FOR 6" HDPE DRAIN LINE TO 6" HDPE DRAIN LINE CONNECTION SEE SHT C-15
2. TANK A
 6" PERIMETER DRAIN
 INV=302.20 (LP)
 END CORRUGATED PERFORATED HDPE PIPE
 BEGIN CORRUGATED NON-PERFORATED HDPE PIPE
 INSTALL:
 1-6" DOUBLE WYE
 2-6" 1/8 BEND (H)
 1-COTG
 FOR COTG DETAIL, SEE SHT C-28
 FOR 6" HDPE DRAIN LINE TO 6" HDPE DRAIN LINE CONNECTION SEE SHT C-15
3. TANK B
 6" PERIMETER DRAIN
 INV=302.20 (LP)
 END CORRUGATED PERFORATED HDPE PIPE
 BEGIN CORRUGATED NON-PERFORATED HDPE PIPE
 INSTALL:
 1-6" DOUBLE WYE
 2-6" 1/8 BEND (H)
 1-COTG
 FOR COTG DETAIL, SEE SHT C-28
 FOR 6" HDPE DRAIN LINE TO 6" HDPE DRAIN LINE CONNECTION SEE SHT C-15
4. TANK B
 6" PERIMETER DRAIN
 INV=302.00 (LP)
 END CORRUGATED PERFORATED HDPE PIPE
 BEGIN CORRUGATED NON-PERFORATED HDPE PIPE
 INSTALL:
 1-6" DOUBLE WYE
 2-6" 1/8 BEND (H)
 1-COTG
 FOR COTG DETAIL, SEE SHT C-28
 FOR 6" HDPE DRAIN LINE TO 6" HDPE DRAIN LINE CONNECTION SEE SHT C-15

NOTES:
 1. FOR TRAFFIC CONTROL PLANS AND DETAILS SEE SHTS C-22 AND C-23.
 2. FOR DRAIN DETAILS SEE SHTS C-25 AND C-26.
 3. ALL WATER LINES INSTALLED WITH THIS PROJECT ARE DUCTILE IRON.
 4. ALL OVERFLOW LINES AND WASHOUT LINES ARE DUCTILE IRON.



TMK: 4 - 6 - 011:003



Gary K. Kondo
 LICENSED PROFESSIONAL ENGINEER
 No. 4575-C
 HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
 JOB NO. 02-14, WK-08

**KAPA'A HOMESTEADS 325' TANKS
 TWO 0.5 MG TANKS**
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

PLAN AND PROFILE DRAIN LINE A (DL A)

APPROVED: *Jason Keginoto*
 COUNTY ENGINEER DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI, FOUR WORK WAIN COUNTY RW

DATE: 2/3/23

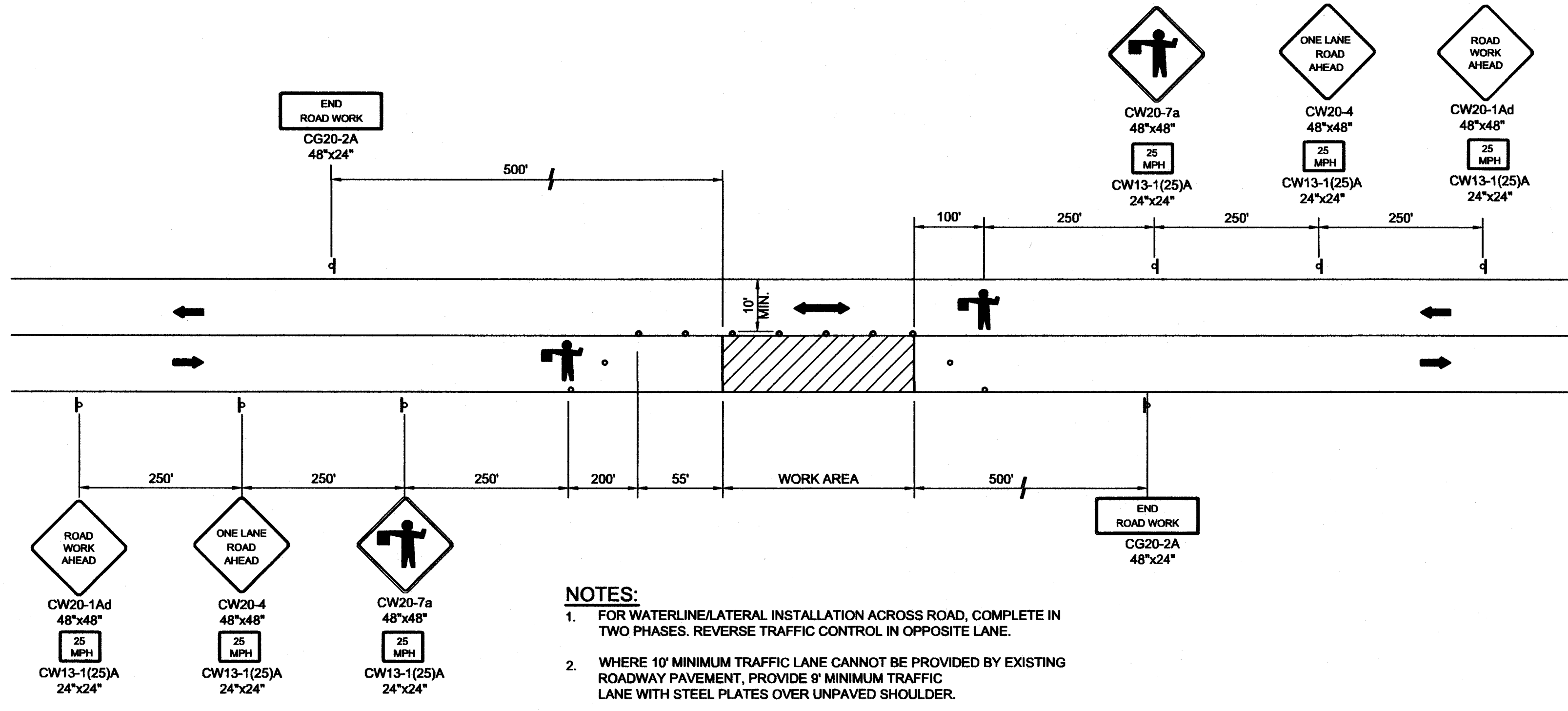
APPROVED: *Jason Keginoto*
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DATE: 2/3/23

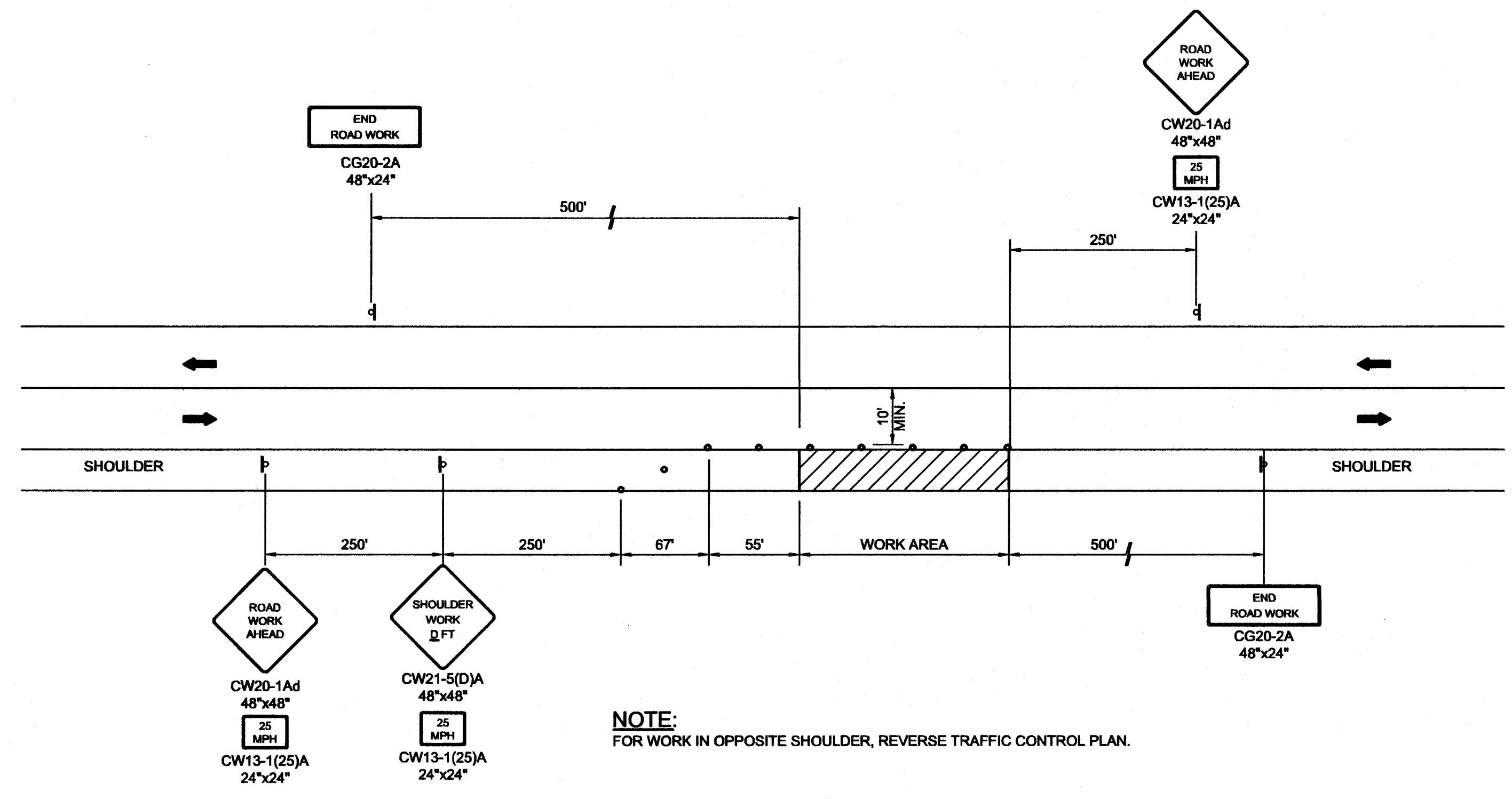
1/27/2023 3:44:04 PM T:\KAPA_A HOMESTEADS TANK\2004740100 KAPAHI TANK\CAD SHEETS\CONSTRUCTION PLAN-CA-C-21 PLAN AND PROFILE DRAIN LINE A (DL A).DWG

CONSTRUCTION NOTES FOR TRAFFIC CONTROL PLAN

- THE PERMITTEE SHALL MAKE ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
- CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA SHALL BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
- REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
- FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL AS SHOWN ON THE TRAFFIC CONTROL PLANS.
- SIGN SPACING (D), TAPER LENGTHS (T) AND SPACING OF CONES OR DELINEATORS SHALL BE AS SHOWN IN TABLE 1, UNLESS OTHERWISE NOTED ON THE TRAFFIC CONTROL PLANS.
- ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 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 SHALL BE PROMPTLY REMOVED OR COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES), WHENEVER THE MESSAGES ARE NOT APPLICABLE OR NOT IN USE.
- AT THE END OF EACH DAY'S WORK OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTEE SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION.
- REPLACE PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS UPON COMPLETION OF EACH PHASE OF WORK.
- POLICE OFFICERS/FLAGGERS SHALL BE PRESENT AT ALL TIMES.
- WHEN REQUIRED BY THE COUNTY OF KAUAI, AN ADVERTISEMENT SHALL BE PLACED IN THE NEWSPAPER BY THE CONTRACTOR FOR ANY LANE CLOSURE. THE ADVERTISEMENT SHALL BE MADE ONE (1) WEEK BEFORE ANY LANE CLOSURE AND SHALL CONTAIN THE FOLLOWING INFORMATION:
 - MAP OF THE TRAFFIC CHANGE LIMITS.
 - NOTICE OF STARTING AND ENDING DATES, TIME, AND DURATION.
 - MAP TO SHOW LANE CLOSURE.
 - EXPLANATION OF THE LANE CLOSURE; "NOTICE TO MOTORIST & PEDESTRIANS" THE CONTRACTOR SHALL BE REQUIRED TO HAVE ANY LANE CLOSURE ANNOUNCED DAILY OVER THE RADIO TWO (2) DAYS BEFORE STARTING DATE UNTIL THE WORK IS COMPLETED. BOTH ADVERTISEMENTS IN THE NEWSPAPER AND OVER THE RADIO SHALL BE PAID FOR BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO NOTIFY THE HOSPITALS, POLICE, FIRE AND AMBULATORY SERVICES OF THE LANES CLOSURES.
- ALL WORKERS WITHIN THE COUNTY RW WHO ARE EXPOSED TO EITHER VEHICLES USING THE ROADWAY OR TO CONSTRUCTION EQUIPMENT SHALL WEAR HIGH VISIBILITY SAFETY APPAREL THAT MEETS THE PERFORMANCE CLASS 2 OR 3 REQUIREMENTS OF ANSI/ISEA 107-2004. "WORKERS" ARE DEFINED AS PEOPLE ON FOOT WHOSE DUTIES PLACE THEM WITHIN THE ROAD RIGHT OF WAY, SUCH AS, BUT NOT LIMITED TO CONSTRUCTION AND MAINTENANCE FORCES, EQUIPMENT OPERATORS, SURVEY CREW, UTILITY CREW, RESPONDERS TO INCIDENTS (EG. EMT AND FIREMEN), AND LAW ENFORCEMENT PERSONNEL DIRECTING TRAFFIC, INVESTIGATING ACCIDENTS, HANDLING LANE CLOSURES AND ROADWAY CONSTRUCTION.
- ALL TRAFFIC CONTROL DEVICES SHALL BE REFLECTORIZED WHEN USED AT NIGHT. CONES SHALL BE EQUIPPED WITH REFLECTORIZED COLLAR WHEN USED AT NIGHT. FLASHING LIGHTS SHALL BE USED WITH BARRICADES AND STEADY BURN LIGHTS WHEN USED IN A SERIES FOR CHANNELIZATION. FLAGGER STATIONS SHALL BE ADEQUATELY ILLUMINATED AT NIGHT.
- CONTRACTOR TO PROVIDE ACCESS AND/OR DIRECTION SIGNS TO REROUTE PEDESTRIAN TRAFFIC.
- THE CONTRACTOR SHALL MAKE EVERY EFFORT TO MINIMIZE THE USE AND DURATION OF STEEL PLATES. ALL STEEL PLATES SHALL HAVE A NON-SKID SURFACING. THE COUNTY MAY REQUIRE THE BACKFILLING AND PATCHING OF THE TRENCH DUE TO THE EXCESSIVE USE OF STEEL PLATES.
- THE CONTRACTOR SHALL PROVIDE AN ADEQUATE NON-SLIP BRIDGING MATERIAL, INCLUDING SHORING OVER TRENCHES IN PAVEMENT AREAS. THE BRIDGING SHALL BE ABLE TO SUPPORT ALL TYPES OF VEHICULAR AND PEDESTRIAN TRAFFIC.
- WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN A SAFE AND PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGES BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED. CONTRACTOR SHALL PROVIDE SAFE PEDESTRIAN ACCESS THROUGH PROJECT SITE AT ALL TIMES. PROVIDE MINIMUM 3-FOOT-WIDE WALKWAY.
- CONTRACTORS SHALL PROVIDE SAFE PASSAGE TO ALL MOTORISTS TURNING OUT OF ENTRANCE TO _____ AT ALL TIMES. FURTHER, THE CONTRACTOR SHALL PROVIDE A FLAGGER/POLICE OFFICER AT THE INTERSECTIONS.
- THE CONTRACTOR SHALL CONTACT BUSINESSES LOCATED AT _____ AT LEAST 10 DAYS PRIOR TO THE START OF CONSTRUCTION TO INFORM THEM OF THE CHANGES IN TRAFFIC PATTERNS ON _____ DUE TO THE CONSTRUCTION.
- THE CONTRACT SHALL MAKE A FLYER SHOWING THE CHANGES IN TRAFFIC PATTERNS AND ESTIMATED TIMES OF USE. SUFFICIENT COPIES OF THE FLYER SHALL BE PROVIDED TO EACH BUSINESS FOR DISTRIBUTION TO ITS EMPLOYEES AND GUESTS.



TYPICAL TRAFFIC CONTROL PLAN-ONE LANE CLOSURE
NOT TO SCALE



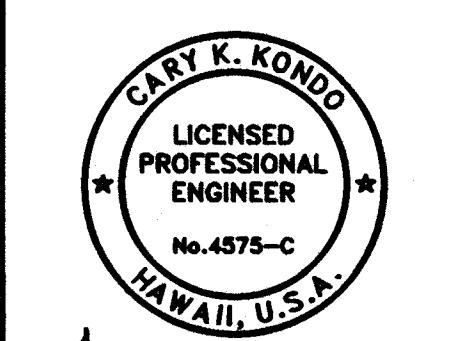
TYPICAL TRAFFIC CONTROL PLAN-SHOULDER WORK
NOT TO SCALE

POSTED SPEED LIMIT (M.P.H.)	SIGN SPACING (D) (FEET)	TAPER LENGTH (T)(FEET)		LONGITUDINAL BUFFER SPACE (B) FEET	SPACING OF CONES OR DELINEATORS (FEET)		
		W=12' OR LESS (1)	W>GREATER THAN 12' (1)		TAPER	TANGENT	WORK AREA
20	250	200	WX17	35	20	20	10
25	250	200	WX17	55	25	25	10
30	250	200	WX20	85	30	30	10
35	250	250	WX20	120	35	35	10
40	500	350	WX30	170	40	40	10
45	500	550	WX45	220	45	45	10
50	1000	600	WX50	280	50	50	10
55	1000	700	WX55	335	55	55	10

NOTE:
(1) W=WIDTH OF LANE, SHOULDER, OR OFFSET

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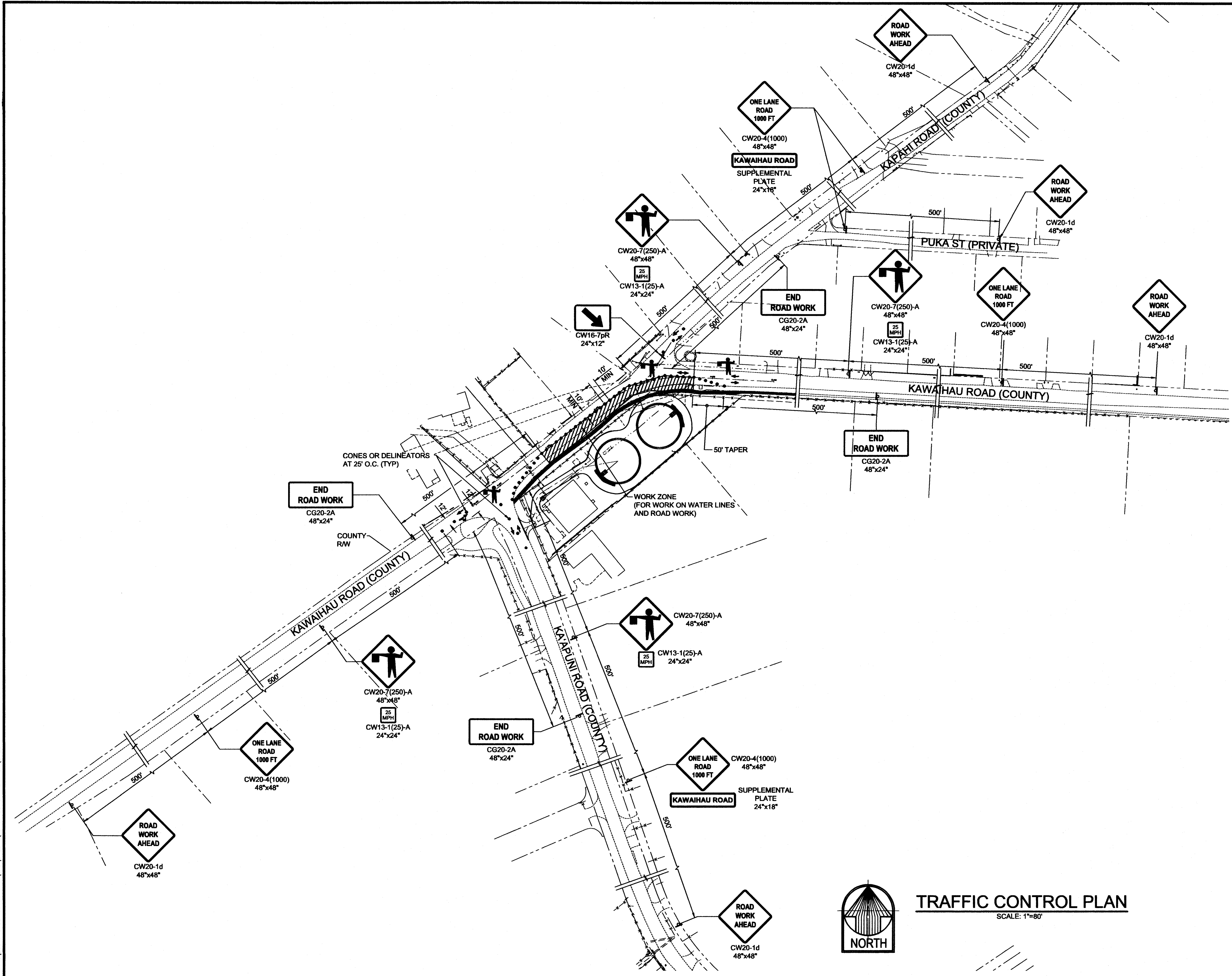
APPROVED:
Cary K. Kondo
CARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII TRAFFIC CONTROL DETAILS			
APPROVED: <i>Jason Kapimoto</i> JASON KAPIMOTO MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. APRIL 30, 2024 EXPIRATION DATE OF THE LICENSE			DATE 2/9/23 DATE
DRAWING NO. C-22			
FILE	POCKET	FOLDER	NO.

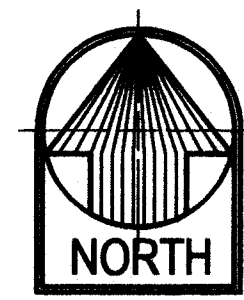
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- LEGEND:**
- CONE OR DELINEATOR
 - ▨ WORK ZONE
 - ⬠ SIGN
 - ⚓ FLAG PERSON OR POLICE OFFICER
 - DIRECTION OF TRAVEL

NOTE:
WHEN WORK ZONE OBSTRUCTS PEDESTRIAN WALKWAY, PROVIDE TEMPORARY ROUTE AROUND OBSTRUCTION. TEMPORARY ROUTE SHALL BE MINIMUM 3 FEET WIDE AND CONFORM TO ADAAG, INCLUDING RAMPS AS NECESSARY.

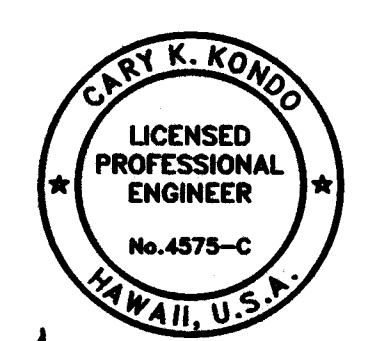


0 20' 40' 80'
SCALE IN FEET



TRAFFIC CONTROL PLAN
SCALE: 1"=80'

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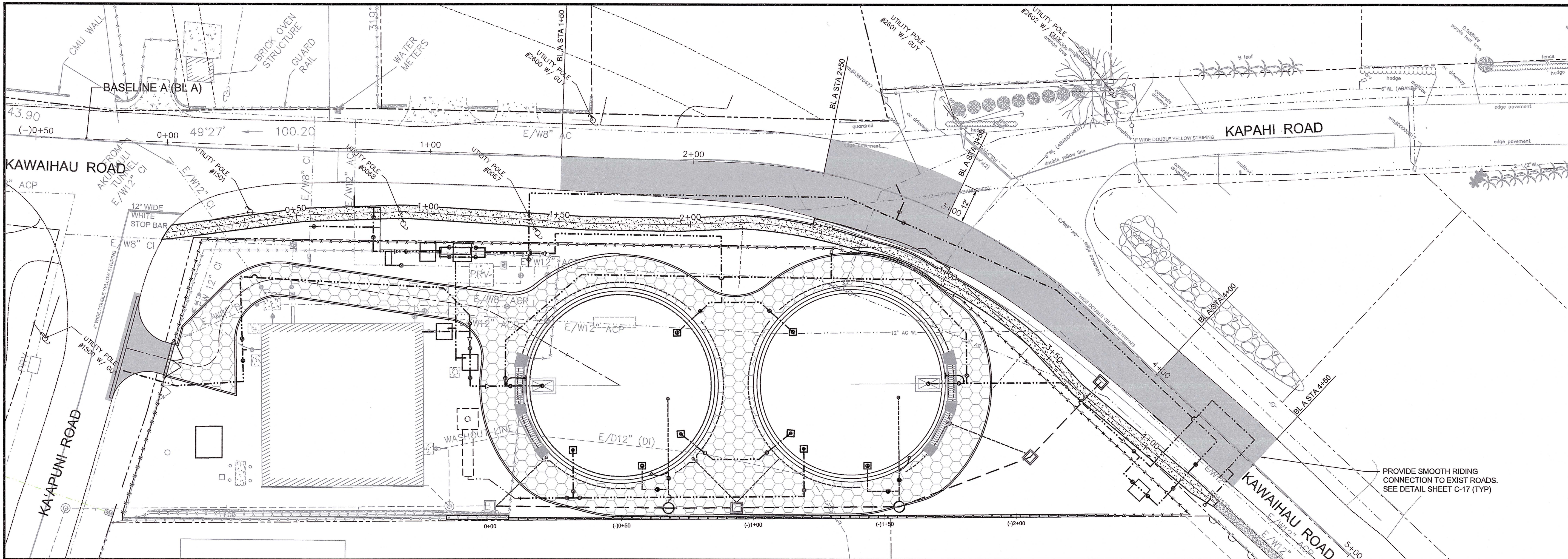


Cary K. Kondo
APPROVED:

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII TRAFFIC CONTROL PLAN			
APPROVED: <i>Jason Kagimoto</i> COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK W/IN COUNTY RAW)			DATE 2/9/23
APPROVED: <i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE 2/9/23

DRAWING NO.
C-23

FILE	POCKET	FOLDER	NO.
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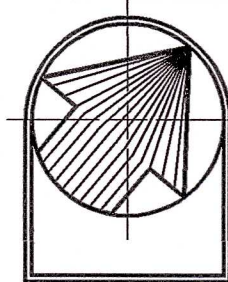


PAVEMENT AND TRENCH RESTORATION NOTES

- TRENCH REPAVING SHALL BE A MINIMUM 8-INCHES THICK BASE COURSE AND 2-INCHES MINIMUM ASPHALT CONCRETE (STATE MIX V). IF THE EXISTING PAVEMENT STRUCTURE IS GREATER IN THICKNESS AND QUALITY, THE REPAVING SHALL MATCH THE EXISTING PAVEMENT STRUCTURE.
- PAVEMENT RESURFACING WORK SHALL INCLUDE 2-INCH THICKNESS OF EXISTING A.C. TO BE COLD PLANED AND CONSTRUCTION OF A MINIMUM OF 2-INCH OF NEW A.C. (STATE MIX V) LAYER.
- ROAD RESTORATION FOR TRENCHES ALIGNED ALONG THE LONGITUDINAL DIRECTION SHALL INCLUDE PAVEMENT RESURFACING AS FOLLOWS: A. ROADS WITH PAVEMENT WIDTHS OF LESS THAN 12 FEET WIDE SHALL BE REPAVED THE ENTIRE WIDTH. B. ROADWAYS BETWEEN 12 FEET AND 28 FEET WIDE WITH NO STRIPING SHALL BE PAVED FOR HALF OF THE ROADWAY. C. ROADWAYS WITH NO STRIPING AND PAVEMENT WIDTHS GREATER THAN 28 FEET SHALL HAVE A 12-FOOT-WIDE TRAVEL WAY RESURFACED.
- ROAD RESTORATION FOR TRENCHES ALIGNED PERPENDICULAR TO THE ROADWAY SHALL INCLUDE ROAD RESURFACING FOR A MINIMUM OF 6 INCHES BEYOND THE TRENCH EDGES.
- THE ENTIRE ROAD INTERSECTION SHALL BE RESURFACED WHENEVER TRENCH REPAVING IS REQUIRED WITHIN ANY PORTION OF AN INTERSECTION. THE LIMITS OF RESURFACING SHALL BE THE CURVE RETURNS OF THE ROADWAYS OF THE INTERSECTIONS.
- ALL EXISTING PAVEMENT STRIPING DISTURBED BY THIS PROJECT SHALL BE RESTORED. THE STRIPING MATERIALS SHALL BE THERMOPLASTIC TAPE OR THERMOPLASTIC EXTRUSION. PAINTING IS NOT ACCEPTABLE.
- THE LIMITS OF ROAD RESTORATION WORK MAY BE REVISED BY THE ENGINEERING DIVISION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS DURING PROCESSING OF ROAD PERMITS FOR THIS PROJECT.

NOTES:

- CONTRACTOR SHALL NOT SAW CUT ROAD ALONG ENTIRE ALIGNMENT UNTIL ALL CONNECTIONS AND CROSSINGS HAVE BEEN PROBED BY CONTRACTOR AND ANY DESIGN CONFLICTS HAVE BEEN DEFINED DUE TO FIELD PROBING.
- PROVIDE SMOOTH PAVEMENT CONNECTION TO MATCH THE EXISTING DRIVEWAY AND ROADWAY GRADES AND MAINTAIN EXISTING DRAINAGE FLOW PATTERNS.
- ALL NEW MANHOLE FRAMES AND COVERS AND EXISTING WATER VALVES AND UTILITY BOXES IN THE ROADWAY PAVEMENT SHALL BE INSTALLED AND/OR ADJUSTED FLUSH WITH FINISH GRADE.
- TRENCH REPAVING SHALL BE A MINIMUM OF 8-INCHES THICK BASE COURSE AND 2-INCHES MINIMUM ASPHALT CONCRETE (STATE DESIGN MIX V). IF THE EXISTING PAVEMENT STRUCTURE IS GREATER IN THICKNESS AND QUALITY, THE REPAVING SHALL MATCH THE EXISTING PAVEMENT STRUCTURE.
- PAVEMENT RESURFACING WORK SHALL INCLUDE 2-INCH THICKNESS OF EXISTING A.C. TO BE COLD PLANED AND CONSTRUCTION OF A MINIMUM OF 2 INCHES OF NEW A.C. (STATE DESIGN MIX V) LAYER.
- ROAD RESTORATION FOR TRENCHES ALIGNED ALONG THE LONGITUDINAL DIRECTION SHALL INCLUDE PAVEMENT RESURFACING AS FOLLOWS:
 - ROADS WITH PAVEMENT WIDTHS 12 FEET OR LESS SHALL BE REPAVED THE ENTIRE WIDTH.
 - ROADWAYS BETWEEN 12 FEET AND 28 FEET WIDE WITH NO STRIPING SHALL BE PAVED FOR HALF OF THE ROADWAY, PROVIDED THE WATER LINE INSTALLATION AFFECTS ONLY ONE TRAVEL LANE, AND NO HYDRANT, ARV, CO, AND LATERAL CONNECTIONS ARE WITHIN 750 FT OF EACH OTHER.
 - ROADWAYS WITH NO STRIPING AND PAVEMENT WIDTHS GREATER THAN 28 FEET SHALL HAVE A 12-FOOT WIDE TRAVEL WAY RESURFACED.
- ROAD RESTORATION FOR TRENCHES ALIGNED PERPENDICULAR TO THE ROADWAY SHALL INCLUDE ROAD RESURFACING FOR A MINIMUM OF 6 FEET BEYOND THE TRENCH EDGES.
- THE ENTIRE ROAD INTERSECTION SHALL BE RESURFACED WHEREVER TRENCH REPAVING IS REQUIRED WITHIN ANY PORTION OF AN INTERSECTION. THE LIMITS OF RESURFACING SHALL BE THE CURVE RETURNS OF THE ROADWAYS OF THE INTERSECTIONS.
- ALL EXISTING PAVEMENT STRIPING DISTURBED BY THIS PROJECT SHALL BE RESTORED. THE STRIPING MATERIALS SHALL BE THERMOPLASTIC TAPE OR THERMOPLASTIC EXTRUSION. PAINTING IS NOT ACCEPTABLE.
- THE LIMITS OF ROAD RESTORATION WORK MAY BE REVISED BY THE ENGINEERING DIVISION AND/OR CONSTRUCTION INSPECTION SECTION OF THE COUNTY DEPARTMENT OF PUBLIC WORKS DURING PROCESSING OF ROAD PERMITS FOR THIS PROJECT.



PAVEMENT RESTORATION PLAN

SCALE: 1"=20'

LEGEND

PAVEMENT RESTORATION LIMITS

0 5' 10' 20'
SCALE IN FEET

DRAWING NO.
C-24

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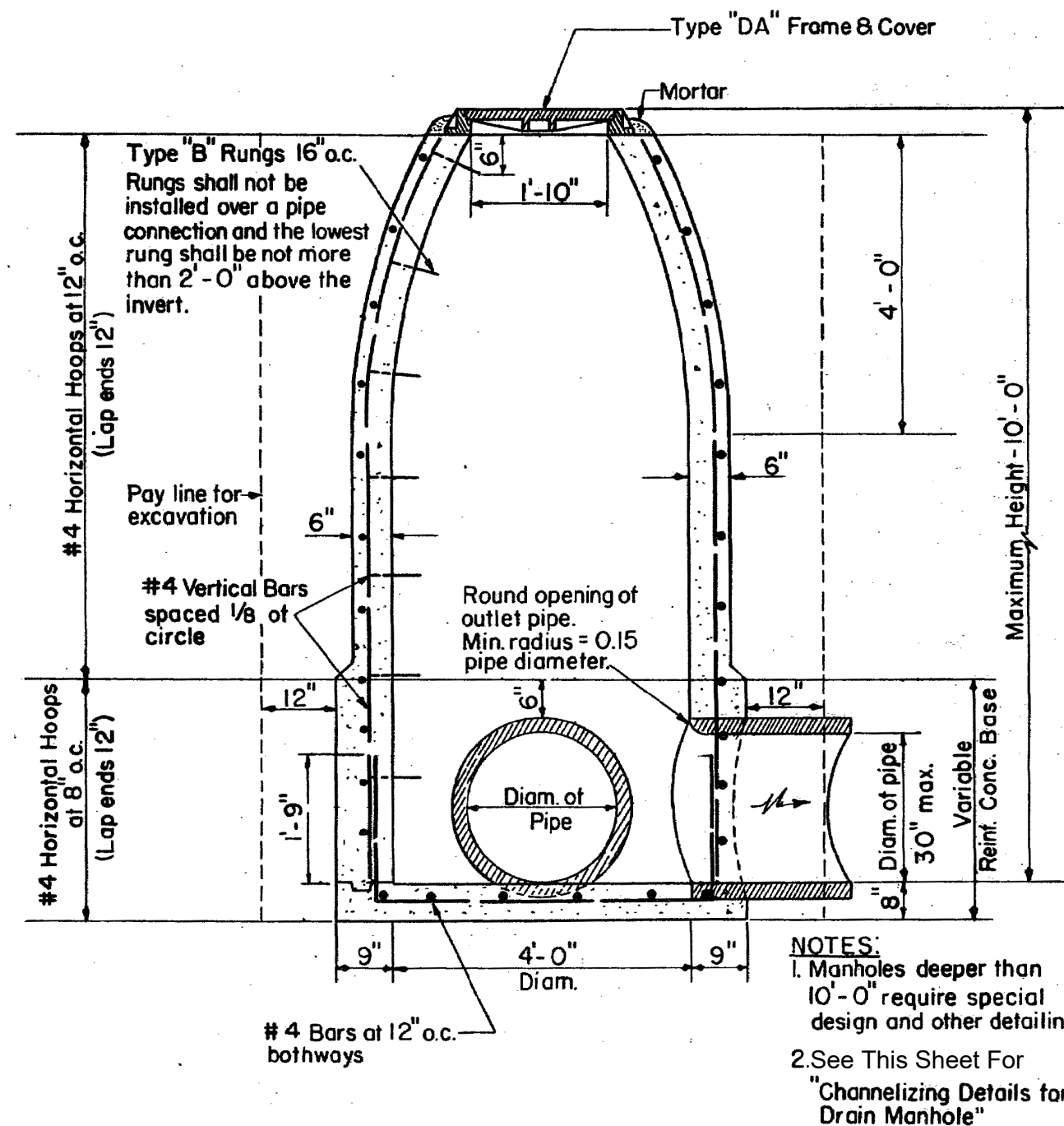


Gary K. Kondo
APPROVED:

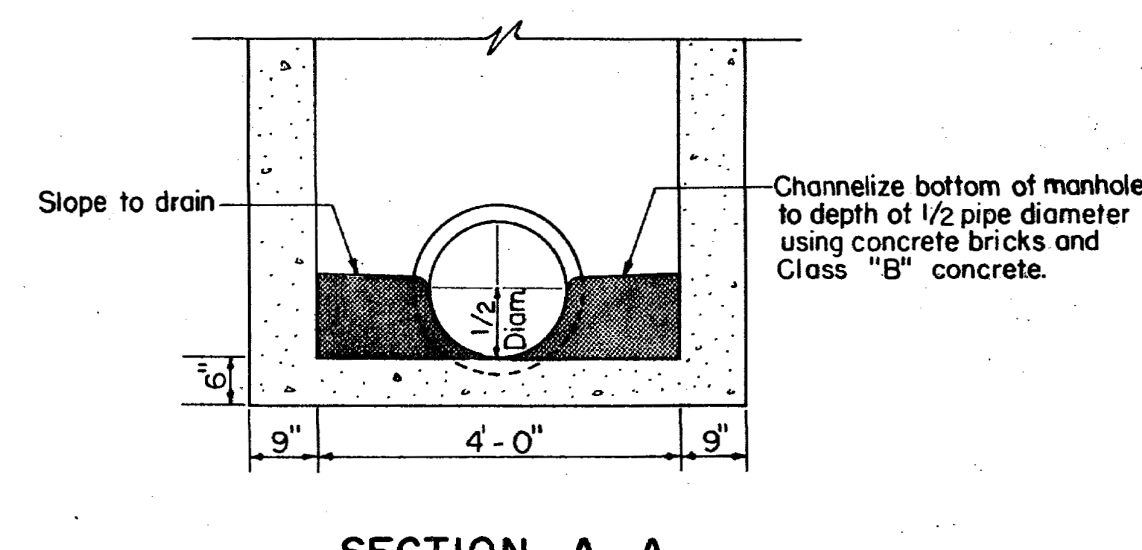
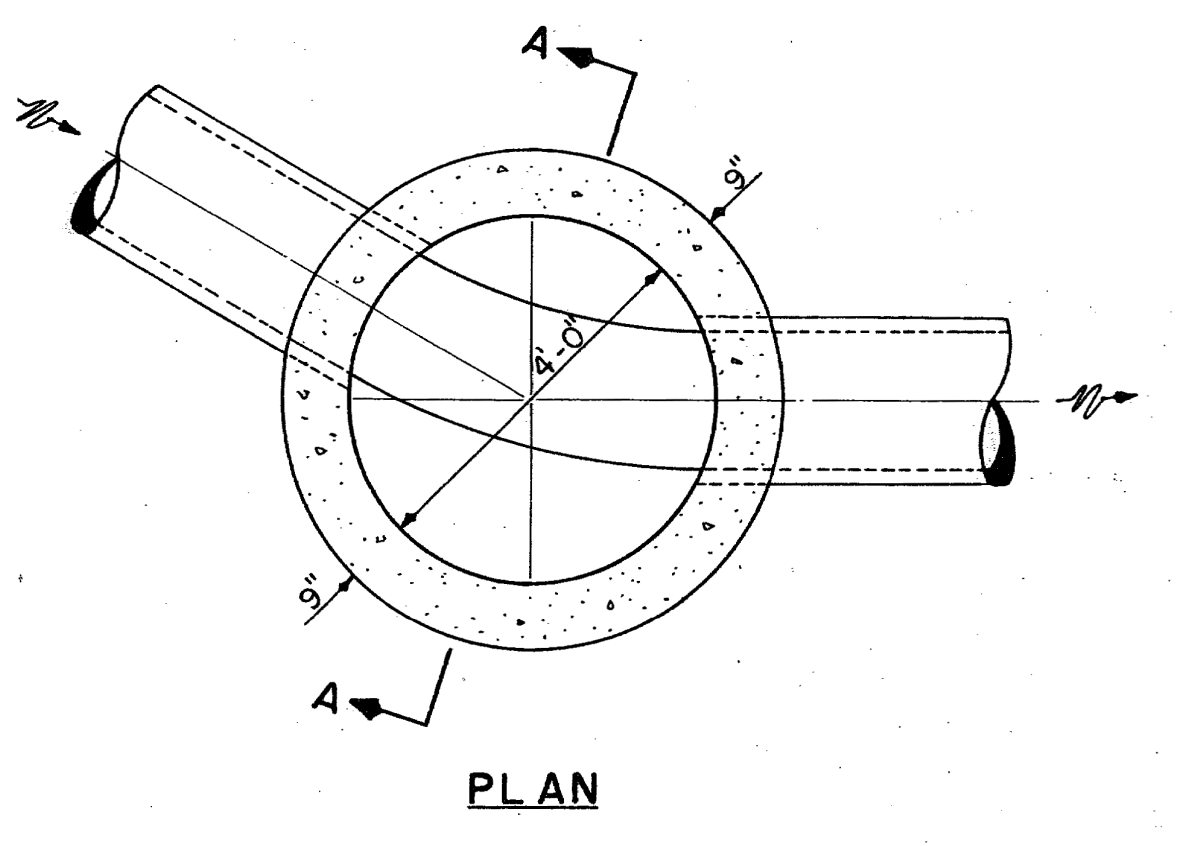
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII PAVEMENT RESTORATION PLAN			
APPROVED:			DATE
<i>Jason Kaganoto</i>			2/3/23
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE

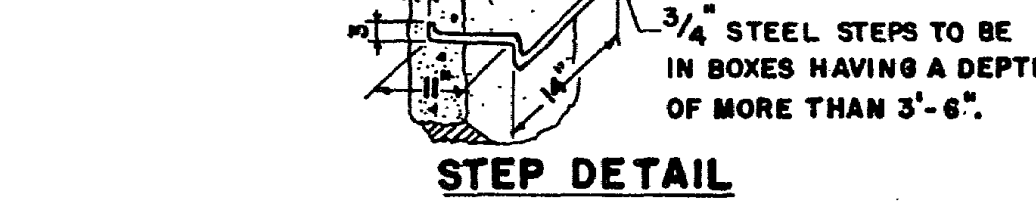
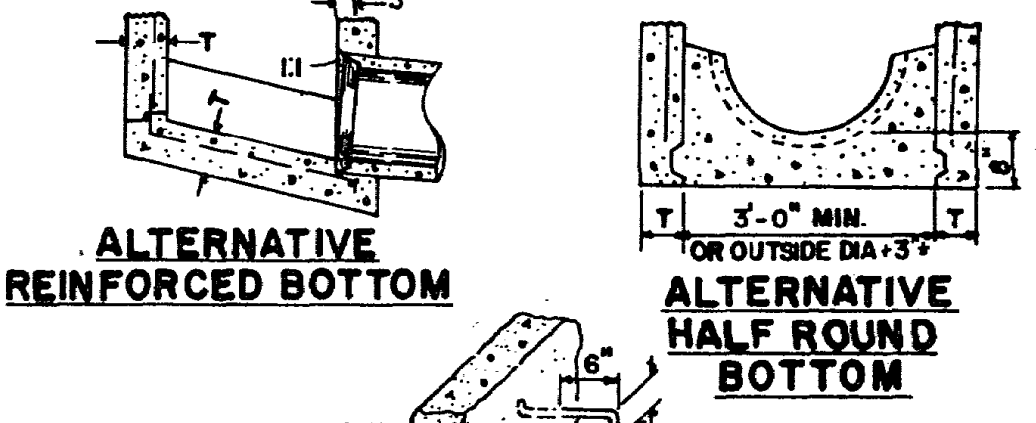
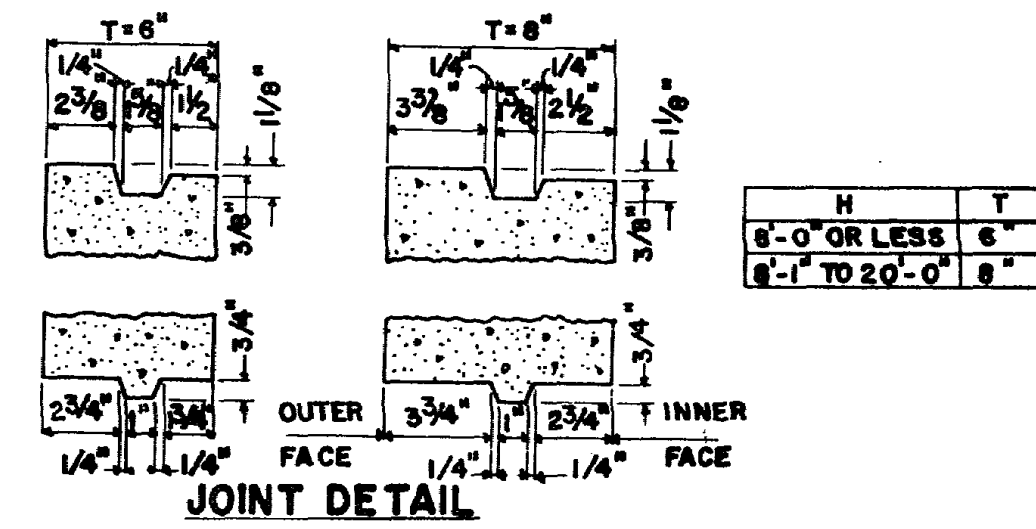
2/1/2023 1:25:11 PM T:\KAPA_A HOMESTEADS_TANKS\2024\0100 KAPAHI_TANKS\CAD SHEETS\CONSTRUCTION PLAN\C-24 PAVEMENT RESTORATION PLAN.DWG



CONCRETE WALL DRAIN MANHOLE
NOT TO SCALE



CHANNELIZING DETAILS FOR DRAIN MANHOLE
NOT TO SCALE

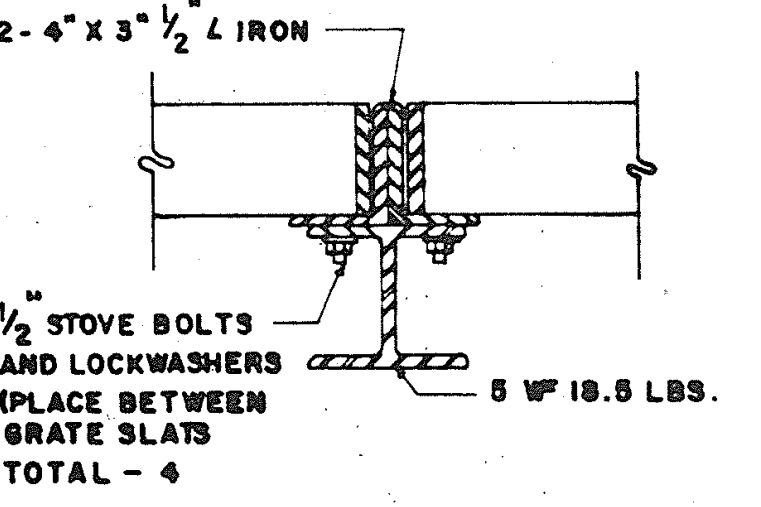


- GENERAL NOTES**
FOR TYPE G1 AND G2 DRAINAGE INLETS
- "H" IS THE DIFF. IN ELEV. BETWEEN THE OUTLET PIPE FLOW LINE AND THE NORMAL GUTTER GRADE LINE UNDERPRESSED AT THE CURB FACE.
 - FOR "T" WALL THICKNESS, SEE TABLE.
 - REINFORCING STEEL IN WALLS SHALL BE #4 BARS @ 18" CENTERS, PLACED 1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE SHOWN.
 - STEPS - NONE REQUIRED WHERE "H" IS 3'-6" OR LESS. INSTALL ONE STEP 16"± ABOVE FLOOR WHEN "H" IS MORE THAN 3'-6" AND LESS THAN 5'-0". WHERE "H" IS MORE THAN 5'-0", STEPS SHALL BE EVENLY SPACED @ 12"± INTERVALS FROM 16"± ABOVE FLOOR TO WITHIN 12" OF THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENING.
 - DETAILS SHOWN APPLY TO BOTH METAL AND CONCRETE PIPE.
 - PIPE(S) CAN BE PLACED IN ANY WALL.
 - CURB SECTIONS SHALL MATCH ADJACENT CURB.
 - BASIN FLOORS SHALL HAVE WOOD TROWEL FINISH AND A MINIMUM SLOPE OF 12:3 FROM ALL DIRECTIONS TOWARD OUTLET PIPE.
 - GALVANIZING - SEE STANDARD SPECIFICATIONS OR SPECIAL PROVISIONS.
 - CAST-IN-PLACE OR PRECAST ALTERNATIVE IS OPTIONAL WITH CONTRACTOR.
 - SET INLET SO THAT GRATE BARS ARE PARALLEL TO DIRECTION OF PRINCIPAL SURFACE FLOW.
 - SEE "STANDARD GRATE DETAIL" FOR GRATE AND FRAME DETAILS.

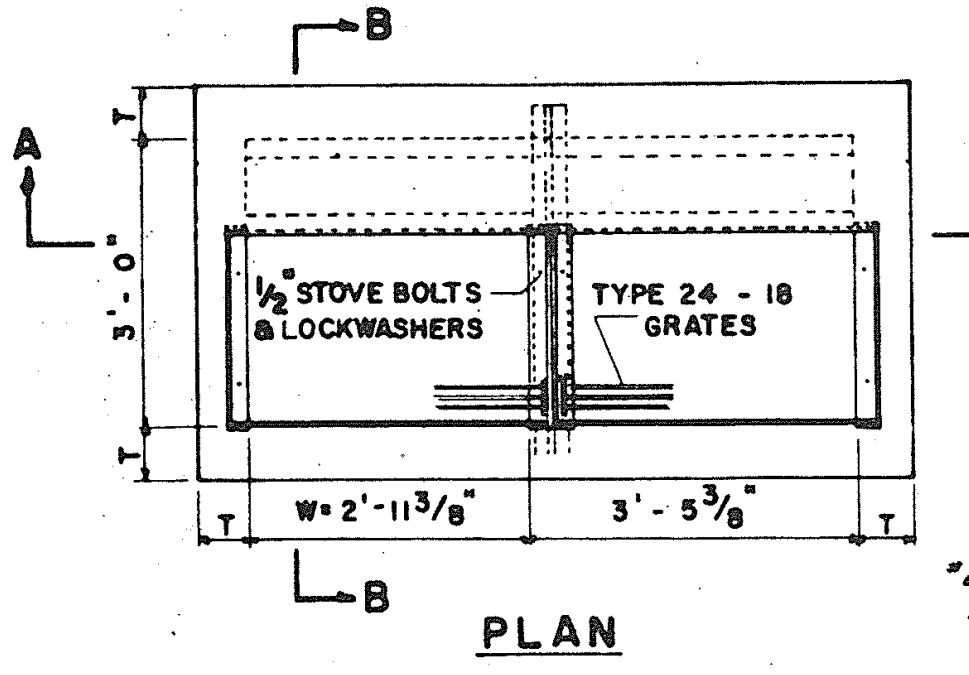
TYPE G1 AND TYPE G2 DRAINAGE INLETS
NOT TO SCALE

TABLE A

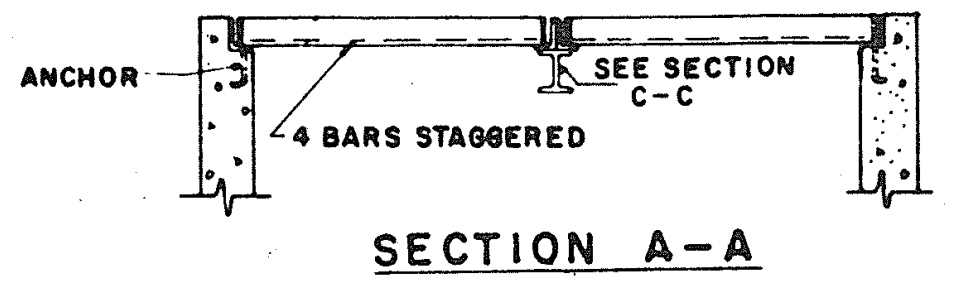
H	T
0'-0" OR LESS	6"
0'-1" TO 20'-0"	8"



SECTION C-C

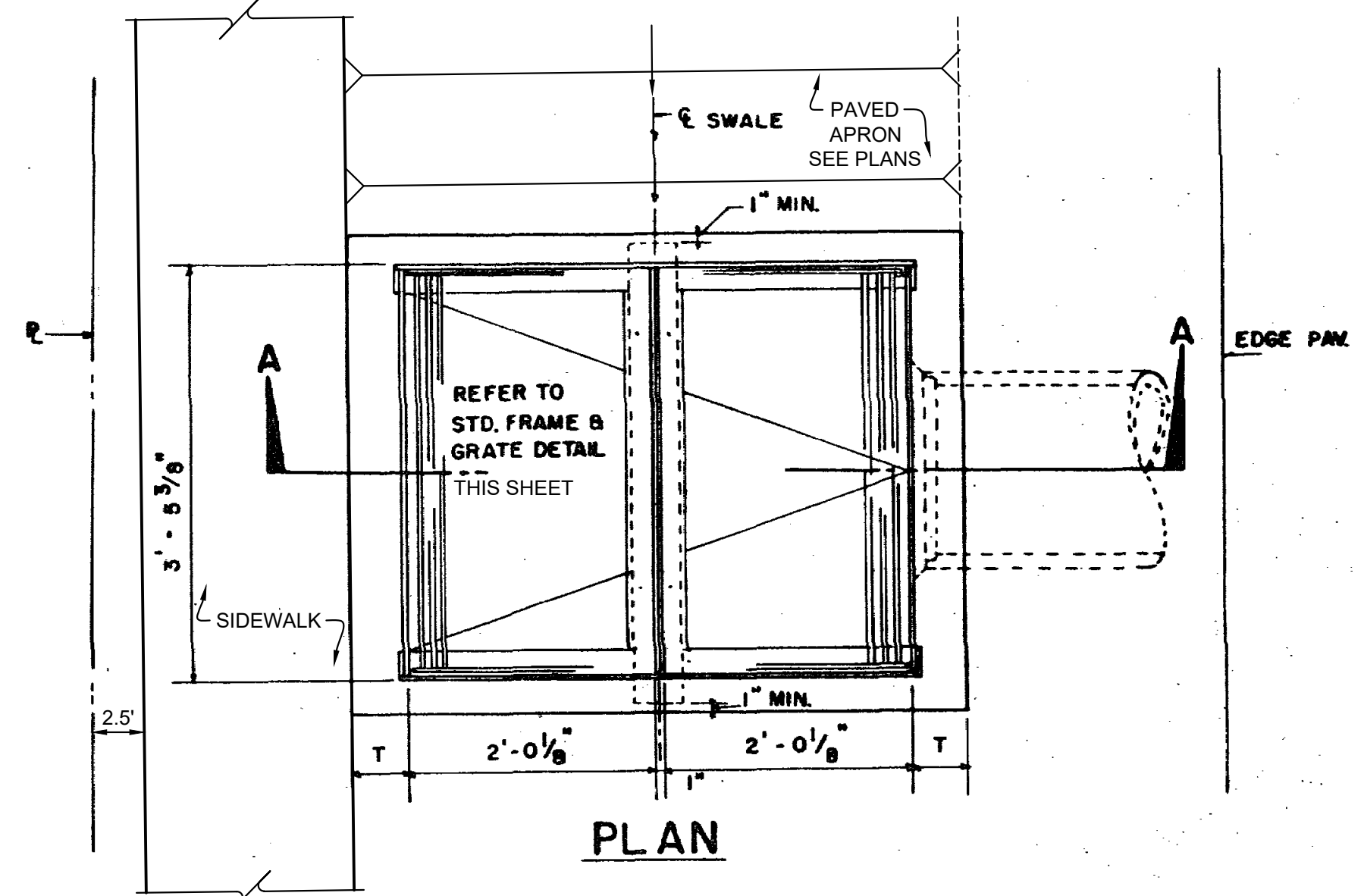


PLAN



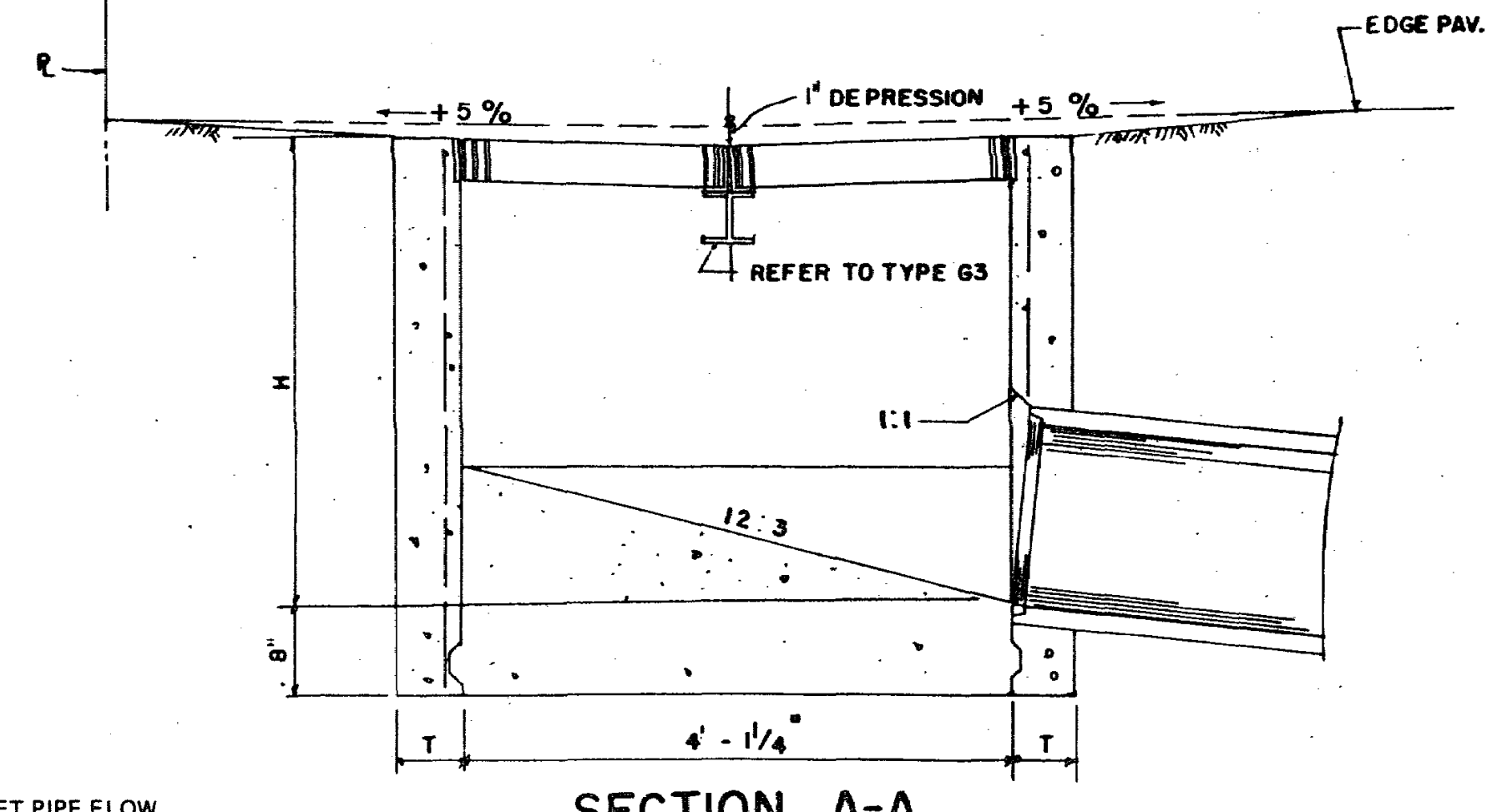
SECTION A-A

TYPE G3 DRAINAGE INLET
NOT TO SCALE



PLAN

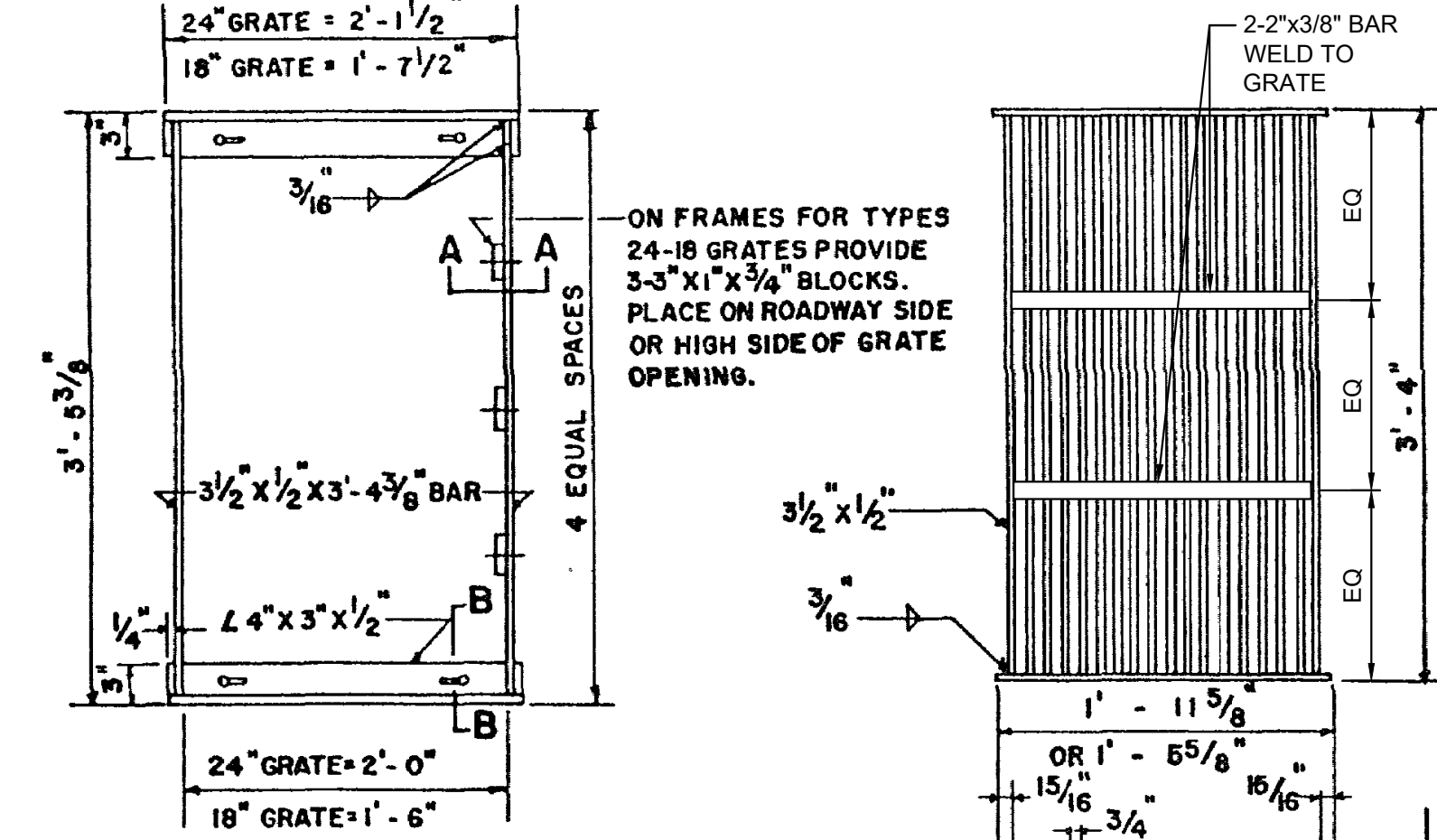
REFER TO TYPES G1, G2 & G3 DRAINAGE INLET NOTES, TABLES, SECTIONS & DETAILS. EXCEPT AS OTHERWISE NOTED ON TYPE G4 DRAINAGE INLET DETAIL.



SECTION A-A

TYPE G4 DRAINAGE INLET
NOT TO SCALE

- GENERAL NOTES**
FOR TYPE G3 DRAINAGE INLETS
- "H" IS THE DIFF. IN ELEV. BETWEEN THE OUTLET PIPE FLOW LINE AND THE NORMAL GUTTER GRADE LINE UNDERPRESSED.
 - FOR "T" WALL THICKNESS, SEE TABLE A.
 - REINFORCING STEEL IN WALLS SHALL BE #4 BARS @ 18"± CENTERS PLACED 1/2" CLEAR TO INSIDE OF BOX UNLESS OTHERWISE SHOWN.
 - STEPS - NONE REQUIRED WHERE "H" IS 3'-6" OR LESS. INSTALL ONE STEP "H" ABOVE FLOOR WHEN 16"± IS MORE THAN 3'-6" AND LESS THAN 5'-0". WHERE "H" IS MORE THAN 5'-0", STEPS SHALL BE EVENLY SPACED @ 12"± INTERVALS FROM 16"± ABOVE FLOOR TO WITHIN 12"± OF THE TOP OF THE BOX. PLACE STEPS IN WALL WITHOUT PIPE OPENINGS.
 - WHEN SHOWN ON THE PROJECT PLANS, PLACE A #6 PROTECTION BAR HORIZONTALLY ACROSS THE LENGTH OF THE OPENING AND BEND BACK 4" INTO THE INLET WALL ON EACH SIDE.
 - PIPE(S) CAN BE PLACED IN ANY WALL.
 - BASIN FLOORS SHALL HAVE WOOD TROWEL FINISH AND A MINIMUM SLOPE OF 12:1 FROM ALL DIRECTIONS TOWARDS OUTLET PIPE.
 - GALVANIZING - SEE STANDARD SPECIFICATIONS OR SPECIAL PROVISIONS.
 - W=2'-11 3/8" FOR ONE GRATE, ADD 3'-5 3/8" FOR ADDITIONAL GRATES IN TANDEM.
 - FULL PENETRATION BUTT WELDS MAY BE SUBSTITUTED FOR THE FILLET WELDS ON ALL ANCHORS.
 - STANDARD SQUARE, HEXAGON, ROUND OR EQUIVALENT HEADED ANCHORS MAY BE SUBSTITUTED FOR THE RIGHT ANGLE HOOKS ON THE ANCHORS SHOWN ON THIS PLAN.

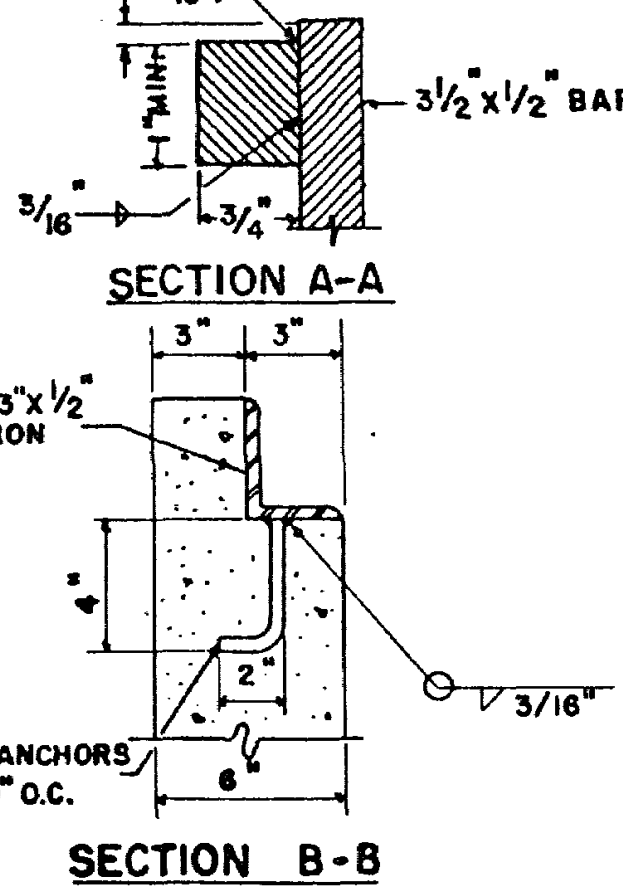


TYPICAL FRAME

WELDED GRATE

GENERAL NOTES

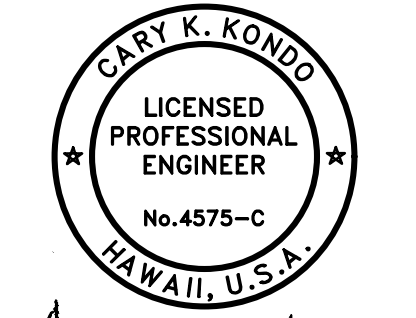
- CONTRACTOR HAS THE OPTION OF USING CAST NODULAR IRON, CAST STEEL, WELDED, BOLTED, OR CAST END BLOCK GRATE.
- GRATES AND FRAMES SHALL BE GALVANIZED.
- ROUNDED TOP OF BARS OPTIONAL ON ALL GRATES.
- PIPE DROP INLETS WITH A GRATE SHALL BE PLACED SO THAT BARS PARALLEL DIRECTION OF PRINCIPLE SURFACE FLOW.



SECTION B-B

STANDARD FRAME AND GRATE
NOT TO SCALE

TMK: 4 - 6 - 011-003



Cary K. Kondo
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

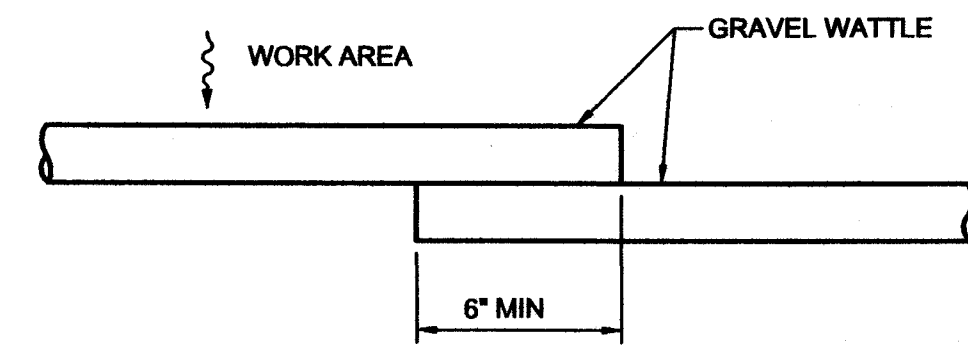
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

DRAIN DETAILS-1

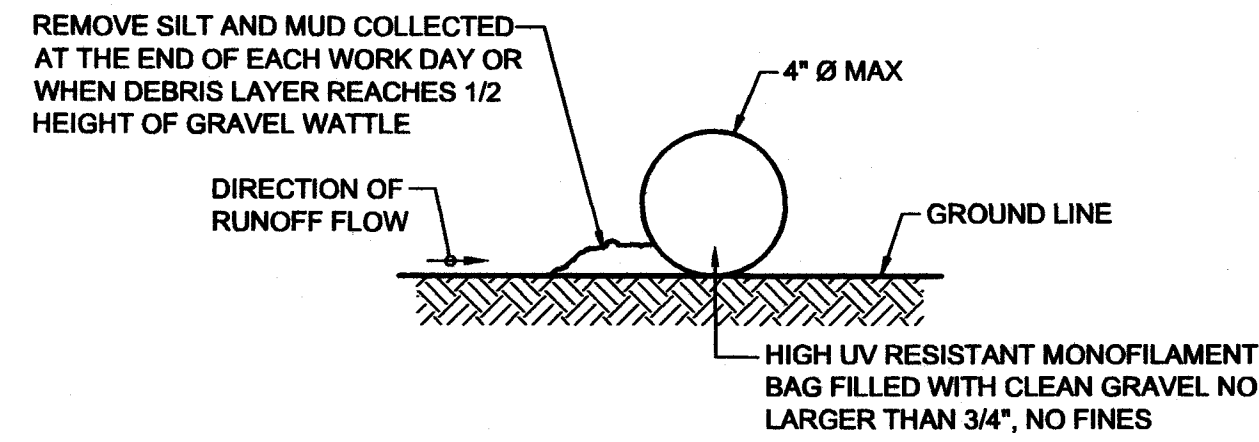
APPROVED:
N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Jaaron Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
C-25

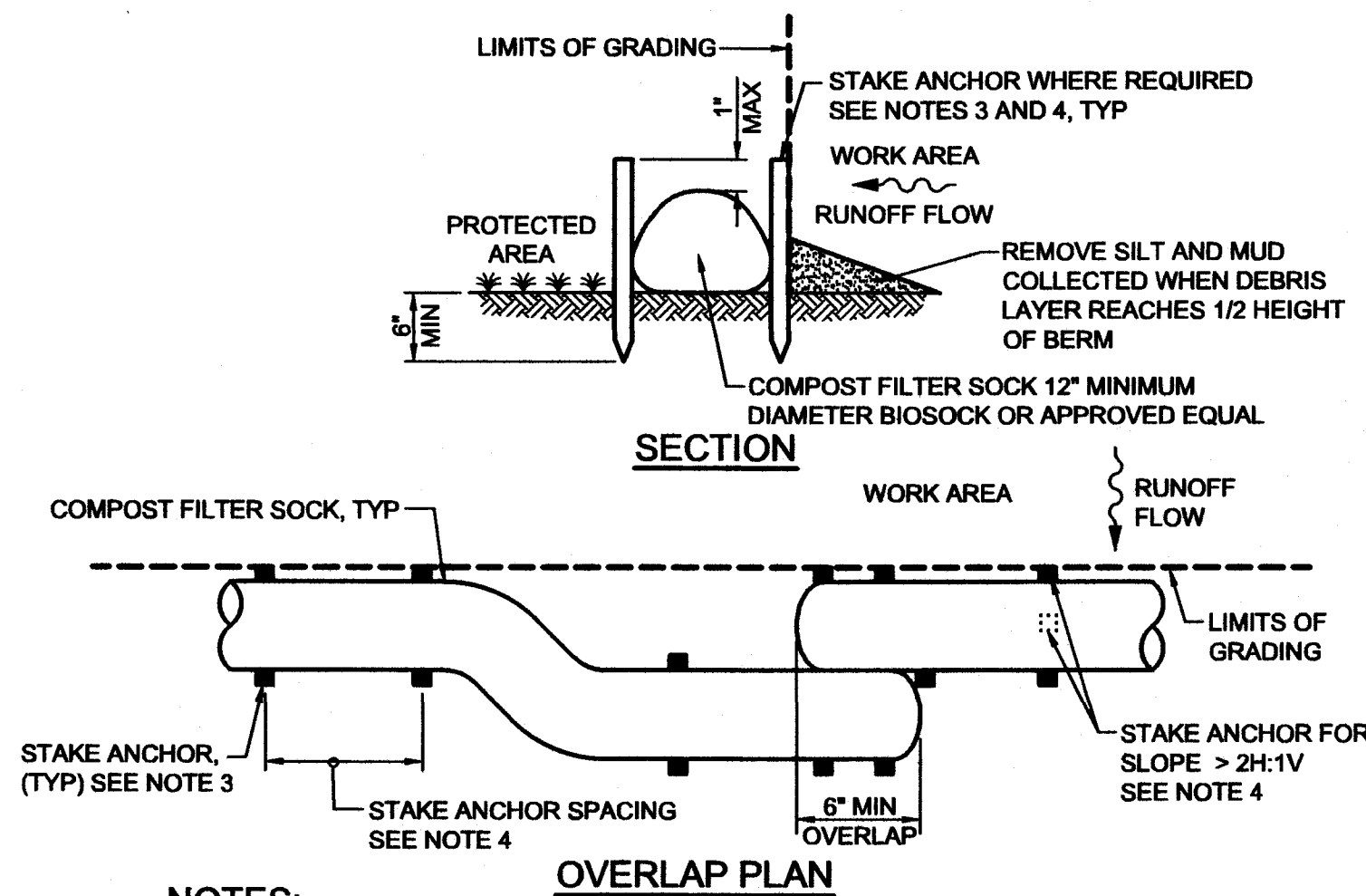


GRAVEL WATTLE OVERLAP DETAIL
NOT TO SCALE



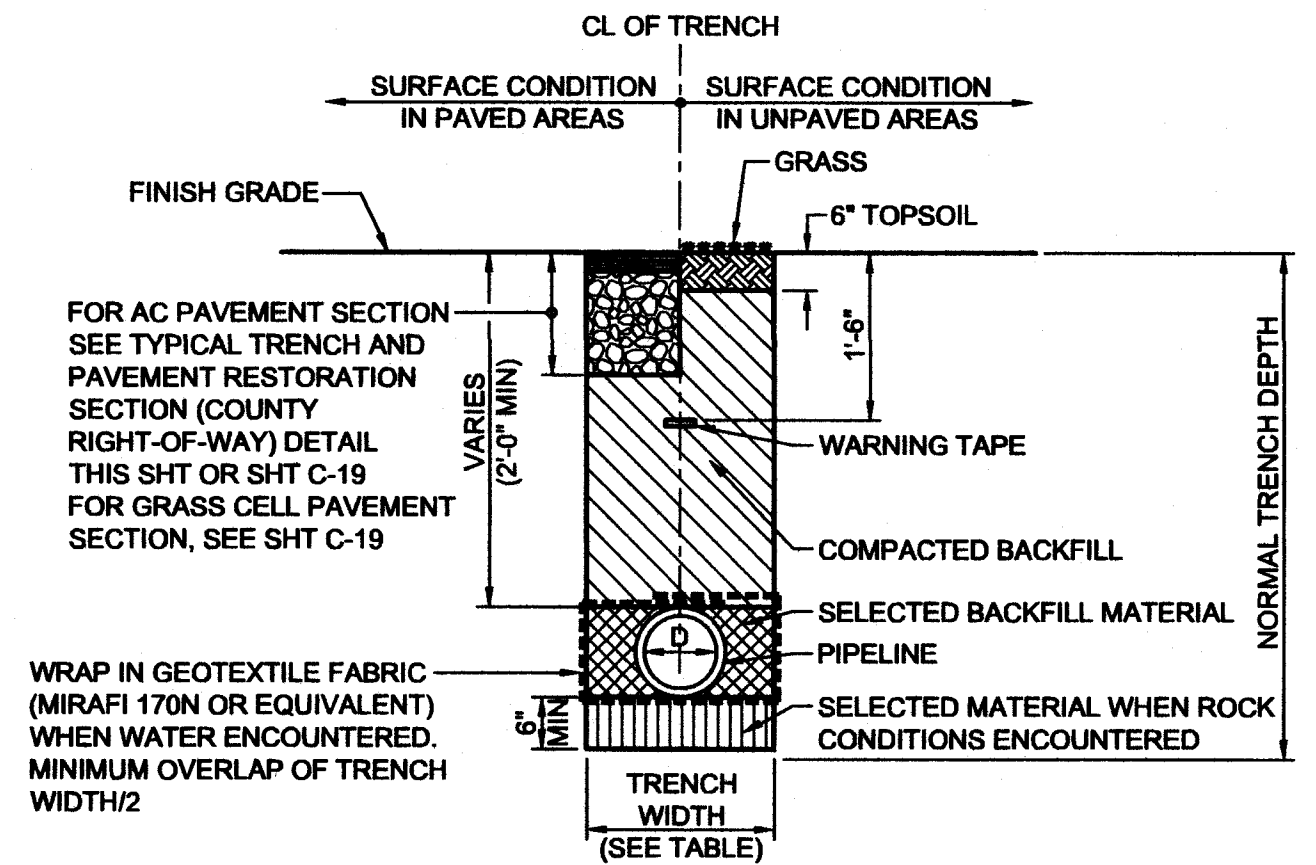
- NOTES:**
1. NO STAKING REQUIRED.
 2. GRAVEL WATTLE CONTENTS SHALL COMPLY WITH EPA GUIDELINES.
 3. SEE GRAVEL WATTLE OVERLAP DETAIL THIS SHEET.
 4. PROVIDE GRAVEL WATTLES AROUND WORK AREA, SEE TYPICAL DETAIL - WORK AREA BMP, THIS SHEET.

GRAVEL WATTLE DETAIL
NOT TO SCALE

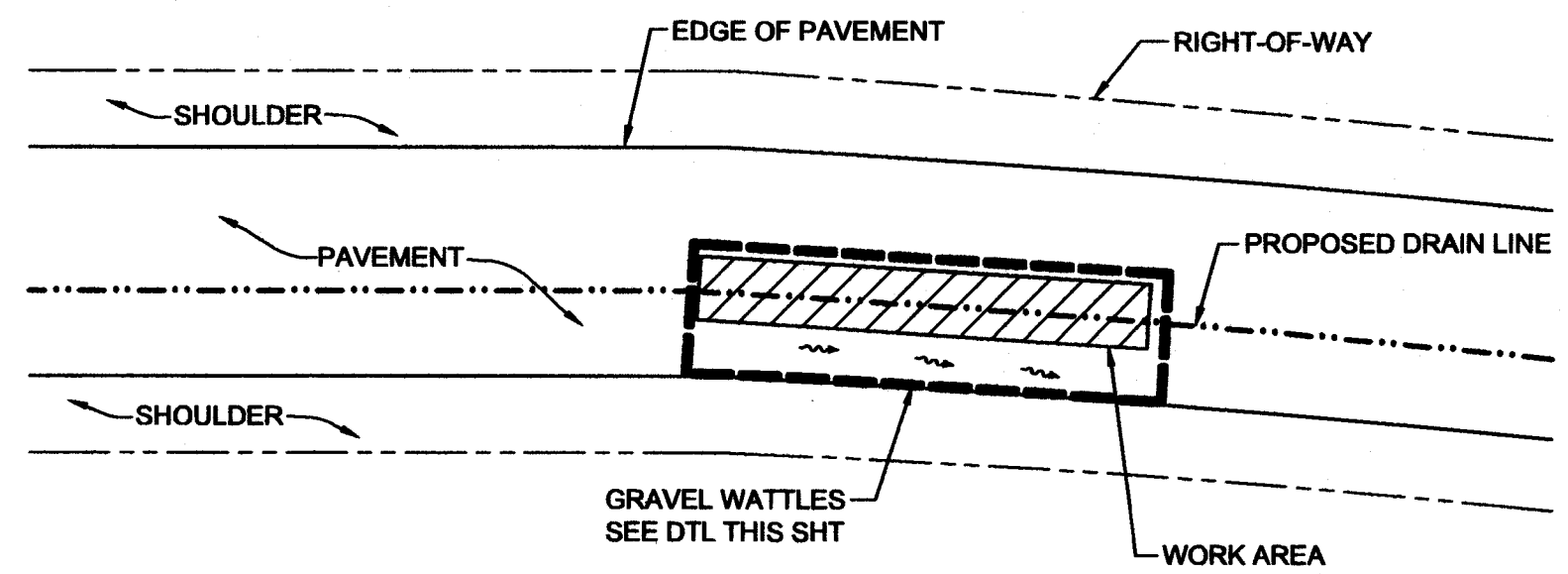


- NOTES:**
1. COMPOST SHALL NOT CONTAIN BIOSOLIDS AND SHALL COMPLY WITH EPA GUIDELINES.
 2. REMOVE SEDIMENT FROM THE UP SLOPE SIDE OF THE COMPOST FILTER SOCK WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT.
 3. 3/4"x3/4"x16" MINIMUM WOODEN STAKE ANCHOR.
 4. ON < 4H:1V SLOPE, NO STAKE ANCHOR REQUIRED.
ON 4H:1V TO 3H:1V SLOPE, STAKE AT 10 FT ON CENTER.
ON > 3H:1V TO 2H:1V SLOPE, STAKE AT 5 FT TO 10 FT ON CENTER.
ON > 2H:1V SLOPE, STAKE AT 5 FT ON CENTER, STAKES ON WORK AREA SIDE SHALL BE INSTALLED IN CENTER OF COMPOST FILTER SOCK.
 5. COMPOST FILTER SOCK MAY BE USED IN LIEU OF SILT FENCE.

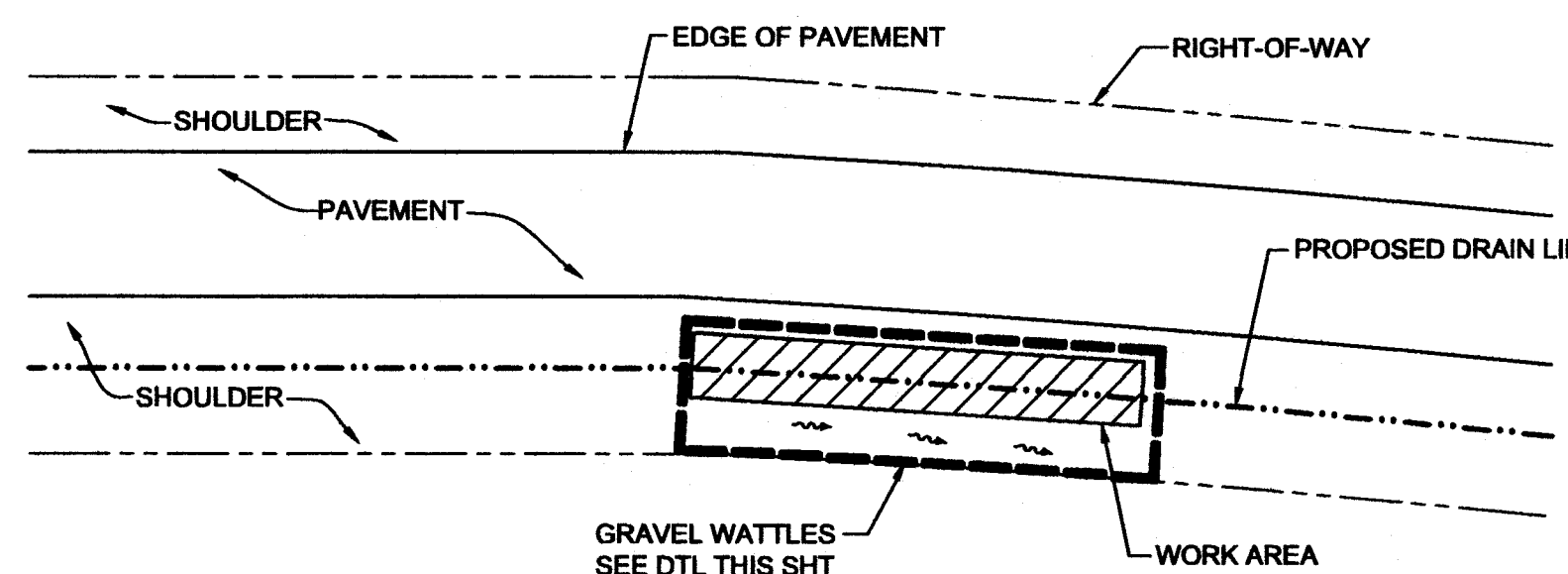
TEMPORARY COMPOST FILTER SOCK DETAIL
NOT TO SCALE



TYPICAL DRAIN LINE TRENCH SECTION
NOT TO SCALE



IN PAVED AREA



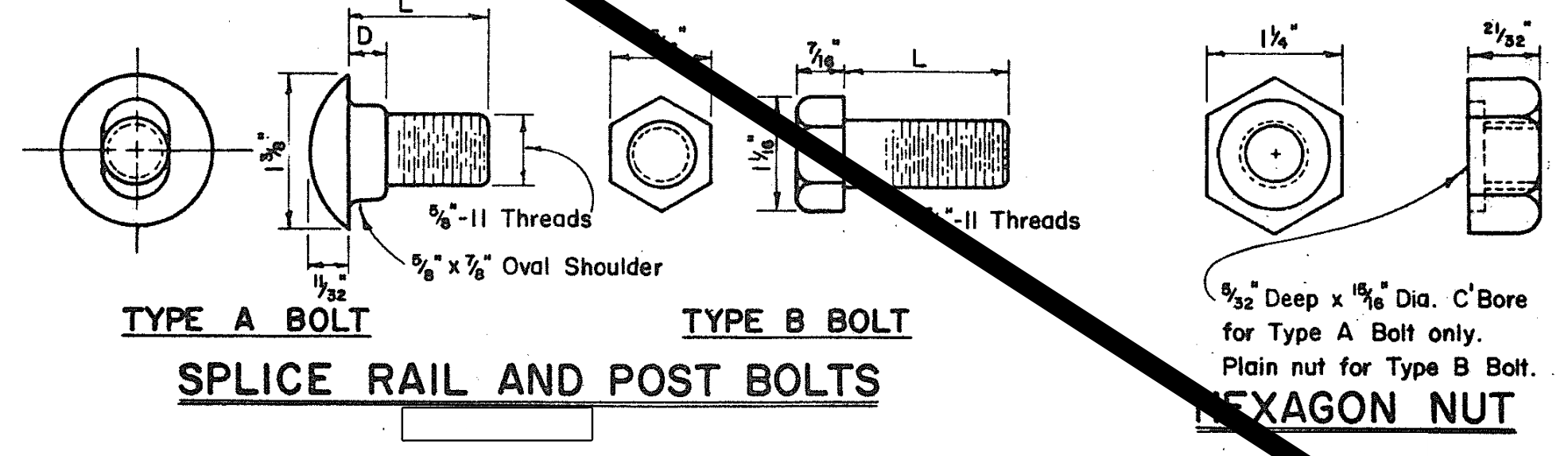
IN UNPAVED AREA

TYPICAL DETAIL - WORK AREA BMP
NOT TO SCALE

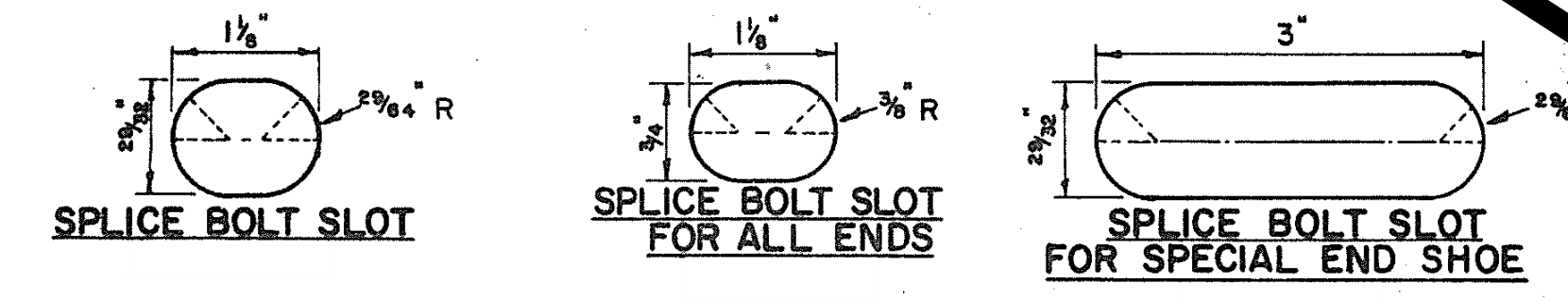
1/27/2023 3:44:15 PM T:\KAPAA HOMESTEADS TANK\200740100 KAPAAI TANK\CAD\SHEETS\CONSTRUCTION PLAN-CK-C-26 DRAIN DETAILS-2 AND EROSION CONTROL DETAILS.DWG

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPAA HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII DRAIN DETAILS-2 AND EROSION CONTROL DETAILS			
APPROVED: <i>[Signature]</i> <small>REGISTERED PROFESSIONAL ENGINEER COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)</small> Jason Kagimoto <small>MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI</small>			
TMK: 4 - 6 - 011:003 <i>Cary K. Kondo</i> <small>LICENSED PROFESSIONAL ENGINEER No. 4575-C HAWAII, U.S.A.</small>			DATE: 2/3/23
DRAWING NO. C-26 SHEET 27 OF 66 SHEETS			

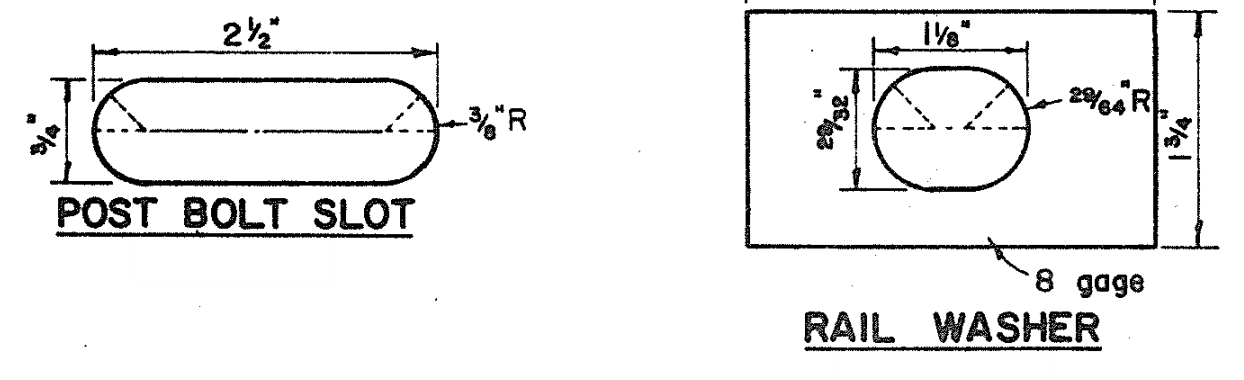
TYPE A BOLT		TYPE B BOLT	
	D	L	L
Splice Bolt	5/16"	1 1/4"	9 1/2"
Rail Bolt for Conc. Post (No Block)	3/8"	9 1/2"	1 3/4"
Rail Bolt for Metal Block or Metal Post	3/8"	2"	



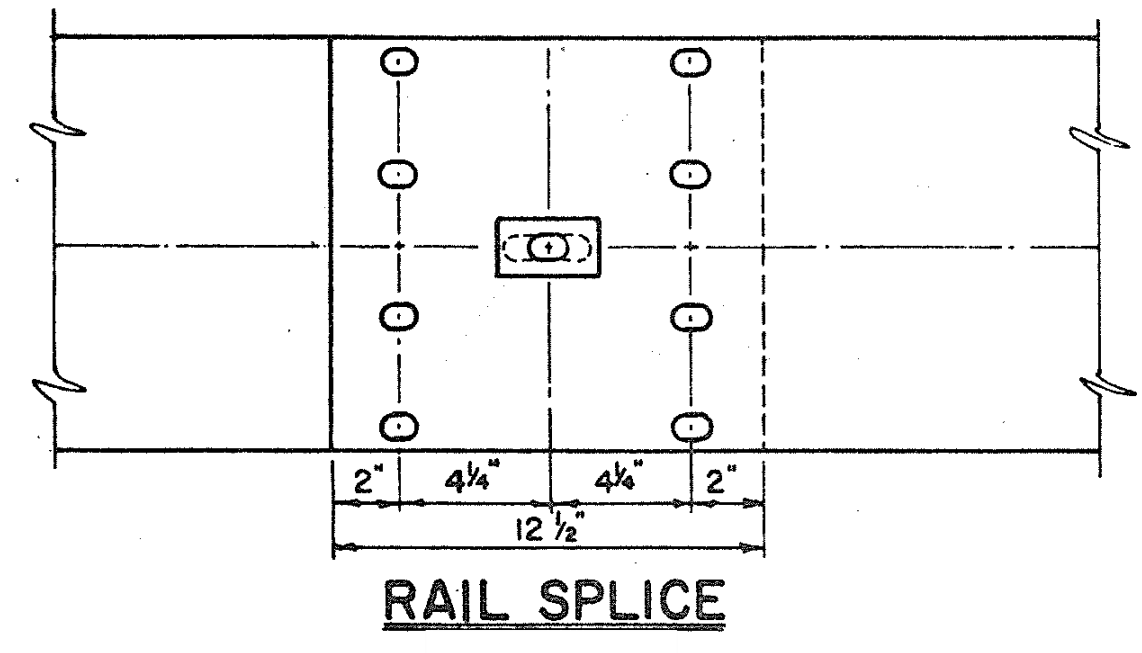
TYPE A BOLT
TYPE B BOLT
SPLICE RAIL AND POST BOLTS



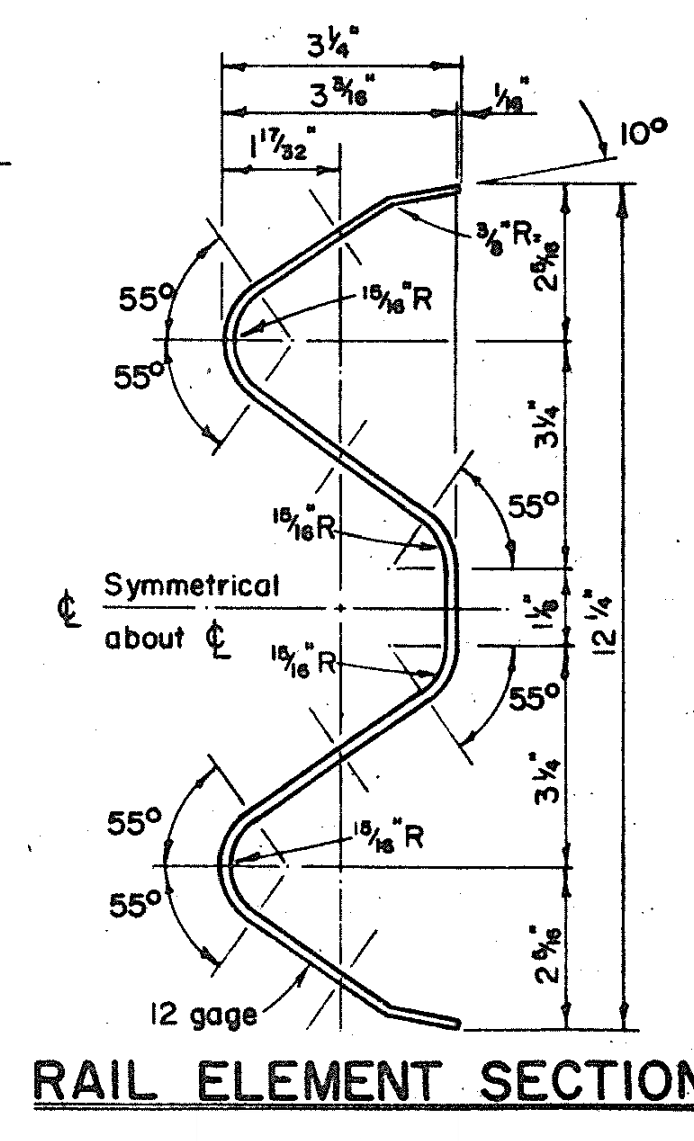
SPLICE BOLT SLOT
SPLICE BOLT SLOT FOR ALL ENDS
SPLICE BOLT SLOT FOR SPECIAL END SHOE



POST BOLT SLOT
RAIL WASHER

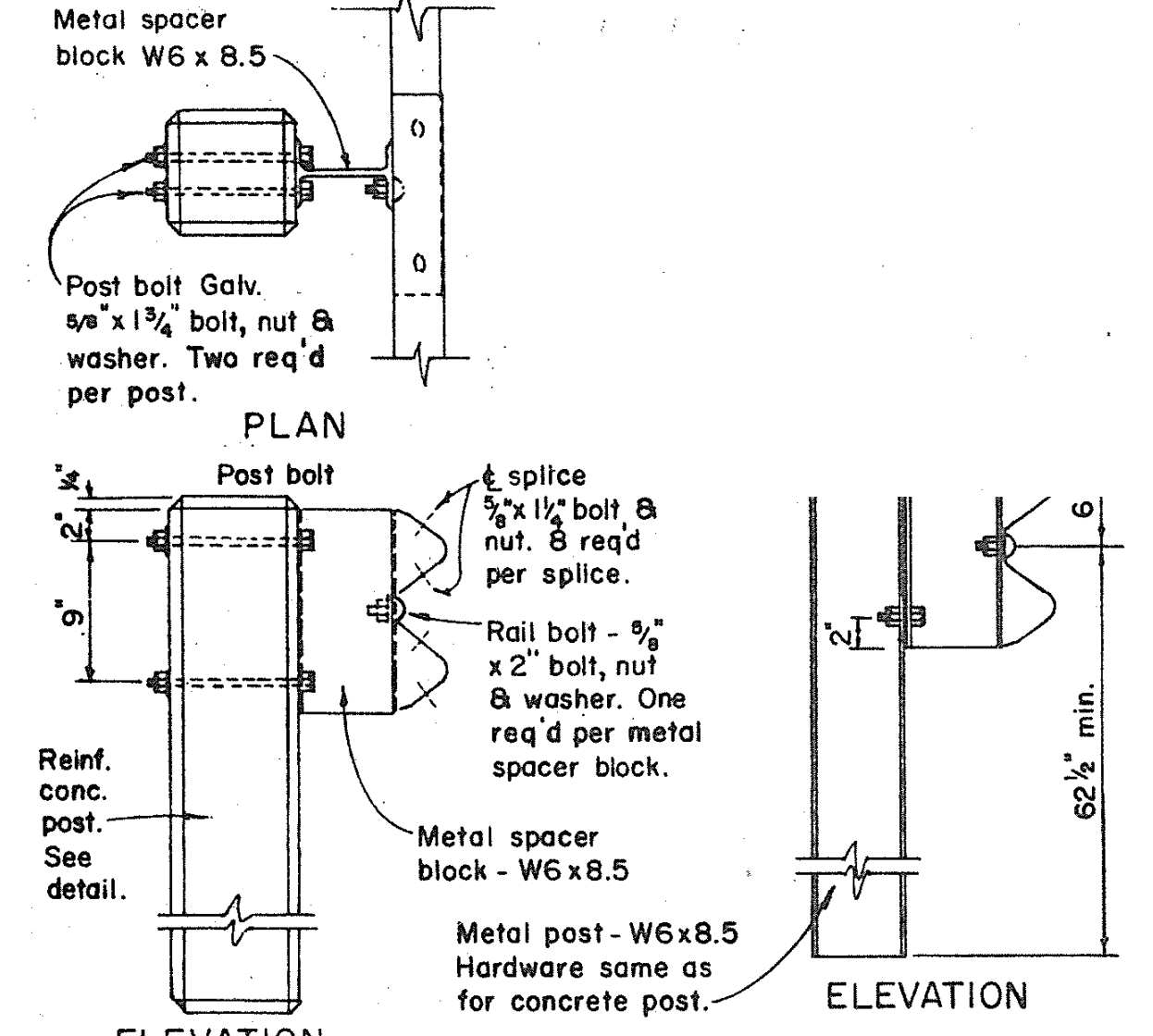


RAIL SPLICE

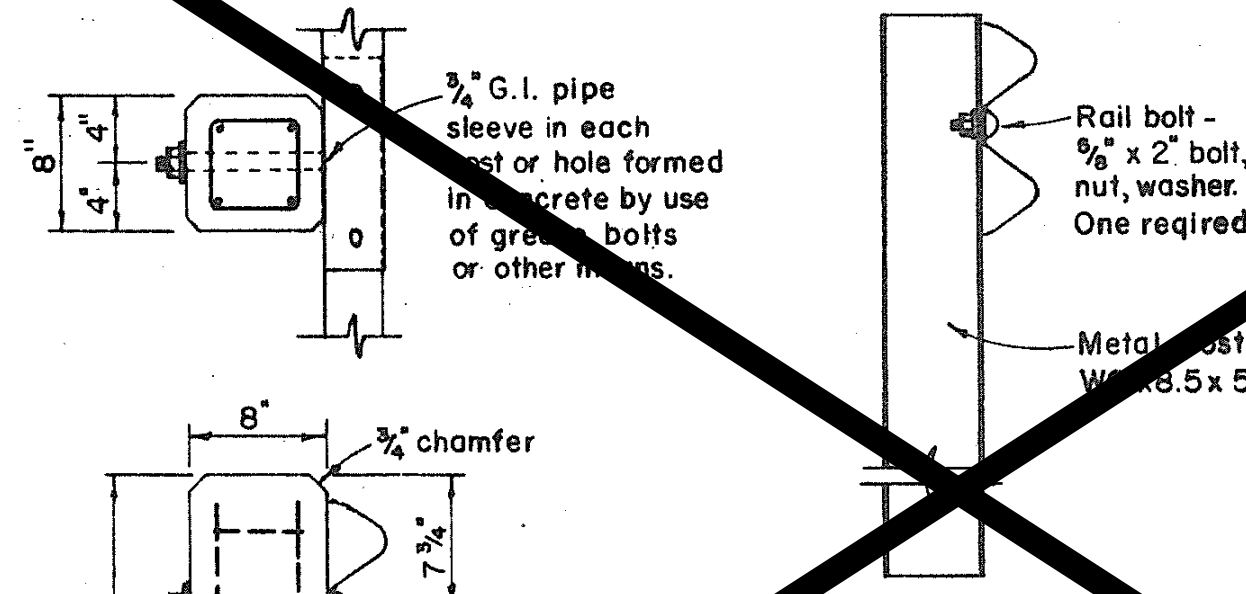


RAIL ELEMENT SECTION

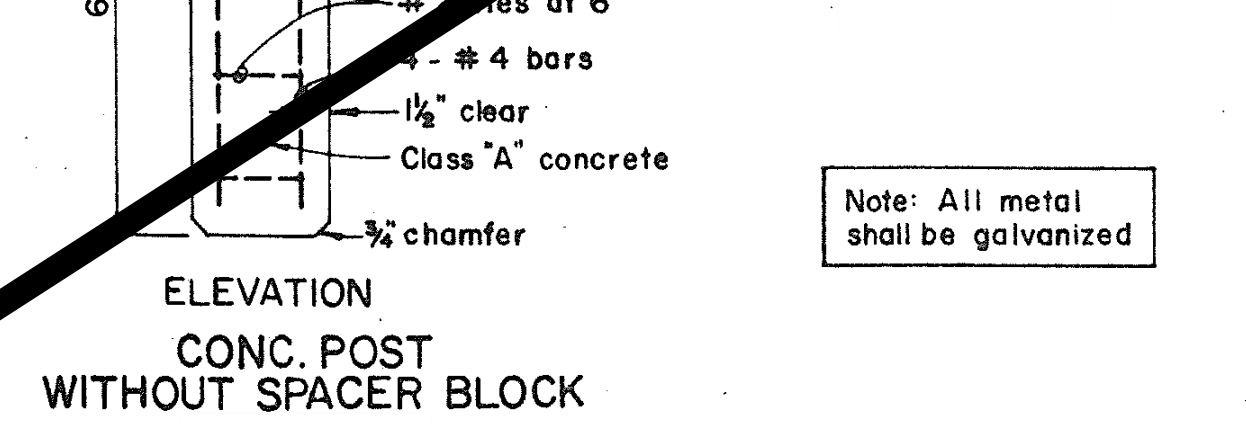
METAL GUARDRAIL DETAILS
NOT TO SCALE



ELEVATION CONC. POST WITH SPACER BLOCK

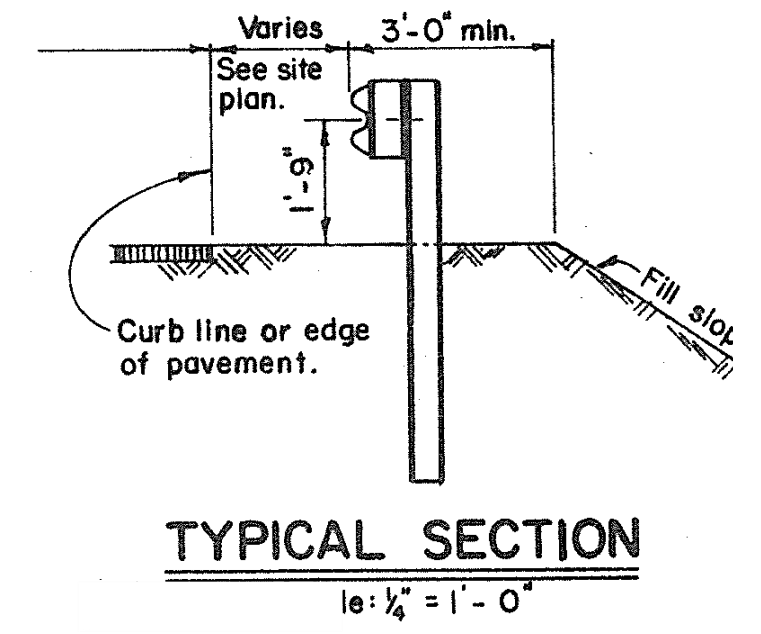


ELEVATION METAL POST WITH SPACER BLOCK

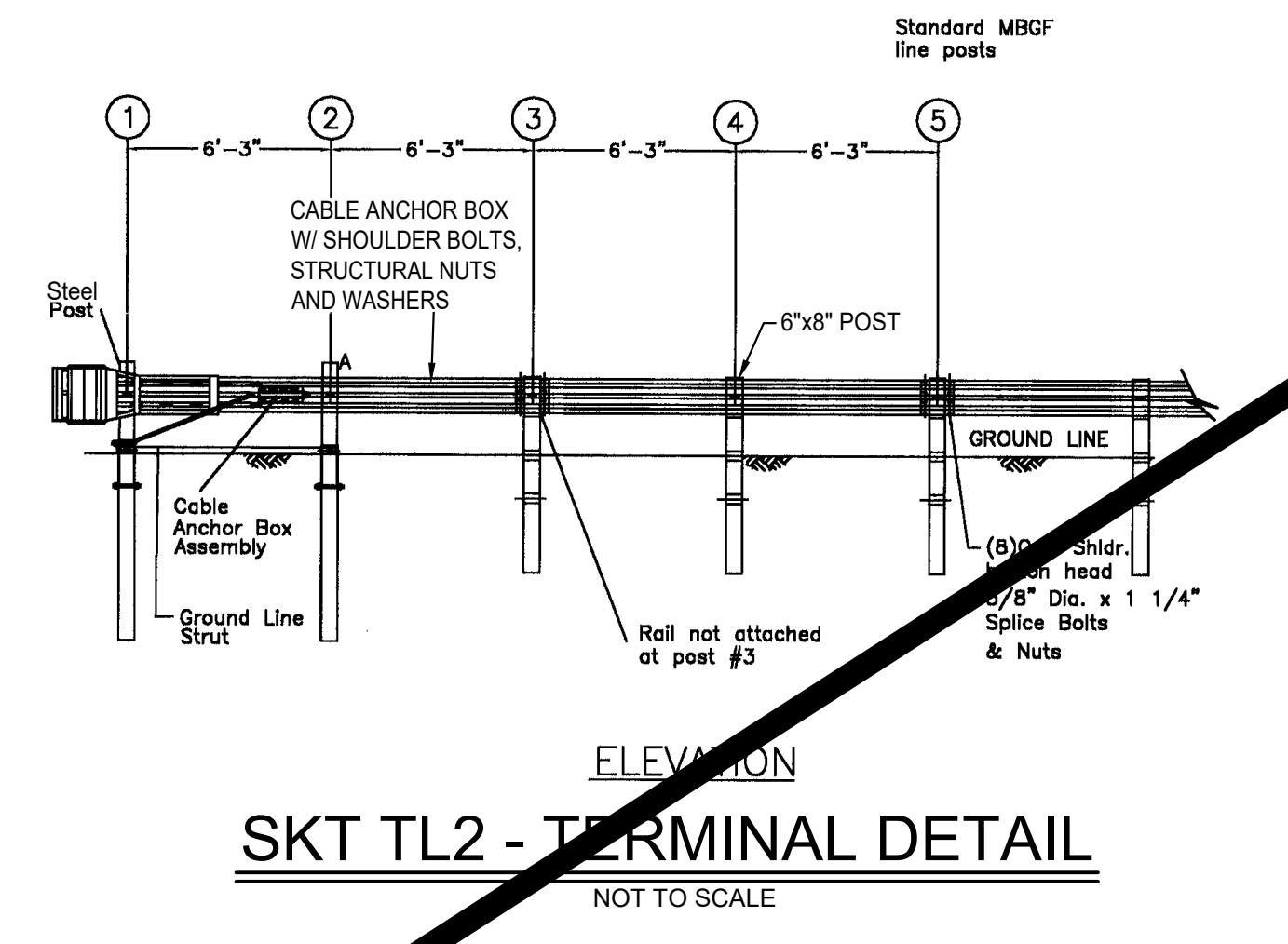


ELEVATION CONC. POST WITHOUT SPACER BLOCK

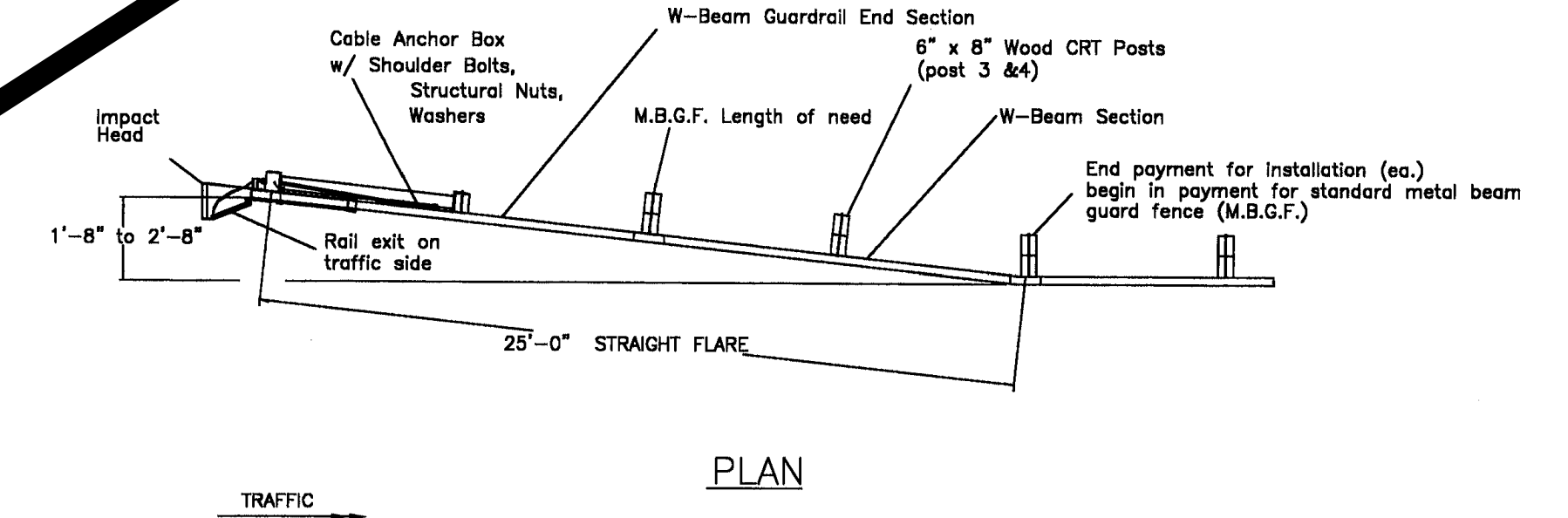
NOTE:
PROVIDE A MINIMUM CLEAR DISTANCE OF 3 FEET BETWEEN GUARDRAIL POSTS AND WATER MAINS 3-INCH DIAMETER AND LARGER.



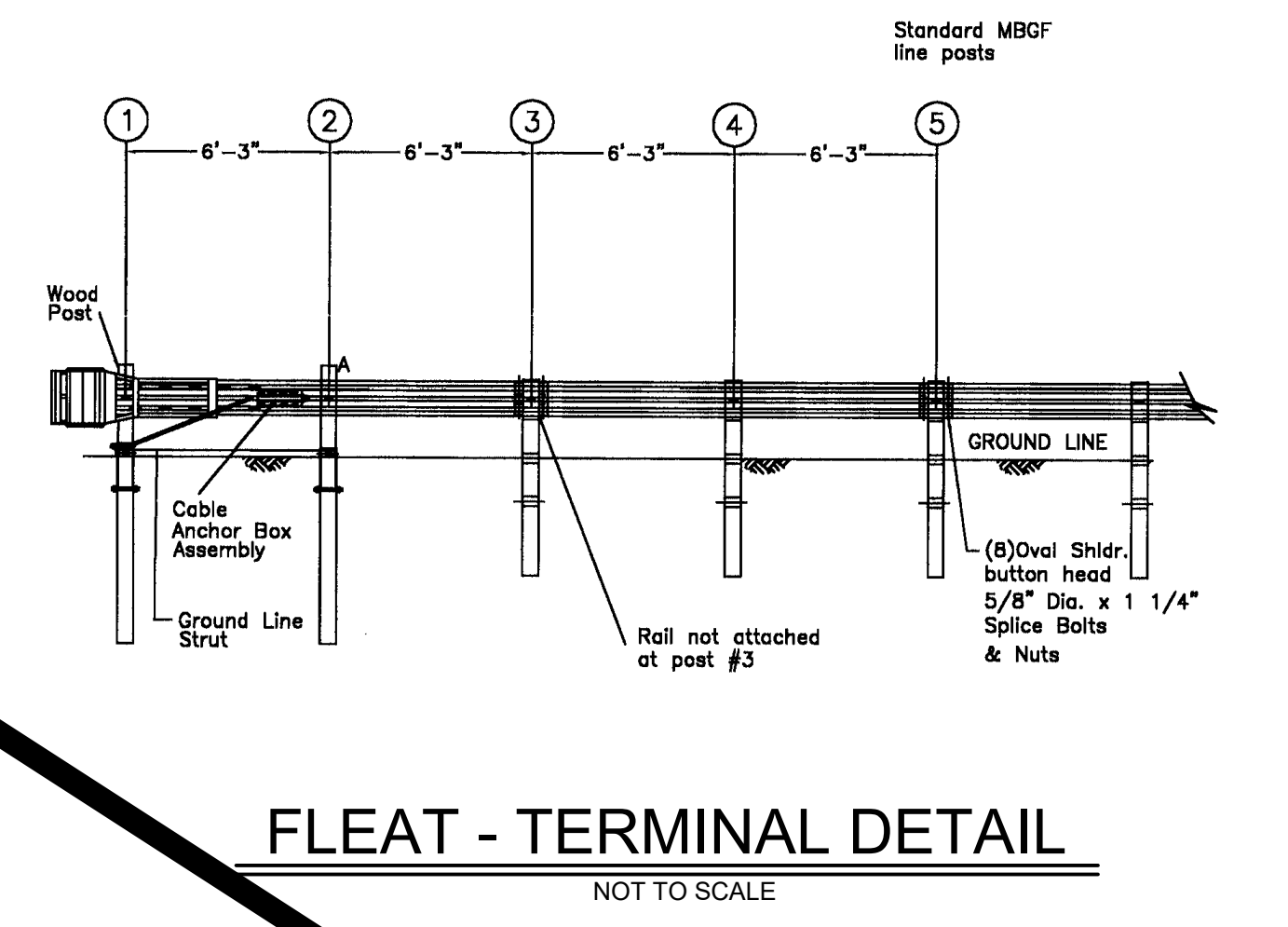
TYPICAL SECTION
10: 1/4" = 1'-0"



ELEVATION SKT TL2 - TERMINAL DETAIL
NOT TO SCALE

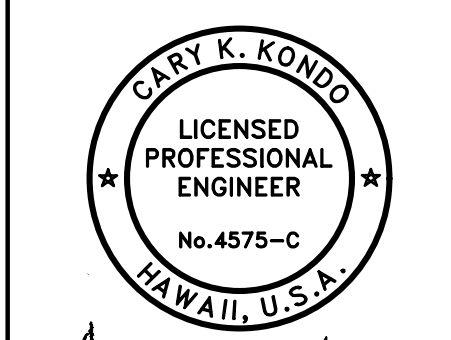


PLAN SKT TL2 - TERMINAL DETAIL



ELEVATION FLEAT - TERMINAL DETAIL
NOT TO SCALE

TMK: 4 - 6 - 011:003



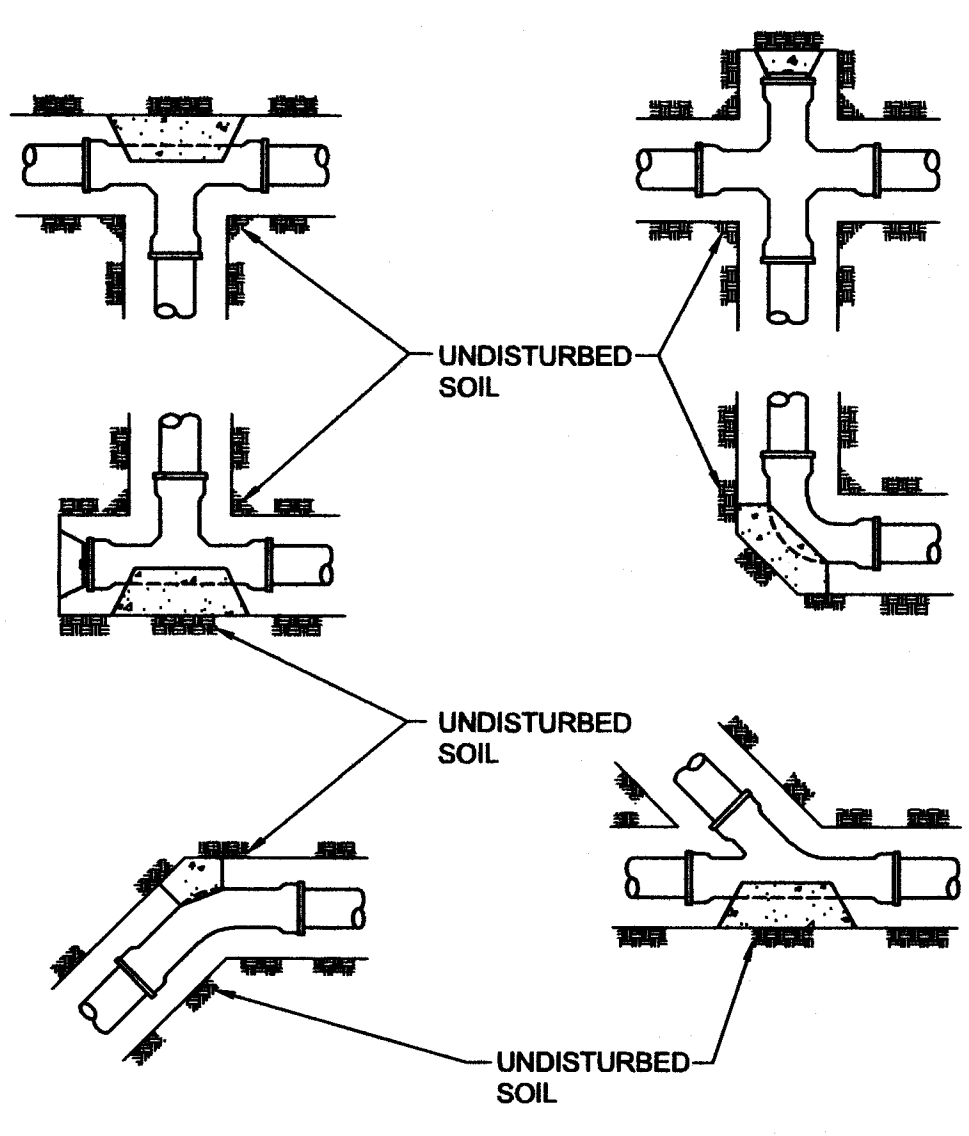
APPROVED: Cary K. Kondo

DRAWING NO. C-27

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. APRIL 30, 2024 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE ILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII METAL GUARDRAIL DETAILS			
APPROVED:			
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)		DATE	
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI		DATE	
FILE	POCKET	FOLDER	NO.

1/27/2023 3:45:07 PM
 ILUA-KAPA'A HOMESTEADS TANK (2004740100) (KAPAHU TANK) (CAD) SHEETS CONSTRUCTION PLAN-CK-C-27 METAL GUARDRAIL DETAILS.DWG
 HALF SIZE TRIMLINE FOR 11" x 17"



NOTE:
REFER TO HORIZONTAL THRUST BLOCK SCHEDULE FOR THE SIZE OF REACTION BLOCKS. REACTION BLOCKS SHALL BEAR AGAINST UNDISTURBED SOIL. CONCRETE SHALL BE DWS 2500.

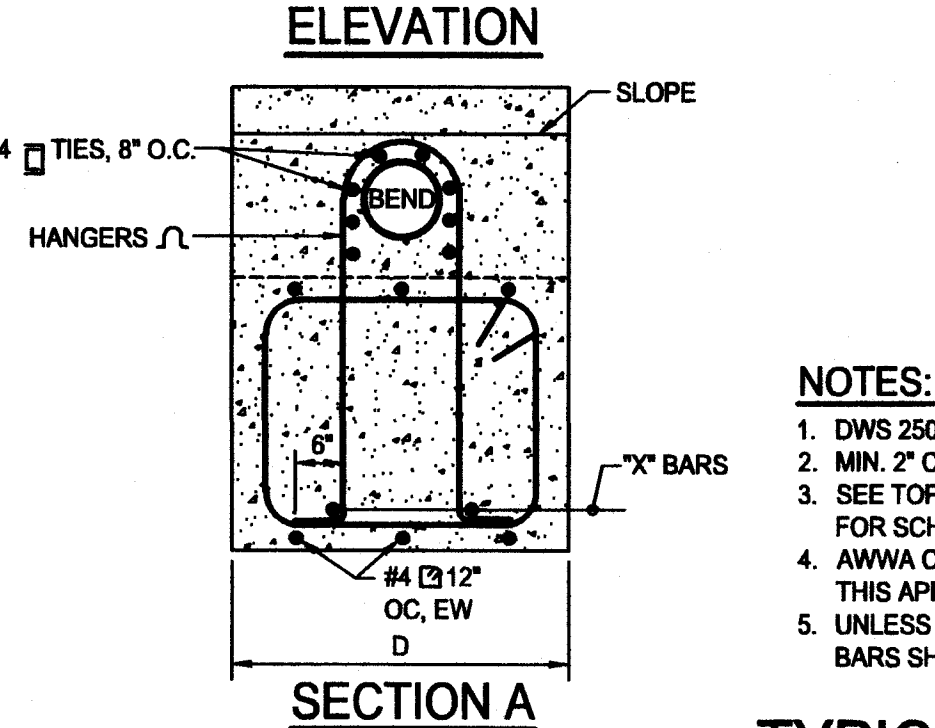
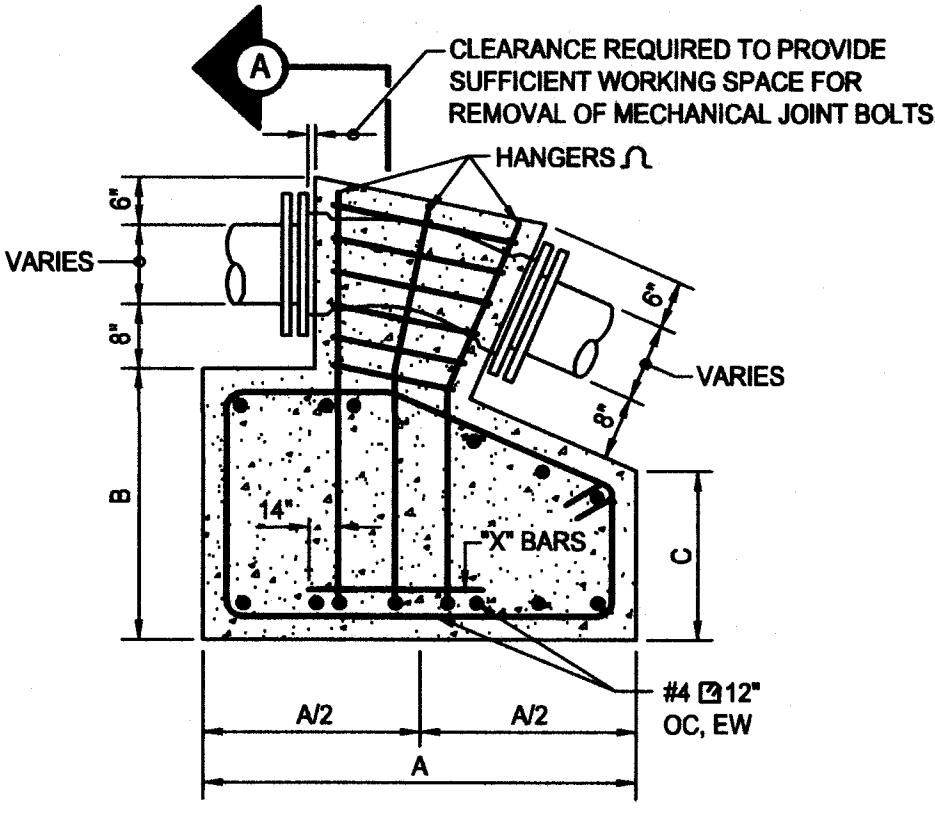
PIPE SIZE	MINIMUM BEARING AREAS (SQ. FT.) FOR HORIZONTAL THRUST BLOCKS																										
	PRESSURE 250 PSI									PRESSURE 200 PSI									PRESSURE 150 PSI								
	TYPE OF SOIL CONDITION									TYPE OF SOIL CONDITION									TYPE OF SOIL CONDITION								
BEND	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H			
4"	6.5	3.5	2.0	1.5	1.0	1.0	1.0	1.0	6.5	3.5	2.0	1.5	1.0	1.0	1.0	1.0	6.5	3.5	2.0	1.5	1.0	1.0	1.0	1.0			
6"	14.0	7.0	5.0	3.5	2.5	2.0	1.5	1.0	14.0	7.0	5.0	3.5	2.5	2.0	1.5	1.0	14.0	7.0	5.0	3.5	2.5	2.0	1.5	1.0			
8"	25.0	12.5	8.5	6.5	4.0	3.0	2.5	2.0	25.0	12.5	8.5	6.5	4.0	3.0	2.5	2.0	25.0	12.5	8.5	6.5	4.0	3.0	2.5	2.0			
12"	56.5	28.5	19.0	14.0	9.5	7.0	5.5	4.5	56.5	28.5	19.0	14.0	9.5	7.0	5.5	4.5	56.5	28.5	19.0	14.0	9.5	7.0	5.5	4.5			
16"	101.0	50.5	34.0	25.5	17.0	13.0	10.5	8.5	101.0	50.5	34.0	25.5	17.0	13.0	10.5	8.5	101.0	50.5	34.0	25.5	17.0	13.0	10.5	8.5			

NOTE:
1. ACTUAL FIELD CONDITIONS AND SOIL TYPE SHALL BE VERIFIED IN THE FIELD. THE SCHEDULE, DIMENSIONS AND DETAILS AS SHOWN ARE PROVIDED AS A GUIDE ONLY. THE CONTRACTOR SHALL SUBMIT THE FINAL DESIGN AND DETAILS TO THE MANAGER FOR REVIEW AND APPROVAL AFTER FIELD VERIFICATION AND PRIOR TO INSTALLATION.

HORIZONTAL THRUST BLOCK SCHEDULE

HORIZONTAL REACTION BLOCK FOR WATER MAINS

NOT TO SCALE



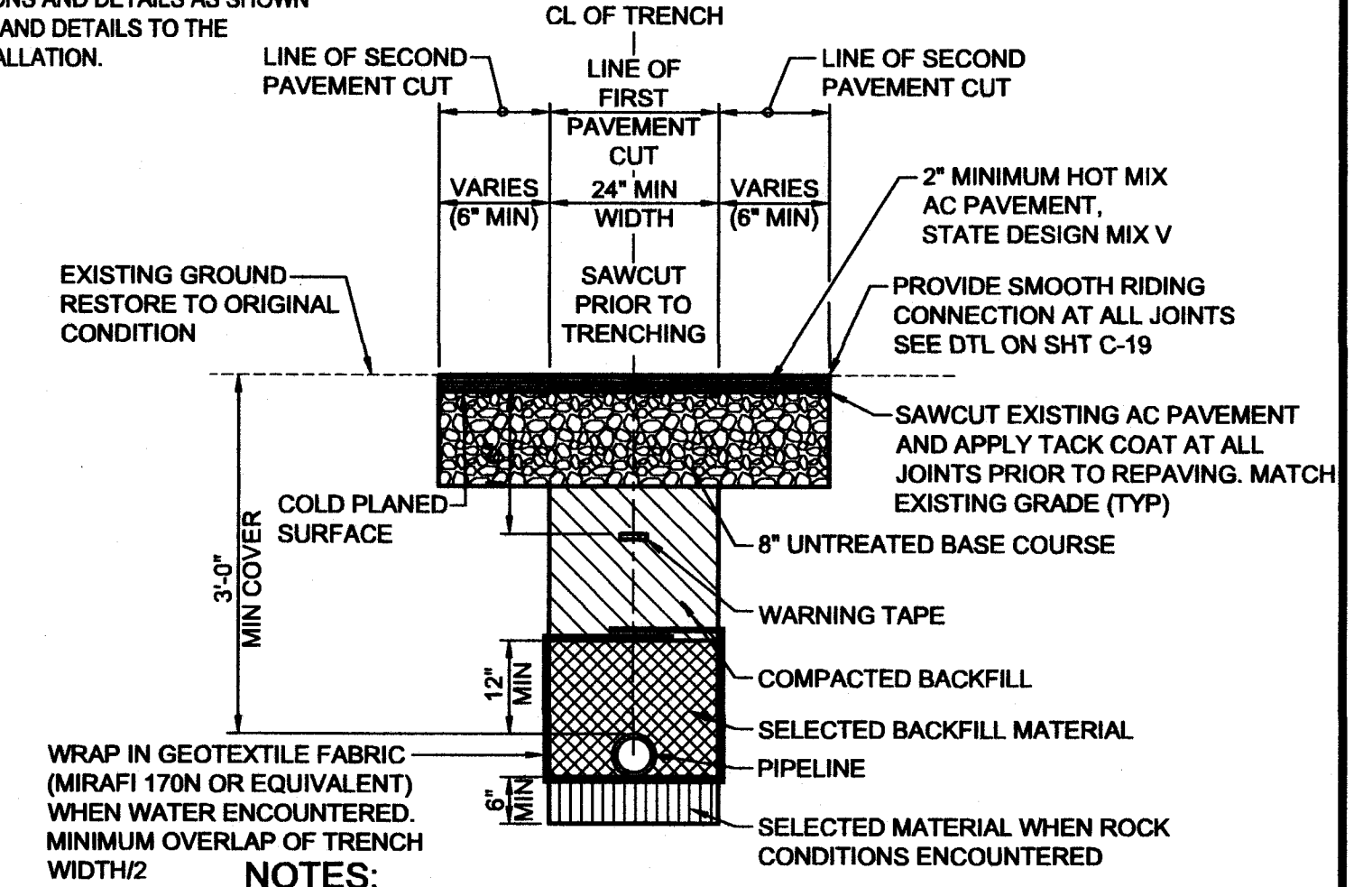
TYPICAL THRUST BLOCK AT VERTICAL BENDS

NOT TO SCALE

- NOTES:**
- DWS 2500 CONCRETE.
 - MIN. 2" COVER OVER ALL REINFORCEMENT.
 - SEE TOP VERTICAL THRUST BLOCK SCHEDULE FOR SCHEDULE AND DIMENSIONS.
 - AWWA C153 FITTINGS NOT ACCEPTABLE FOR THIS APPLICATION.
 - UNLESS OTHERWISE NOTED, ALL REINFORCING BARS SHALL BE ASTM A615, GRADE 60.

PIPE SIZE	TOP VERTICAL THRUST BLOCK SCHEDULE																										
	PRESSURE 250 PSI									PRESSURE 200 PSI									PRESSURE 150 PSI								
	CONCRETE BLOCK									CONCRETE BLOCK									CONCRETE BLOCK								
BEND	A	B	C	D	HANGER	"X" BAR	A	B	C	D	HANGER	"X" BAR	A	B	C	D	HANGER	"X" BAR									
4"	4'-6"	4'-0"	4'-0"	2'-6"	(2) #4	(2) #4	4'-6"	4'-0"	4'-0"	2'-6"	(2) #4	(2) #4	4'-6"	4'-0"	4'-0"	2'-6"	(2) #4	(2) #4									
6"	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5									
8"	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5	4'-6"	4'-3"	4'-3"	4'-6"	(2) #5	(2) #5									
12"	6'-6"	7'-0"	7'-0"	6'-6"	(3) #7	(2) #7	6'-6"	6'-3"	6'-3"	5'-6"	(3) #7	(2) #7	6'-6"	6'-0"	6'-0"	4'-6"	(2) #7	(2) #7									

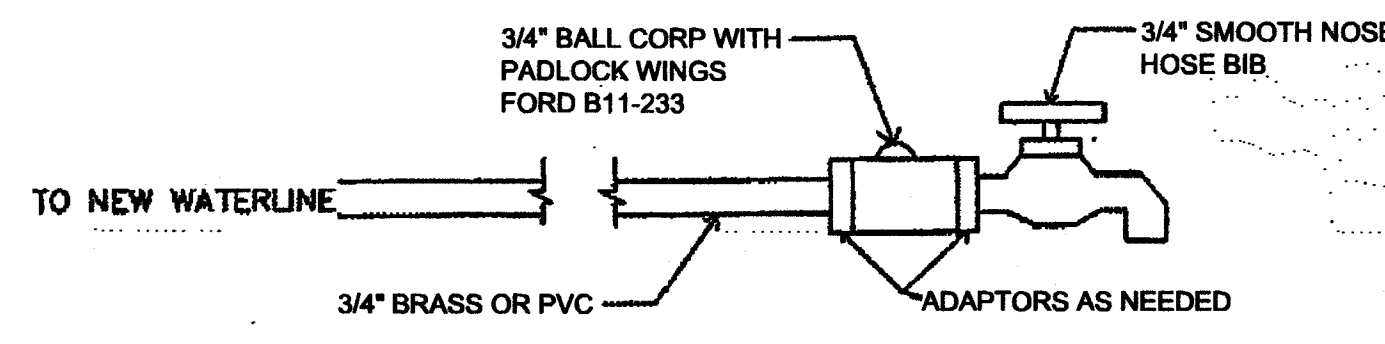
- NOTE:**
- ACTUAL FIELD CONDITIONS SHALL BE VERIFIED IN THE FIELD. THE SCHEDULE, DIMENSIONS AND DETAILS AS SHOWN ARE PROVIDED AS A GUIDE ONLY. THE CONTRACTOR SHALL SUBMIT THE FINAL DESIGN AND DETAILS TO THE MANAGER FOR REVIEW AND APPROVAL AFTER FIELD VERIFICATION AND PRIOR TO INSTALLATION.
 - SCHEDULE IS NOT APPLICABLE TO BLOCKS FULLY OR PARTLY SUBMERGED IN WATER.
 - SAFETY FACTOR 1.5 BASED ON PIPE LOCATION MINIMUM 2' BELOW GROUND.



TYPICAL TRENCH AND PAVEMENT RESTORATION SECTION

NOT TO SCALE

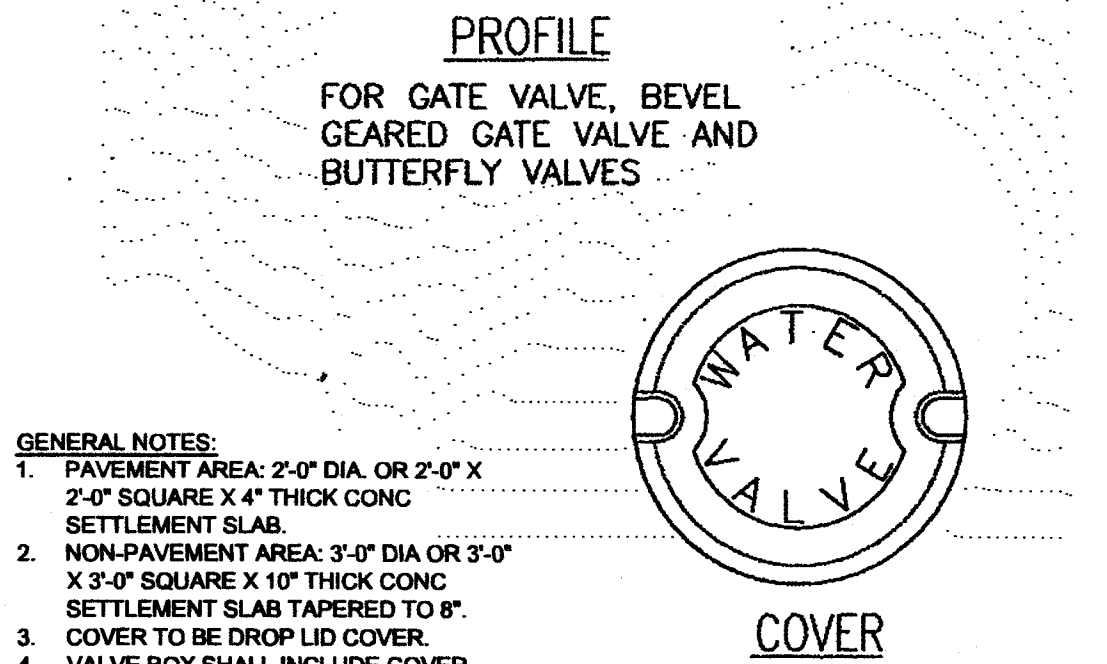
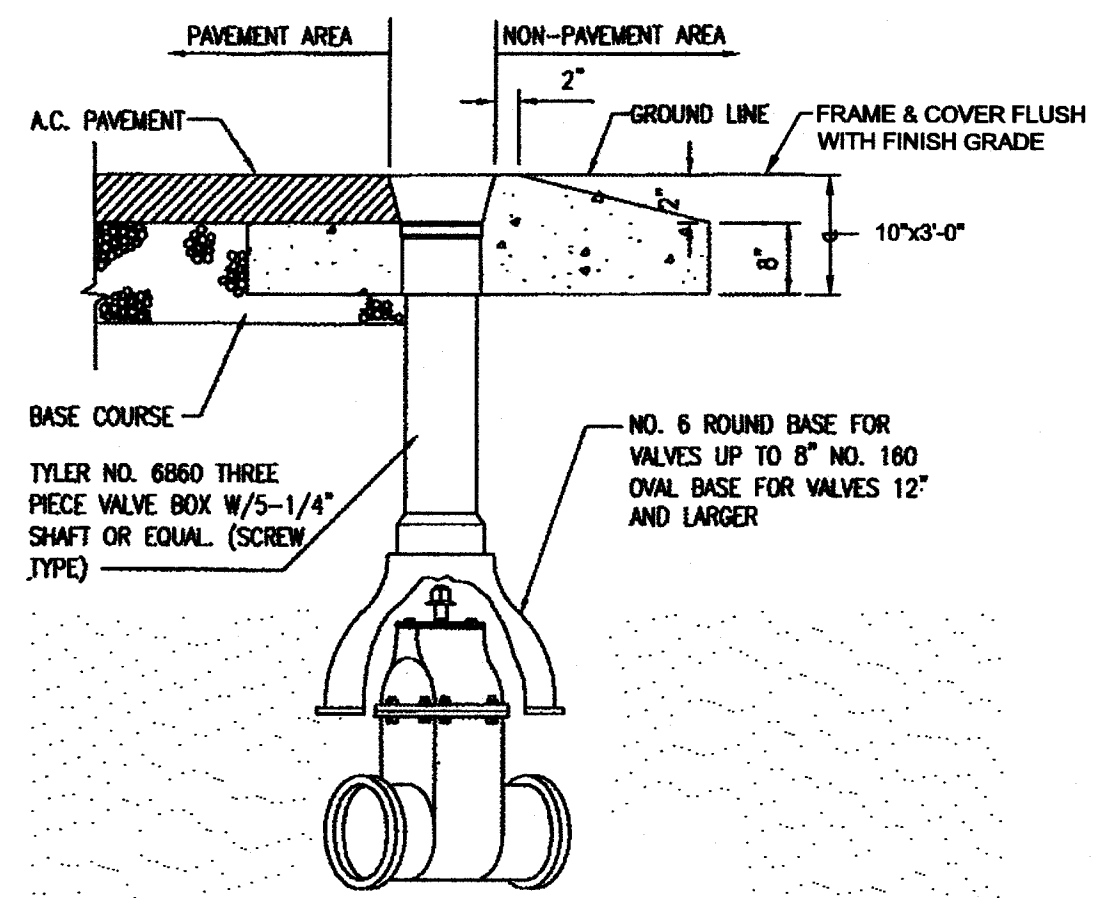
- NOTES:**
- AC PAVEMENT AND BASE THICKNESS SHALL MATCH EXISTING OR SHALL BE AS STATED, WHICHEVER IS GREATER.
 - FOR LIMITS OF PAVEMENT RESTORATION, SEE PAVEMENT RESTORATION PLANS, SHEETS C-24.



REQUIRED DEDICATED SAMPLING POINTS

NOT TO SCALE

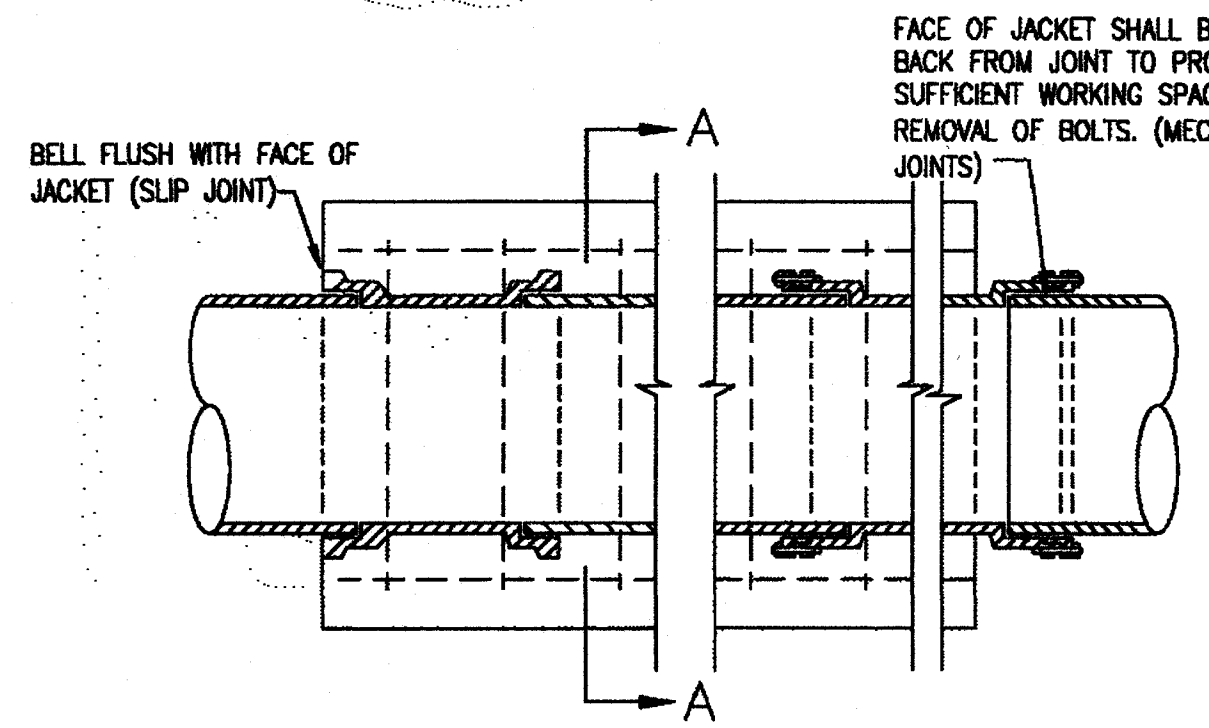
NOTE:
SHALL BE USED DURING DISINFECTION RELATED TO WATER NOTES AND PLACED APPROXIMATELY EVERY 1000 FEET OR AS DEEMED BY MANAGER.



CAST IRON VALVE BOX DETAILS

NOT TO SCALE

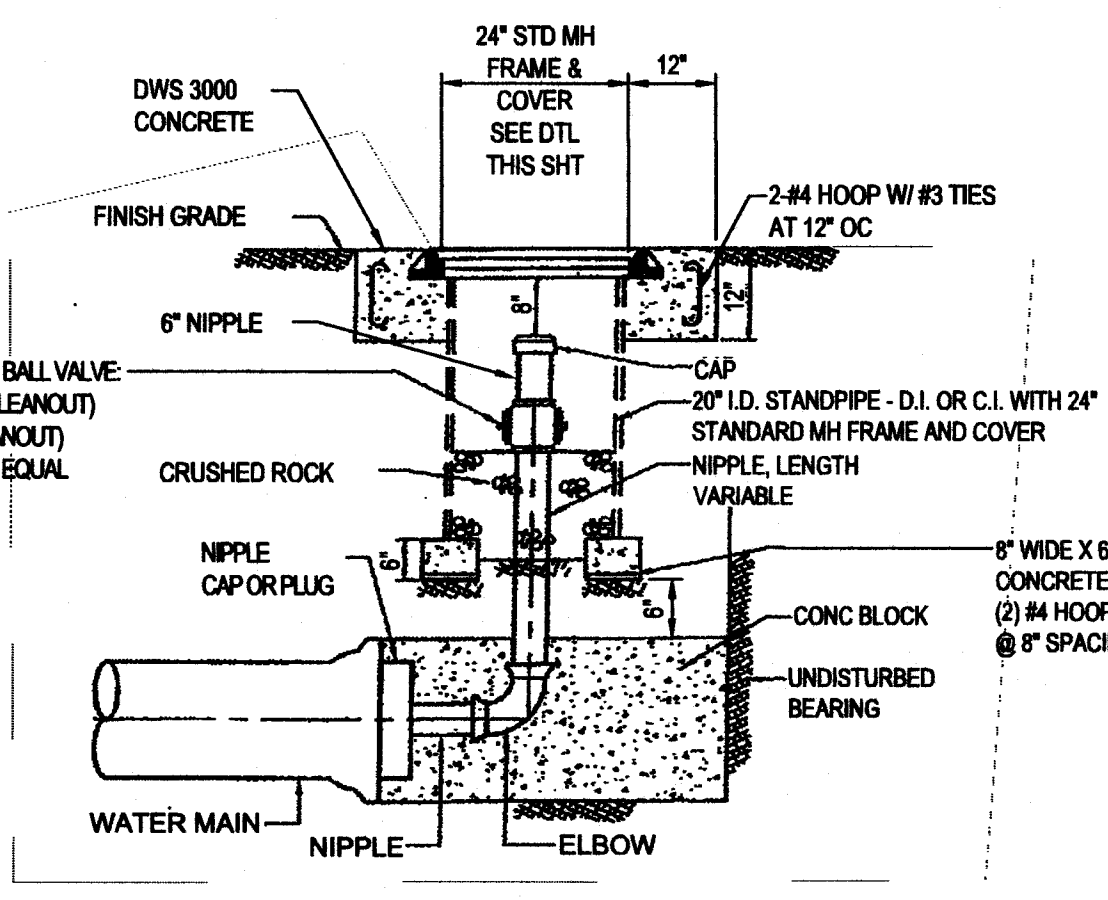
- GENERAL NOTES:**
- PAVEMENT AREA: 2'-0" DIA. OR 2'-0" X 2'-0" SQUARE X 4" THICK CONG SETTLEMENT SLAB.
 - NON-PAVEMENT AREA: 3'-0" DIA OR 3'-0" X 3'-0" SQUARE X 10" THICK CONG SETTLEMENT SLAB TAPERED TO 8".
 - COVER TO BE DROP LID COVER.
 - VALVE BOX SHALL INCLUDE COVER.



REINFORCED CONCRETE JACKET DETAIL

NOT TO SCALE

- NOTE:**
- WHEREVER CONSTRUCTION JOINTS ARE REQUIRED, DWS APPROVED 6" RUBBER OR NEOPRENE WATERSTOPS OR CONCRETE BONDING AGENT APPROVED BY THE MANAGER SHALL BE INSTALLED.
 - NO CONCRETE JACKETING OF PVC PIPE OR EXISTING AC PIPE WILL BE ALLOWED.
 - CONCRETE SHALL BE DWS 2500 EXCEPT UNDER RESERVOIR FLOOR SLABS WHERE IT SHALL BE DWS 3500.
 - REINFORCING DESIGN APPLICABLE FOR STRAIGHT PIPE JACKETED SEGMENT. FOR SIPHON OR OFFSET, SUBMIT SHOP DRAWINGS.
 - PRECAST JACKETED WATERLINE SEGMENT SHALL BE DESIGNED AND STAMPED BY A LICENSED STRUCTURAL ENGINEER AND APPROVED BY MANAGER.

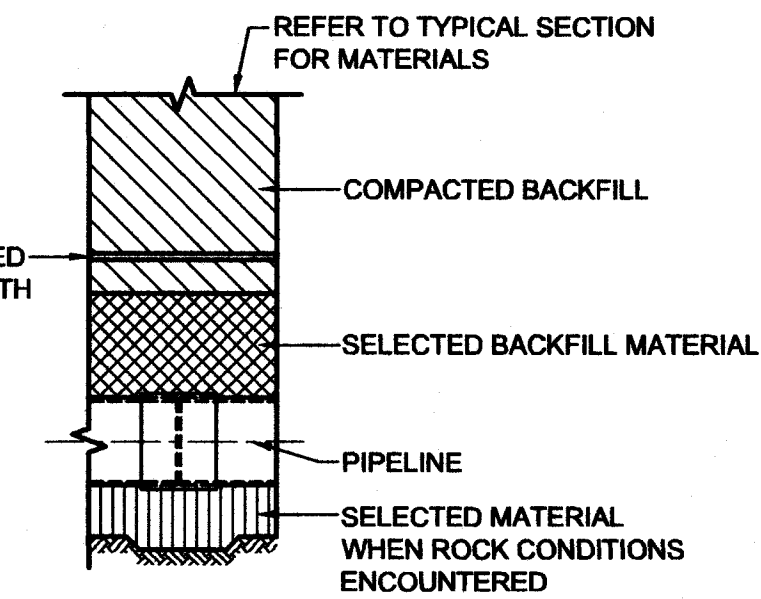


- NOTES:**
- CLEANOUT SHALL INCLUDE THE CAP, PLUG, AND APPURTENANCES AS SHOWN.
 - ALL CLEANOUTS INSTALLATION SHALL BE BRASS OR COPPER.

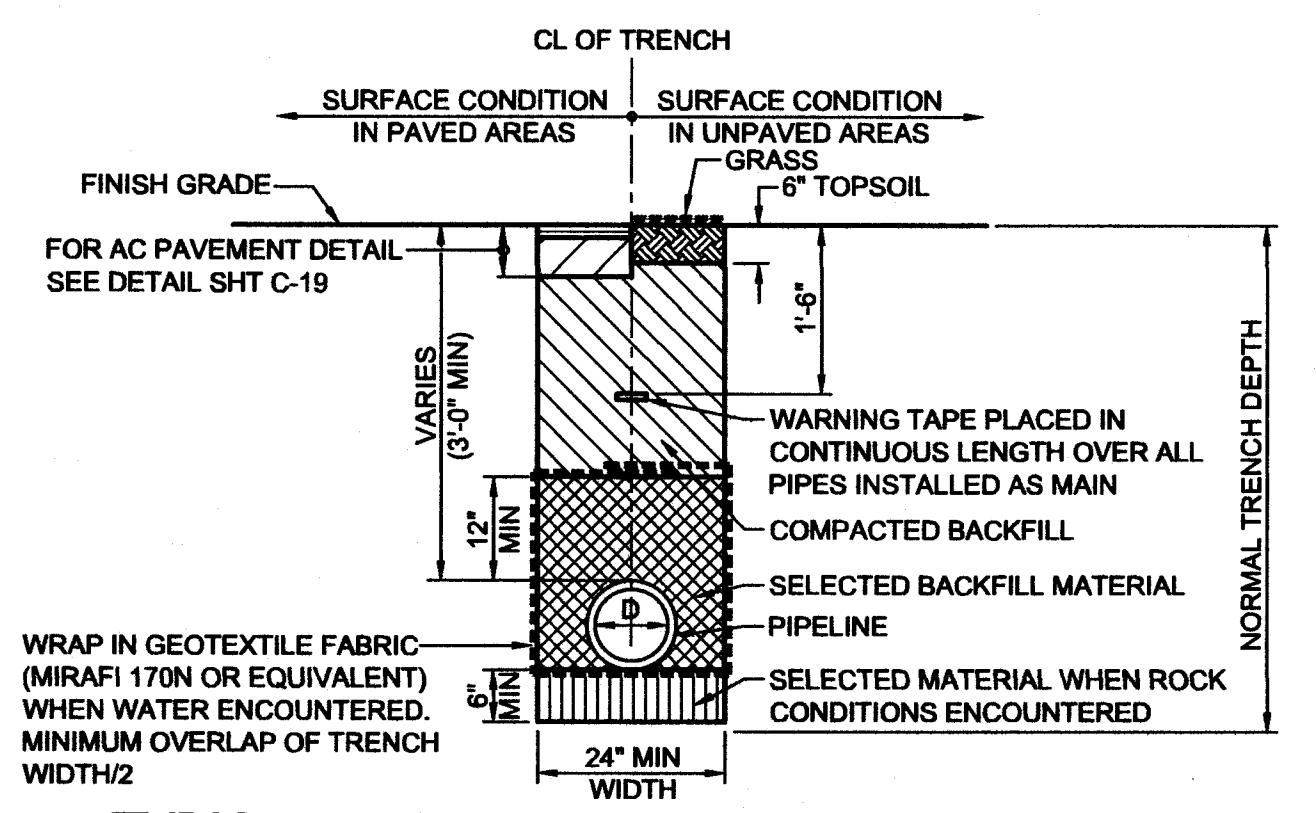
PIPE SIZE	SCHEDULE OF CLEANOUT	CLEANOUT SIZE	TYPE OF PIPE
8" & SMALLER	2 1/2"	4"	BRASS
12" TO 20"	4"	4"	BRASS OR COPPER

CLEANOUT AND RISER

NOT TO SCALE



DETAIL AT JOINT



TYPICAL SECTION - AC PAVING OR GRASS

NOT TO SCALE

WATER LINE TRENCH DETAIL

TMK: 4-6-011:003

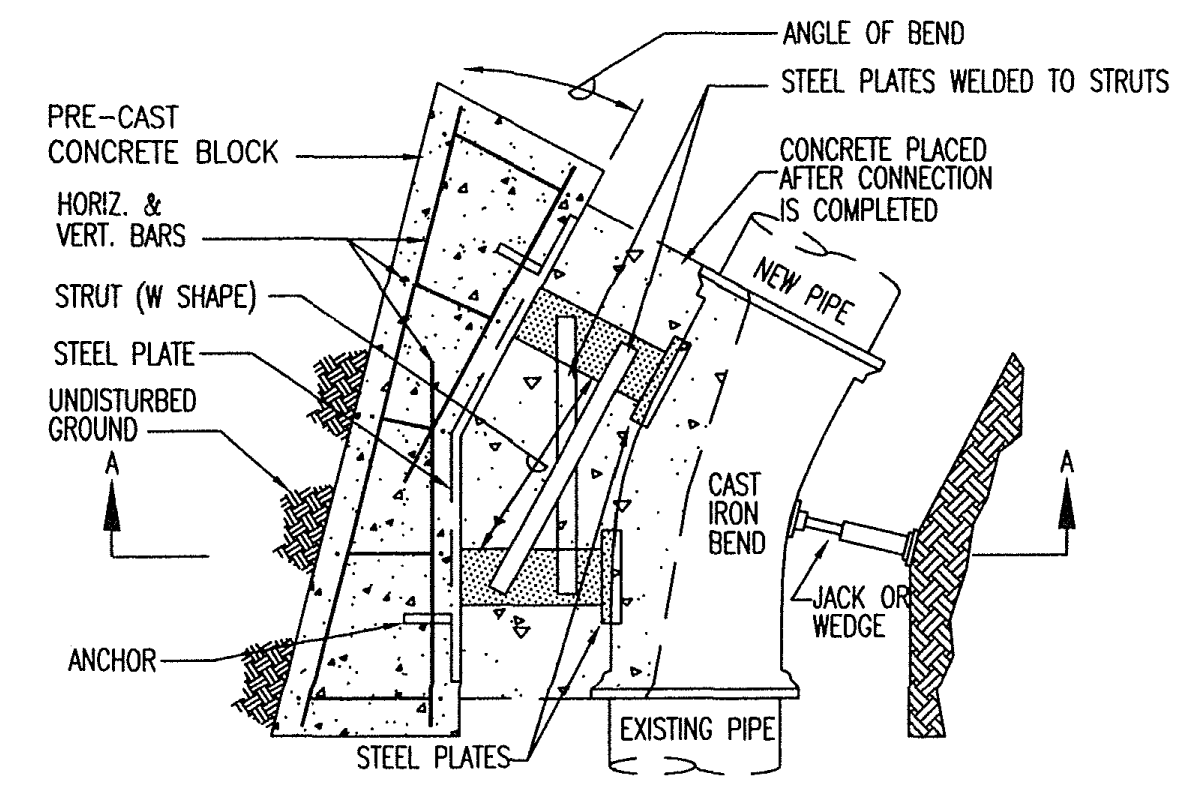


Cary K. Kondo
APPROVED: _____ DATE: _____

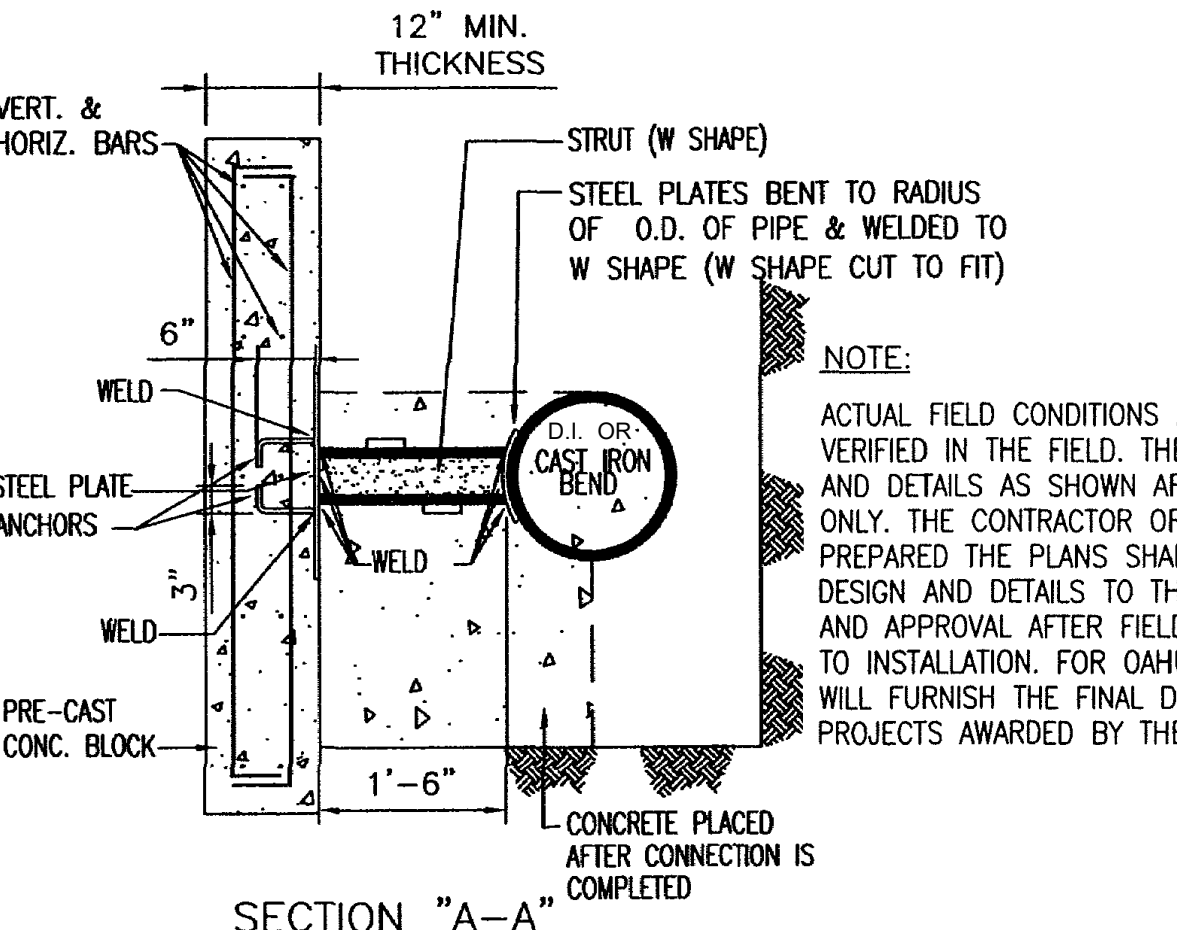
DRAWING NO. C-28

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII WATER DETAILS-1			
APPROVED: _____			DATE: _____
APPROVED: _____			DATE: _____

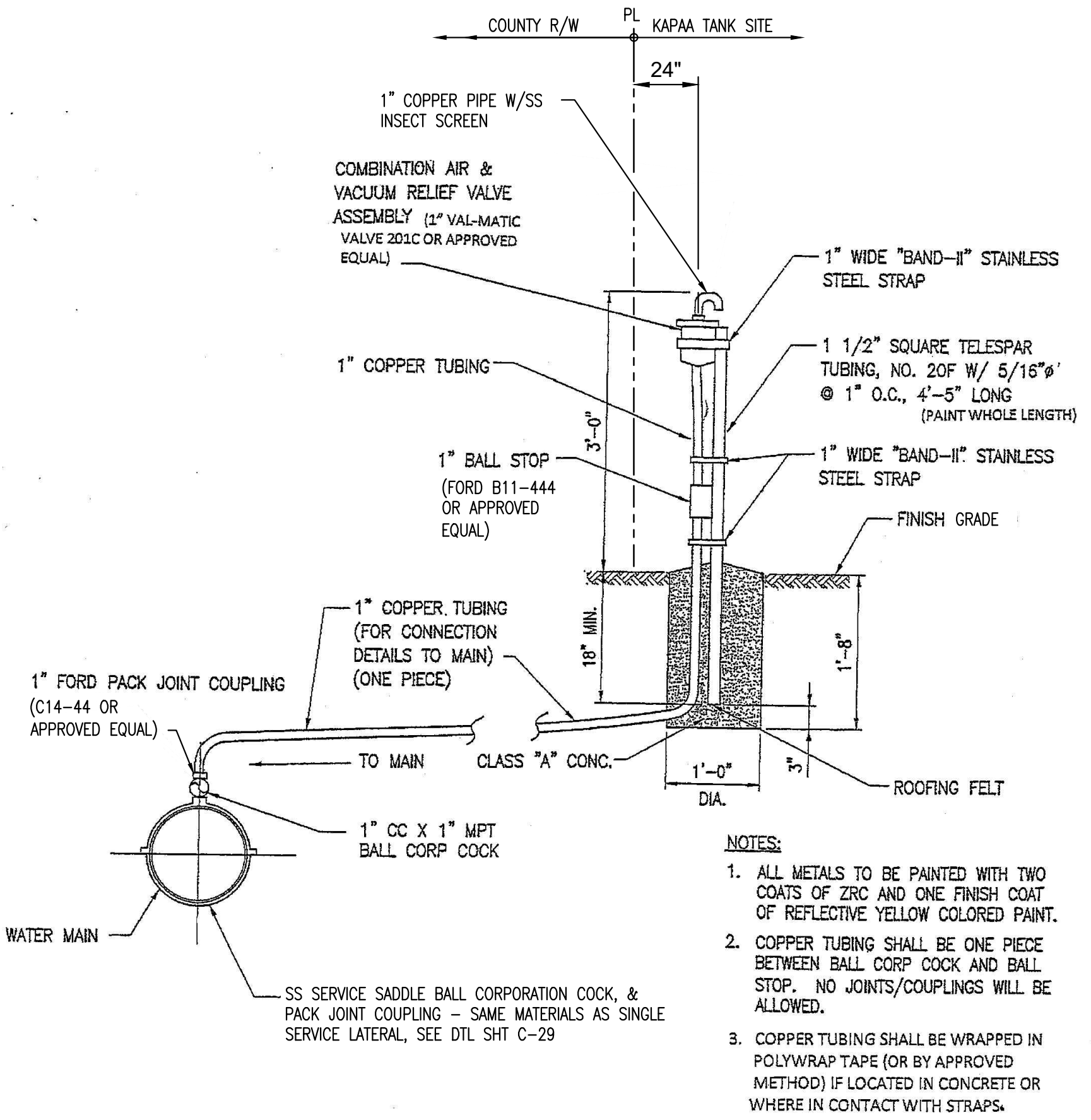


PLAN



SECTION "A-A"

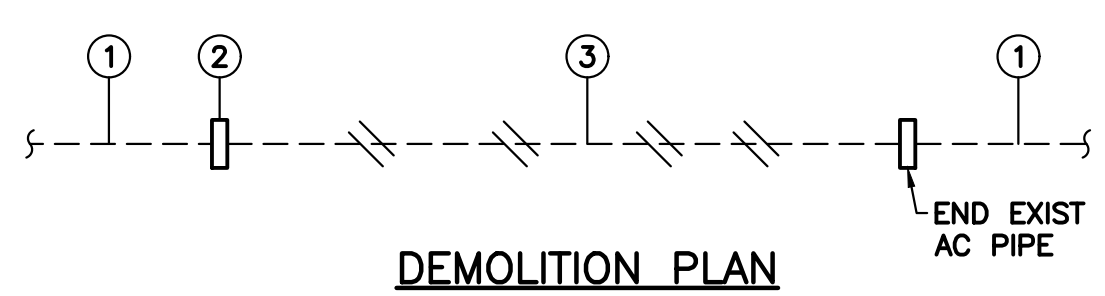
TYPICAL THRUST BLOCK WITH STRUCTURAL STRUT FOR CONNECTIONS
NOT TO SCALE



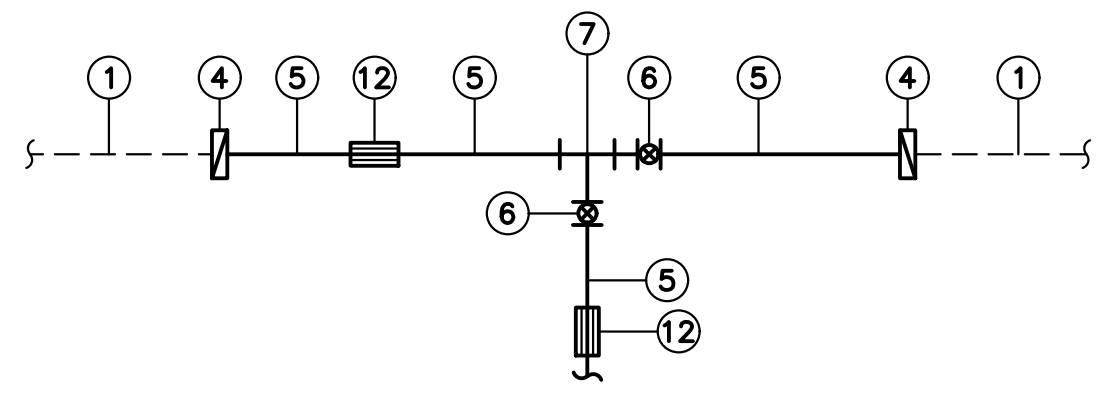
NOTES:

1. ALL METALS TO BE PAINTED WITH TWO COATS OF ZRC AND ONE FINISH COAT OF REFLECTIVE YELLOW COLORED PAINT.
2. COPPER TUBING SHALL BE ONE PIECE BETWEEN BALL CORP COCK AND BALL STOP. NO JOINTS/COUPLINGS WILL BE ALLOWED.
3. COPPER TUBING SHALL BE WRAPPED IN POLYWRAP TAPE (OR BY APPROVED METHOD) IF LOCATED IN CONCRETE OR WHERE IN CONTACT WITH STRAPS.

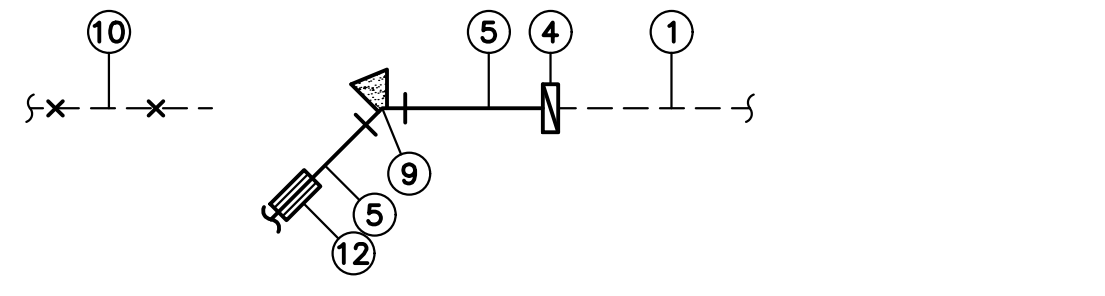
ARV PIPE STAND DETAIL
NOT TO SCALE



DEMOLITION PLAN



NEW TEE INSTALLATION



NEW FITTING INSTALLATION

NOTES:

1. ALL MJ FITTINGS SHALL BE PROVIDED WITH RETAINER GLANDS.
2. SEE SHTS C-5, C-8, C-9, AND C-19 FOR SIZES
3. THE NEW DIP SHALL BE CONNECTED TO AC PIPE AT THE NEAREST AC PIPE JOINT. AC PIPE TO BE REMOVED BY ENTIRE LENGTH(S) TO FACILITATE THE CONNECTION. CUTTING OF AC PIPE IS PROHIBITED.
4. THE CONTRACTOR SHALL FOLLOW ALL OSHA, HIOSH, AND FEDERAL REGULATIONS IN HANDLING AND DISPOSAL OF AC PIPE. DISPOSAL OF AC PIPE SHALL BE AT AN APPROVED ASBESTOS MATERIAL DISPOSAL SITE.

SCHEMATIC AC PIPE CONNECTION DETAILS
NOT TO SCALE

NOTES:

1. EXISTING PIPE TO REMAIN
 2. REMOVE AC PIPE COUPLING PRESERVE END OF EXISTING AC PIPE TO REMAIN
 3. REMOVE EXISTING AC PIPE SECTION AT NEAREST PIPE JOINT 13'± MIN
 4. TRANSITION COUPLING A/CMEXDIP 14" LONG ROMAC 501 OR APPROVED EQUAL*
 5. DI NIPPLE, CL 52 LENGTH TO SUIT (2' MIN)
 6. GATE VALVE, MJ AND VALVE BOX
 7. DI TEE, MJ AND CONCRETE BLOCK WITH STRUCTURAL STRUT, SEE SHT S-17, DETAIL A
 9. DI FITTING, MJ AND CONCRETE BLOCK WITH STRUCTURAL STRUT, SEE SHT S-17, DETAIL B
 10. EXISTING AC PIPE TO BE REMOVED
 12. DI SOLID BODY SLEEVE, (12" MIN)
- *CONNECT AT NEAREST AC COLLAR

NOTES:

1. CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE STATE DEPARTMENT OF HEALTH INDOOR AND RADIOLOGICAL HEALTH BRANCH WHEN DISPOSING ANY HAZARDOUS MATERIALS.
2. DISPOSAL OF HAZARDOUS WASTE IS NOT PERMITTED AT KEKAHA LANDFILL.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR THE HANDLING, REMOVAL FROM THE SITE, AND DISPOSAL OF ANY HAZARDOUS MATERIAL ENCOUNTERED AT THE SITE.
4. SEE SPECIAL PROVISION SECTION SP-4 REMOVAL AND DISPOSAL OF EXISTING ASBESTOS-CEMENT WATERLINE FOR REMOVAL AND DISPOSAL PROCEDURES.
5. FITTING LOCATIONS MAY BE ADJUSTED TO FIT WITHIN THE PIPE SEGMENT REMOVED WITH THE ENGINEER'S APPROVAL.
6. SEE PLAN FOR SIZE OF PIPE AND FITTINGS.

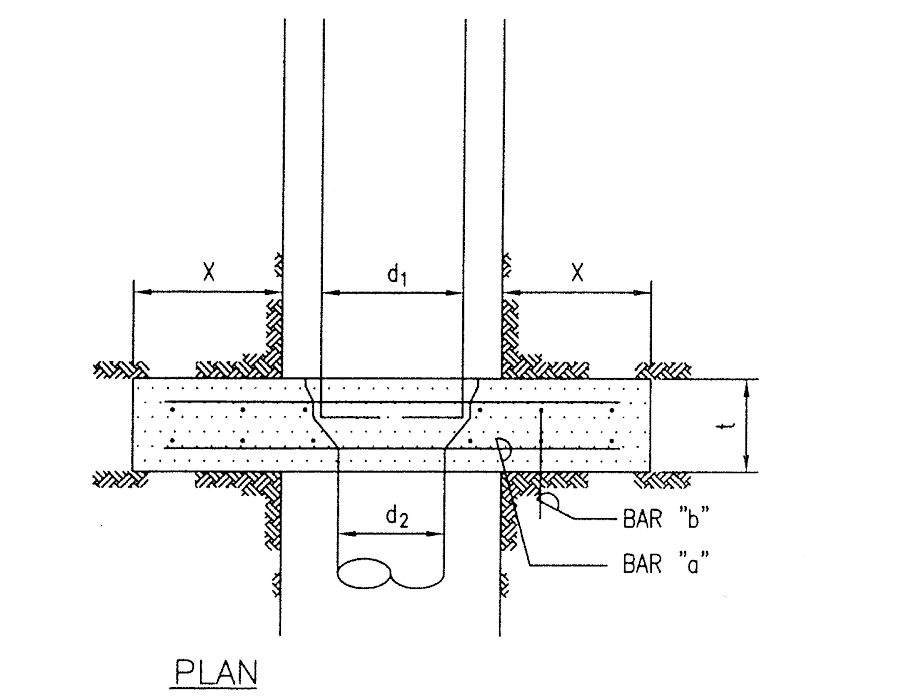
WATER PRESSURE 250 PSI														TYPE OF SOIL CONDITION				
D1	D2	A		B		C		D		E		F		G		Bar "a"	Bar "b"	
PIPE SIZE (in)	PIPE SIZE (in)	Y (ft)	X (ft)	Y (ft)	X (ft)	Y (ft)	X (ft)	Y (ft)	X (ft)	Y (ft)	X (ft)	Y (ft)	X (ft)	Y (ft)	X (ft)	t (in)	Bar "a" Min.	Bar "b" Min.
4	3	2.00	2.00	2.00	2.50	2.00	2.50	2.00	2.50	2.00	2.50	2.00	2.50	2.00	2.50	5.00	#4@6"	#4@12"
6	4	2.25	3.00	2.25	3.00	2.25	3.00	2.25	3.00	2.25	3.00	2.25	3.00	2.25	3.00	7.00	#4@6"	#4@12"
8	6	2.75	3.50	2.50	3.50	2.50	3.25	2.50	3.25	2.50	3.25	2.50	3.25	2.50	3.25	9.00	#4@6"	#4@12"
12	4			2.75	4.33												#4@6"	#5@12"
12	6			2.75	3.87												#4@6"	#5@12"
12	10	4.75	6.25	3.50	4.00	2.75	3.50	2.75	3.50	2.75	3.50	2.75	3.50	2.75	3.50	12.00	#4@6"	#5@12"
16	12	6.00	7.75	4.25	5.25	3.50	4.50	3.00	3.75	2.75	3.50	3.00	3.75	3.00	3.75	16.00	#5@6"	#5@12"
18	16	6.50	8.25	4.75	5.75	3.75	4.75	3.25	4.25	2.75	3.50	3.25	4.25	3.25	4.25	17.00	#5@6"	#5@12"
20	18	7.00	8.75	5.00	6.25	4.00	5.25	3.50	4.50	3.00	3.75	3.25	4.25	3.25	4.25	18.00	#5@6"	#5@12"
24	20	8.50	10.75	6.00	7.75	5.00	6.50	4.25	5.50	3.50	4.50	3.75	4.75	3.75	4.75	22.00	#6@6"	#5@12"
30	24	9.75	12.25	7.00	9.50	5.75	7.25	5.00	6.25	4.00	5.25	4.25	5.50	4.25	5.50	24.00	#7@6"	#5@12"
36	30	12.00	15.00	8.50	11.75	7.00	8.75	6.00	7.75	5.00	6.25	4.75	6.00	4.75	6.00	30.00	#8@6"	#5@12"
42	30	14.75	18.50	10.50	13.50	8.50	10.75	7.50	9.50	6.00	7.50	5.25	6.75	5.25	6.75	36.00	#9@6"	#6@12"

TYPE OF SOIL CONDITION	LATERAL BEARING PRESSURE
A. SOFT CLAY: FINE LOOSE SAND	500 LBS. PER SQ. FT.
B. SAND AND CLAY: MIXED OR IN LAYERS; FINE CONFINED SAND	1000 LBS. PER SQ. FT.
C. HARD DRY CLAY	1500 LBS. PER SQ. FT.
D. COARSE SAND	2000 LBS. PER SQ. FT.
E. GRAVEL	3000 LBS. PER SQ. FT.
F. SOFT ROCK	4000 LBS. PER SQ. FT.
G. HARDPAN	5000 LBS. PER SQ. FT.

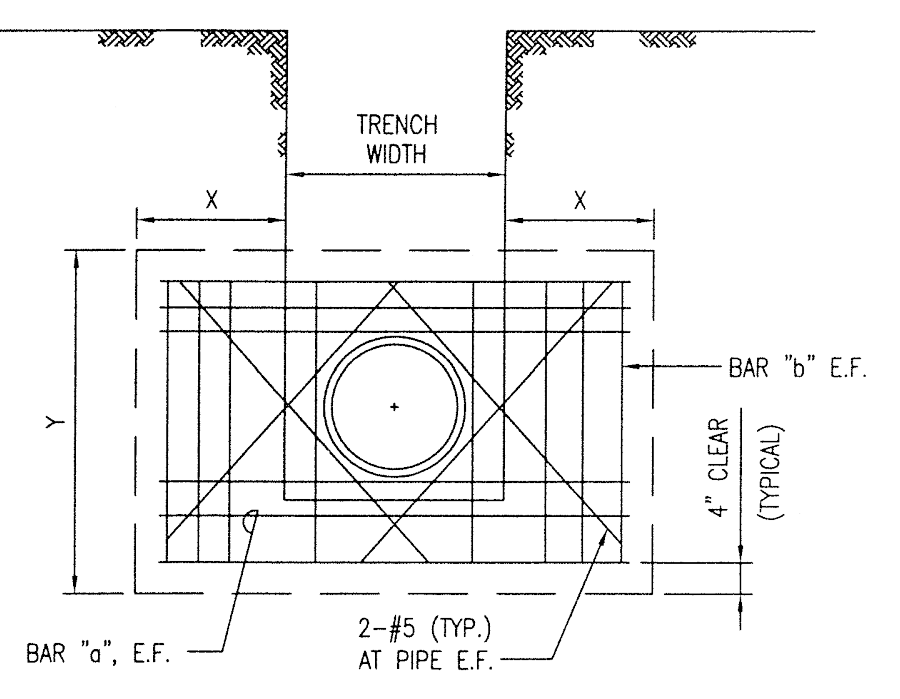
- NOTE:
1. ACTUAL FIELD CONDITIONS AND SOIL TYPE SHALL BE VERIFIED IN THE FIELD. THE SCHEDULE, DIMENSIONS AND DETAILS AS SHOWN ARE PROVIDED AS A GUIDE ONLY. THE CONTRACTOR SHALL SUBMIT THE FINAL DESIGN AND DETAILS TO THE MANAGER FOR REVIEW AND APPROVAL AFTER FIELD VERIFICATION AND PRIOR TO INSTALLATION.
 2. CONTRACTOR SHALL EVALUATE SOIL CONDITIONS AND VERIFY THAT THE ALLOWABLE PRESSURE PROVIDED IS APPLICABLE BEFORE USING TABLE ABOVE.

CONCRETE THRUST BEAM REDUCER - SCHEDULE

CONCRETE THRUST BEAM FOR REDUCER
NOT TO SCALE

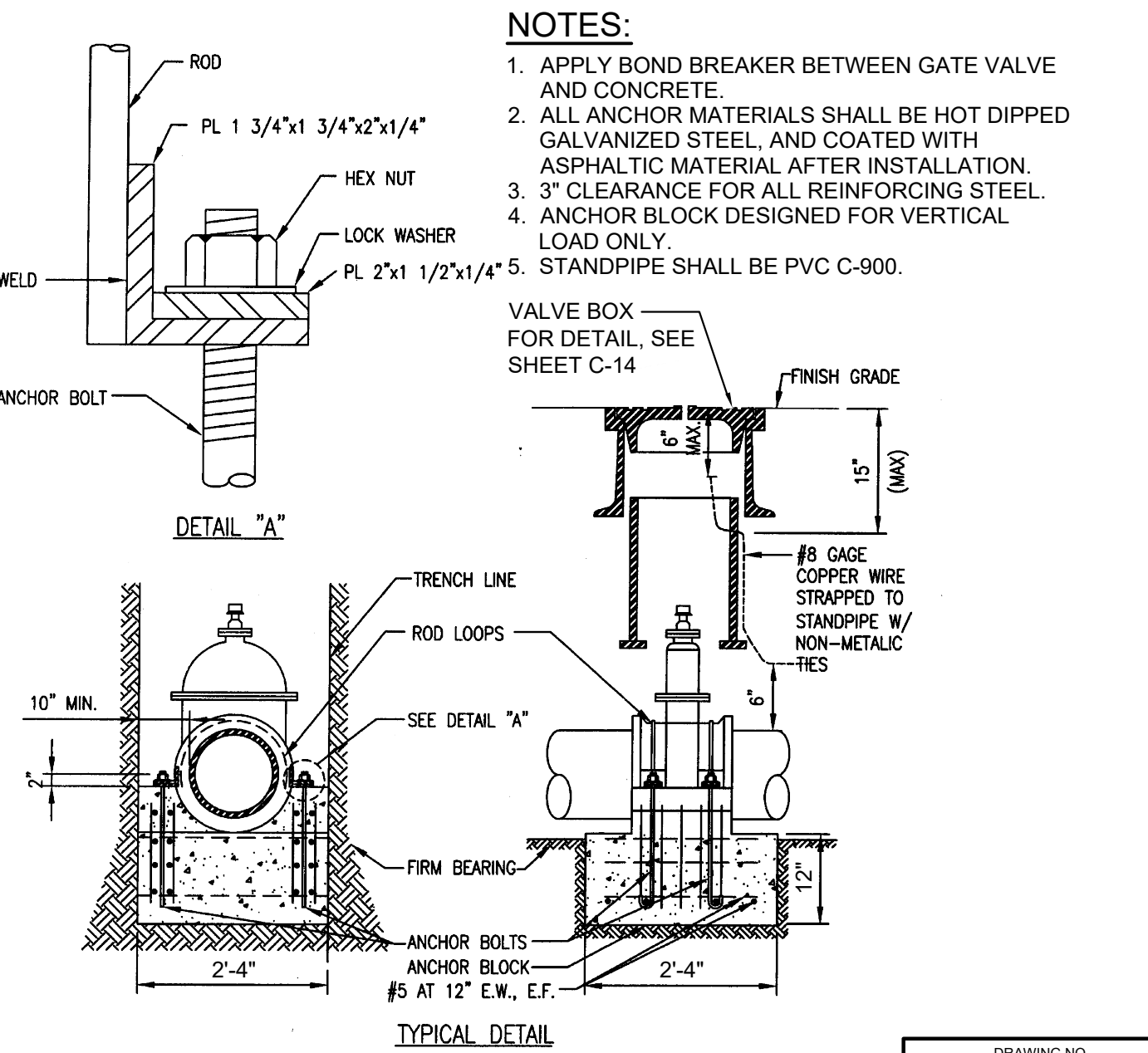


PLAN



ELEVATION

- NOTES:
1. FOR TRENCH WIDTH REFER TO TABLE 300-1 IN DIVISION 300 OF THE WATER SYSTEM STANDARDS.
 2. SEE CONCRETE THRUST BEAM REDUCER SCHEDULE FOR DIMENSIONS AND REINFORCING REQUIREMENTS.



NOTES:

1. APPLY BOND BREAKER BETWEEN GATE VALVE AND CONCRETE.
2. ALL ANCHOR MATERIALS SHALL BE HOT DIPPED GALVANIZED STEEL, AND COATED WITH ASPHALTIC MATERIAL AFTER INSTALLATION.
3. 3" CLEARANCE FOR ALL REINFORCING STEEL.
4. ANCHOR BLOCK DESIGNED FOR VERTICAL LOAD ONLY. STANDPIPE SHALL BE PVC C-900.

DETAIL "A"

TYPICAL DETAIL

GATE VALVE ANCHOR BLOCK
NOT TO SCALE

TMK: 4 - 6 - 011:003



APPROVED: *Cary K. Kondo*
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

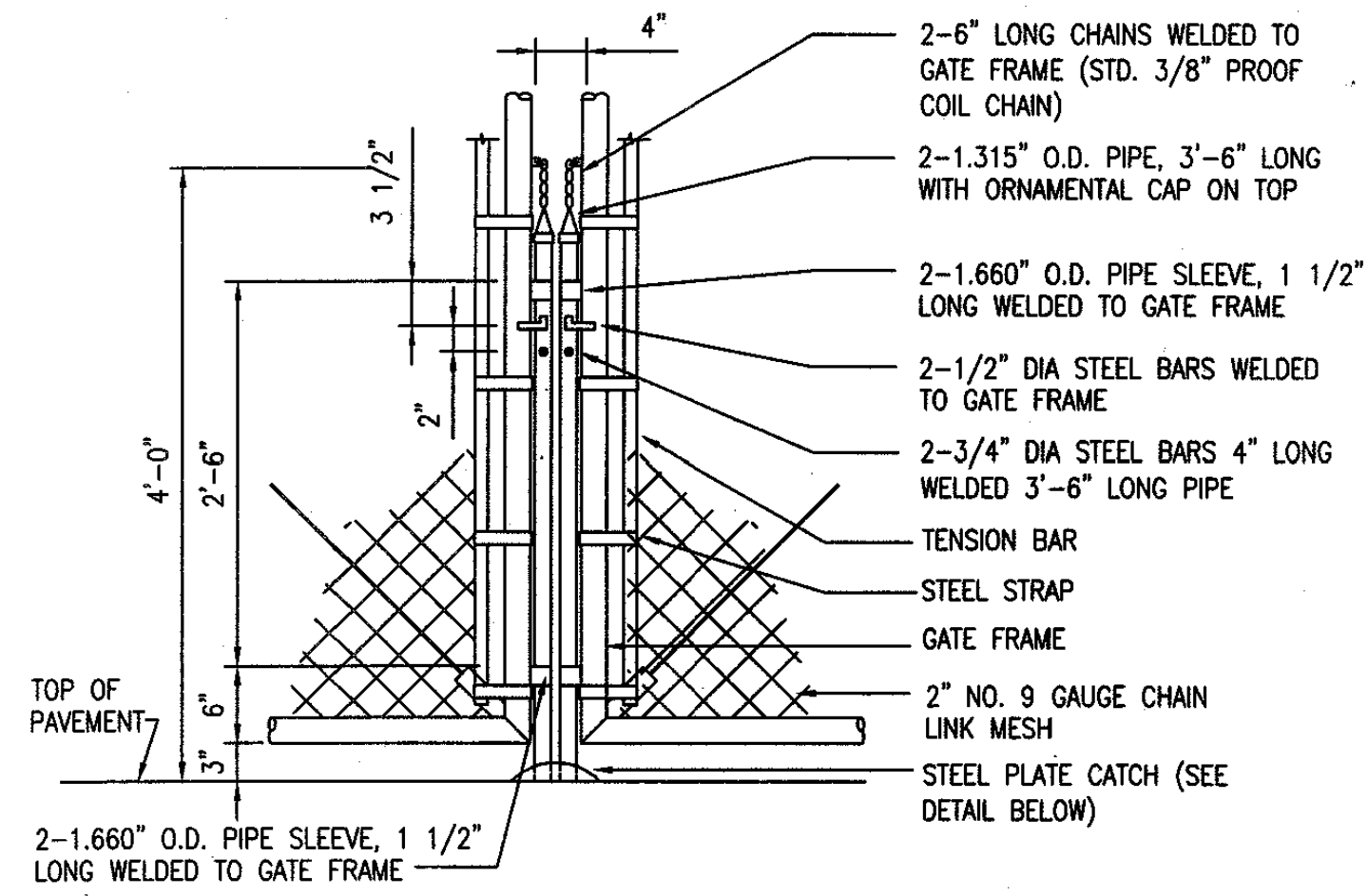
BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

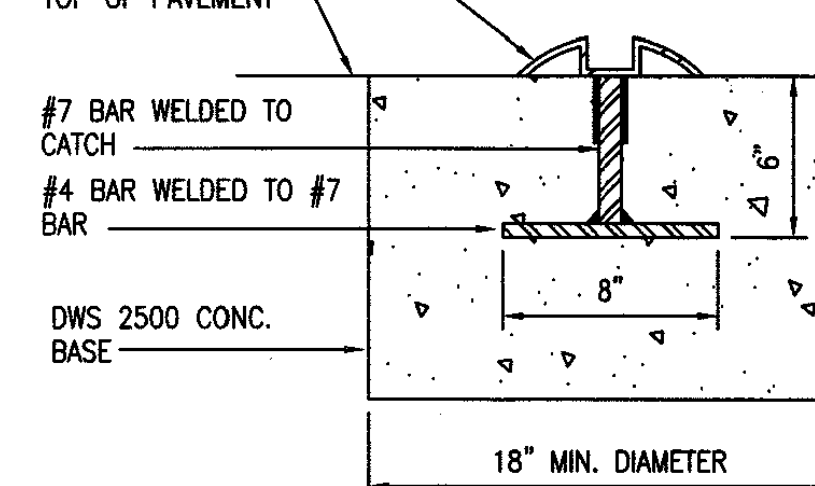
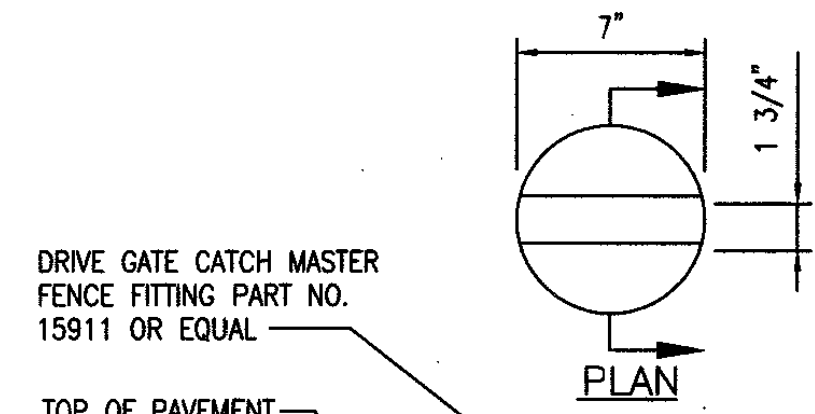
WATER DETAILS-2

APPROVED: N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY R/W)
Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO. C-29

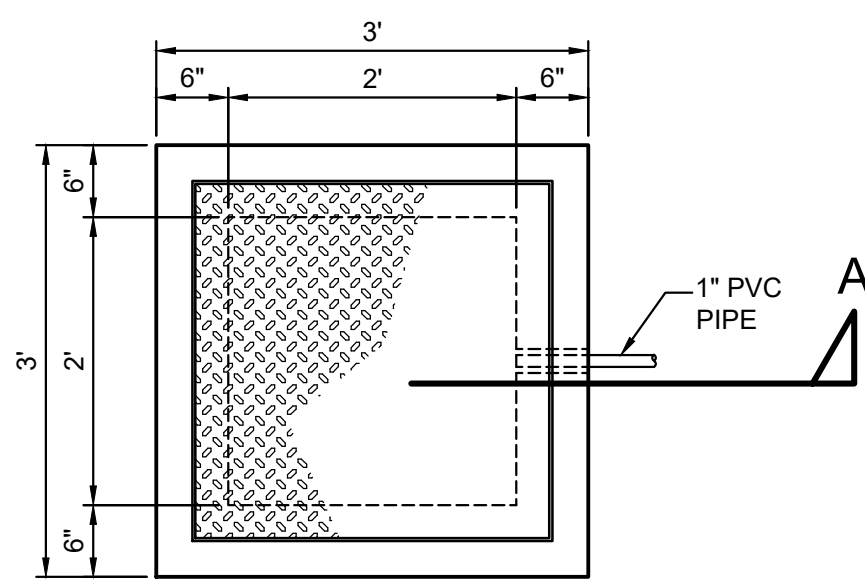


DETAIL AT CATCH GATE

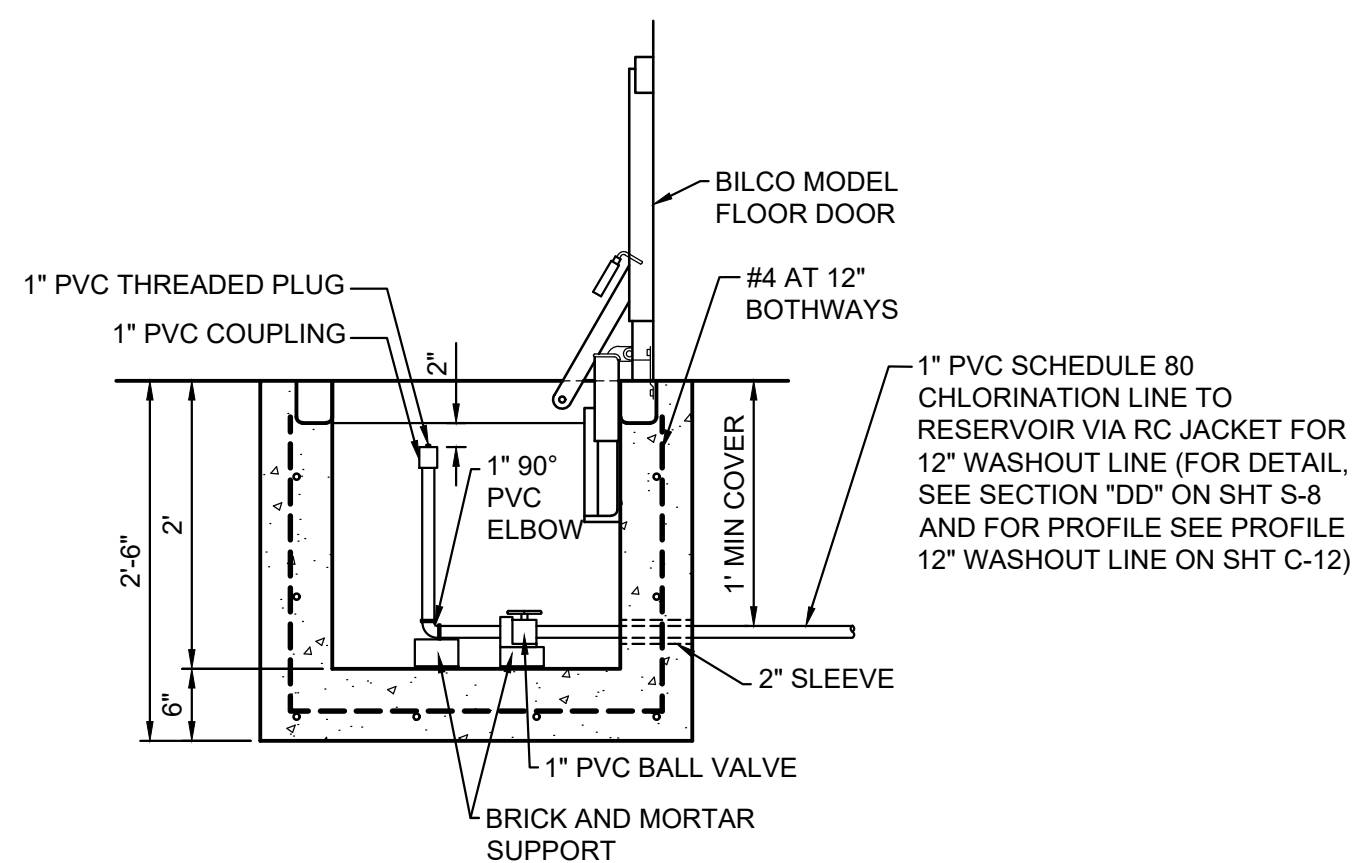


CHAIN-LINK FENCE MISCELLANEOUS DETAILS

NOT TO SCALE



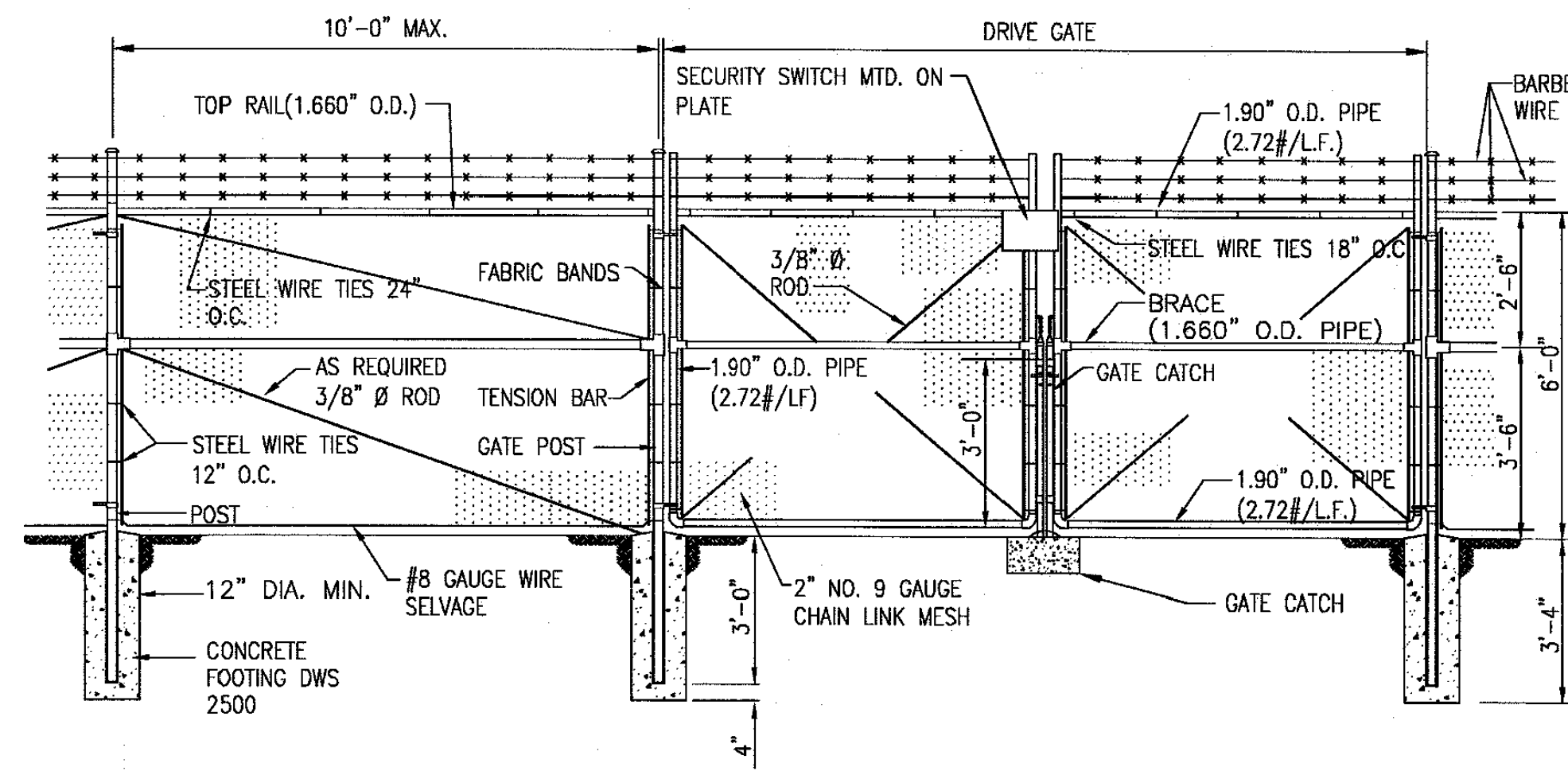
PLAN



SECTION "A"

CHLORINATION BOX DETAIL

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

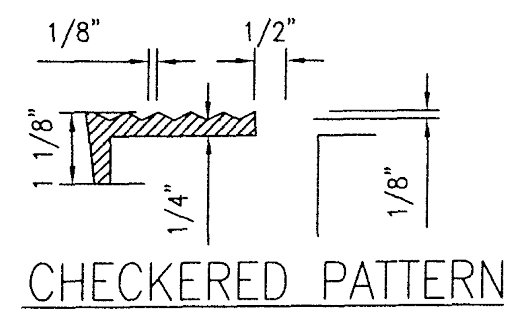


NOTES:

- FOR SIZES OF POSTS & RAILS, SEE TABLE 300-16 OF WATER SYSTEM STANDARDS.
- ALL MATERIALS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION UNLESS SPECIFIED OTHERWISE.
- ALL HATCHES, LADDER GUARDS, HASPS AND GATES MUST BE ABLE TO ACCEPT 2" LONG BY 3/8" THICK SHACKLE SIZE. CYBERLOCK PL-02 PROVIDED BY CONTRACTOR.
- FOR SECURITY SWITCH DETAIL, SEE SHT EB-7.
- SEE CHAIN LINK FENCE MISCELLANEOUS DETAILS, CHAIN LINK FENCE POST, FENCE POST AT CURB AND GUTTER, AND FENCE POST ON WALL DETAILS THIS SHT.
- CONTRACTOR TO FURNISH CYBERLOCK (PL-02) ELECTRONIC PADLOCK. SEE PROJECT SPECIFICATIONS.

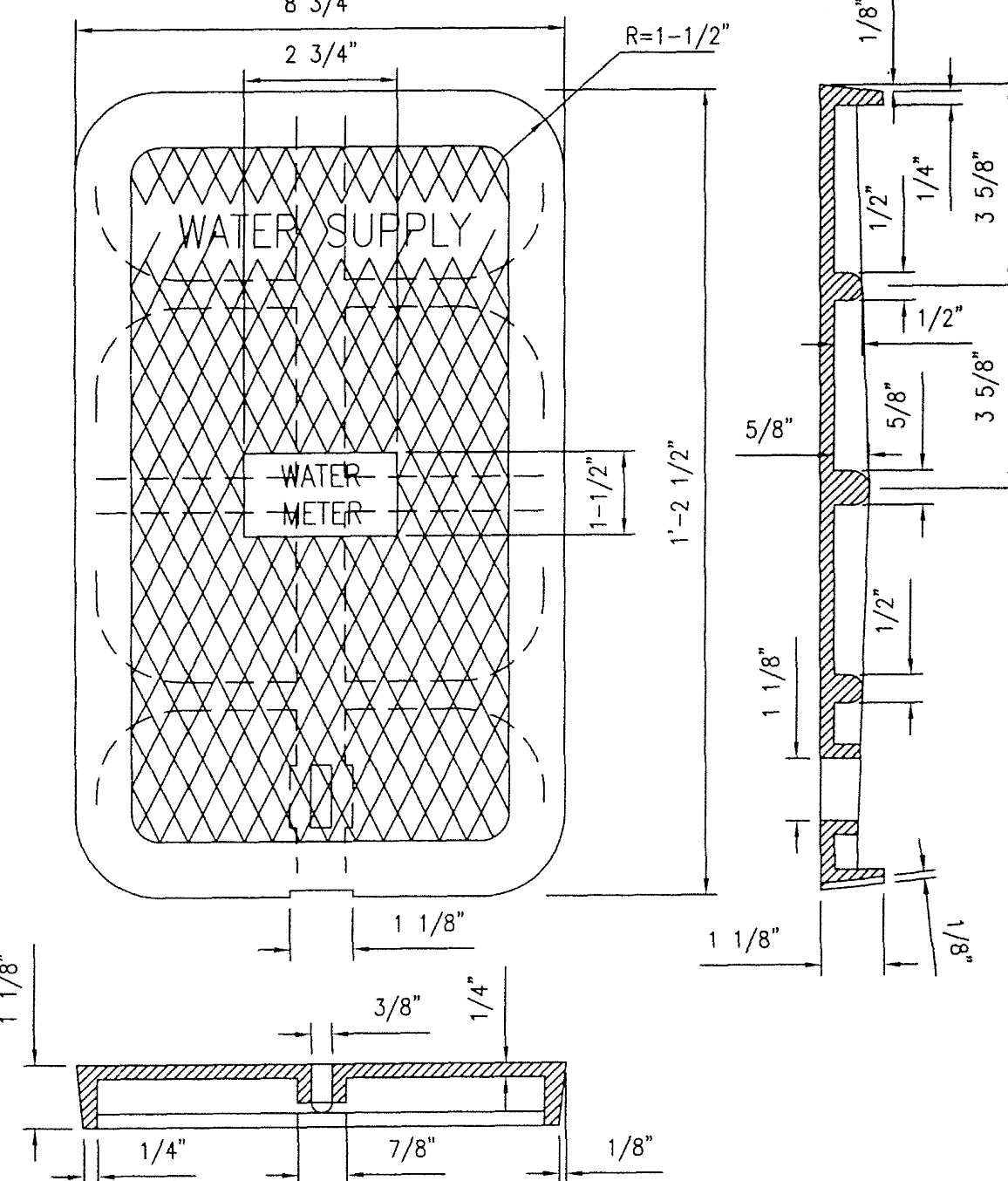
CHAIN-LINK FENCE AND DRIVE GATE DETAIL

NOT TO SCALE



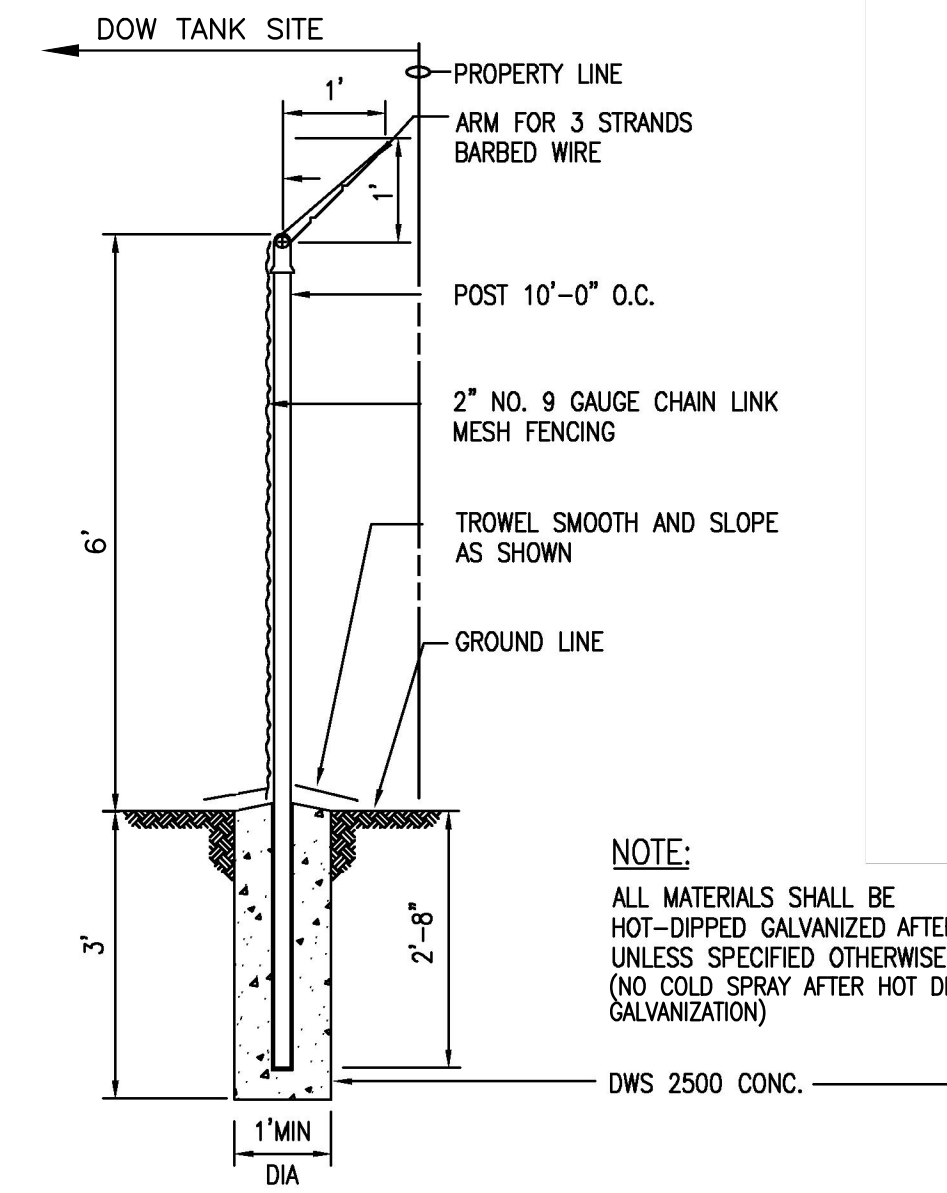
CHECKERED PATTERN

NOTE:
METAL THICKNESS DIMENSIONS ARE NET.
USE 1/2" HIGH VERTICAL LETTERS.
METER COVER SHALL BE GRAY CAST IRON,
FREE OF BLISTER, BLOWHOLES, WARPAGE
AND COLD SHUTS.



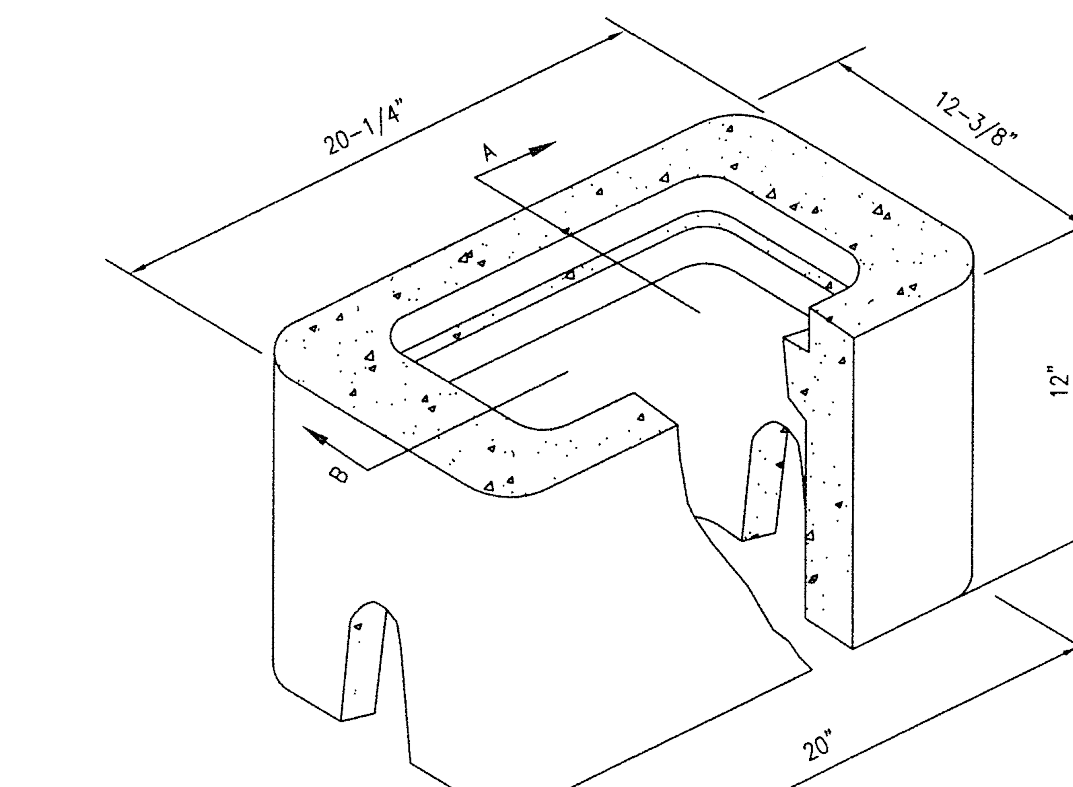
CAST IRON COVER FOR TYPE "B" METER BOX

NOT TO SCALE



CHAIN LINK FENCE POST DETAIL

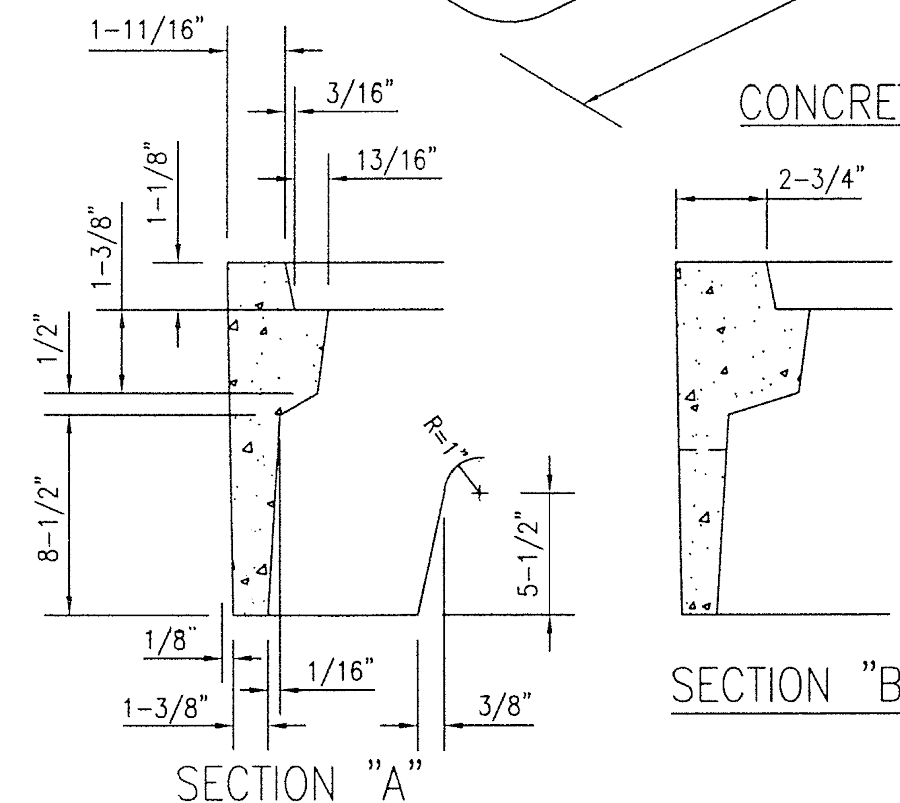
NOT TO SCALE



CONCRETE BOX

NOTES:

- ACCOMMODATES 5/8" OR 3/4" METERS.
- ACCOMMODATES 2" & 2-1/2" VALVES.
- SEE DETAIL, THIS SHEET, FOR CI COVER DETAILS.
- INSTALL 6" WIDE X 4" THICK CONCRETE COLLAR WITH WIRE MESH IN NON-CONCRETE SIDEWALK AREA WHERE APPLICABLE.

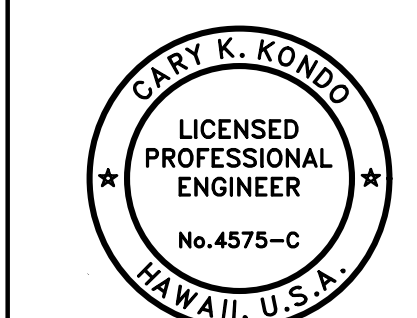


METER BOX TYPE "B"

TYPE "B"

NOT TO SCALE

TMK: 4 - 6 - 011-003



Cary K. Kondo
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

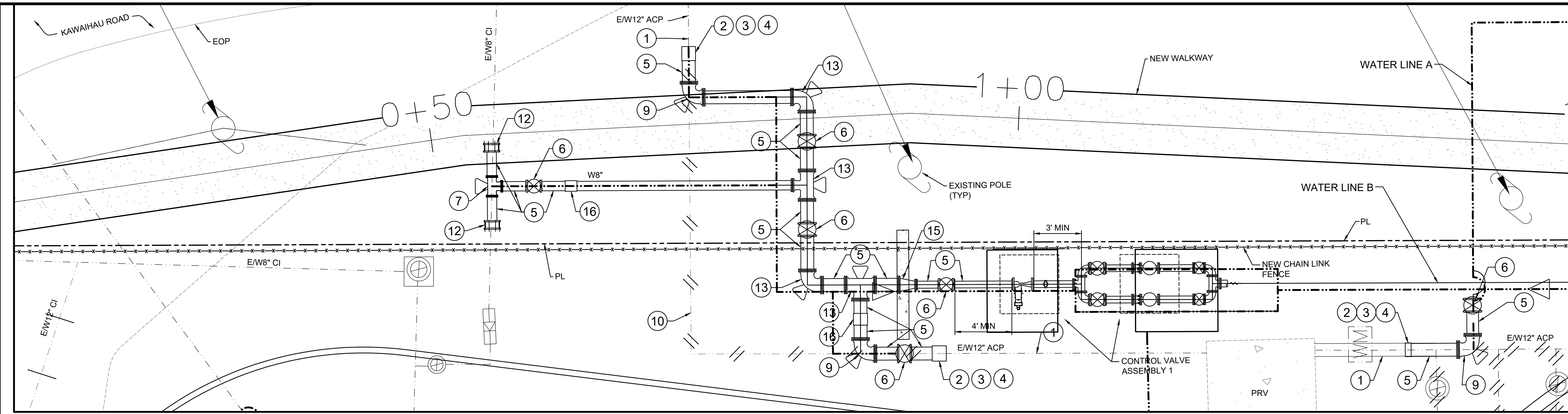
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

WATER DETAILS-3

APPROVED:	DATE
N/A	
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)	
<i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI	

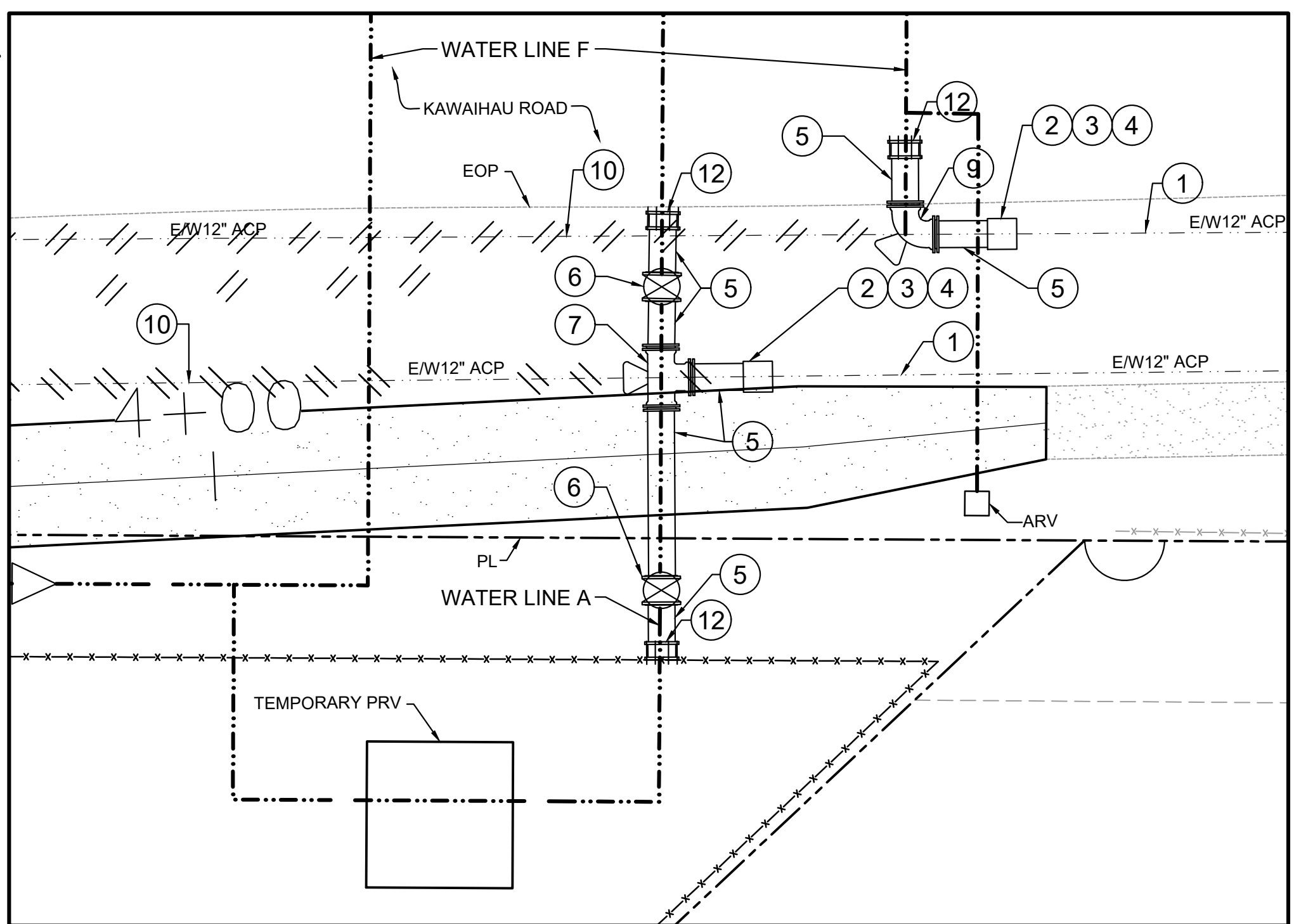
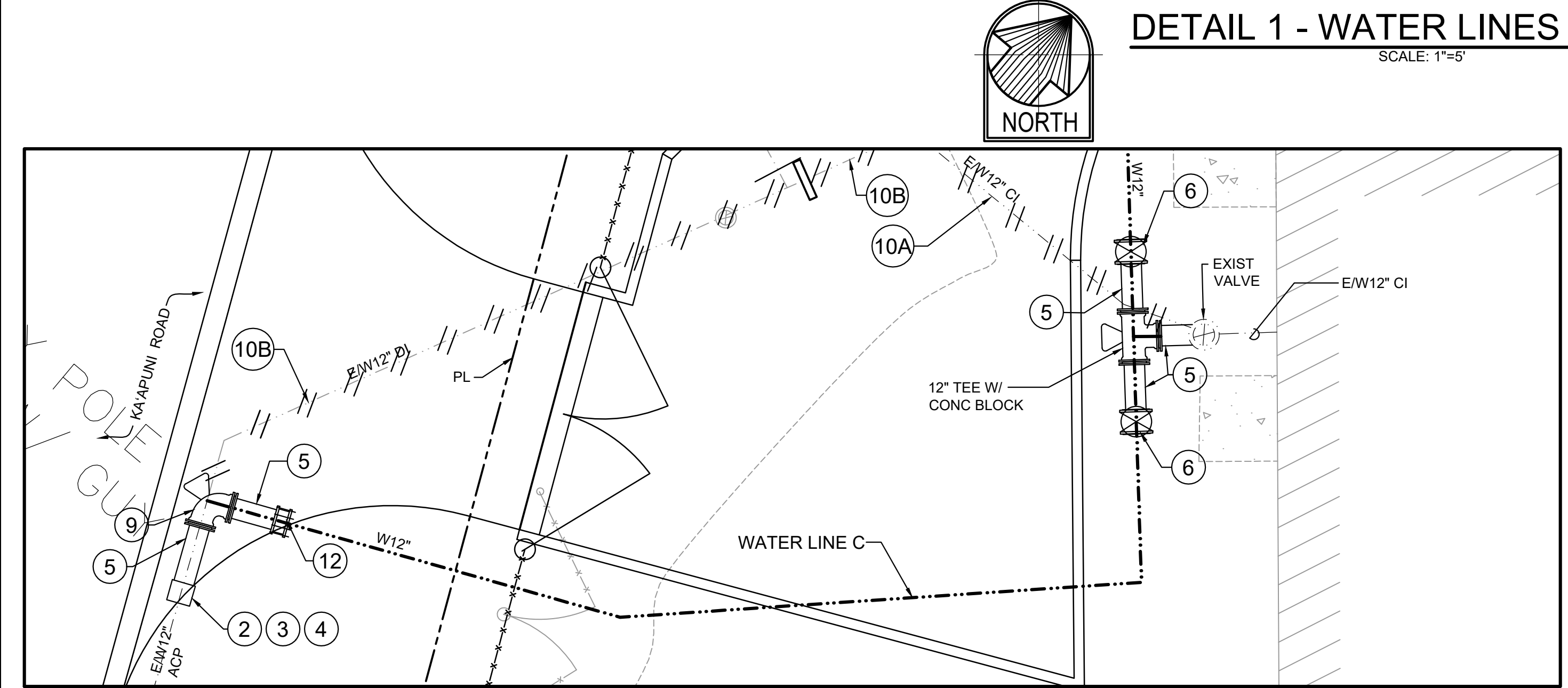
DRAWING NO.
C-30

1/27/2023 3:44:12 PM T:\KAPA_A HOMESTEADS TANK\2024\740100 WAPAHU TANK\CAD SHEETS\CONSTRUCTION PLAN-CK-C-30 WATER DETAILS-3.DWG



- NOTES:**
- ① EXISTING PIPE TO REMAIN
 - ② BREAK AC PIPE COUPLING PRESERVE PIPE END (BELL OR ME). AC PIPE TO REMAIN
 - ③ REMOVE ENTIRE AC PIPE SECTION, 13'±
 - ④ 14" LONG TRANSITION COUPLING AC ME x DIP
 - ⑤ DIP NIPPLE, CL 52. LENGTH TO SUIT (2' MIN)
 - ⑥ GATE VALVE, MJ, WITH VALVE BOX
 - ⑦ DI TEE, MJ W/ STRUCTURAL STRUT AND CONC BLOCK, SEE SHT S-17, DETAIL A FOR 12"
 - ⑧ DI FITTING, MJ W/ STRUCTURAL STRUT AND CONC BLOCK, SEE SHT S-18, DETAIL B
 - ⑨ DI FITTING, MJ W/ STRUCTURAL STRUT AND CONC BLOCK, SEE SHT S-17, DETAIL B
 - ⑩ EXISTING AC PIPE TO BE REMOVED
 - ⑩A EXISTING CI PIPE TO BE REMOVED
 - ⑩B EXISTING DI PIPE TO BE REMOVED
 - ⑪ DOW 2500 CONCRETE PLUG (ONLY IF PIPE ABANDONED) (2' MIN)
 - ⑫ DI SOLID BODY SLEEVE, 12" LONG
 - ⑬ DI FITTING, MJ, WITH CONC BLOCK
 - ⑭ DI REDUCER, MJ, WITH CONC THRUST BEAM
 - ⑮ COUPLING, 12" LONG
 - ⑯ EXISTING DI PIPE TO BE ABANDONED

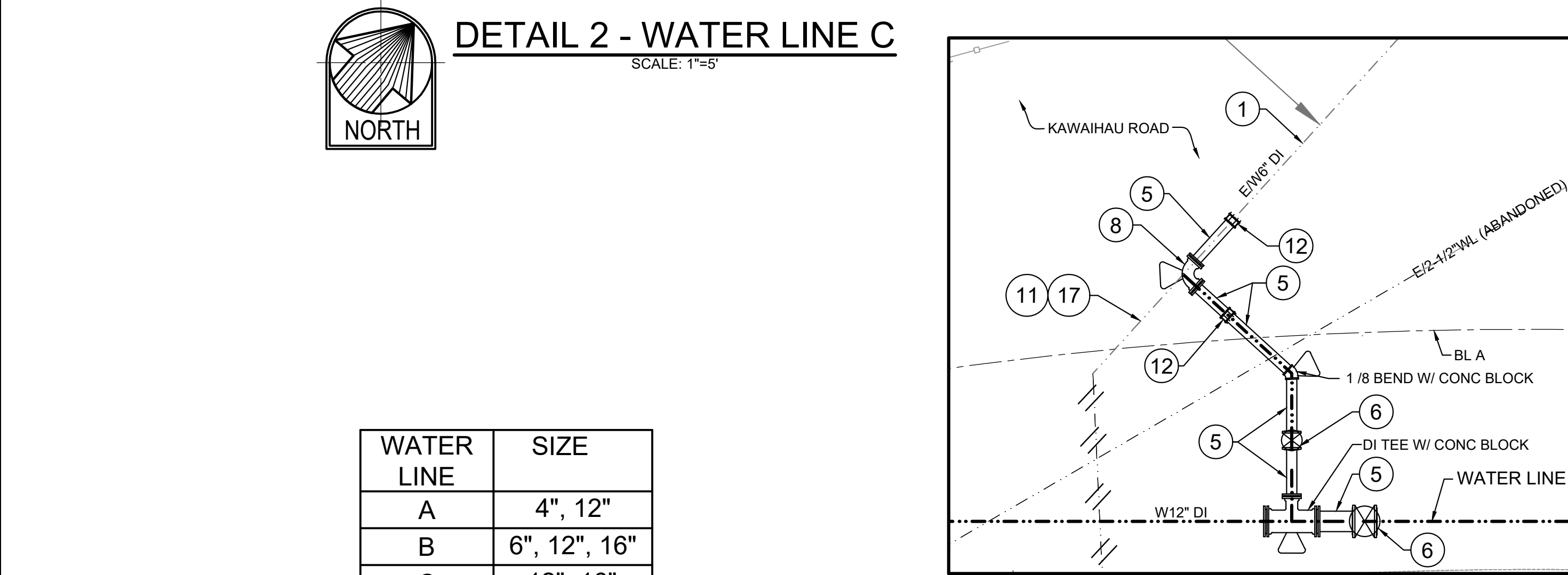
DETAIL 1 - WATER LINES A AND B
SCALE: 1"=5'



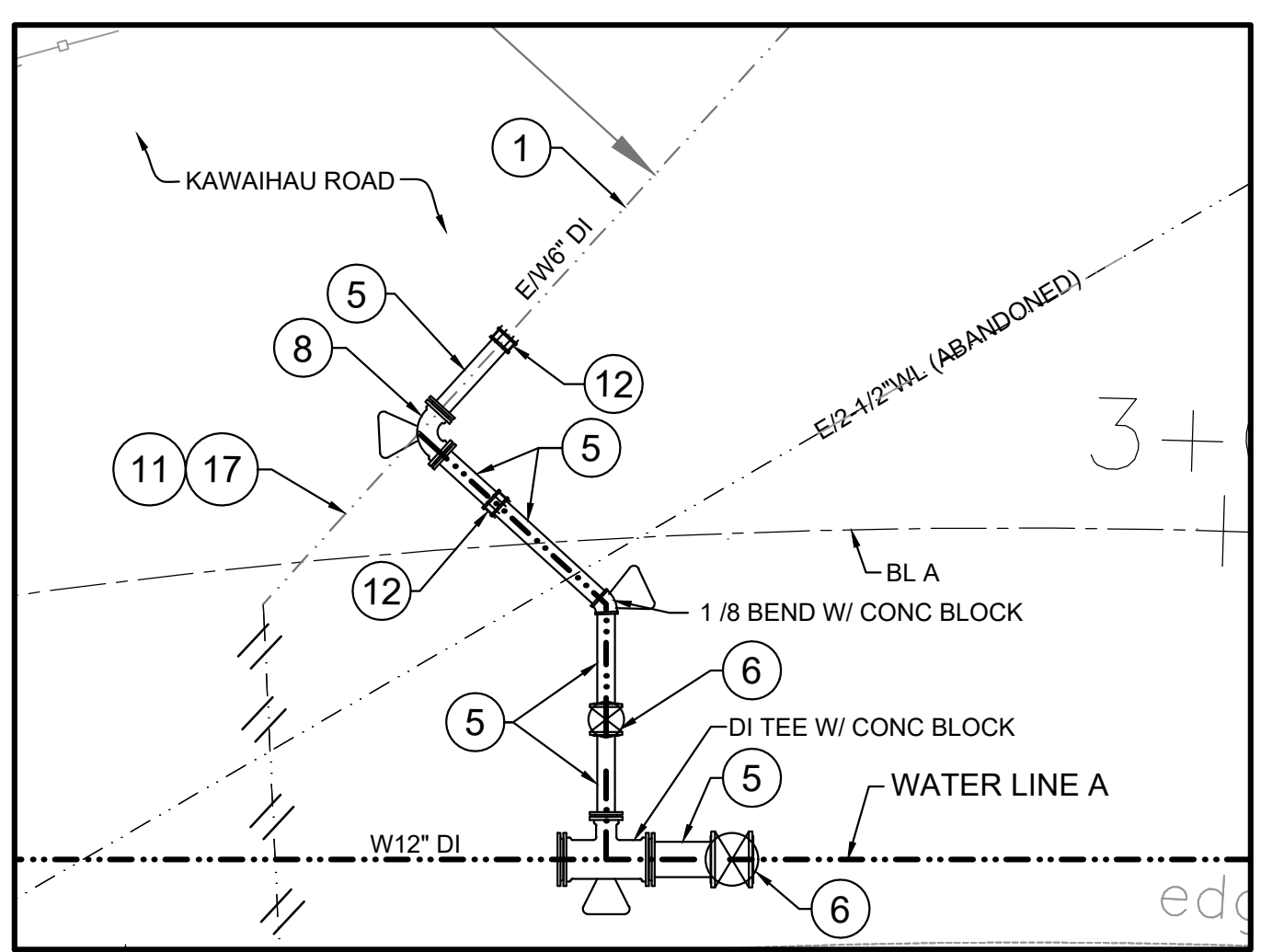
DETAIL 4 - WATER LINES A & F
SCALE: 1"=5'

- NOTES:**
1. ALL MJ FITTINGS SHALL BE PROVIDED WITH RETAINER GLANDS.
 2. SEE SHTS C-5, C-8, C-9, AND C-19 FOR SIZES
 3. THE NEW DIP SHALL BE CONNECTED TO AC PIPE AT THE NEAREST AC PIPE JOINT. AC PIPE TO BE REMOVED BY ENTIRE LENGTH(S) TO FACILITATE THE CONNECTION. CUTTING OF AC PIPE IS PROHIBITED.
 4. THE CONTRACTOR SHALL FOLLOW ALL OSHA, HIOSH, AND FEDERAL REGULATIONS IN HANDLING AND DISPOSAL OF AC PIPE. DISPOSAL OF AC PIPE SHALL BE AT AN APPROVED ASBESTOS MATERIAL DISPOSAL SITE.

DETAIL 2 - WATER LINE C
SCALE: 1"=5'

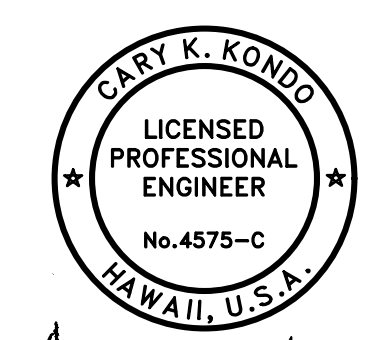


DETAIL 3 - WATER LINE A
SCALE: 1"=5'



WATER LINE	SIZE
A	4", 12"
B	6", 12", 16"
C	12", 16"
F	12", 16"

TMK: 4 - 6 - 011-003



APPROVED: *Cary K. Kondo*
THE WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

DRAWING NO.
C-31

REVISION	DATE	DESCRIPTION	APPROVED

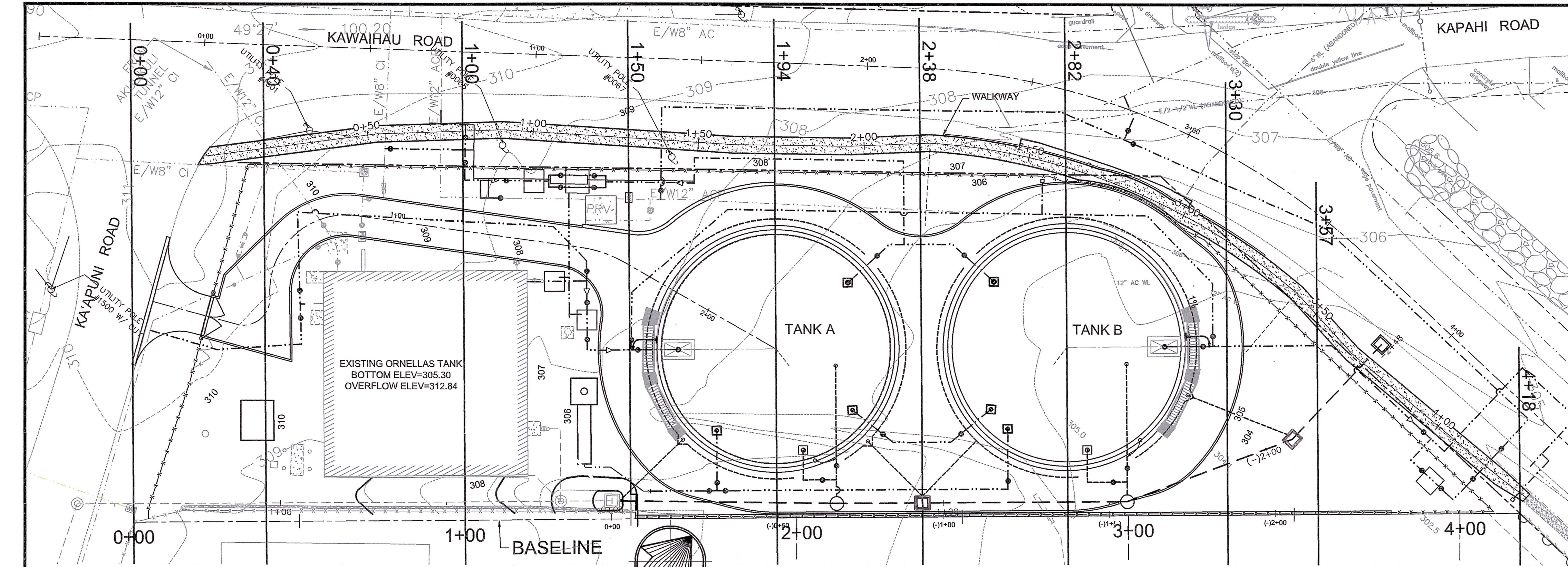
BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

WATER CONNECTION DETAILS

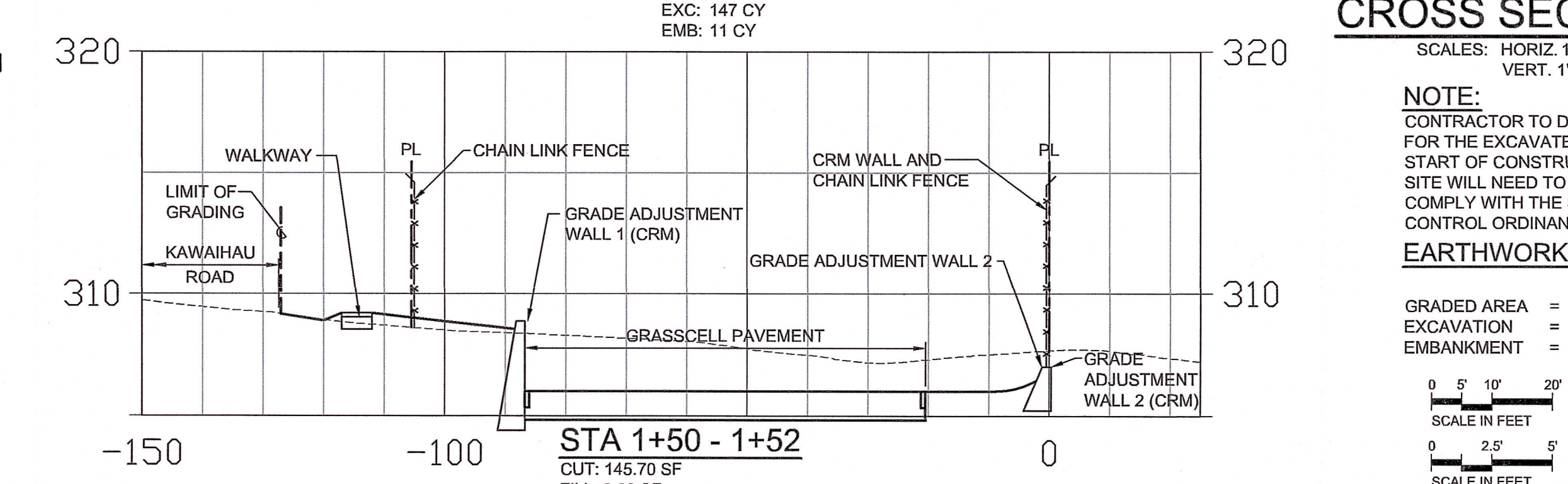
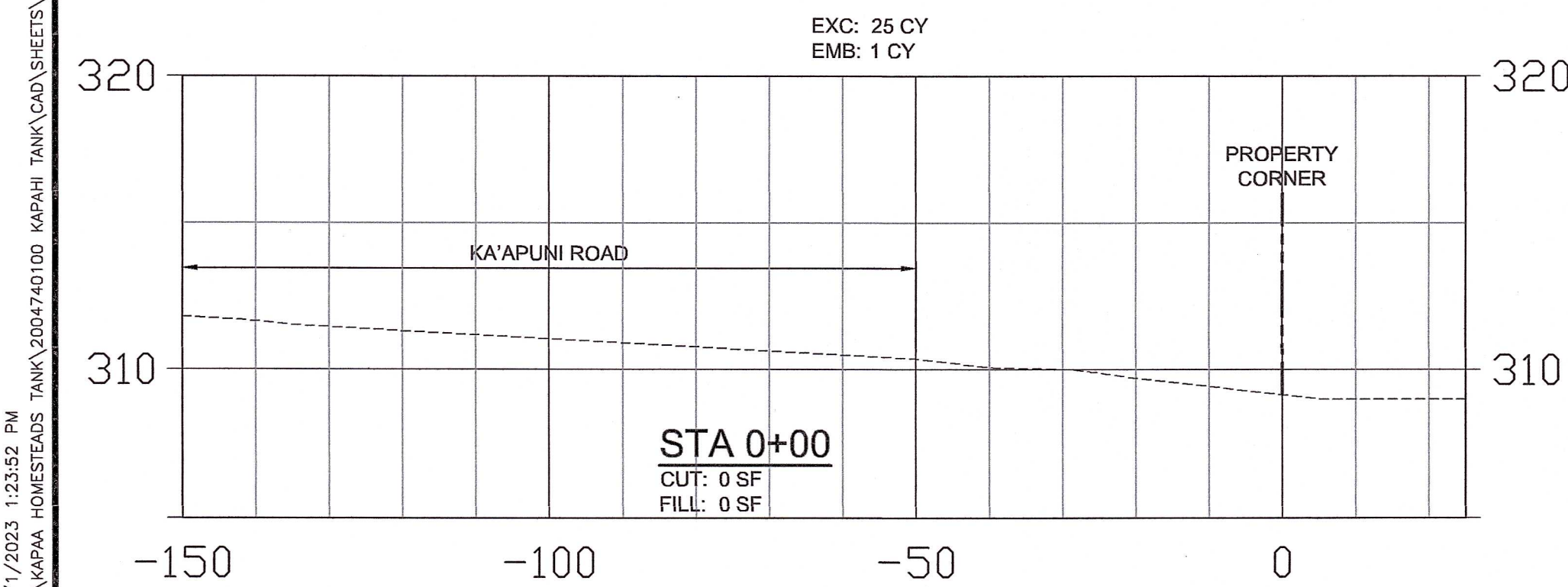
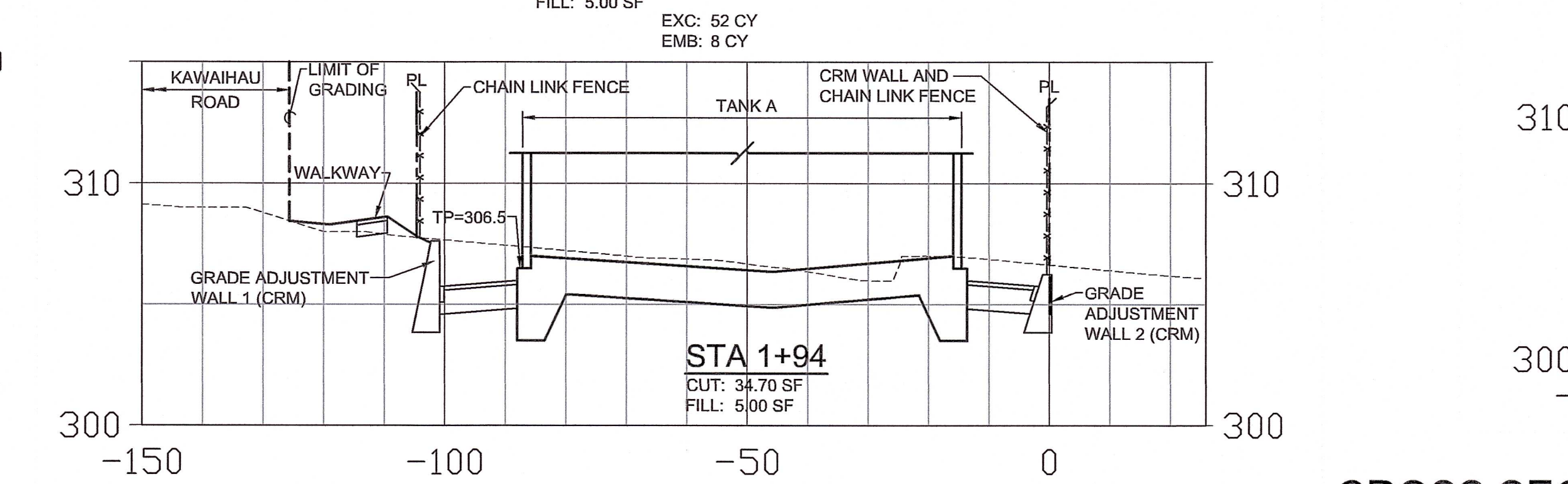
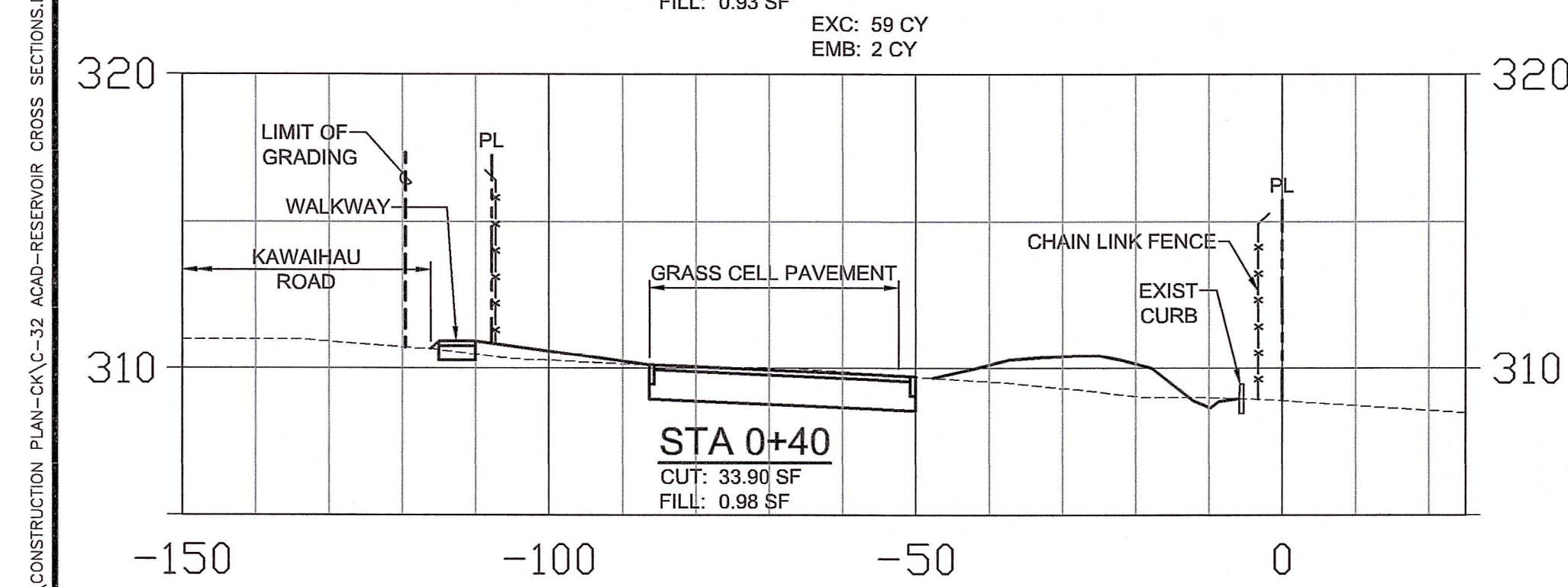
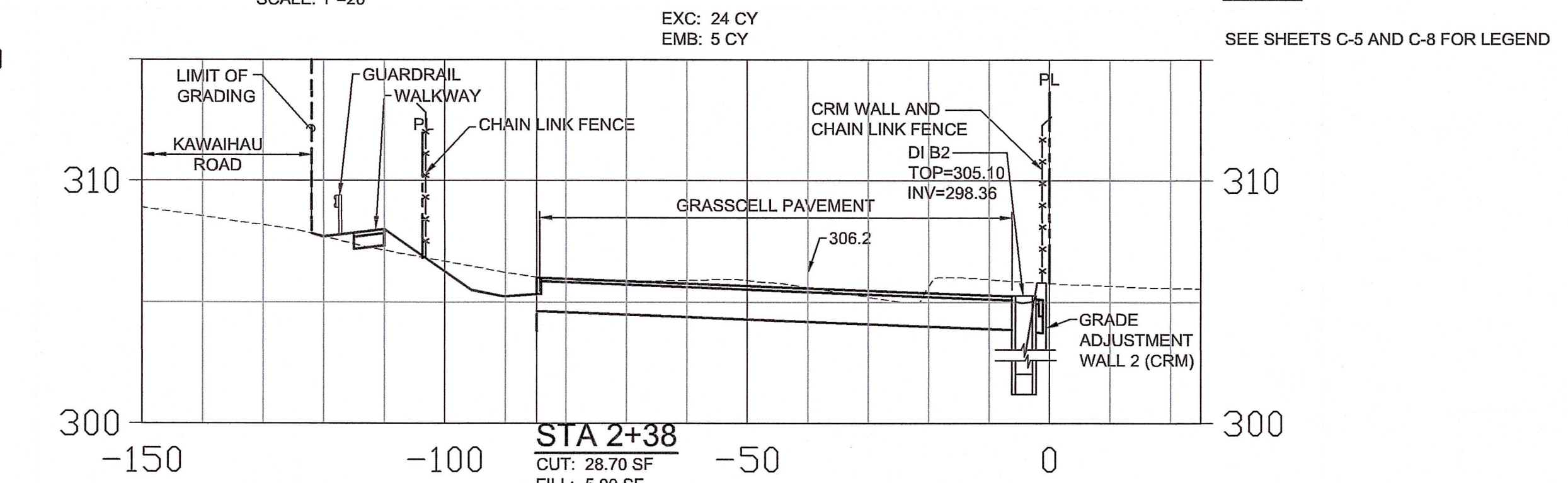
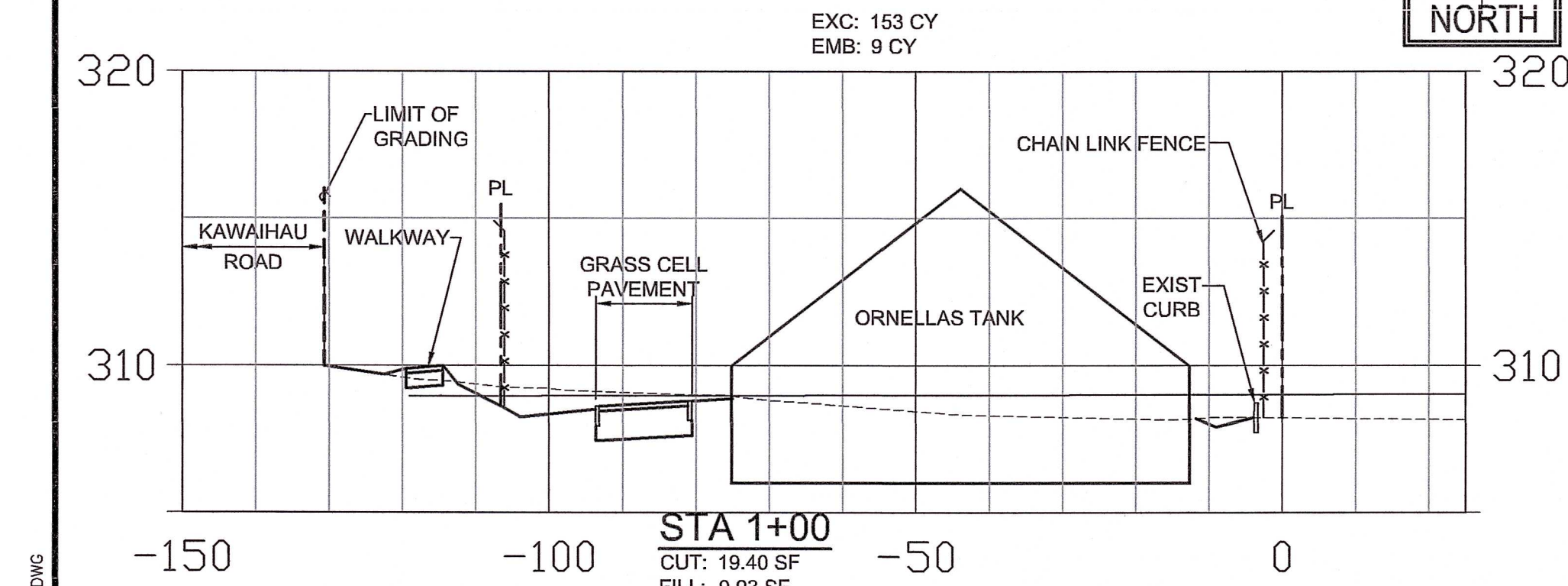
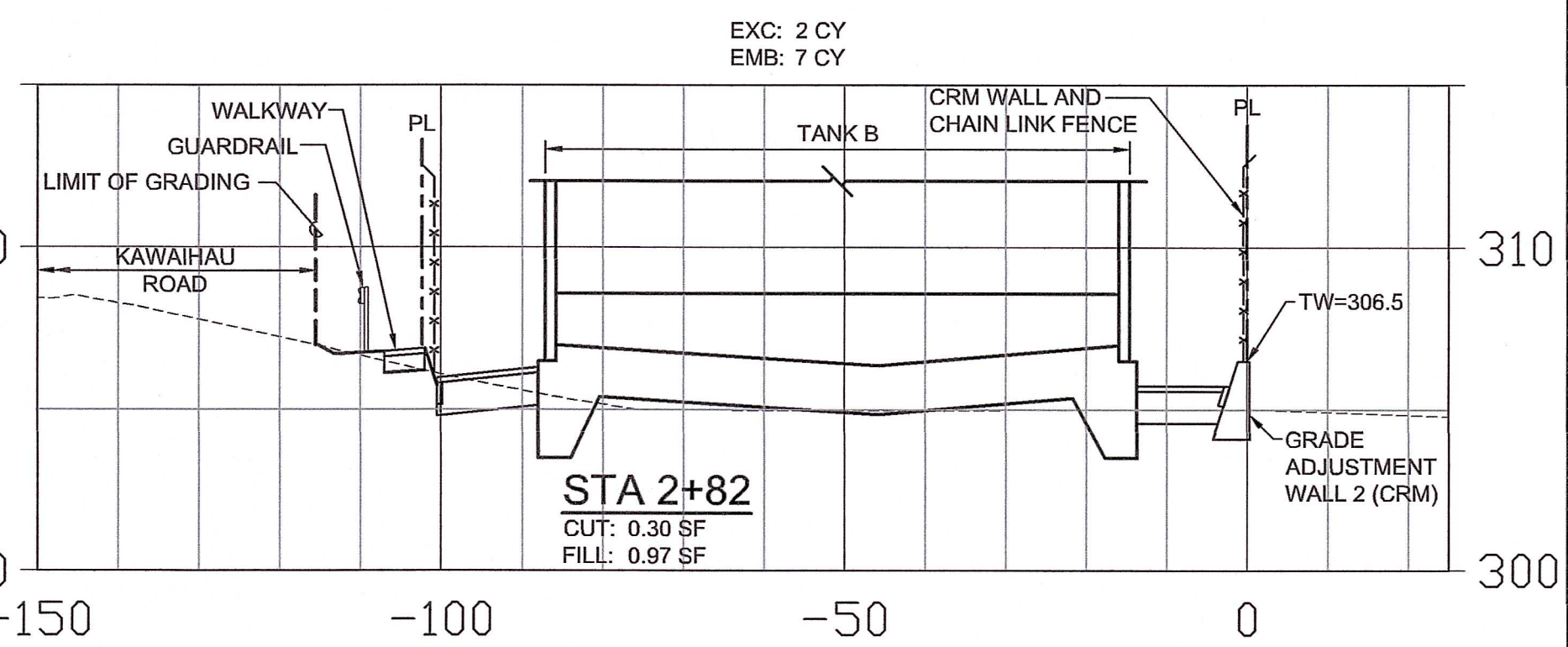
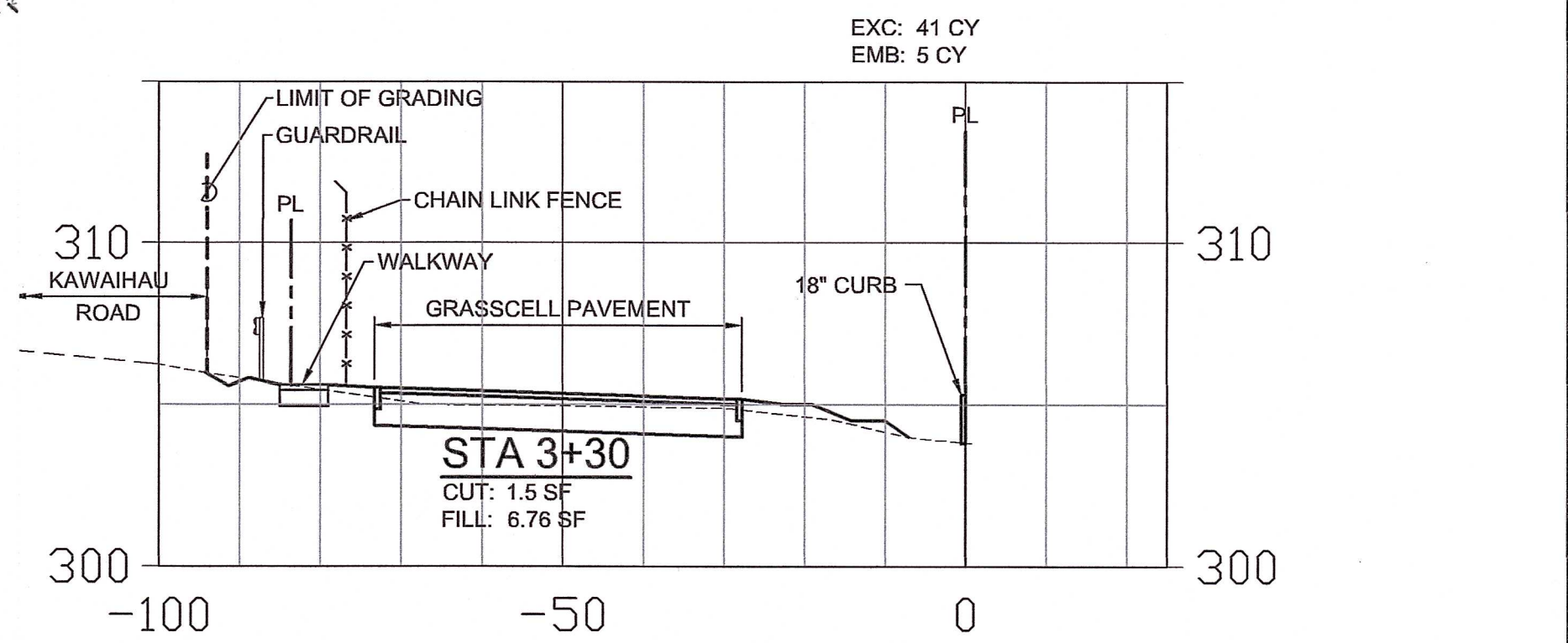
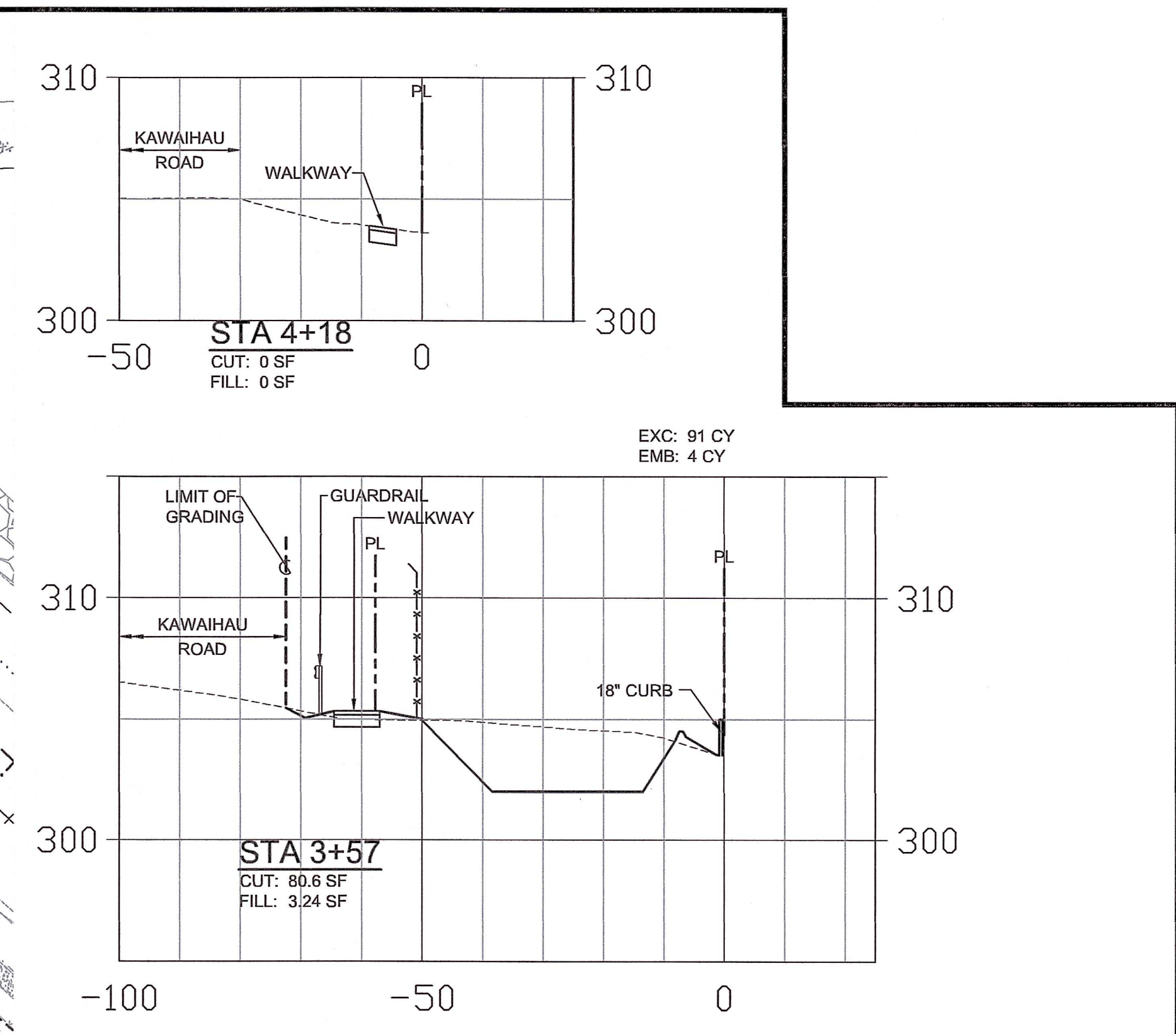
APPROVED: N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

1/27/2023 3:44:44 PM
 T:\MAPS\HOMESTEADS_TANK\2024\740100_MAPS\TANK\CAD\SHEETS\CONSTRUCTION\PLAN-C\31_WATER_CONNECTION_DETAILS.DWG
 HALF SIZE TRIMLINE FOR 11" X 17"



CROSS SECTION KEY PLAN
SCALE: 1"=20'



CROSS SECTIONS

SCALES: HORIZ 1"=20'
VERT. 1"=5'

NOTE:
CONTRACTOR TO DETERMINE DISPOSAL SITE FOR THE EXCAVATED QUANTITIES PRIOR TO START OF CONSTRUCTION. THE DISPOSAL SITE WILL NEED TO BE PERMITTED AND COMPLY WITH THE SEDIMENT AND EROSION CONTROL ORDINANCE NO. 808.

EARTHWORK QUANTITIES:

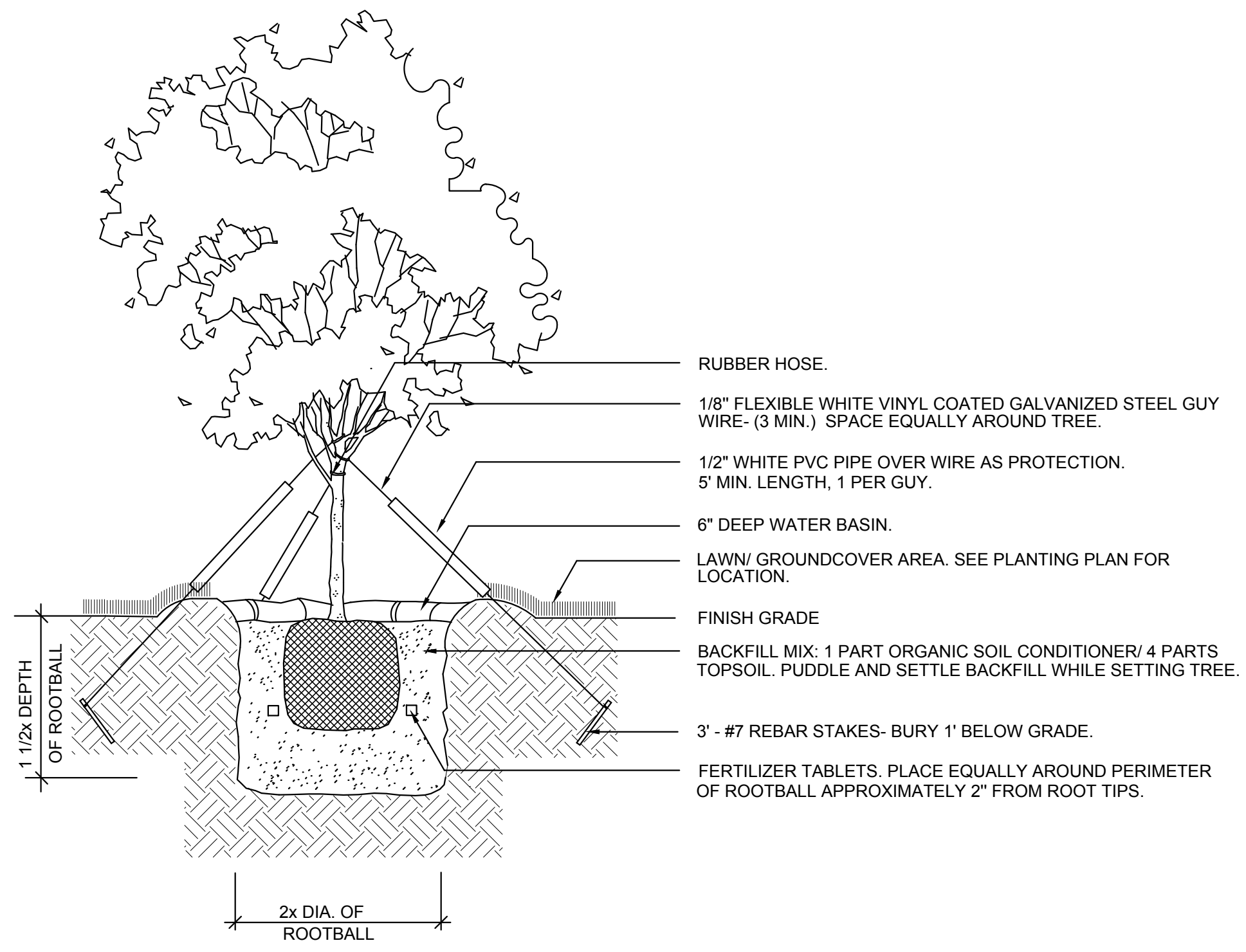
GRADED AREA = 0.90 ACS
EXCAVATION = 594 CY
EMBANKMENT = 52 CY

0' 5' 10' 20'
SCALE IN FEET
0' 2.5' 5'
SCALE IN FEET

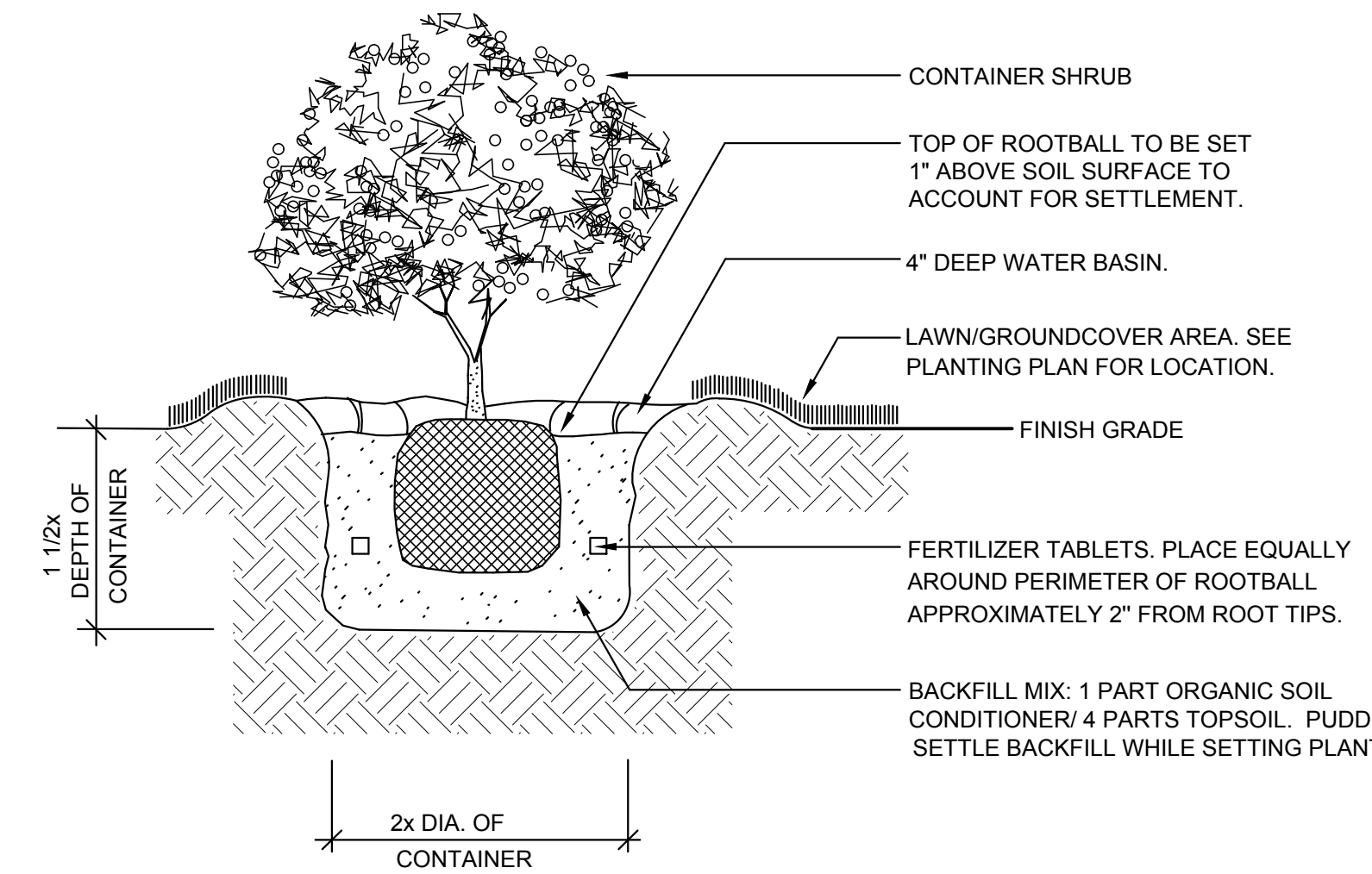
TMK: 4 - 6 - 011:003
GARY K. KONDO
LICENSED PROFESSIONAL ENGINEER
No. 4575-C
HAWAII, U.S.A.
Gary K. Kondo

REVISION	DATE	DESCRIPTION	APPROVED
<p>BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819</p> <p>JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII</p> <p>RESERVOIR CROSS SECTION</p>			
<p>APPROVED: <i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI</p> <p>DATE: 2/3/23</p>			

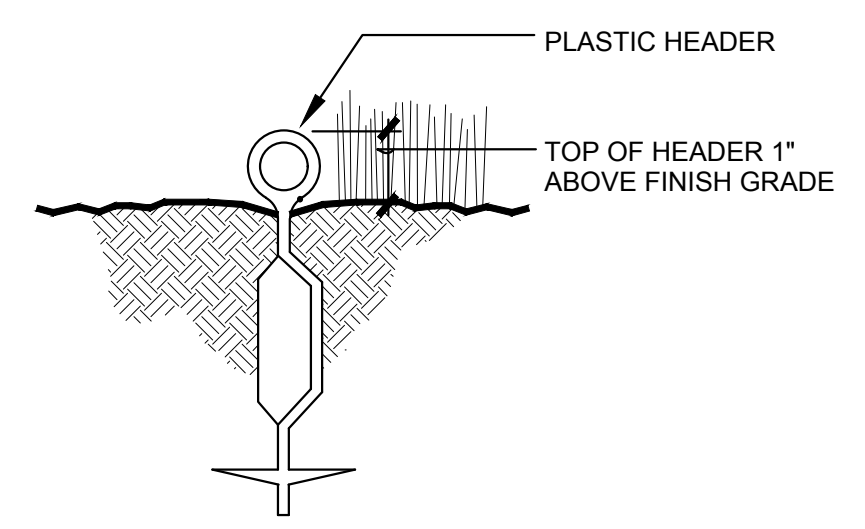
2/1/2023 1:31:52 PM T:\KAPA HOMESTEADS TANKS\2024\740100 KAPAH TANK CAD SHEETS\CONSTRUCTION PLAN-CA-C-32 ACAD-RESERVOIR CROSS SECTIONS.DWG



1 TREE PLANTING DETAIL
L-2 NOT TO SCALE



2 SHRUB PLANTING DETAIL
L-2 NOT TO SCALE



3 PLASTIC HEADER DETAIL
L-2 NOT TO SCALE

PLANT SCHEDULE							
TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	CAL	SIZE	REMARKS
	9	ALEURITES MOLUCCANA	KUKUI NUT TREE	25 GAL	3" MIN.	8' HT. MIN.	8' SPREAD
SHRUB AREAS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	GAL		SPACING
	185	LIGUSTRUM SINENSE	PRIVET	1 GAL			36" o.c.
GROUND COVERS	QTY	BOTANICAL NAME	COMMON NAME	POT			SPACING
	18,420 SF	CYNODON DACTYLON	BERMUDA GRASS	SEED, HYDROMULCH			

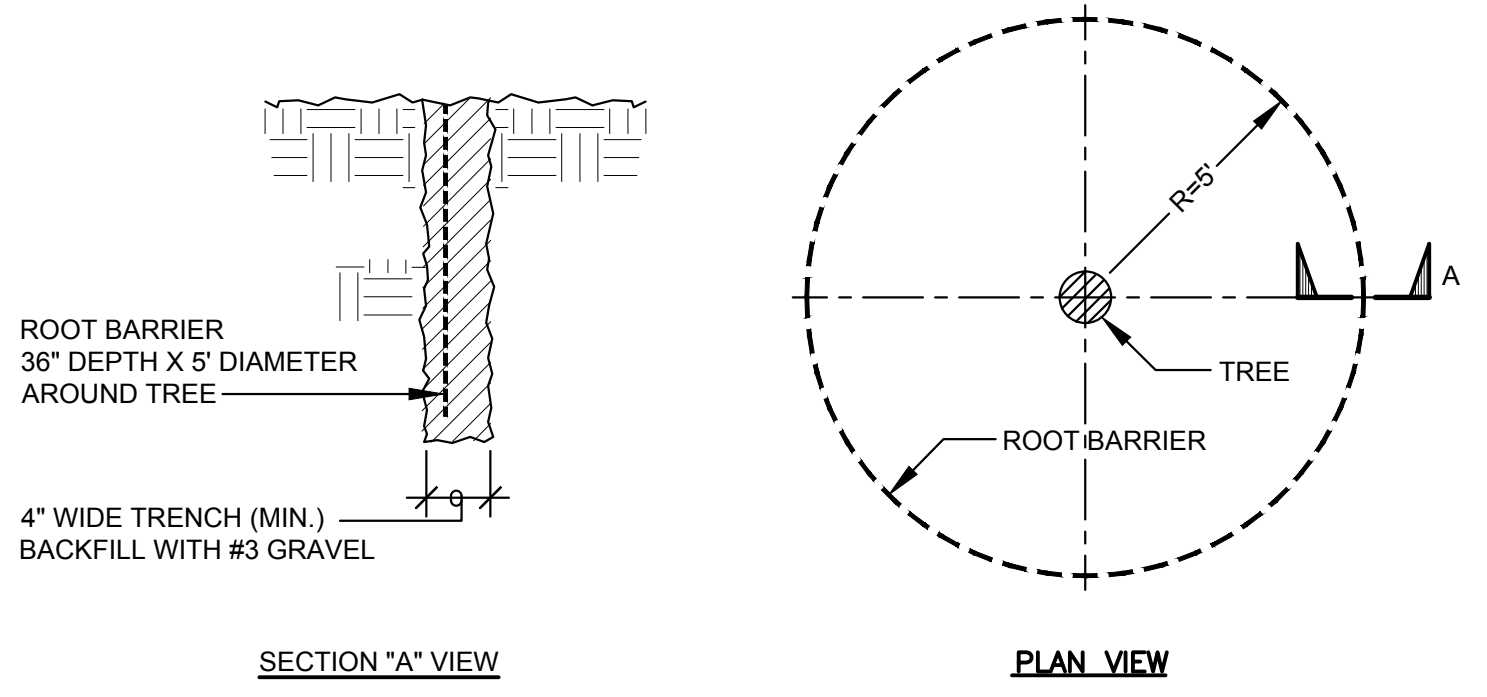
MISCELLANEOUS		
DESCRIPTION	QTY	
ROOT BARRIER	240 LF	
POLY DIVIDER	750 LF	
DESCRIPTION	QTY	
SOIL AMENDMENT - 1" LAYER, ROTOTILLED 6" DEEP	20,290 SF	

PLANTING NOTES:

- BACKFILL MIX SHALL CONSIST OF FOUR (4) PARTS OF AMENDED IMPORTED PLANTING SOIL TO ONE (1) PART ORGANIC SOIL CONDITIONER (SEE SPECIFICATIONS). ADD ONE (1) POUND OF 10-30-10 FERTILIZER TO ONE (1) CUBIC YARD OF BACKFILL MIX. MIX THOROUGHLY ON PROJECT SITE PRIOR TO ANY PLANTING OPERATIONS.
- INDICATED BACKFILL MIX IS FOR BIDDING PURPOSES ONLY. A SOIL ANALYSIS WITH RECOMMENDATIONS WILL BE REQUIRED AND TAKE PRECEDENCE OVER THE INDICATED MIXTURE.
- PLANTING TABLETS FOR TREES AND SHRUBS SHALL BE AS FOLLOWS:

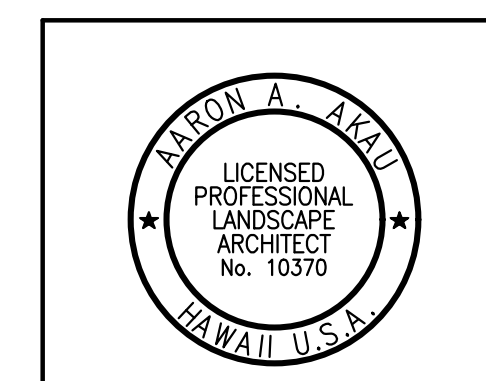
FIELD SPECIMEN	12 TABLETS
25 GALLON	8 TABLETS
15 GALLON	5 TABLETS
5 GALLON	3 TABLETS
3 GALLON	2 TABLETS
1 GALLON	1 TABLET

USE SLOW RELEASE FERTILIZER TABLETS 20-10-5, 21 GRAM SIZE.
- QUANTITIES ARE SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR ONLY. THE CONTRACTOR SHALL PERFORM ITS OWN QUANTITY ESTIMATES FOR THE PURPOSES OF BIDDING AND CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE PLANTS AND OTHER MATERIALS IN THE QUANTITIES NECESSARY TO COMPLETE THE INSTALLATION AS SHOWN ON THE DRAWINGS.



4 ROOT BARRIER DETAIL
L-2 NOT TO SCALE

HALF SIZE TRIMLINE FOR 11" x 17"
 FILE: 20 Jun 2018 - 2:40pm Homesteads - TomA\2004740100 - Kopahi - TomA\Landscape\CAD\Sheets\L-2 - PLANT LIST DETAILS AND NOTES.dwg
 \\Vedades\Users\Chn\Vopasa - Homesteads - TomA\2004740100 - Kopahi - TomA\Landscape\CAD\Sheets\L-2 - PLANT LIST DETAILS AND NOTES.dwg

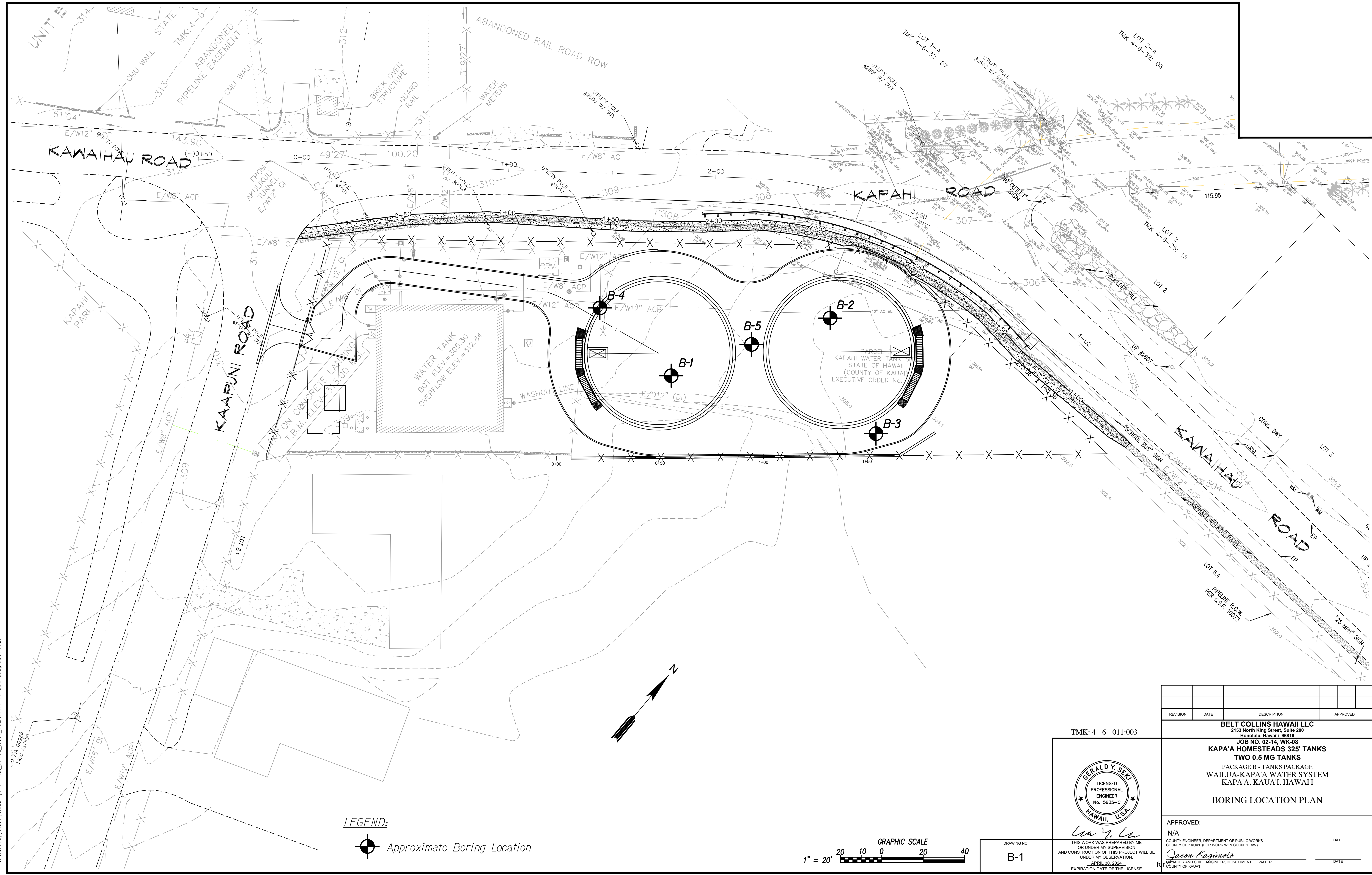


APPROVED: *A. Akai*

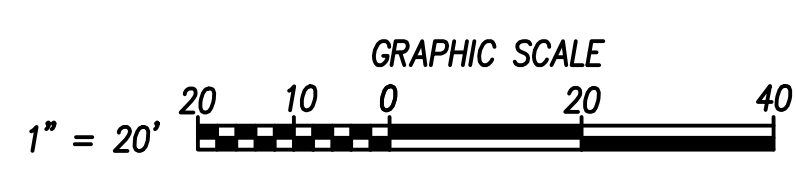
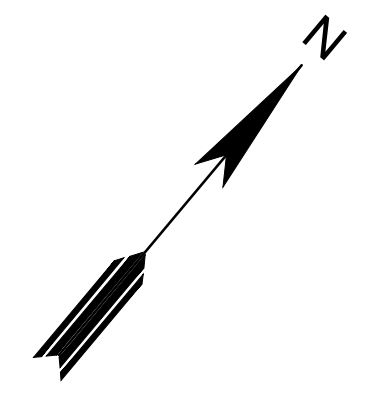
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
PLANT LIST, DETAILS AND NOTES			
APPROVED: <i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			

DRAWING NO.
L-2

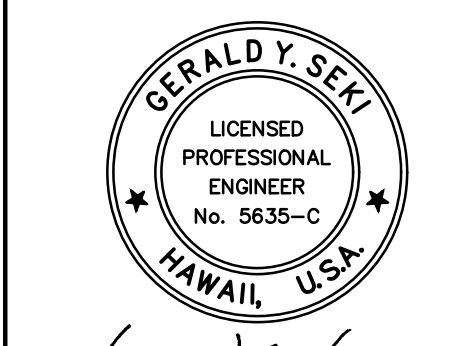


LEGEND:
 Approximate Boring Location



DRAWING NO.
B-1

TMK: 4 - 6 - 011-003



Gerald Y. Sevi
 LICENSED PROFESSIONAL ENGINEER
 No. 9635-C
 HAWAII, U.S.A.
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

BORING LOCATION PLAN

APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)
Jason Kagimoto
 COUNTY ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

FILE	POCKET	FOLDER	NO.
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GEOLABS, INC.
Geotechnical Engineering

Soil Log Legend

UNIFIED SOIL CLASSIFICATION SYSTEM (USCS)

MAJOR DIVISIONS		USCS	TYPICAL DESCRIPTIONS
COARSE-GRAINED SOILS	GRAVELS	CLEAN GRAVELS LESS THAN 5% FINES	GW WELL-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	GP POORLY-GRADED GRAVELS, GRAVEL-SAND MIXTURES, LITTLE OR NO FINES
		GRAVELS WITH FINES MORE THAN 12% FINES	GM SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES
	SANDS	CLEAN SANDS LESS THAN 5% FINES	SW WELL-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES 50% OR MORE OF COARSE FRACTION PASSING THROUGH NO. 4 SIEVE	SP POORLY-GRADED SANDS, GRAVELLY SANDS, LITTLE OR NO FINES
		SANDS WITH FINES MORE THAN 12% FINES	SM SILTY SANDS, SAND-SILT MIXTURES
FINE-GRAINED SOILS	SILTS AND CLAYS	ML INORGANIC SILTS AND VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS OR CLAYEY SILTS WITH SLIGHT PLASTICITY	
		CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
		OL ORGANIC SILTS AND ORGANIC SILTY CLAYS OF LOW PLASTICITY	
	SILTS AND CLAYS	MH INORGANIC SILT, MICACEOUS OR DIATOMACEOUS FINE SAND OR SILTY SOILS	
		CH INORGANIC CLAYS OF HIGH PLASTICITY	
		OH ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY, ORGANIC SILTS	
HIGHLY ORGANIC SOILS	PT PEAT, HUMUS, SWAMP SOILS WITH HIGH ORGANIC CONTENTS		

NOTE: DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE SOIL CLASSIFICATIONS

LEGEND

	(2-INCH) O.D. STANDARD PENETRATION TEST	LL	LIQUID LIMIT (NP=NON-PLASTIC)
	(3-INCH) O.D. MODIFIED CALIFORNIA SAMPLE	PI	PLASTICITY INDEX (NP=NON-PLASTIC)
	SHELBY TUBE SAMPLE	TV	TORVANE SHEAR (tsf)
	GRAB SAMPLE	UC	UNCONFINED COMPRESSION OR UNIAXIAL COMPRESSION STRENGTH
	CORE SAMPLE	TXUU	UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION (ksf)
	WATER LEVEL OBSERVED IN BORING AT TIME OF DRILLING		
	WATER LEVEL OBSERVED IN BORING AFTER DRILLING		
	WATER LEVEL OBSERVED IN BORING OVERNIGHT		

Plate
A-0.2

GEOLABS, INC.
Geotechnical Engineering

Soil Classification Log Key
(with deviations from ASTM D2488)

GEOLABS, INC. CLASSIFICATION*

GRANULAR SOIL (- #200 < 50%)	COHESIVE SOIL (- #200 ≥ 50%)
<ul style="list-style-type: none"> PRIMARY constituents are composed of the largest percent of the soil mass. Primary constituents are capitalized and bold (i.e., GRAVEL, SAND) SECONDARY constituents are composed of a percentage less than the primary constituent. If the soil mass consists of 12 percent or more fines content, a cohesive constituent is used (SILTY or CLAYEY); otherwise, a granular constituent is used (GRAVELLY or SANDY) provided that the secondary constituent consists of 20 percent or more of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY GRAVEL, CLAYEY SAND) and precede the primary constituent. accessory descriptions compose of the following: with some: >12% with a little: 5 - 12% with traces of: <5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY GRAVEL with a little sand) 	<ul style="list-style-type: none"> PRIMARY constituents are based on plasticity. Primary constituents are capitalized and bold (i.e., CLAY, SILT) SECONDARY constituents are composed of a percentage less than the primary constituent, but more than 20 percent of the soil mass. Secondary constituents are capitalized and bold (i.e., SANDY CLAY, SILTY CLAY, CLAYEY SILT) and precede the primary constituent. accessory descriptions compose of the following: with some: >12% with a little: 5 - 12% with traces of: <5% accessory descriptions are lower cased and follow the Primary and Secondary Constituents (i.e., SILTY CLAY with some sand)
EXAMPLE: Soil Containing 60% Gravel, 25% Sand, 15% Fines. Described as: SILTY GRAVEL with some sand	
RELATIVE DENSITY / CONSISTENCY	
Granular Soils	
N-Value (Blows/Foot)	Relative Density
SPT	MCS
0 - 4	0 - 7
4 - 10	7 - 18
10 - 30	18 - 55
30 - 50	55 - 91
> 50	> 91
Very Loose	Loose
Medium Dense	Dense
Very Dense	
Cohesive Soils	
N-Value (Blows/Foot)	PP Readings (tsf)
SPT	MCS
0 - 2	0 - 4
2 - 4	4 - 7
4 - 8	7 - 15
8 - 15	15 - 27
15 - 30	27 - 55
> 30	> 55
< 0.5	0.5 - 1.0
1.0 - 2.0	2.0 - 4.0
> 4.0	
Very Soft	Soft
Medium Stiff	Stiff
Very Stiff	Hard

MOISTURE CONTENT DEFINITIONS

Dry: Absence of moisture, dry to the touch
Moist: Damp but no visible water
Wet: Visible free water, usually soil is below water table

GRAIN SIZE DEFINITION

Description	Sieve Number and / or Size
Boulders	> 12 inches (305-mm)
Cobbles	3 to 12 inches (75-mm to 305-mm)
Gravel	3-inch to #4 (75-mm to 4.75-mm)
Coarse Gravel	3-inch to 3/4-inch (75-mm to 19-mm)
Fine Gravel	3/4-inch to #4 (19-mm to 4.75-mm)
Sand	#4 to #200 (4.75-mm to 0.075-mm)
Coarse Sand	#4 to #10 (4.75-mm to 2-mm)
Medium Sand	#10 to #40 (2-mm to 0.425-mm)
Fine Sand	#40 to #200 (0.425-mm to 0.075-mm)

ABBREVIATIONS

WOH: Weight of Hammer
WOR: Weight of Drill Rods
SPT: Standard Penetration Test Split-Spoon Sampler
MCS: Modified California Sampler
PP: Pocket Penetrometer

**Soil descriptions are based on ASTM D2488-09a, Visual-Manual Procedure, with the above modifications by Geolabs, Inc. to the Unified Soil Classification System (USCS).*

Plate
A-0.1

GEOTECHNICAL NOTES:

- A geotechnical engineering report entitled "Geotechnical Engineering Exploration, Kapahi 1.0 mg Storage Tanks, Waialua-Kapaa Water System, Kapaa, Kauai, Hawaii" dated September 30, 2011 has been prepared by Geolabs, inc. a copy of the report is on file at the office of the Engineer for review by the contractor.
- For boring locations, see Sheet B-1.
- The information presented in the logs of borings depict the subsurface conditions encountered at that specified location and at the time of the field exploration only. Variations of subsoil conditions from those depicted in the logs of borings may occur between and beyond the borings.
- The penetration resistance shown on the logs of borings indicate the number of blows required for the specific sampler type used. The blow counts may need to be factored to obtain the Standard Penetration Test (SPT) blow counts.
- The data given is for general information only. Bidders shall examine the site and the boring data and draw their own conclusions therefrom as to the character of materials to be encountered. The Engineer will not assume responsibility for variations of subsoil quality or conditions other than at the boring locations shown and at the time the borings were taken.

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REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011-003

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

BORING LOGS, LEGENDS AND NOTES

APPROVED: _____
N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Gerald Y. Sevi
COUNTY ENGINEER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO. **B-2**

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

DATE _____
DATE _____

FILE _____
POCKET _____
FOLDER _____
NG _____

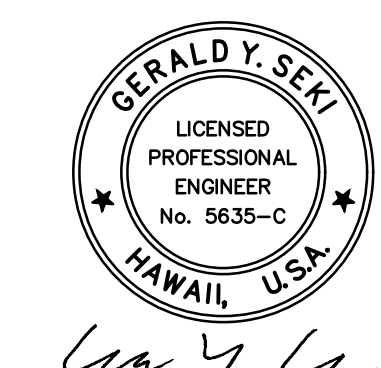
SHEET 37 OF 66 SHEETS

GEOLABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII										Log of Boring 1
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet) : 306.5 *		
										Description		
LL=57 PI=22 Direct Shear	32	75			10	1.0			MH	Reddish brown CLAYEY SILT, stiff, moist (residual soil)		
	34				6	1.5				grades to soft		
	35	84			22	1.0	5		MH	Reddish brown CLAYEY SILT with little sand and gravel, stiff, moist (saprolite)		
Direct Shear					7	1.0	10			grades to soft		
	55	68			13	1.0	15			grades to soft		
	46				11	1.0	20		ML	Reddish brown SANDY SILT with traces of clay, stiff, moist to wet (saprolite)		
LL=62 PI=15					36	2.0	25			grades to multi-color mottled, very stiff		
	65				14	2.0	30		MH	Reddish brown CLAYEY SILT with traces of sand, stiff, wet (saprolite)		
	57	60			35	2.0	35			grades to very stiff		
Consol.					25	2.0	40			grades to hard		
	53									Boring terminated at 41 feet		
* Elevations estimated from Topo received from Belt Collins Hawaii, Ltd. on August 10, 2010.												
Date Started: January 24, 2008		Date Completed: January 24, 2008		Water Level: Not Encountered								
Logged By: Y. Chiba		Drill Rig: CME-55		Drilling Method: 4" Auger								
Total Depth: 41 feet		Driving Energy: 140 lb. wt., 30 in. drop										
Work Order: 5988-00&10												

GEOLABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII										Log of Boring 2
Other Tests	Moisture Content (%)	Dry Unit Weight (pcf)	Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet) : 305 *		
										Description		
LL=57 PI=22 Direct Shear	45	78			15	2.0			CH	Brown CLAY with roots, stiff, damp to moist (residual soil)		
	40				15	2.0				grades to soft		
	41	78			20	1.5	5		MH	Reddish brown CLAYEY SILT with little sand and gravel, very stiff, damp to moist (residual soil)		
Direct Shear					47	1.0	10			grades to stiff		
	54	71			15	2.0	15		ML	Reddish brown SANDY SILT with little clay, stiff, wet (saprolite)		
	56				14	2.0	20			grades with more clay		
LL=62 PI=15					54	2.5	25			grades with more sand, very stiff		
	64				8	2.0	30		MH	Reddish brown CLAYEY SILT with little fine sand, very stiff, wet (saprolite)		
	62	48			22	2.5	35			grades to very stiff		
Consol.					53	4.1	40			grades to hard		
										Boring terminated at 41 feet		
* Elevations estimated from Topo received from Belt Collins Hawaii, Ltd. on August 10, 2010.												
Date Started: January 25, 2008		Date Completed: January 25, 2008		Water Level: Not Encountered								
Logged By: Y. Chiba		Drill Rig: CME-55		Drilling Method: 4" Auger								
Total Depth: 41 feet		Driving Energy: 140 lb. wt., 30 in. drop										
Work Order: 5988-00&10												

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011-003



BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAIALUA-KAPAA WATER SYSTEM
KAPAA, KAUAI, HAWAII

BORING LOGS-1

APPROVED:
N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)
Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
B-3

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

FILE	POCKET	FOLDER	NO.

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GEOLABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII				Log of Boring 3
Other Tests	Moisture Content (%) Dry Unit Weight (pcf) Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic USCS Description
	43 78		16	2.0	2.0	MH Reddish brown CLAYEY SILT with little sand, stiff, damp to moist (residual soil)
	39		14	2.5	2.5	
	42 84		28		5	CH Reddish brown SILTY CLAY with little sand, very stiff, damp to moist (residual soil)
	44		9	1.0	10	grades with some extremely weathered gravel (basaltic), stiff
	43 75		22	1.5	15	ML Reddish brown SANDY SILT with little clay, very stiff, moist (saprolite)
	56		8	1.0	20	grades to medium stiff
	62 58		22	1.0	25	grades to very stiff
	61		8	1.0	30	MH Reddish brown CLAYEY SILT with little sand, stiff, moist to wet (saprolite)
	Consol. 52 61		39	2.0	35	grades to medium stiff grades to wet grades to very stiff
	56		18	2.0	40	Boring terminated at 41 feet
					45	
					50	

Date Started:	January 25, 2008	Water Level:	Not Encountered
Date Completed:	January 25, 2008	Drill Rig:	CME-55
Logged By:	Y. Chiba	Drilling Method:	4" Auger
Total Depth:	41 feet	Driving Energy:	140 lb. wt., 30 in. drop
Work Order:	5988-00&10		

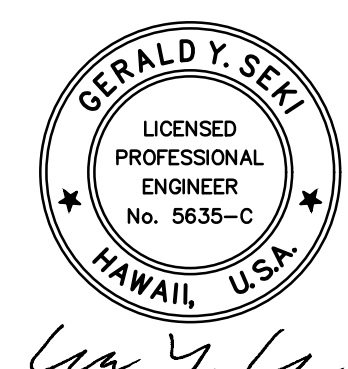
GEOLABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII				Log of Boring 4
Other Tests	Moisture Content (%) Dry Unit Weight (pcf) Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic USCS Description
	38 80		11	1.5	1.5	MH Reddish brown CLAYEY SILT, medium stiff, moist (fill)
	39		13	1.0	5	MH Orangish brown CLAYEY SILT with traces of gravel (basaltic), stiff, moist (residual soil)
	44		10	1.3	10	grades with some extremely weathered gravel (basaltic), stiff
	54		9	1.3	15	ML Reddish brown CLAYEY SILT with some gravel (basaltic), medium stiff to stiff, moist (saprolite)
LL=NP PI=NP Consol.	60 66		18	1.0	20	grades with fine sand
	67		5	0.8	25	grades to soft
						Boring terminated at 26 feet
					30	
					35	
					40	
					45	
					50	

Date Started:	March 9, 2011	Water Level:	Not Encountered
Date Completed:	March 9, 2011	Drill Rig:	CME-55
Logged By:	S. Latronic	Drilling Method:	4" Casing & PQ Coring
Total Depth:	26 feet	Driving Energy:	140 lb. wt., 30 in. drop
Work Order:	5988-00&10		

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REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003



APPROVED:
N/A

Gerald Y. Sei
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAIALUA-KAPAA WATER SYSTEM
KAPAA, KAUAI, HAWAII

BORING LOGS-2

DRAWING NO. **B-4**

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

APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

APPROVED: _____ DATE _____

Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

GEO LABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII				Log of Boring 5			
Other Tests	Moisture Content (%) Dry Unit Weight (pcf) Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	Approximate Ground Surface Elevation (feet): 305.5 *	Description
	40 76		25	3.0	3.0		MH		Dark brown CLAYEY SILT with some gravel and traces of organic matters, stiff, moist (fill)
	41 74		19	3.0	5.0		MH		Orangish brown CLAYEY SILT, stiff to very stiff, moist (residual soil) grades to stiff
	37		14		10.0				grades with traces of gravel (basaltic)
	47 75		24	3.8	15.0				
	59		6	1.0	20.0		ML/ MH		Brown CLAYEY SILT with sand (basaltic), medium stiff, very moist (saprolite) grades to soft
	63		18	1.0	25.0				
	54 72		6	1.3	30.0				
	37 91		50	3.5	35.0		ML		Grayish brown CLAYEY SILT with sand and gravel (basaltic), very stiff, moist (saprolite)
	52 73	67	65/5"	3.5	40.0				
			37/6" +50/4"	4.0	45.0				
					50.0				
Date Started: March 7, 2011		Date Completed: March 9, 2011		Water Level: Not Encountered					
Logged By: S. Latronic		Drill Rig: CME-55		Drilling Method: PQ Coring		Driving Energy: 140 lb. wt., 30 in. drop			
Total Depth: 87 feet		Work Order: 5988-00&10							

GEO LABS, INC. Geotechnical Engineering		KAPAHI 1.0 MG (313 FEET) STORAGE TANK WAIALUA-KAPAA WATER SYSTEM KAPAA, KAUAI, HAWAII				Log of Boring 5			
Other Tests	Moisture Content (%) Dry Unit Weight (pcf) Core Recovery (%)	RQD (%)	Penetration Resistance (blows/foot)	Pocket Pen. (tsf)	Depth (feet)	Sample Graphic	USCS	(Continued from previous plate)	Description
	62		11	1.0	1.0		MH		Reddish brown CLAYEY SILT with sand and traces of gravel (basaltic), stiff, moist (residual soil)
	59 70		23	1.5	5.0				
	63 66		28	2.5	6.0		MH		Reddish brown CLAYEY SILT with sand and gravel (basaltic), stiff, moist (saprolite)
LL=53 PI=12 Consol.	68 62		16	1.3	6.5				
	57 66		21	2.0	7.0				
			8	0.8	7.5		ML		Brown CLAYEY SILT with sand and traces of gravel (basaltic), soft to medium stiff, very moist (saprolite)
	55 75		56	2.5	8.0		ML		Grayish brown CLAYEY SILT with gravel (basaltic), very stiff, moist (saprolite)
		64 17			8.5				Brownish gray BASALT, moderately fractured, moderately to highly weathered, soft to medium hard
	72 60		11	1.0	8.5		ML		Grayish brown CLAYEY SILT with sand and traces of gravel (basaltic), stiff, moist (saprolite)
					90.0				Boring terminated at 87 feet
					95.0				
					100.0				
Date Started: March 7, 2011		Date Completed: March 9, 2011		Water Level: Not Encountered					
Logged By: S. Latronic		Drill Rig: CME-55		Drilling Method: PQ Coring		Driving Energy: 140 lb. wt., 30 in. drop			
Total Depth: 87 feet		Work Order: 5988-00&10							

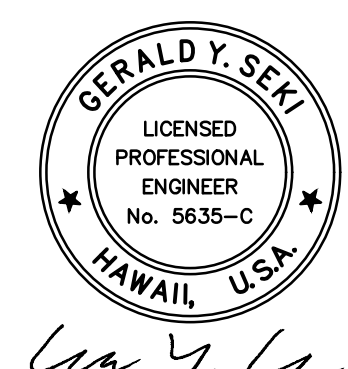
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 B:\Drafting\Drafting Working\9985-00_Kapahi_Water_Tank\9985-00SheetBoringLog.dwg

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
 JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
 TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAIALUA-KAPAA WATER SYSTEM
 KAPAA, KAUAI, HAWAII

BORING LOGS-3

APPROVED: _____
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)


Gerald Y. Sei
 LICENSED PROFESSIONAL ENGINEER
 HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

DRAWING NO. B-5
 COUNTY ENGINEER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

FILE POCKET FOLDER NG

TMK: 4 - 6 - 011:003

GENERAL NOTES:

- THE CONTRACTOR SHALL VERIFY ALL FIELD DIMENSIONS AND CONDITIONS PRIOR TO STARTING WORK. ALL DISCREPANCIES SHALL BE PROMPTLY REPORTED TO THE ENGINEER.
- ALL OMISSIONS OR CONFLICTS BETWEEN VARIOUS ELEMENTS OF THE WORKING DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- ALL WORKS SHALL CONFORM TO THE 2006 INTERNATIONAL BUILDING CODE, LATEST EDITION, AS ADOPTED BY THE COUNTY OF KAUAI.
- UNLESS SPECIFICALLY DETAILED ELSEWHERE, CONTRACTOR SHALL FOLLOW TYPICAL DETAILS ON THIS SHEET.
- DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR SHALL ASSUME RESPONSIBILITY FOR THE DESIGN AND PROVISION OF ALL TEMPORARY BRACING, SHORING GUYS, ETC.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL EXCAVATION PROCEDURES INCLUDING SHORING, LAGGING, AND PROTECTION OF ADJACENT PROPERTIES AND UTILITIES. EXISTING AREAS OR CONDITIONS DISTURBED BY THE CONTRACTOR'S ACTIVITIES SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
- THE CONTRACTOR SHALL VERIFY ALL NOTED DIMENSIONS PRIOR TO STARTING WORK AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

RESERVOIR NOTES:

- UNLESS NOTED OTHERWISE, RESERVOIR MATERIAL AND CONSTRUCTION SHALL CONFORM TO THE COUNTY OF KAUAI DEPARTMENT OF WATER STANDARDS TITLED "WATER SYSTEM STANDARDS", DATED 2002, AS AMENDED.
- MATERIALS IN CONTACT WITH THE RESERVOIR INTERIOR SHALL BE CERTIFIED TO BE SUITABLE FOR POTABLE WATER USE.
- ALL CONSTRUCTION JOINTS IN THE RESERVOIR WALL SHALL BE WATERPROOFED WITH A NEOPRENE OR RUBBER WATERSTOP. WATERSTOP SHALL BE BULB TYPE AS ACCEPTED BY THE ENGINEER. ALL WATERSTOP INTERSECTIONS SHALL BE JOINED BY VULCANIZING TO ENSURE A WATERTIGHT JOINT.
- PROVIDE 2 COATS OF EPOXY SEAL AT ALL RESERVOIR INTERIOR SURFACES INCLUDING FLOOR SLAB, WALL, COLUMNS AND PIPING.

CONCRETE:

- ALL CONCRETE WORK SHALL CONFORM TO ACI 318-05. REQUIREMENTS STATED BELOW, IF DIFFERENT FROM THE "WATER STANDARDS" SHALL TAKE PRECEDENCE OVER THE "WATER SYSTEM STANDARDS".
- THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE AT 28 DAYS AND MAXIMUM WATER/CEMENT RATIO BY WEIGHT SHALL BE:

	STRENGTH	MAXIMUM W/C
BOTTOM SLAB & PERIMETER GRADE BM STRENGTH	4,000 PSI	0.42
WALLS	4,000 PSI	0.42
COLS., ROOF STRUCTURAL SLAB AND CAISSONS	4,000 PSI	0.42
ALL OTHER CONCRETE	4,000 PSI	0.42

* NO WATER SHALL BE ALLOWED TO BE ADDED IN THE FIELD.
- SHRINKAGE REDUCING ADMIXTURE SHALL BE ADDED TO CONCRETE OF WALL AND FLOOR SLAB OF RESERVOIR AS REQUIRED TO COMPENSATE FOR TOTAL SHRINKAGE ANTICIPATED. DOSAGE SHALL BE BASED ON HISTORICAL OR TEST DATA OF CONCRETE SHRINKAGE. ADMIXTURE SHALL BE SRA, BASF, GRACE.
- SEE PROJECT SPECIFICATION FOR COMPLETE MIX DESIGN INFORMATION AND ACCEPTABLE ADMIXTURES.
- USE INTEGRAL WATERPROOFING ADMIXTURE IN CONCRETE FOR BOTTOM SLAB INCLUDING GRADE BEAM, WALLS AND COLUMNS WHICH CONFORMS TO ASTM C94 AND IS APPROVED FOR USE WITH POTABLE WATER BY NSF OR UL. ADMIXTURE SHALL BE "KIM" AS MANUFACTURED "KRYTON" OR OTHER REPUTABLE MANUFACTURER. READY MIX CONCRETE SUPPLIER SHALL BE RESPONSIBLE FOR COORDINATING/VERIFYING WITH ADMIXTURE MANUFACTURER ALL RECOMMENDED PROCEDURES AND QUANTITIES OF USING INTEGRAL WATERPROOFING ADMIXTURE.
- RESERVOIR CONCRETE SHALL BE CURED AS NOTED BELOW:
RESERVOIR WALLS (WET FORMS KEPT IN PLACE) 14 DAYS
ROOF SLAB 14 DAYS
RESERVOIR FLOOR SLAB SHALL BE CURED BY CONTINUOUS WATER IMMERSION UNTIL RESERVOIR IS PUT INTO SERVICE. ROOF SLAB AND WALLS SHALL BE CURED BY CONTINUOUS WATER MIST OR COVERED WITH A WATER RETAINING MATERIAL.

REINFORCING STEEL

- ALL REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60.
- LOW HYDROGEN WELDING RODS SHALL BE USED FOR ALL WELDING TO REINFORCING BARS.
- REINFORCING SHALL BE SPLICED ONLY AS NOTED IN DRAWINGS. FOR TANK WALL, CIRCUMFERENTIAL HORIZONTAL REINFORCING SPLICE LOCATIONS SHALL BE STAGGERED AS SHOWN IN DETAIL C/S-1. ALL OTHER SPLICES SHALL BE APPROVED BY THE STRUCTURAL ENGINEER.
- BARs NOTED "CONT." SHALL HAVE A MINIMUM SPLICE LENGTH OF 48 BAR DIAMETER, BUT NOT LESS THAN 2'-0".
- MINIMUM CONCRETE COVER, CAST-IN-PLACE CONCRETE, UNLESS NOTED OTHERWISE.
 - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
 - CONCRETE EXPOSED TO EARTH OR WEATHER:
 - NO. 6 THROUGH NO. 18 BARS 2"
 - NO. 5 BAR, W31 OR D31 WIRE, AND SMALLER 1 1/2"
 - CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
 - NO. 14 AND NO. 18 BARS 1 1/2"
 - NO. 11 BAR AND SMALLER 3/4"
- PRIOR TO PLACEMENT OF ANY REINFORCEMENT, THE GEOTECHNICAL ENGINEER SHALL SUBMIT A LETTER TO THE DEPARTMENT OF WATER FOR APPROVAL CERTIFYING THAT THE SOILS CONDITION, INCLUDING COMPACTION AND BACKFILL COMPLIES WITH THE DESIGN CONDITION.

PAINTING NOTES:

- SEE SPECIFICATIONS.

FOUNDATION NOTES:

- FOUNDATION DESIGN IS BASED ON GEOTECHNICAL REPORT PREPARED BY GEOLABS DATED SEPTEMBER 30, 2011 ENTITLED "GEOTECHNICAL ENGINEERING EXPLORATION KAPAHU 1.0 MG STORAGE TANKS WAILUA-KAPAA WATER SYSTEM". A COPY OF THIS REPORT IS ON FILE WITH THE CIVIL ENGINEERING PRIME CONSULTANT FOR THIS PROJECT. THE CONTRACTOR SHALL OBTAIN A COPY OF THIS REPORT AND SHALL THOROUGHLY READ ITS FINDINGS.
- THERE ARE TWO OPTIONS STATED IN THE GEOTECHNICAL REPORT. THE 3-FOOT DIAMETER DRILLED SHAFT OPTION WAS SELECTED.
- THE CAST-IN-PLACE CONCRETE DRILLED SHAFTS WILL DERIVE VERTICAL SUPPORT FROM BOTH FRICTION AND END BEARING BETWEEN THE CONCRETE SHAFT AND THE SURROUNDING SOILS.
- A TRIAL SHAFT PROGRAM SHALL BE IMPLEMENTED. THE TRIAL SHAFT PROGRAM SHALL FULFILL THE FOLLOWING OBJECTIVES:
 - TO EXAMINE THE ADEQUACY OF THE METHODS AND EQUIPMENT PROPOSED BY THE CONTRACTOR TO INSTALL THE DRILLED SHAFTS THROUGH THE STIFF RESIDUAL/SAPROLITE SOILS.
 - TO CONFIRM OR MODIFY THE ESTIMATED TIP ELEVATIONS OF THE DRILLED SHAFTS
 - TO ASSESS THE CONTRACTOR'S METHOD OF PLACING AND EXTRACTING THE TEMPORARY CASING FOR THE DRILLED SHAFT.
 - TO ASSESS THE CONTRACTOR'S METHOD OF TREMMIE CONCRETE PLACEMENT.
 - CONDUCT AN INSTRUMENTED LOAD TEST.

TO ACHIEVE THESE OBJECTIVES, THE TRIAL SHAFT PROGRAM SHALL CONSIST OF DRILLING A 3-FOOT DIAMETER TRIAL SHAFT EXTENDING TO A DEPTH OF AT LEAST 75 FEET BELOW THE EXISTING GROUND. THE LOCATION OF THE TRIAL SHAFT SHALL BE NEAR, BUT OUTSIDE OF, THE TANK FOUNDATIONS. TRIAL SHAFT SHALL BE NO CLOSER THAN 12'-0" BUT WITHIN 40'-0" OF PERIMETER CAISSONS. THE LOCATION SHALL BE SUBMITTED FOR APPROVAL BY THE KAUAI DEPARTMENT OF WATER. AFTER DRILLING THE TRIAL SHAFT, THE TRIAL SHAFT SHALL BE INSPECTED TO EVALUATE THE CONTRACTOR'S DRILLING CAPABILITY. IF ACCEPTED BY THE ENGINEER, THE TRIAL SHAFT MAY BE CONVERTED TO A LOAD TEST SHAFT FOR LOAD TESTING PURPOSES.

THE LOAD TEST SHAFT SHALL BE STRUCTURALLY REINFORCED AND INSTRUMENTED WITH EMBEDMENT STRAIN GAUGES FOR LOAD TESTING. THE EMBEDMENT STRAIN GAUGES SHALL BE PLACED STARTING FROM THE BOTTOM AT AN ELEVATION OF ABOUT 5 FEET ABOVE THE TIP OF THE TRIAL SHAFT AND SUBSEQUENTLY AT 10-FOOT INTERVALS.

DUE TO THE HIGH CAPACITIES RECOMMENDED FOR THE DRILLED SHAFTS, A CONVENTIONAL LOAD TEST WOULD NOT BE PRACTICAL AND WOULD BE COSTLY TO CONDUCT. THEREFORE, A BI-DIRECTIONAL AXIAL LOAD TEST SHALL BE CONDUCTED ON THE REINFORCED LOAD TEST SHAFT USING AN EXPANDABLE BASE LOAD CELL (OSTERBERG LOAD CELL). THE EXPANDABLE BASE LOAD CELL WILL NEED TO BE ATTACHED TO THE REINFORCING CAGE PRIOR TO LOWERING THE REINFORCING CAGE IN PLACE. THE DRILLED SHAFT LOAD TEST SHALL BE PERFORMED IN GENERAL ACCORDANCE WITH THE QUICK LOAD TEST METHOD OF THE ASTM D 1143. IN GENERAL, THE LOAD TEST SHAFT SHALL BE LOADED IN INCREMENTS OF ABOUT 100 TO 200 KIPS, AND UP TO THE ULTIMATE LOAD CAPACITY TABULATED BELOW. THE LOAD TEST SHALL BE HELD FOR A MINIMUM OF 12 HOURS AT OR NEAR THE FAILURE TO EVALUATE THE POTENTIAL FOR CREEP EFFECTS. THE LOAD TEST SHAFT SHALL THEN BE LOADED TO FAILURE TO EVALUATE THE ULTIMATE SIDE SHEAR RESISTANCE OF THE TRIAL SHAFT. INSTALLATION OF THE EXPANDABLE BASE LOAD CELL AND EMBEDMENT STRAIN GAUGES, PERFORMANCE OF THE BI-DIRECTIONAL AXIAL LOAD TEST, AND ANALYSES OF THE LOAD TEST DATA SHALL BE PERFORMED BY A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER EXPERIENCED IN THESE TYPES OF LOAD TESTING PROCEDURES. A QUALIFIED PROFESSIONAL GEOTECHNICAL ENGINEER SHALL BE LICENSED AS A GEOTECHNICAL ENGINEER IN THE STATE OF HAWAII.

- SPECIAL INSPECTION (CONTINUOUS INSPECTION) IS REQUIRED FOR THE TRIAL SHAFT, LOAD TESTING AND PRODUCTION SHAFTS CONSTRUCTION/PHASES. A SPECIAL INSPECTOR WHO IS A LICENSED (IN HAWAII) AS A GEOTECHNICAL ENGINEER SHALL BE PRESENT DURING THE TRIAL SHAFT AND LOAD TESTING PROGRAM TO EVALUATE THE CONTRACTOR'S METHOD OF DRILLED SHAFT INSTALLATION AND TO EVALUATE THE SUBSURFACE MATERIALS ENCOUNTERED. IN ADDITION, SPECIAL INSPECTOR GEOTECHNICAL ENGINEER SHALL OBSERVE THE INSTRUMENTED LOAD TEST ON THE REINFORCED LOAD TEST SHAFT. DURING THE CONSTRUCTION OF THE PRODUCTION SHAFTS A SPECIAL INSPECTOR GEOTECHNICAL ENGINEER SHALL OBSERVE THE DRILLED SHAFT INSTALLATION.
- SITE CONDITION. THE PROJECT SITE IS GENERALLY UNDERLAIN BY STIFF RESIDUAL SOIL AND SAPROLITE SOIL. IT IS VERY COMMON THAT HARD ROCKS CORES EXIST WITHIN THIS TYPE OF SOILS. THE HARDNESS AND EXTENT OF ROCK CORE MIGHT VARY SIGNIFICANTLY AT DIFFERENT LOCATIONS. THEREFORE, SOME DIFFICULT DRILLING CONDITIONS WILL LIKELY BE ENCOUNTERED AT THE PROJECT SITE AND SHALL BE EXPECTED. IN ADDITION, ALTHOUGH WATER TABLE WAS NOT ENCOUNTERED DURING THE GEOTECHNICAL FIELD EXPLORATION AT THE PROJECT SITE, WET SOILS WERE RECOVERED THROUGHOUT ALL OUR BORINGS, POSSIBLY DUE TO PERCHED WATER AND SEEPAGE ZONES. IT IS POSSIBLE THAT THE EXCAVATED HOLE WILL ACCUMULATE WATER AFTER IT REACHES THE DESIGN TIPS.

TEMPORARY CASING OF THE DRILLED HOLES MIGHT BE REQUIRED DURING THE DRILLED SHAFT INSTALLATION TO KEEP THE DRILLED HOLE OPEN AND PROVIDE A SAFE WORKING ZONE FOR FIELD PERSONNEL. TEMPORARY CASING MAY BE EXTENDED TO A SUITABLE DEPTH DETERMINED BY THE CONTRACTOR. THE CASING SHALL BE CONTINUOUS BETWEEN THE TOP AND BOTTOM ELEVATIONS, AND SHALL BE ADVANCED THROUGH THE GROUND BY TWISTING, DRIVING OR VIBRATIONS BEFORE CLEANING OUT THE SHAFT.

- THE CONCRETE FOR THE DRILLED SHAFTS SHALL BE A LOW-SHRINK MIX WITH HIGH SLUMP (6 TO 8 INCH SLUMP RANGE) IN ORDER TO PROVIDE CLOSE CONTACT BETWEEN THE DRILLED SHAFTS AND THE SURROUNDING SOILS. CONCRETE SHALL BE PLACED IN A SUITABLE MANNER TO REDUCE THE POTENTIAL FOR SEGREGATION OF THE AGGREGATES FROM THE CONCRETE MIX. IN ADDITION, CONCRETE SHALL BE PLACED PROMPTLY AFTER THE DRILLING (WITHIN 24 HOURS AFTER DRILLING OF THE HOLES) TO REDUCE THE POTENTIAL FOR CAVING-IN THE SIDES OF THE DRILLED HOLES. THE TREMMIE METHOD FOR CONCRETE PLACEMENT SHALL BE USED. THE TIP OF THE TREMMIE PIPE SHALL BE KEPT AT LEAST 5 FEET BELOW THE FRESH GROUT SURFACE TO MINIMIZE GROUT CONTAMINATION.

- DUE TO THE REMOTE LOCATION OF THE SITE, ACCESS FOR THE TRADITIONAL DRILLING EQUIPMENT MIGHT BE RESTRICTED. THE DRILLED SHAFT SUBCONTRACTOR SHALL EVALUATE THE SITE ACCESS AND SHALL HAVE THE APPROPRIATE EQUIPMENT AND TOOLS TO DRILL THROUGH ROCK, IF ENCOUNTERED.
- 3-FOOT DIAMETER DRILLED SHAFT PROPERTIES:

LOCATION	ALLOWABLE COMPRESSIVE LOAD CAPACITY (KIPS)	ULTIMATE COMPRESSIVE LOAD CAPACITY (KIPS)	MINIMUM SHAFT LENGTH (FEET)	NO. OF CAISSONS PER TANK
INTERIOR	205	523	43	17
INTERIOR BENEATH COLUMN	300	750	56	4
PERIMETER	263	751	56	18

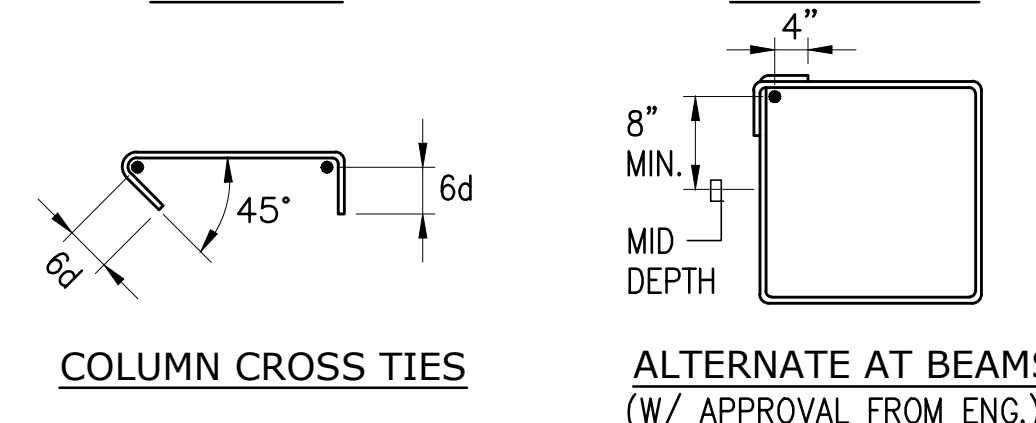
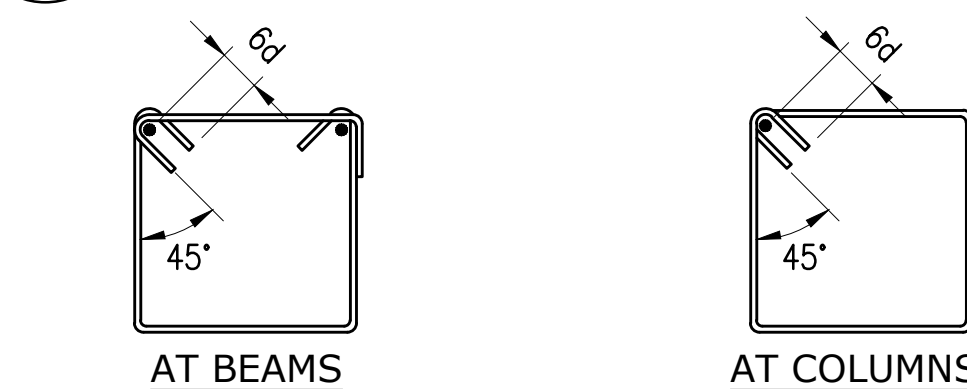
STRUCTURAL DESIGN CRITERIA

- ROOF LOADS:
SUPERIMPOSED DEAD LOAD 6 PSF
ROOF LIVE LOAD 20 PSF
- SEISMIC SPECTRAL RESPONSE ACCELERATIONS
S₁ = 0.07g
S_s = 0.23g
- SITE CLASS D
- IMPORTANCE FACTOR FOR IBC
I_e = 1.5
I_w = 1.15

BAR SIZE	MINIMUM EXTENSION LENGTHS "A"			
	STANDARD HOOKS	90° HOOKS	TIES AND STIRRUPS	135° HOOKS
#3	6"	7"	5"	6"
#4	8"	9"	6"	7"
#5	9"	11"	7"	9"
#6	11"	13"	14"	12"
#7	12"	15"	16"	14"
#8	14"	17"	19"	16"
#9	19"	21"	NA	NA
#10	21"	24"	NA	NA
#11	24"	26"	NA	NA
#14	34"	34"	NA	NA
#18	45"	45"	NA	NA

(A) TYP. REBAR BENDING

S-1 NOT TO SCALE



NOTES:

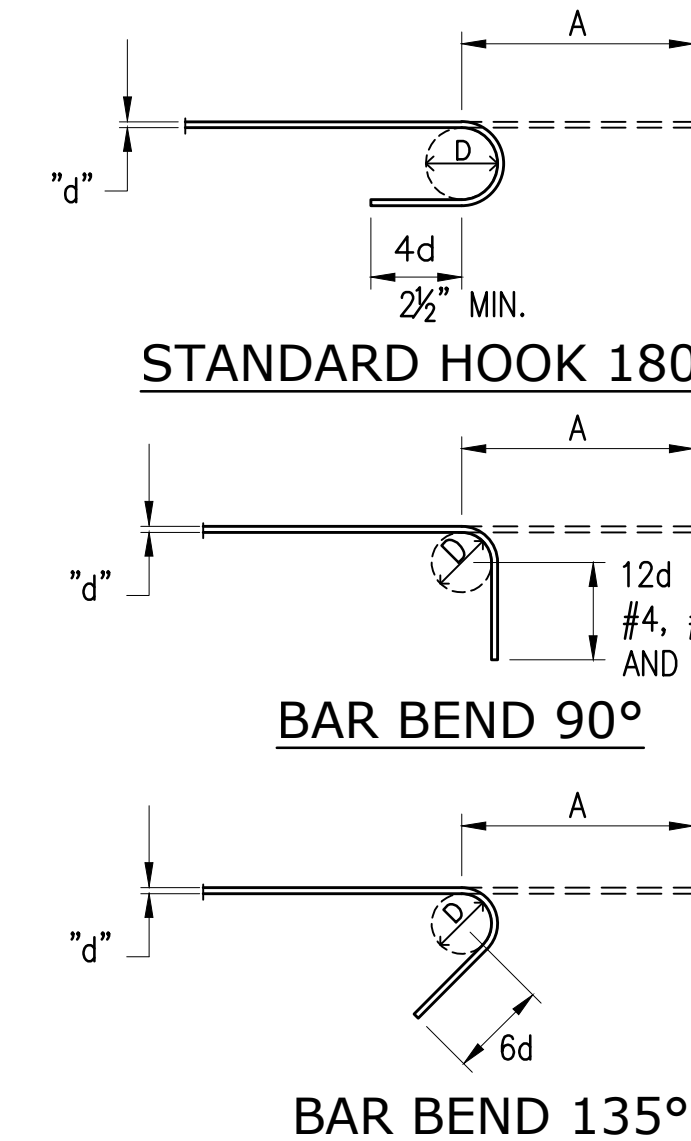
- THESE DETAILS SHALL APPLY TO #3, #4, AND #5 BARS - GRADE 40 AND GRADE 60.
- ALL BARS SHALL BE BENT COLD.
- MINIMUM FINISHED BEND DIAMETER = 4d FOR #3, 4, AND #15 BARS.

(B) TYPICAL TIE AND STIRRUP DETAIL

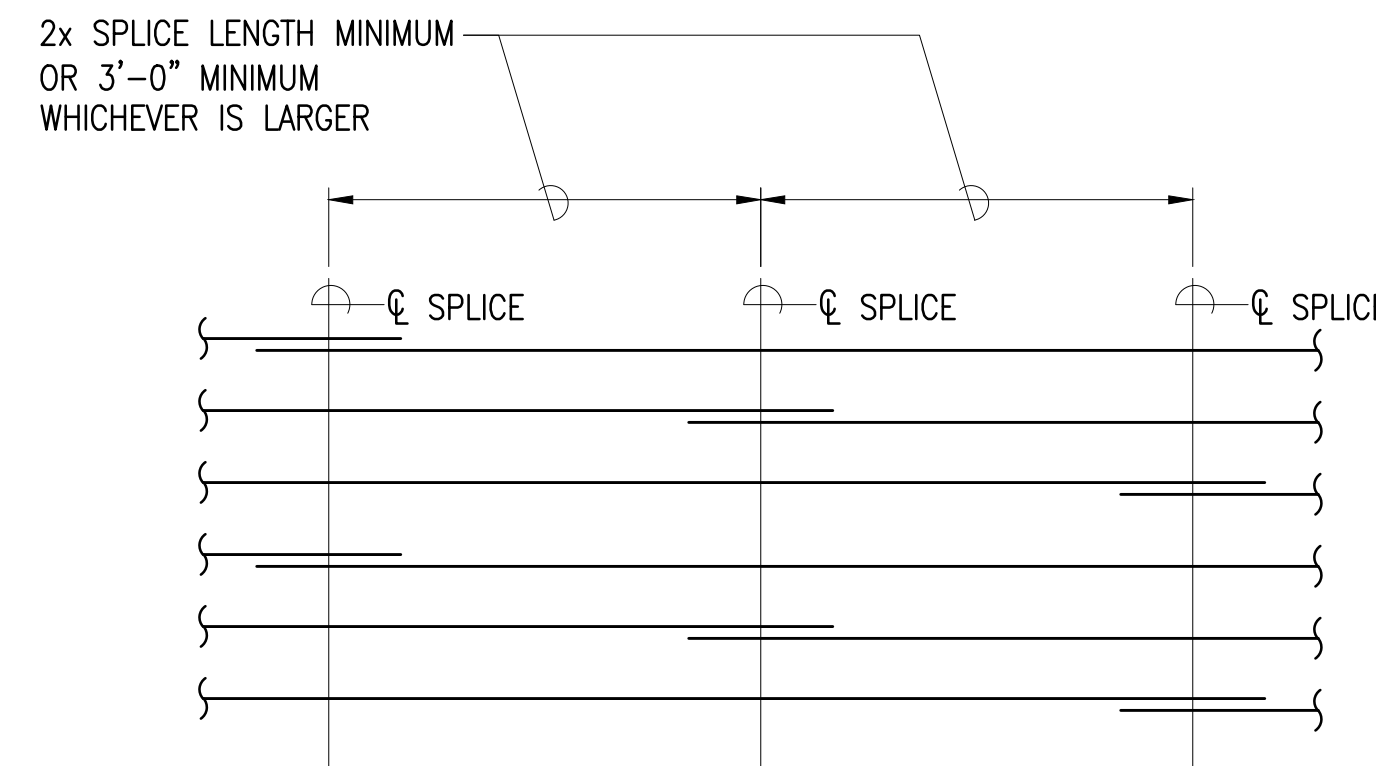
S-1 NOT TO SCALE

ALTERNATE TANK WALL AND ROOF: (DESIGN-BUILD ALTERNATE)

- AN ALTERNATE TANK WALL AND ROOF SYSTEM, DESIGNED AND CONSTRUCTED BY THE CONTRACTOR IN ACCORDANCE WITH AMERICAN WATER WORKS ASSOCIATION (AWWA) D110-04 TYPE I TANK, MAY BE PROVIDED IN LIEU OF WHAT IS SHOWN ON THESE DRAWINGS. THE ALTERNATE SHALL USE PRESTRESS STRAND WRAPPING. PRESTRESSED WIRE IS NOT ALLOWED. THE STRANDS SHALL BE GALVANIZED PER CLASS A AS SPECIFIED IN THE AWWA D110-04. THE EXTERIOR COVER OVER THE PRESTRESS STRANDS SHALL BE 1 1/2" INCHES OF SHOTCRETE. MANUFACTURER AND BUILDER SHALL HAVE AT LEAST 5 YEARS OF EXPERIENCE IN DESIGNING AND CONSTRUCTING WATER TANKS, AND SHALL HAVE DESIGNED AND COMPLETED AT LEAST 10 AWWA D110 TYPE 1 TANKS.
- DESIGN WIND PRESSURES SHALL BE DERIVED FROM IBC 2006 AND ASCE 7-05. THE DESIGN EXPOSURE, WIND SPEED AND TOPOGRAPHIC EFFECTS SHALL BE IN ACCORDANCE WITH THE BUILDING CODE ADOPTED BY THE DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES (DAGS) OF THE STATE OF HAWAII.
- SEISMIC DESIGN SHALL BE BASED ON AWWA D110-04 AND IBC 2003 AND ASCE 7-05. THE MORE STRINGENT OF REQUIREMENTS SHALL GOVERN.
- THE ACCESSORIES SUCH AS LADDERS, LADDER GATE, RAILINGS, WATER LEVEL INDICATOR, PIPE BRACES, OPENINGS, VENTILATORS, HATCHES ATTACHED TO THE WALL AND ROOF SHALL BE AS DESIGNED AND DETAILED BY TANK MANUFACTURER. ALL METAL ACCESSORIES SHALL BE 316L STAINLESS STEEL EXCEPT FOR EXTERIOR STAIRS WHICH SHALL BE HOT DIPPED GALVANIZED STEEL UNLESS OTHERWISE NOTED.
- RESERVOIR LEAKAGE TEST AND DISINFECTION SHALL BE IN ACCORDANCE WITH WATER SYSTEM STANDARDS, STATE OF HAWAII 2002.
- REQUIREMENT OF AN INTERIOR COATING, AND TYPE, SHALL BE AT THE DISCRETION OF THE ALTERNATE TANK MANUFACTURER.
- THE EXTERIOR OF THE TANK SHALL BE PAINTED AS DESCRIBED IN SECTION 303.27 OF THE WATER SYSTEM STANDARDS, STATE OF HAWAII 2002.
- THE PERIMETER OF THE BOTTOM SLAB OF THE TANK SHALL BE MODIFIED AS SHOWN IN DETAIL E/S-4 IF THIS ALTERNATE TANK WALL AND ROOF IS IMPLEMENTED.
- COLUMN SIZE REINFORCEMENT AND DETAIL MAY BE MODIFIED, HOWEVER THE NUMBER AND LOCATIONS SHALL BE AS SHOWN ON THESE DRAWINGS.
- DESIGN DRAWINGS AND CALCULATIONS SHALL BE STAMPED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF HAWAII.
- A SAMPLE (NOT FOR CONSTRUCTION) OF THE ALTERNATE TANK WALL AND ROOF SYSTEM IS SHOWN IN THE BACK OF THIS SET OF PLANS. THE SAMPLE IS NOT TO BE USED FOR CONSTRUCTION OR COST ESTIMATION PURPOSES, AND DOES NOT REPRESENT A FINAL ALTERNATE DESIGN.



BAR SIZE	D
#3, #4, #5	6 d
#6, #7, #8	8 d
#9, #10, #11	10 d
#14, #18	10 d



CIRCUMFERENTIAL HORIZONTAL TANK REINFORCING IN A PLANE

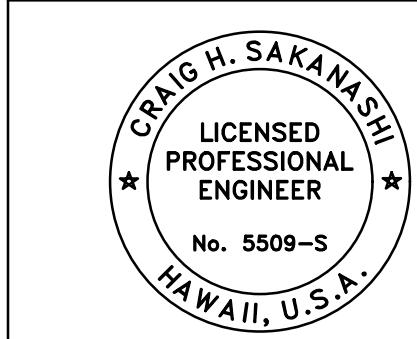
S-1 NOT TO SCALE

STRUCTURAL INSPECTION REQUIREMENT:

- SPECIAL INSPECTION IS REQUIRED FOR THIS PROJECT. SPECIAL INSPECTION AS DELINEATED IN THE 2006 INTERNATIONAL BUILDING CODE CHAPTER 17, IS REQUIRED FOR THE FOLLOWING:
 - DRILLED SHAFT GEOTECHNICAL (BY GEOTECHNICAL SPECIAL INSPECTOR, SEE FOUNDATION NOTES)
 - CONCRETE (BY SPECIAL INSPECTOR)
 - REINFORCING STEEL (BY SPECIAL INSPECTOR)
- THE CONTRACTOR SHALL HIRE AN INDEPENDENT QUALIFIED PERSON WHO IS APPROVED BY THE KAUAI DEPARTMENT OF WATER FOR THE TWO TYPES OF SPECIAL INSPECTORS. THE GEOTECHNICAL SPECIAL INSPECTOR SHALL BE A GEOTECHNICAL ENGINEER LICENSED IN THE STATE OF HAWAII TO DO THE SPECIAL INSPECTIONS FOR GEOTECHNICAL ITEMS AS STATED IN THE FOUNDATION NOTES. THE REGULAR SPECIAL INSPECTOR SHALL DO INSPECTIONS OF CONCRETE AND REINFORCING.
- THE CONTRACTOR SHALL COORDINATE AND BE RESPONSIBLE FOR CONTACTING THE SPECIAL INSPECTOR(S) IN A TIMELY MANNER SUCH THAT ALL SPECIAL INSPECTIONS ARE EXECUTED.

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003



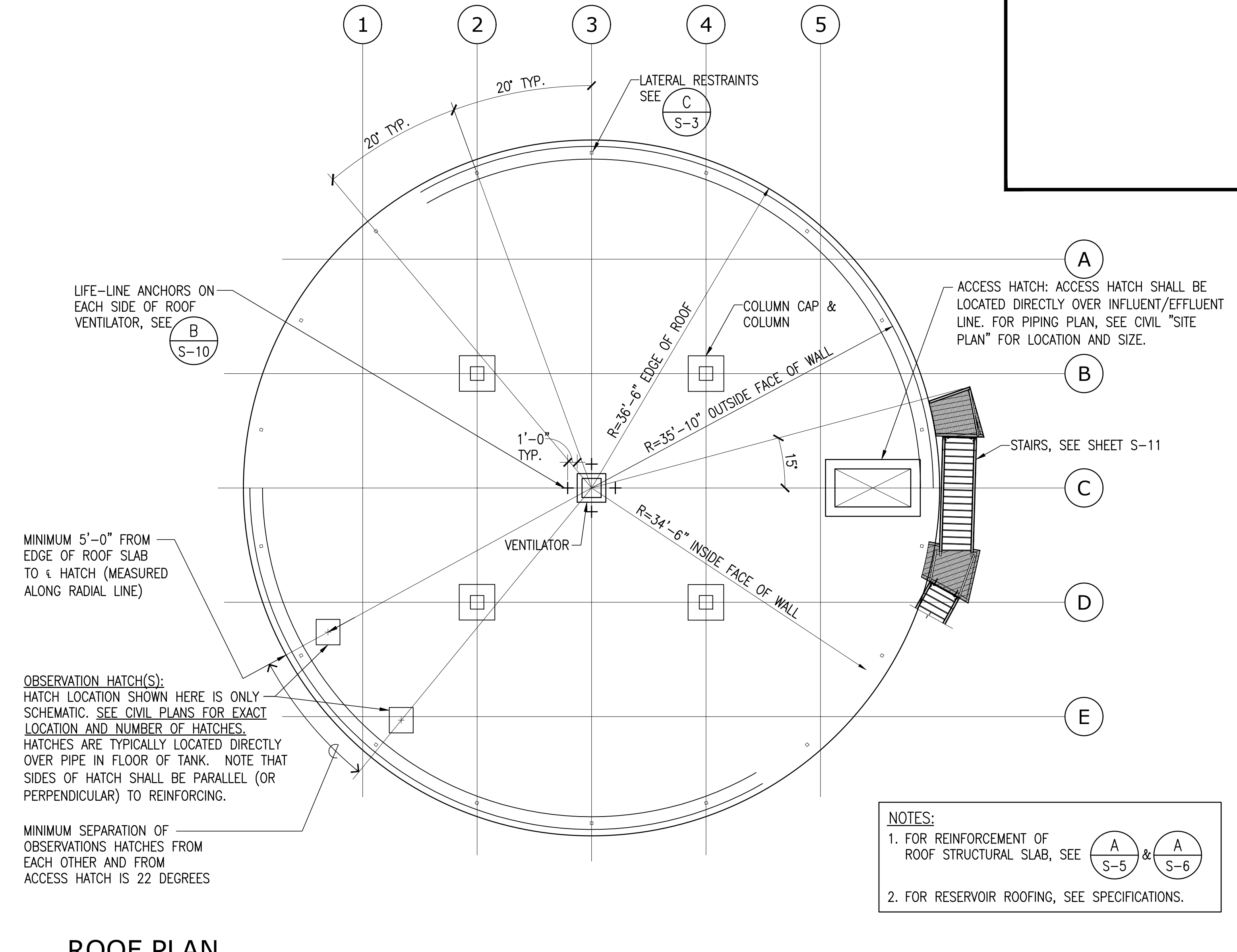
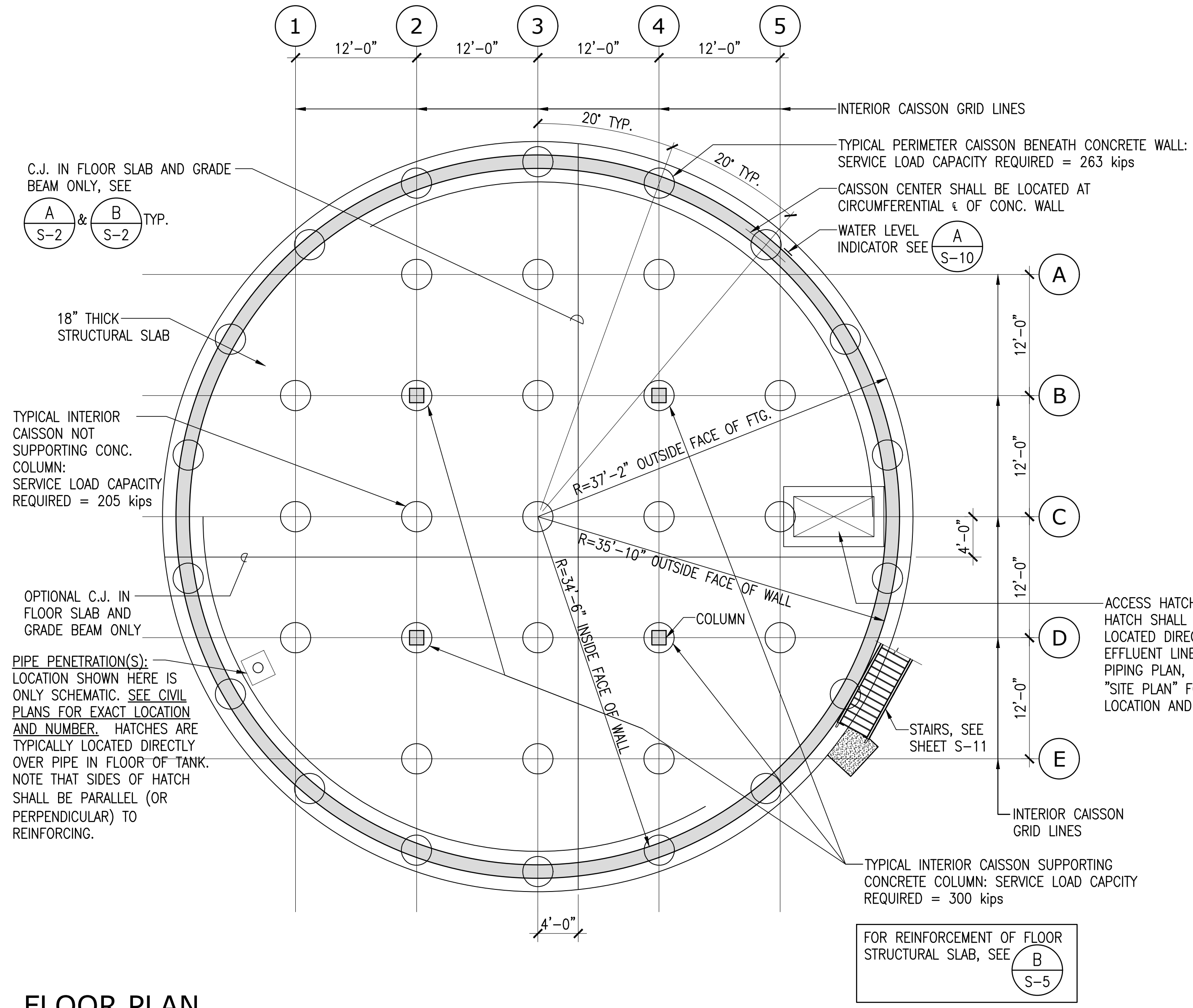
APPROVED: N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPAA HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPAA WATER SYSTEM
KAPAA, KAUAI, HAWAII

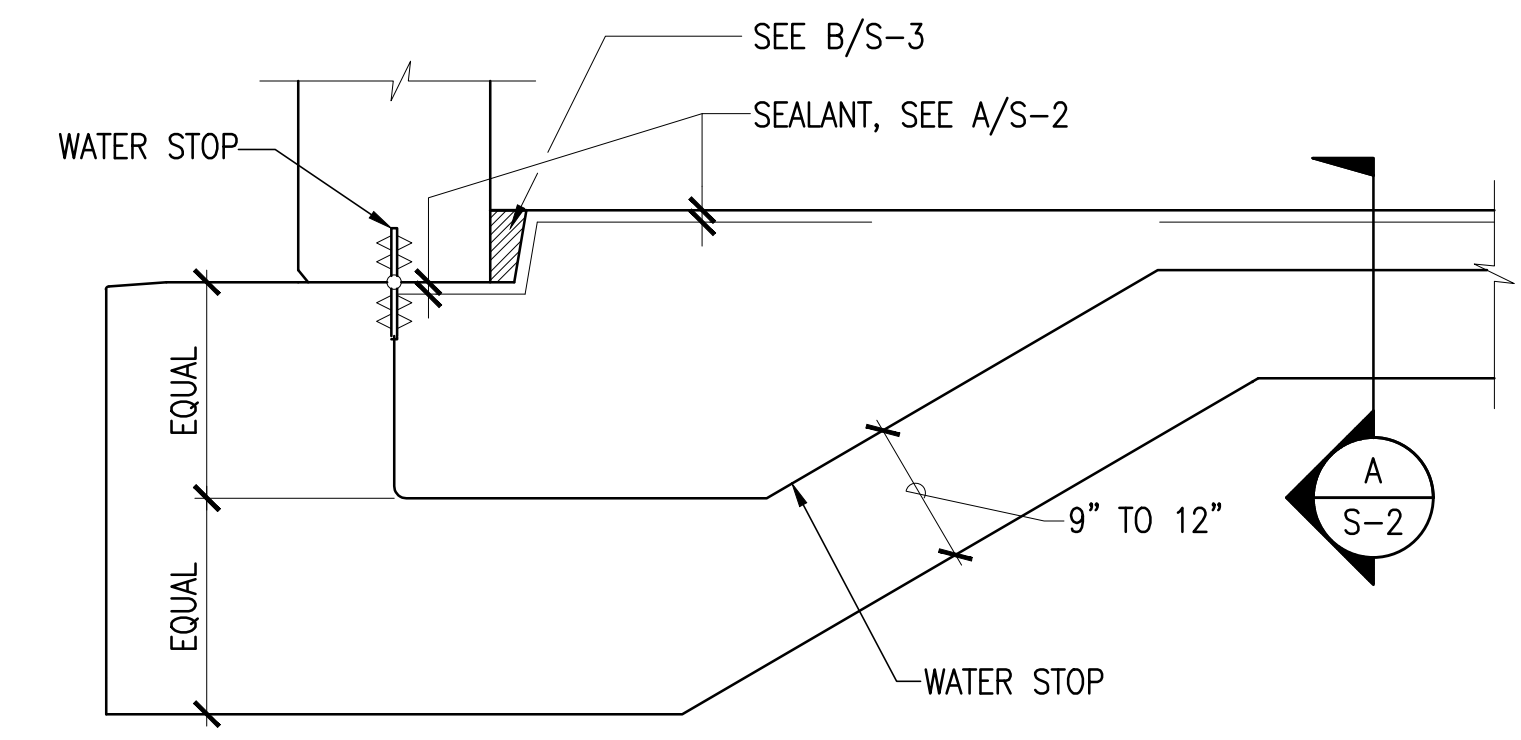
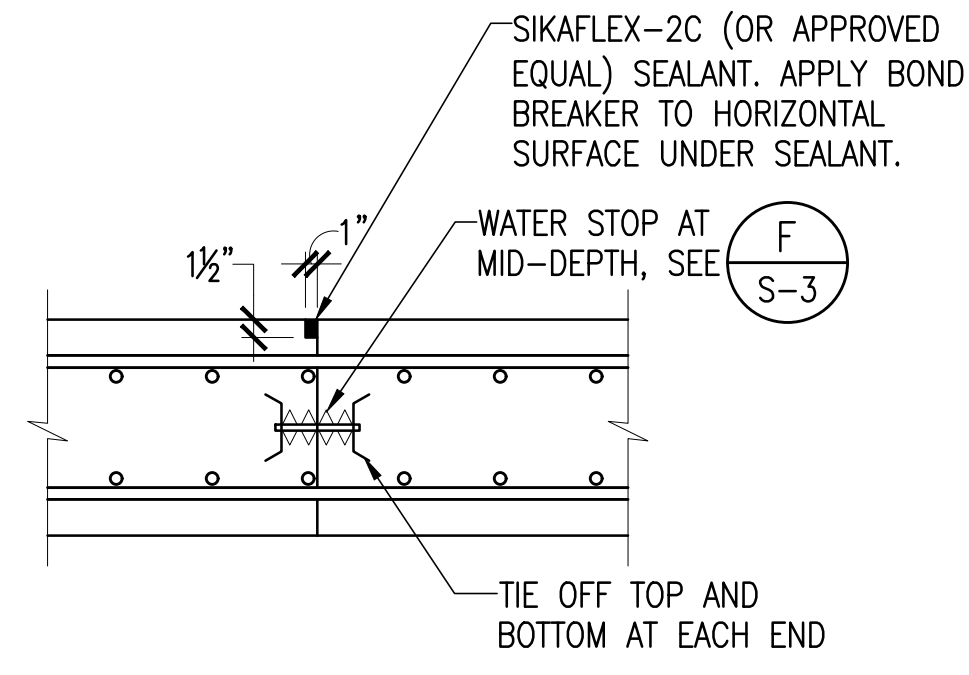
GENERAL NOTES AND TYPICAL DETAILS

APPROVED: Jason Kagimoto
COUNTY ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

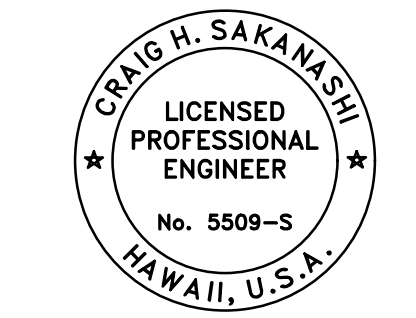
DRAWING NO. S-1



- ALL INTERSECTIONS AND SPLICES OF RUBBER WATERSTOPS TO BE JOINED BY VULCANIZING OR OTHER APPROVED MEANS TO FORM A WATERTIGHT CONNECTION.
- APPLY SIKAGUARD 75 (OR APPROVED EQUAL) COAT TO ALL INTERIOR SURFACES AS REQUIRED TO PATCH & REPAIR ALL IMPERFECTIONS INCLUDING HONEYCOMBS, ETC. CHIP OUT ALL LOOSE CONCRETE BEFORE PATCHING REPAIRS.
- ONCE THE RESERVOIR FLOOR IS POURED, 6" MIN. OF WATER SHALL BE MAINTAINED IN THE RESERVOIR FOR THE REMAINDER OF THE PROJECT.
- TESTING OF CYLINDERS SHALL BE PAID FOR BY THE CONTRACTOR, AND SHALL BE DONE BY AN INDEPENDENT TESTING LABORATORY APPROVED BY THE DEPARTMENT. SIX (6) CYLINDERS PER 100 C.Y. POUR.
- ALL EXPOSED EXTERIOR (INCLUDING ROOF) OF RESERVOIR SHALL BE PAINTED AS SPECIFIED IN THE WATER SYSTEM STANDARDS, SECTION 303.27; UNLESS OTHERWISE DIRECTED, COLOR SHALL BE OF A "MODERATE TO DARK EARTH-TONE COLOR" PER PLANNING COMMISSION LETTER DATED AUGUST 30, 2012. THE COLOR SCHEME SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT FOR REVIEW AND ACCEPTANCE PRIOR TO THE BUILDING PERMIT APPLICATION.
- PROVIDE REINFORCEMENT, BOLTS, REGLETS, DOWELS, WATERSTOP, AND OTHER ITEMS AS SHOWN ON PLAN. ALL ITEMS TO BE CAST IN CONCRETE SHALL BE POSITIVELY SECURED IN PLACE TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.
- CONTRACTOR SHALL LOCATE AND ENCASE ALL PROPERTY PINS IN CONCRETE.
- LEAKAGE TEST TO BE PERFORMED AFTER THE INSTALLATION OF THE INTERIOR PERIMETER SEAL AND PRIOR TO THE INTERIOR TANK EPOXY COATING.



TMK: 4 - 6 - 011-003



APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)
 Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

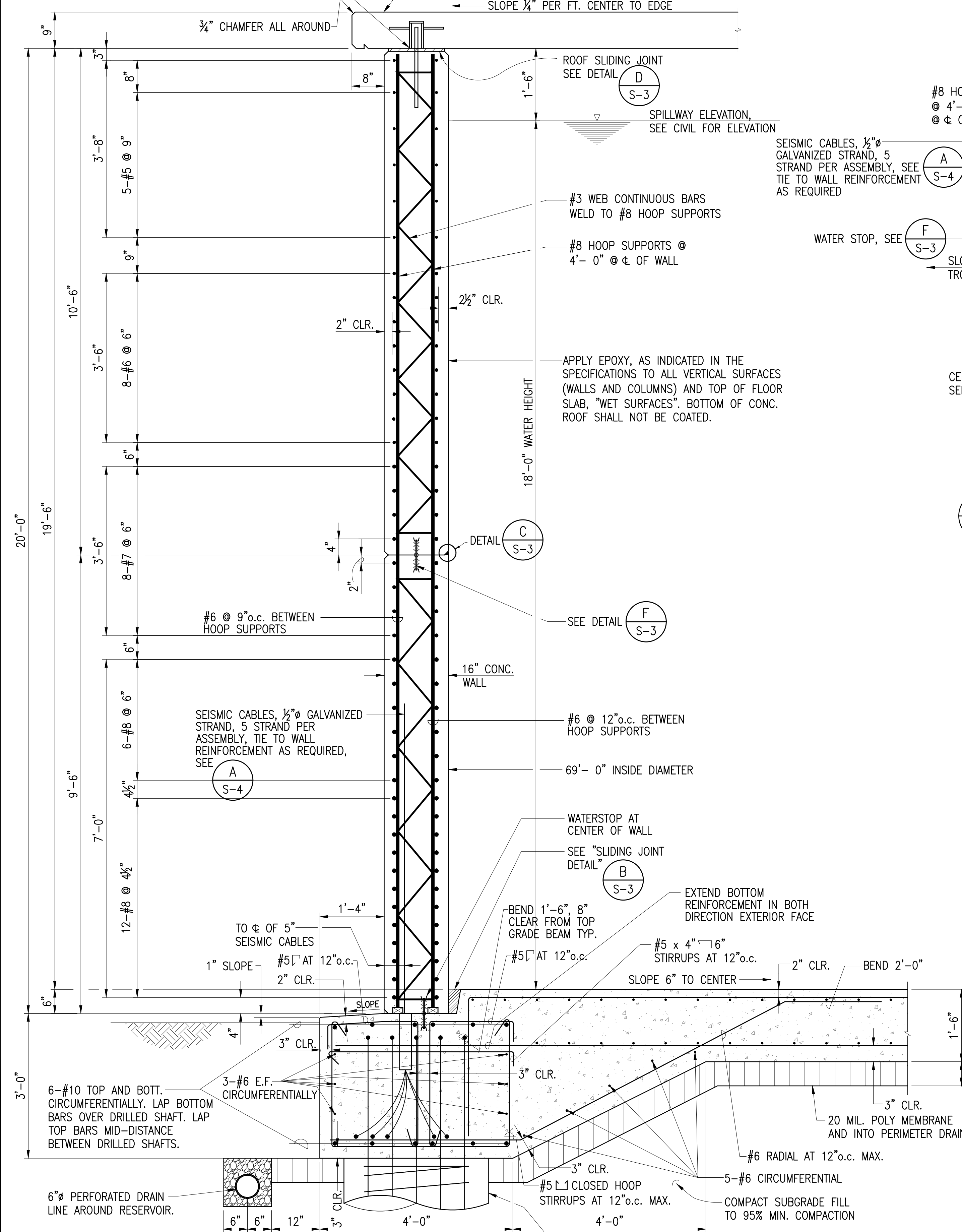
FLOOR AND ROOF PLAN

DRAWING NO.
S-2

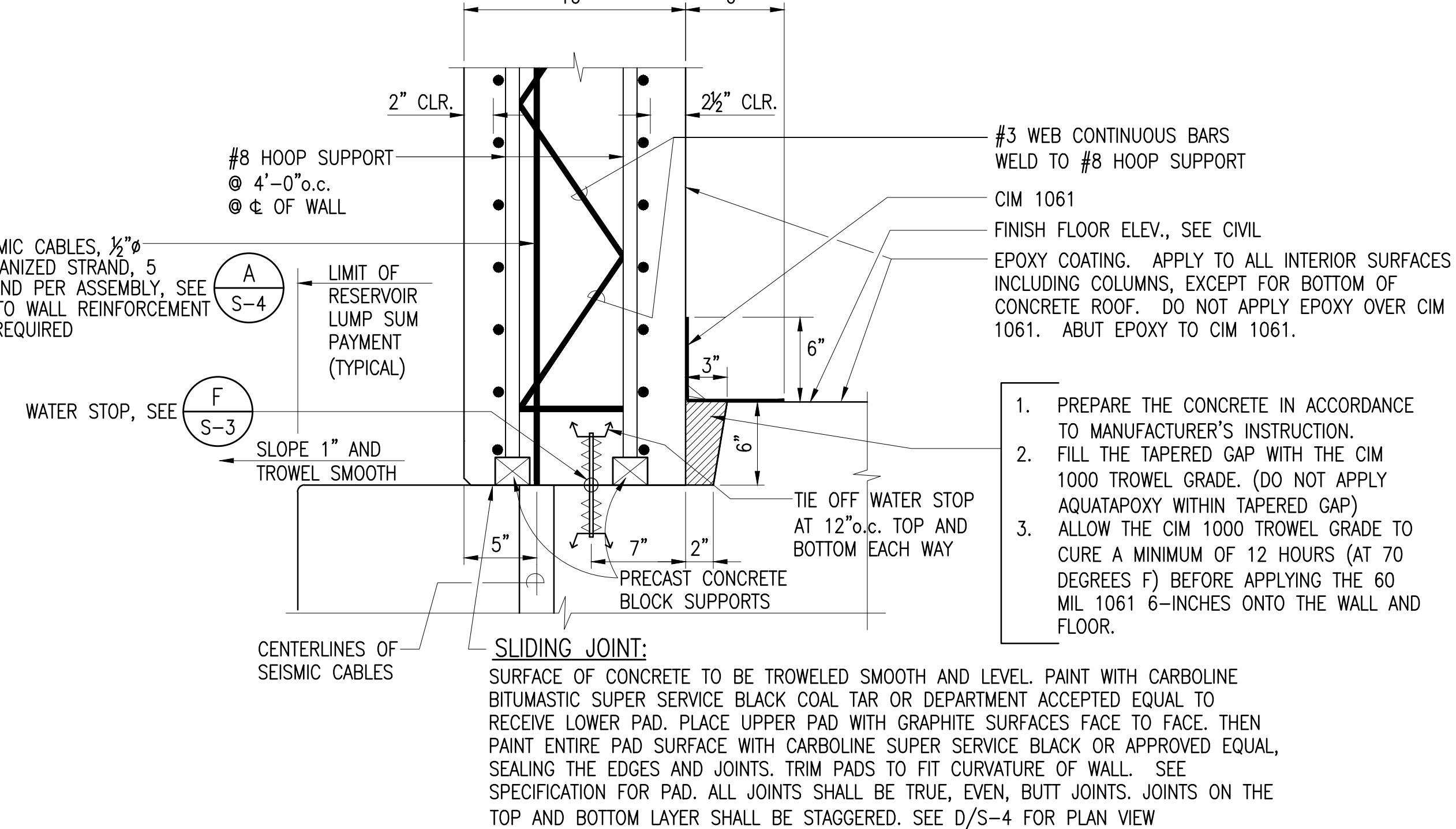
HALF SIZE TRIMLINE FOR 11" X 17"
 M:\05_05_2023_8:56am_C:\Temp\180202_05p.c\homestead_325\Tank\Original DWG File\20231009\A1_S-02 Floor and Roof Plan.dwg

LATERAL RESTRAINTS SEE S-3 LOCATE AT EVERY 20' ALONG WALL (18 TOTAL)

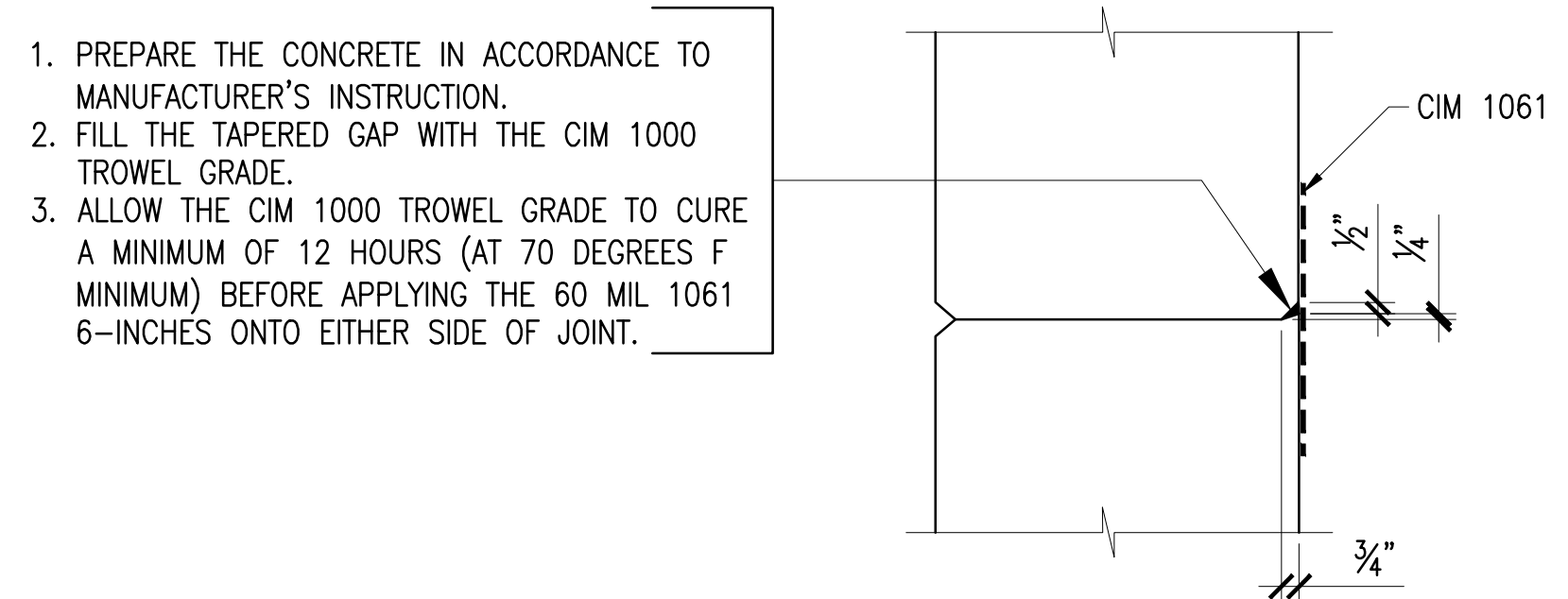
NOTE:
1. SEE "ROOF STEEL LAYOUT" ON SHEETS S-6 & S-7 FOR REINFORCING.
2. FOR RESERVOIR ROOFING, SEE SPECIFICATIONS.



A TYPICAL WALL SECTION
S-3 SCALE: 3/4" = 1'-0"

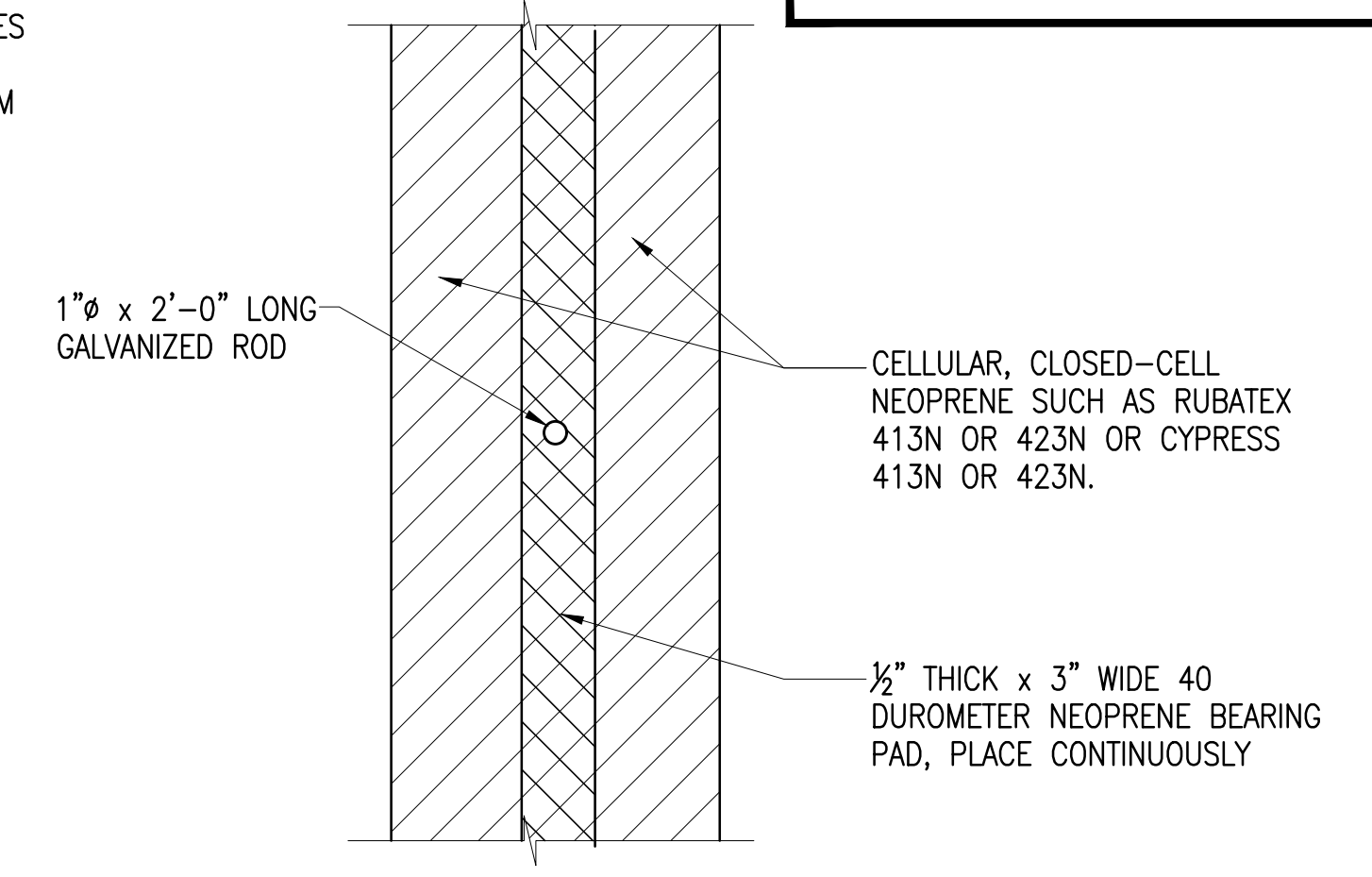


B SLIDING JOINT DETAIL
S-3 SCALE: 1-1/2" = 1'-0"

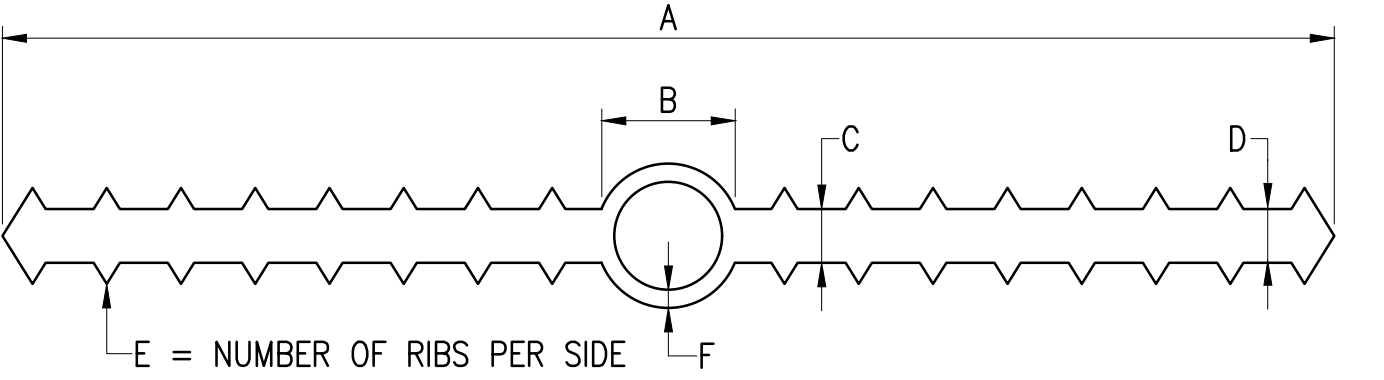


C DETAIL
S-3 SCALE: 1-1/2" = 1'-0"

NOTE:
1. GLUE ALL PADS TO TOP OF WALL WITH ADHESIVE SUCH AS "R-27780" BY "HANNA" RUBBER OR DEPARTMENT ACCEPTED EQUAL



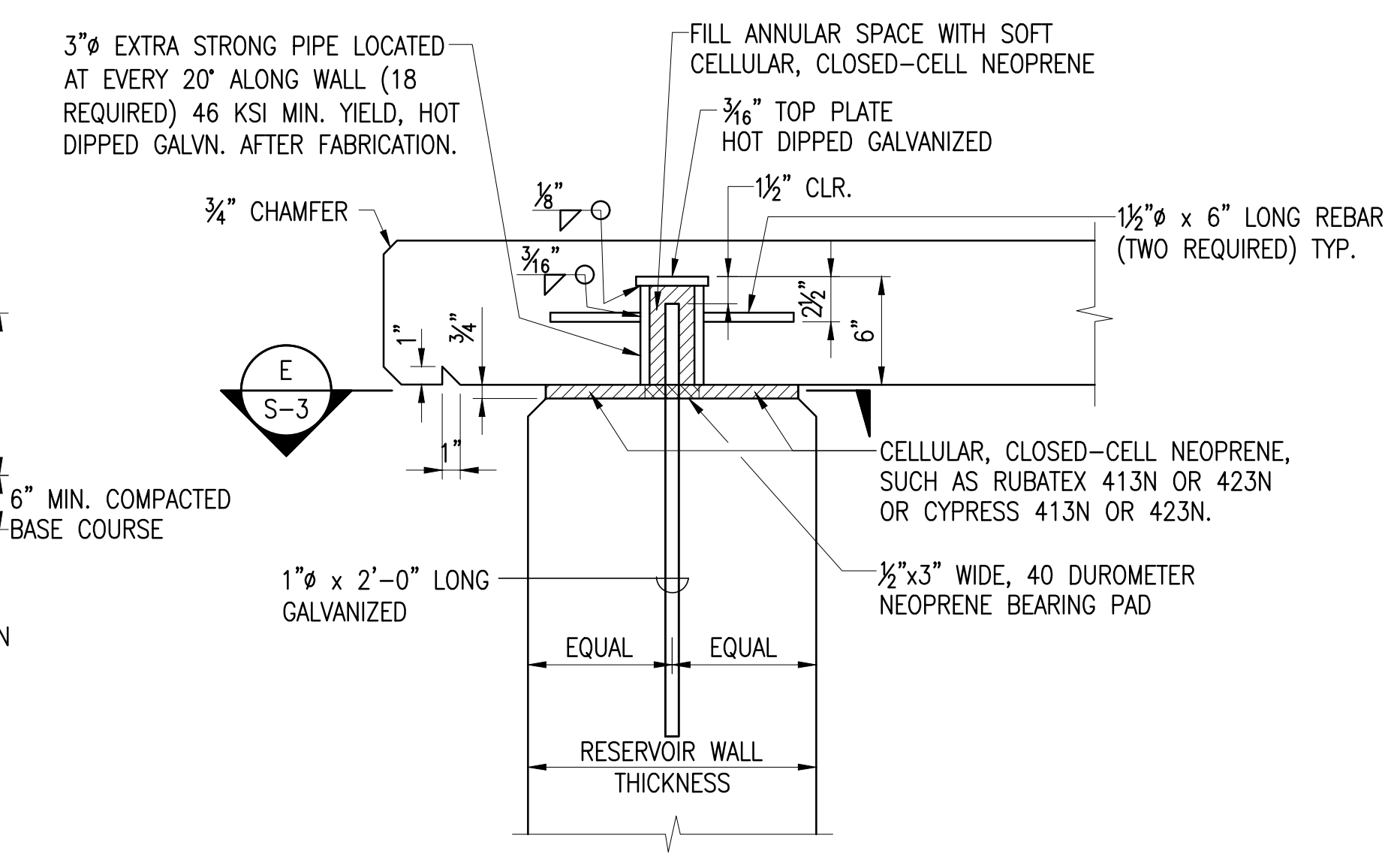
E PLAN VIEW OF TOP OF WALL
S-3 SCALE: 1-1/2" = 1'-0"



JOINT LOCATION	A	B	C	D	E	F	"VINYLEX" BRAND	"GREEN STREAK" BRAND
WALL TO FOOTING & WALL TO WALL	9"	1"	3/8"	3/8"	8"	1/4"	RLB938	735
FLOOR JOINT	6"	-	3/8"	3/8"	7"	-	R638	679

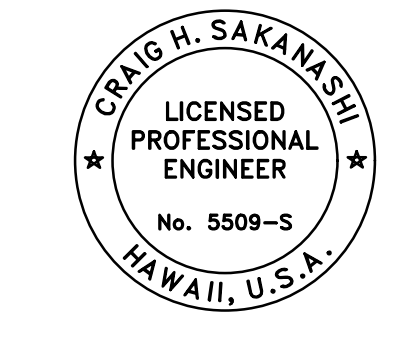
NOTES:
1. ALL SPLICES SHALL BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. SPLICE ALL JOINTS/INTERSECTIONS.
2. WATER STOP SHALL BE TIED OF AT EACH END, IN EITHER DIRECTION AT 12" o.c. MAX.
3. ALL PRODUCTS SHALL BE NSF 61 APPROVED.

F WATER STOP
S-3 NOT TO SCALE



D DETAIL OF ROOF SLIDING JOINT
S-3 SCALE: 1-1/2" = 1'-0"

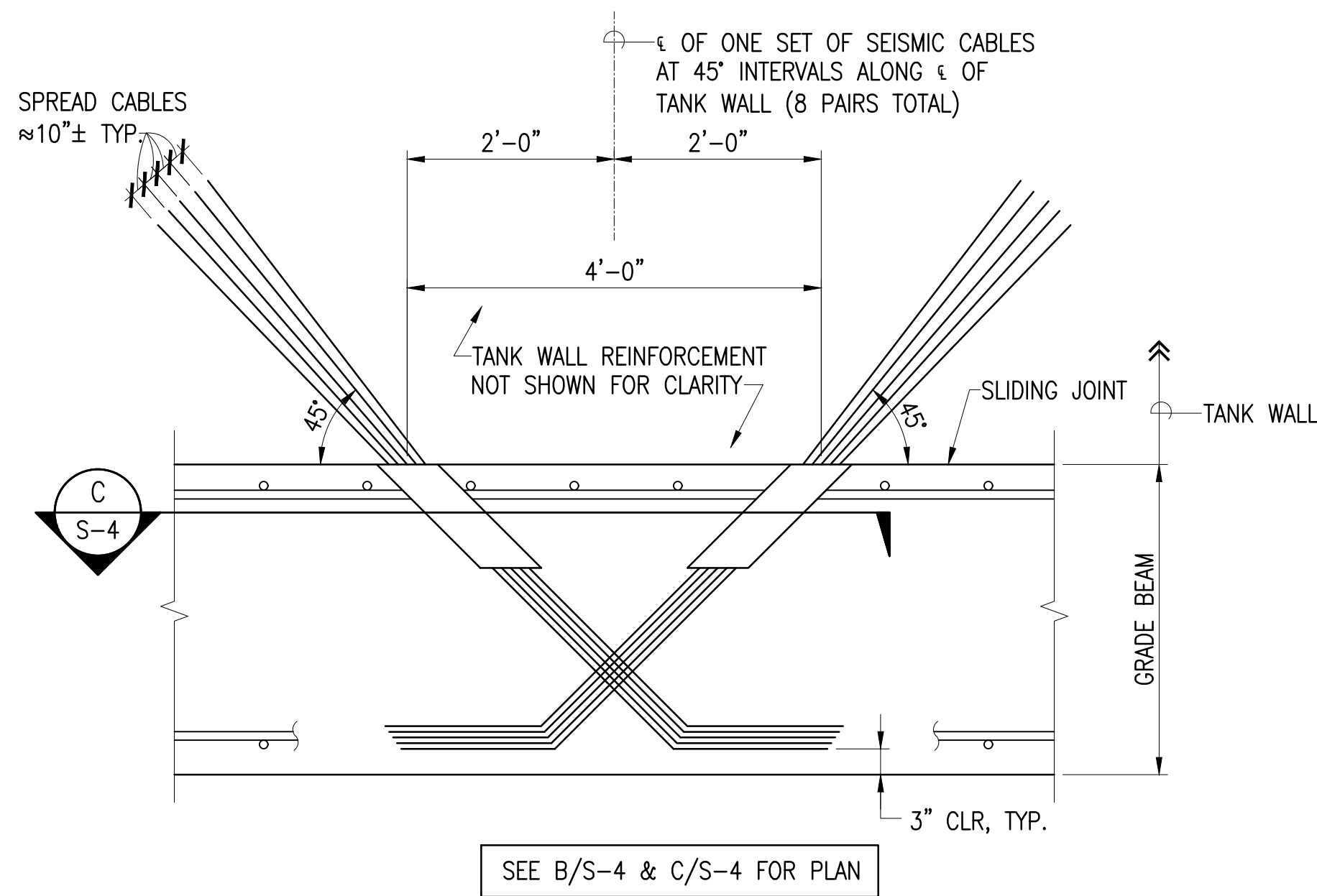
TMK: 4-6-011:003



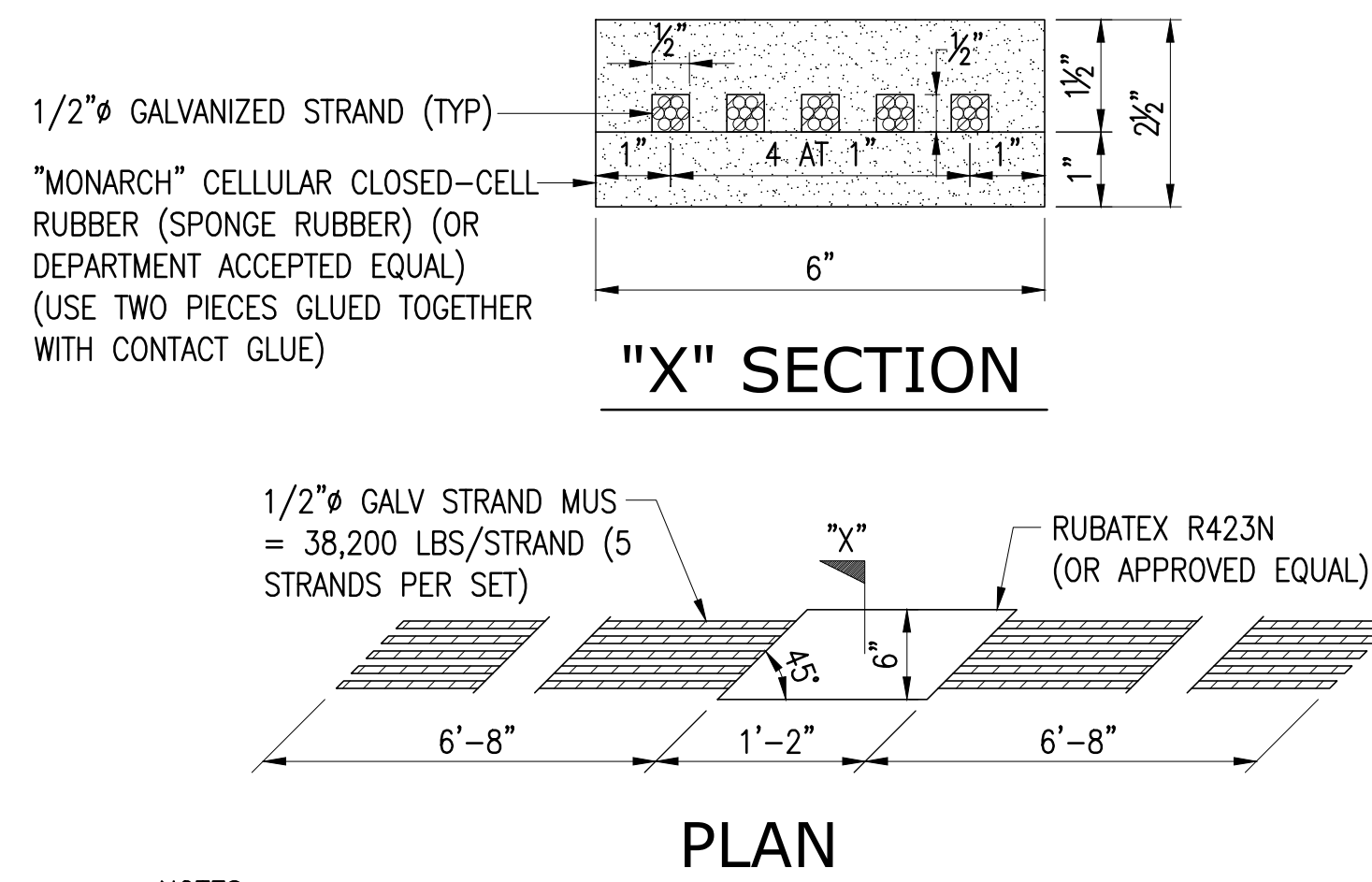
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII FLOOR AND WALL SECTIONS			
APPROVED:			
N/A		COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)	DATE
Jason Kagimoto		COUNTY ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI	DATE

DRAWING NO.
S-3

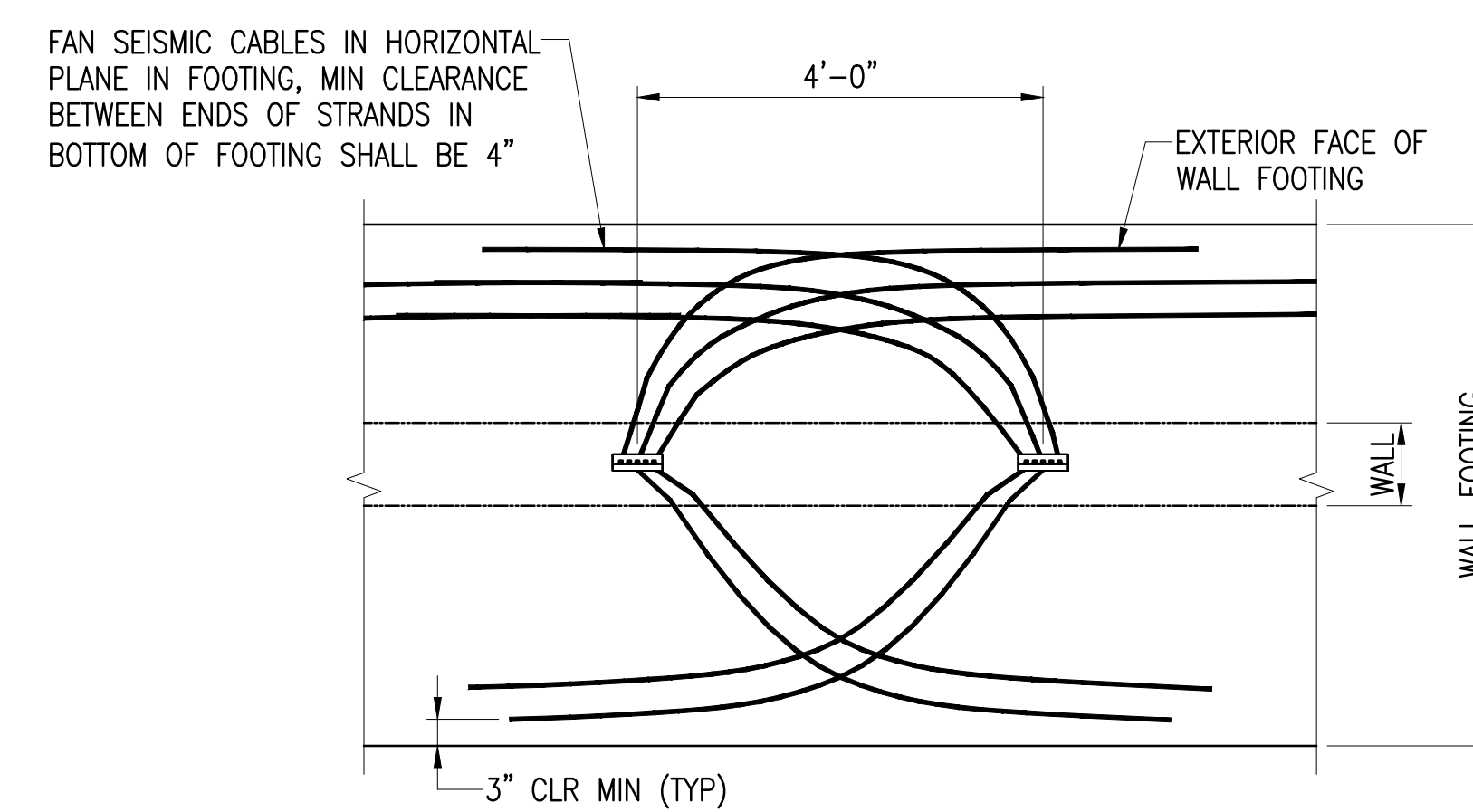


A DETAIL SEISMIC CABLE ASSEMBLY
S-4 NOT TO SCALE



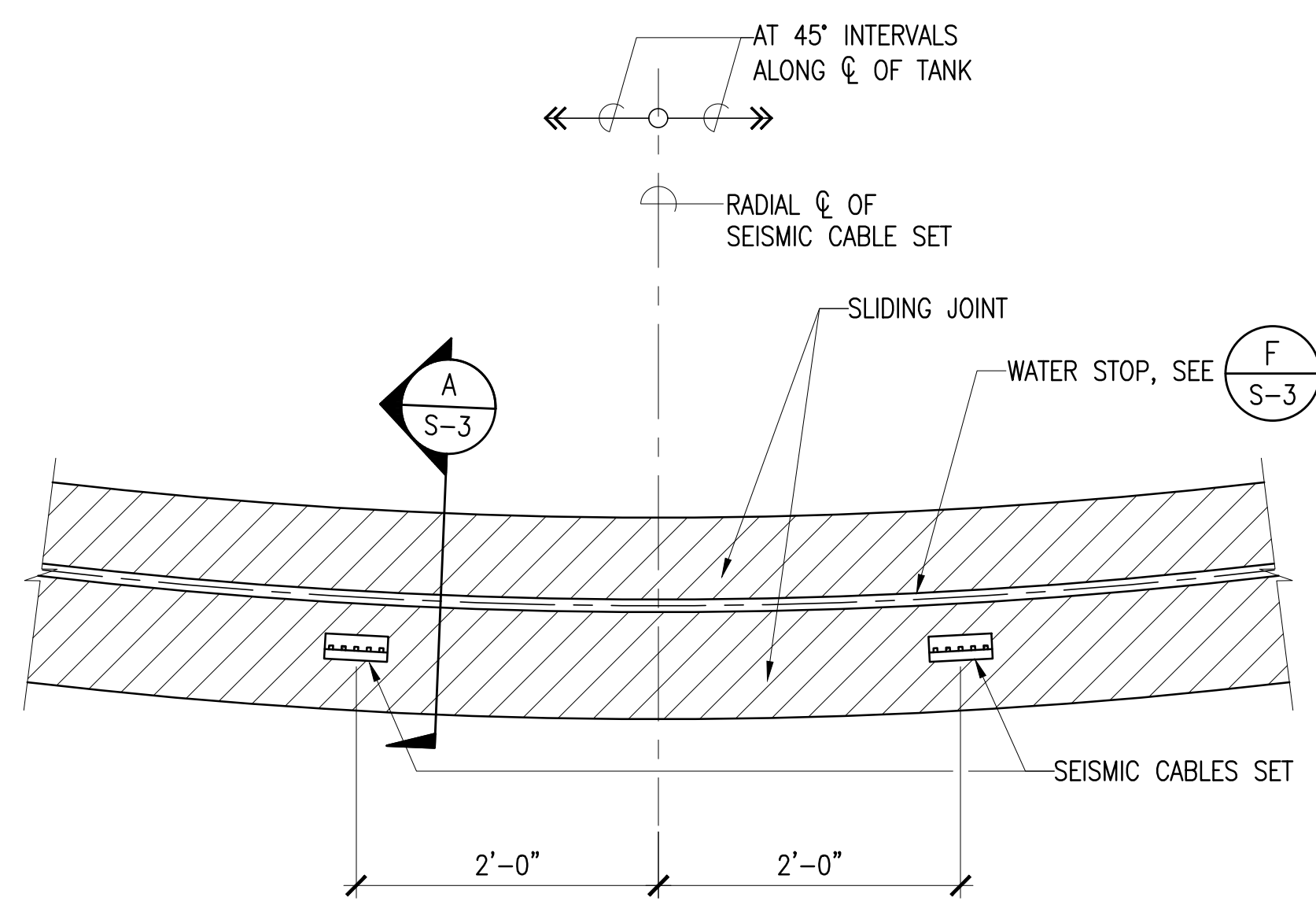
NOTES:
1. ONE SET OF SEISMIC CABLE SHALL CONSIST OF TWO "SEISMIC CABLE ASSEMBLIES FACING OPPOSITE DIRECTIONS.
2. EACH SET OF SEISMIC CABLE SHALL BE PLACED AT 45° DEGREE INTERVALS ALONG THE WALL. A TOTAL OF 8 (EIGHT) SETS.

B TYPICAL SEISMIC CABLE ASSEMBLY
S-4 NOT TO SCALE

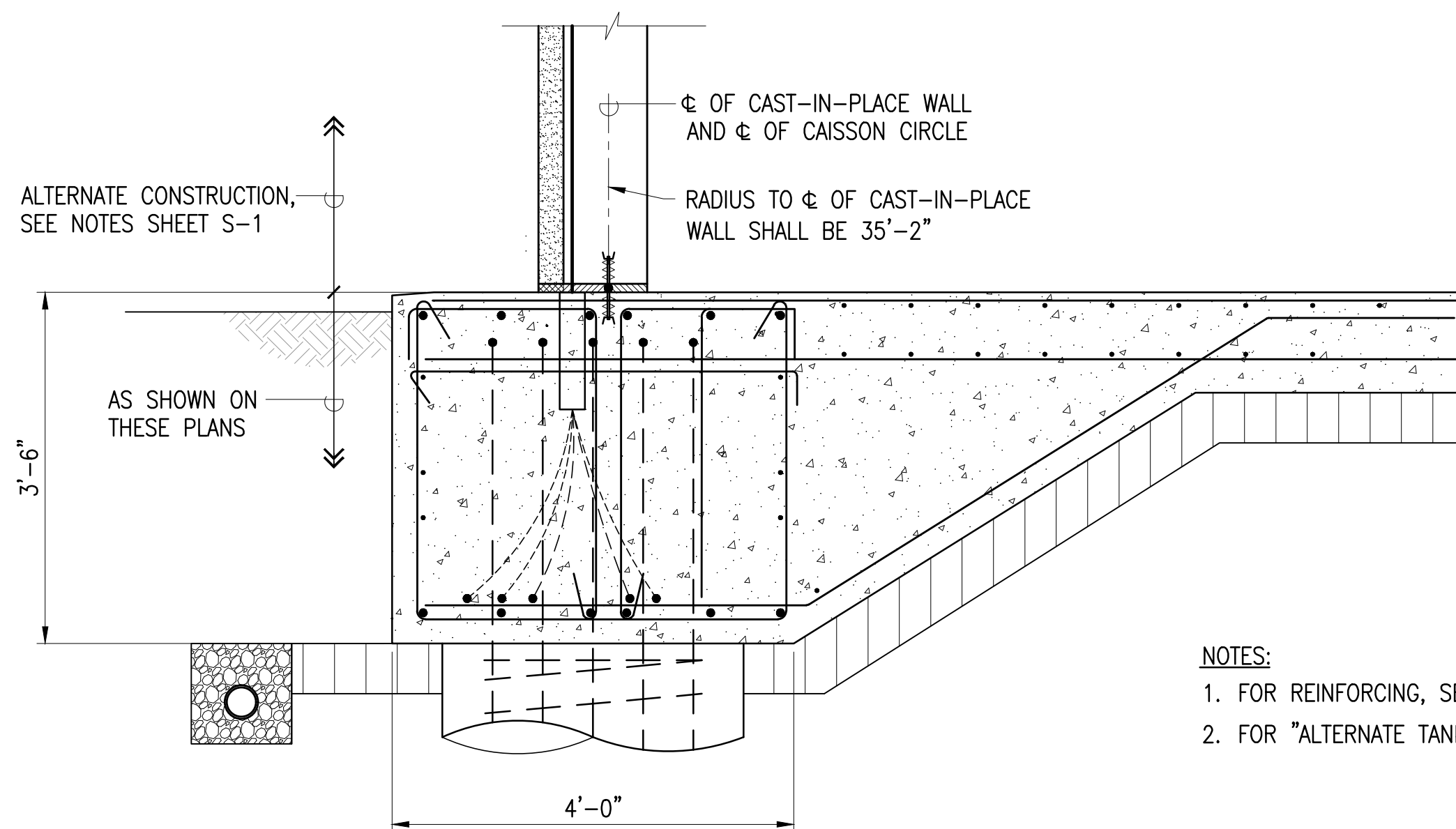


NOTE:
SEISMIC CABLE SET MAY BE PLACED ON EITHER SIDE OF CENTER OF FOOTING, 3" CLEARANCE TO EDGE OF FOOTING MUST BE MAINTAINED

C SEISMIC CABLE SET IN WALL FOOTING
S-4 NOT TO SCALE



D PLAN VIEW OF SLIDING JOINT AT BASE OF WALL
S-4 NOT TO SCALE



NOTES:
1. FOR REINFORCING, SEE A/S-3.
2. FOR "ALTERNATE TANK WALL AND ROOF, SEE S-1.

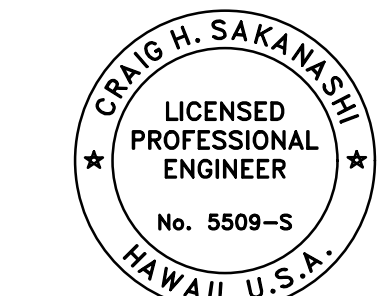
E CONDITION AT ALTERNATE CONSTRUCTION OF WALL (PRESTRESSED) AND ROOF CONSTRUCTION (AT AWWA D110, TYPE 1 TANK)
S-4 SCALE: 3/4" = 1'-0"

TANK COATINGS SCHEDULE:

- A. EXTERIOR WALL SURFACE COLOR:
- COLOR SHALL BE OF A "MODERATE TO DARK EARTH-TONE COLOR" PER PLANNING COMMISSION LETTER DATED AUGUST 30, 2012. THE COLOR SCHEME SHALL BE SUBMITTED TO THE PLANNING DEPARTMENT FOR REVIEW AND ACCEPTANCE PRIOR TO THE BUILDING PERMIT APPLICATION.
 - PRIME: ICI DEVCOE COATING 4030 TRU-GLAZE-WB WATERBORNE EPOXY PRIMER AT 200-270 SF/GAL (4.0-8.0 MILS WET; 2.0-4.0 MILS DFT) OR APPROVED EQUAL.
 - FINISH: (2 COATS) 2405 DULUX PROFESSIONAL EXTERIOR 100% ACRYLIC SEMI-GLOSS FINISH AT 300-400 SF/GAL (4.1-5.3 WET; 1.5-2.0 MILS DFT PER COAT) OR APPROVED EQUAL.
- B. INTERIOR WALL SURFACE: COLUMNS AND FLOOR SURFACE
- INTERIOR COATINGS: 2-COMPONENT EPOXY, DFT AS INDICATED IN SPECIFICATIONS.

HALF SIZE TRIMLINE FOR 11" x 17"
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TMK: 4 - 6 - 011:003

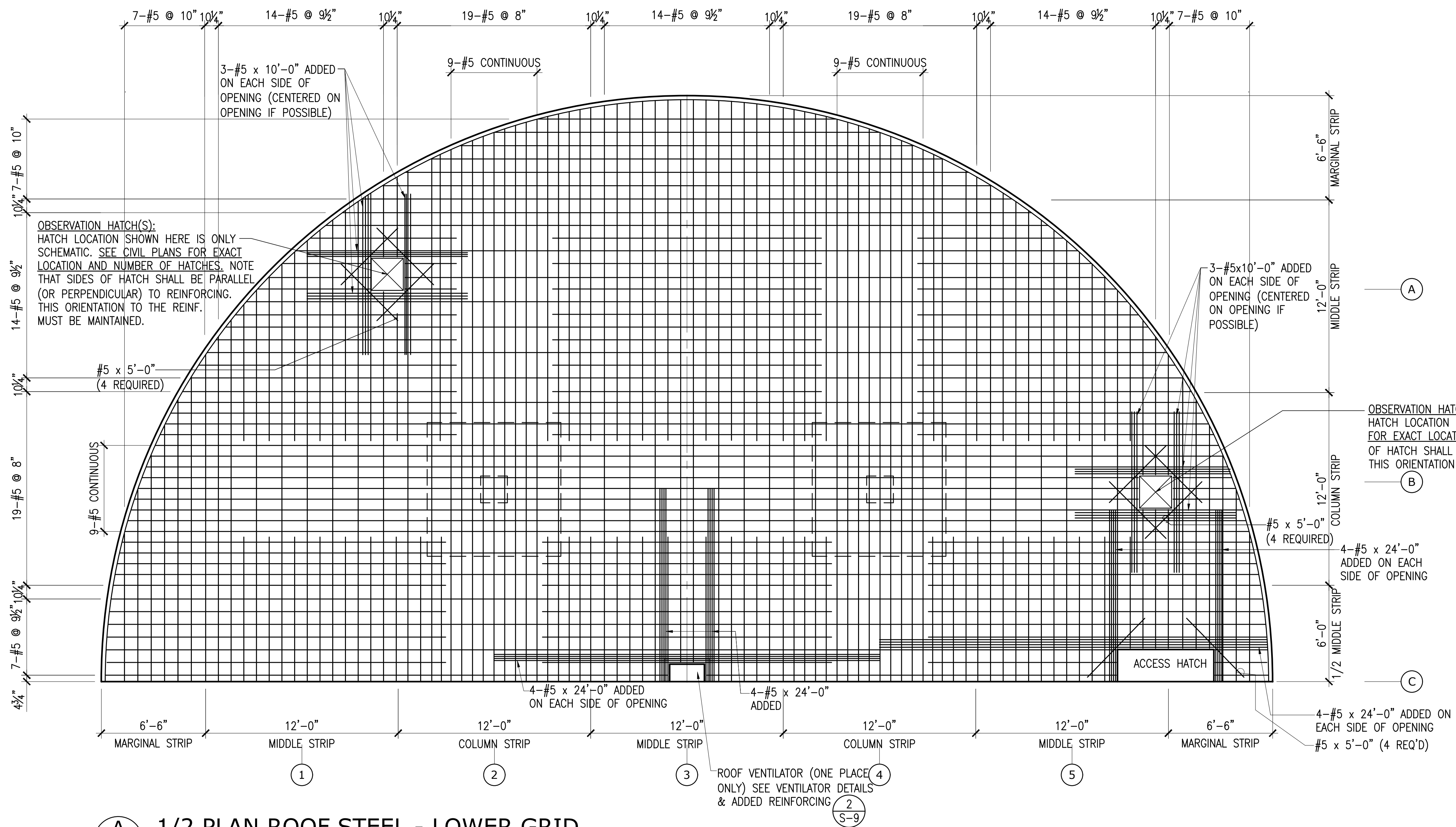


Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
S-4

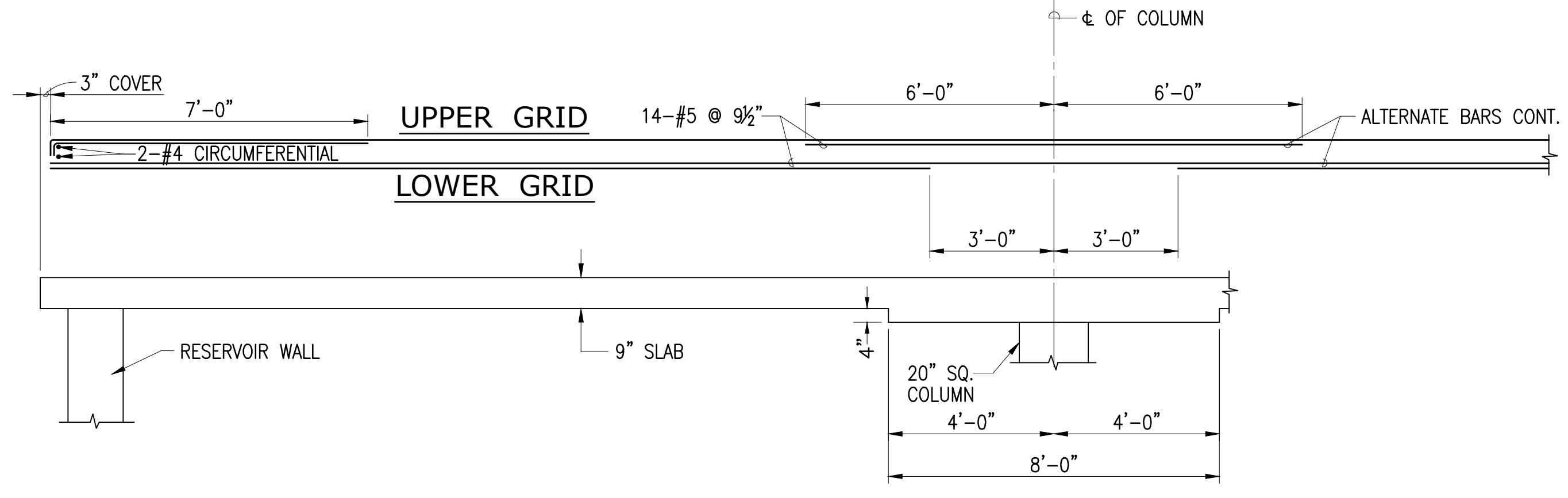
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII SEISMIC CABLE			
APPROVED:			
N/A			
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)			DATE
<i>Jason Kagimoto</i>			DATE
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE



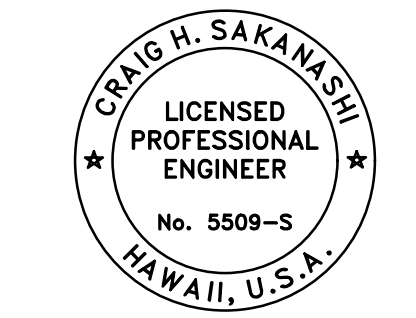
- NOTES:**
- CONCRETE COVER OVER REINFORCING STEEL IN ROOF SLAB:
 1 1/2" AT TOP OF SLAB
 1 1/2" AT BOTTOM OF SLAB
 3" AT OUTSIDE EDGE OF SLAB
 - ALL ROOF SLAB REINF. STEEL IN THE UPPER GRID SHALL BE LAPPED AT THE CENTER OF MIDDLE STRIP OF THE PERPENDICULAR DIRECTION AND THE LOWER GRID SHALL BE LAPPED AT THE CENTER OF COLUMN STRIP OF THE PERPENDICULAR DIRECTION.
 - ONLY EVERY OTHER ADJACENT BAR ON THE SAME LAYER MAY BE SPLICED IN THE SAME LOCATION.

A 1/2 PLAN ROOF STEEL - LOWER GRID
 S-7 SCALE: 1/4" = 1'-0"



B REINFORCING STEEL MIDDLE STRIP
 S-7 SCALE: 3/8" = 1'-0"

TMK: 4 - 6 - 011:003



APPROVED:
Jason Kagimoto
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

DRAWING NO.
S-7

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

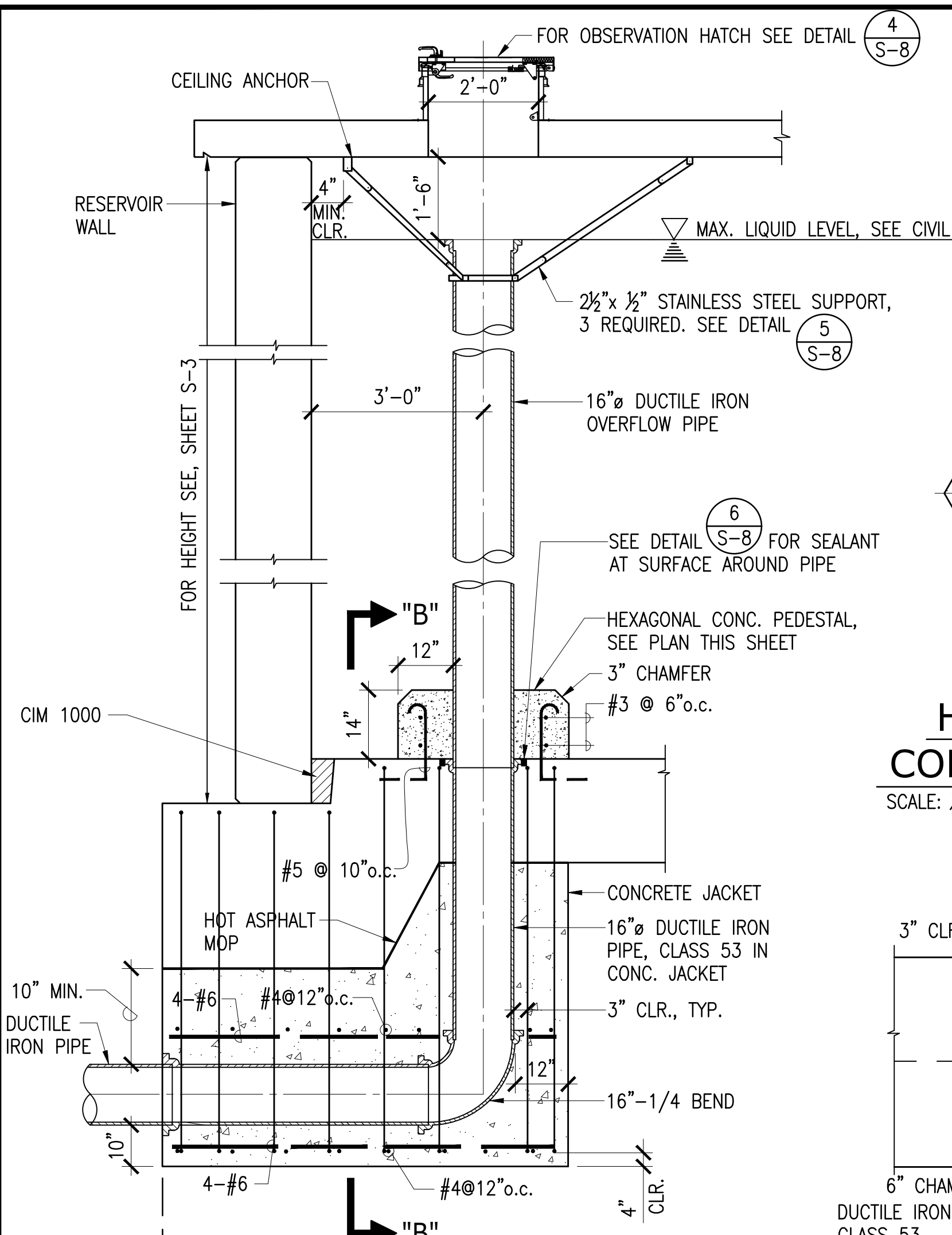
ROOF STEEL LAYOUT LOWER GRID

APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

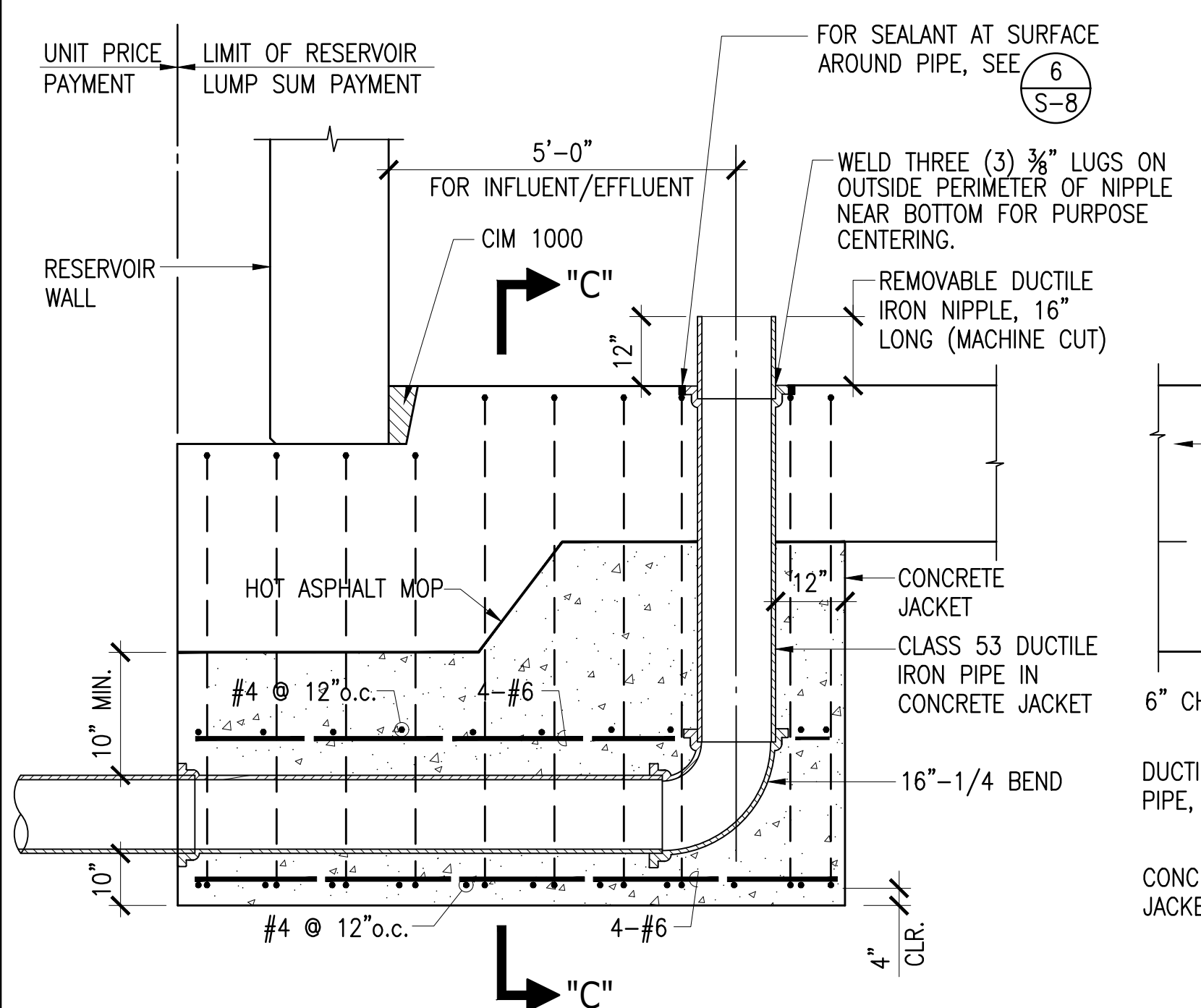
Jason Kagimoto
 COUNTY ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

HALF SIZE TRIMLINE FOR 11" x 17"
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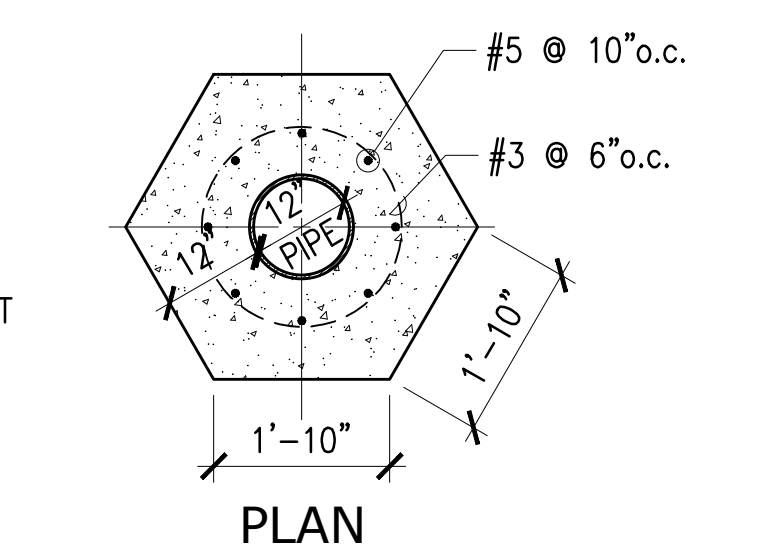
HALF SIZE TRIMLINE FOR 11" X 17"
 MAY 19, 2023 9:00am
 C:\Temp\100222\Kapa Homestead 325\Tank\Original DWG File\20230109\47_S-08 Piping and Overflow Pipe Support Detail.dwg



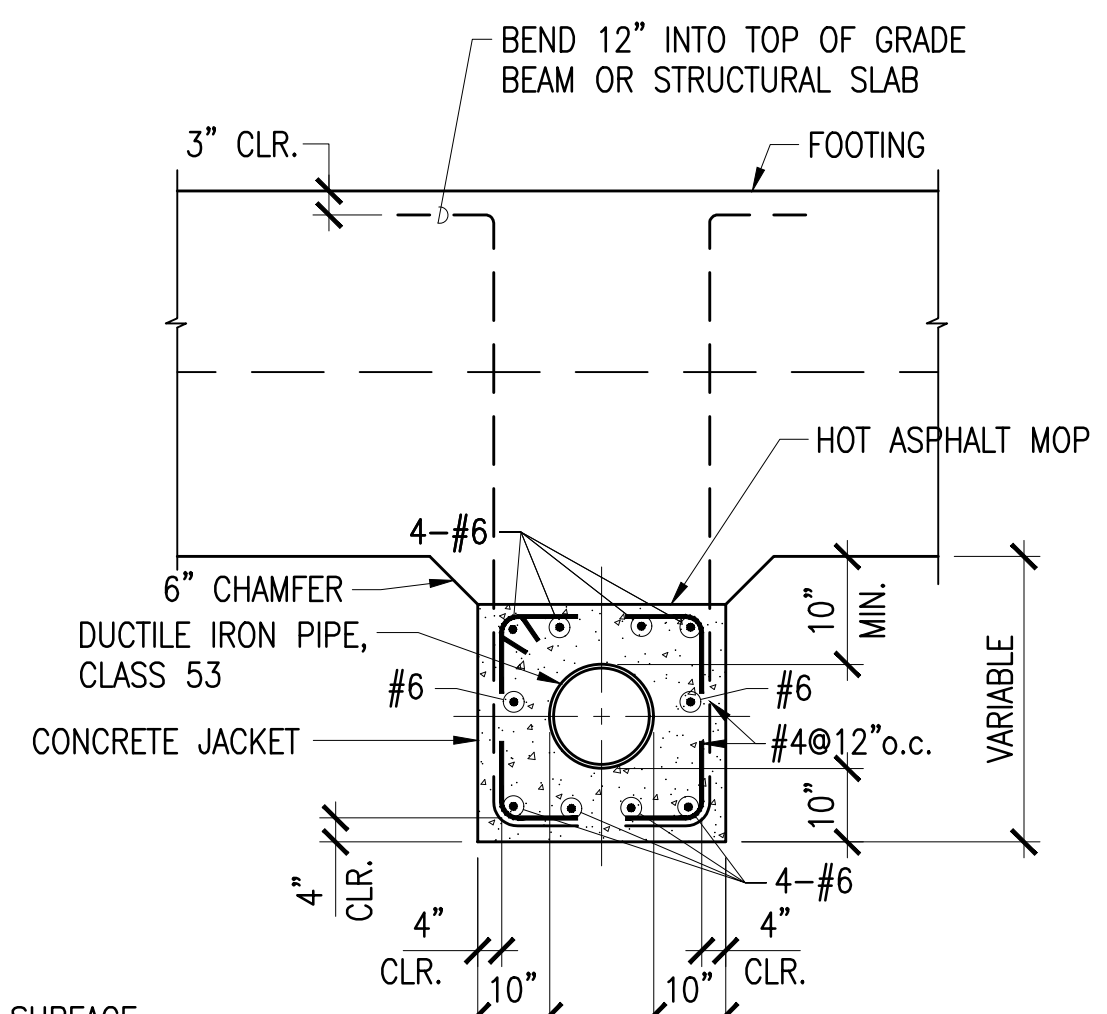
1 **DETAIL OF OVERFLOW**
 S-8 NOT TO SCALE
 5'-0" FOR EFFLUENT



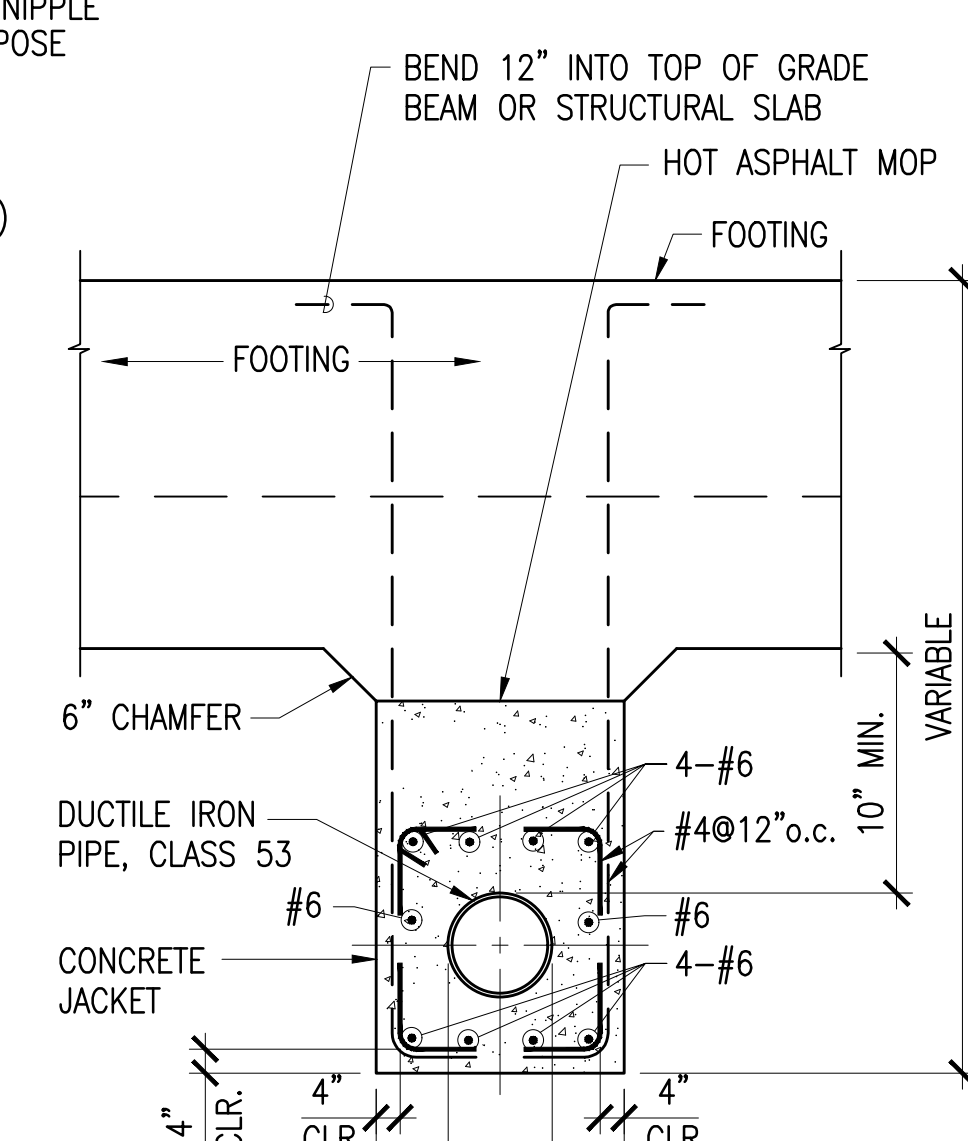
2 **INFLUENT OR EFFLUENT LINE**
 S-8 NOT TO SCALE



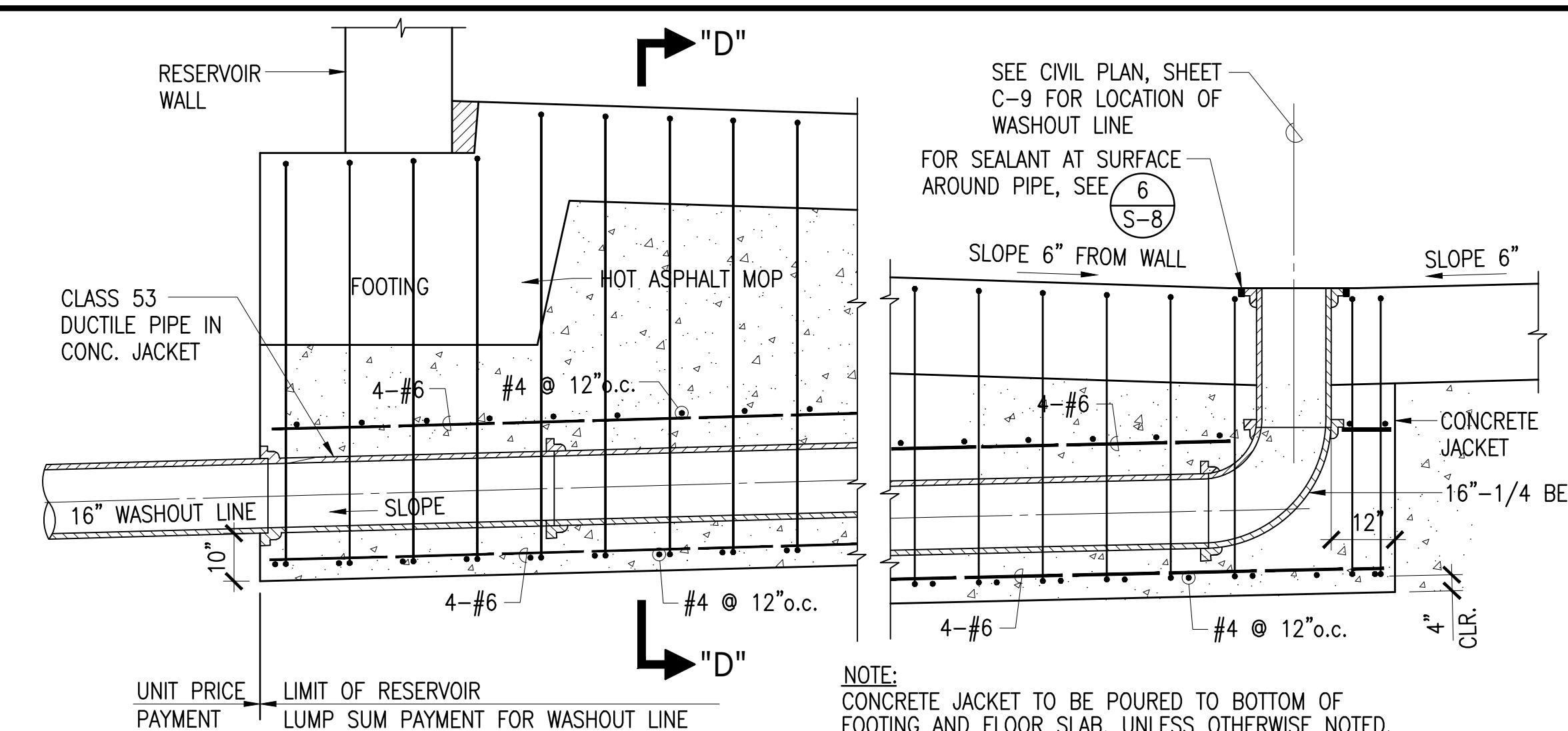
HEXAGONAL CONC. PEDESTAL
 SCALE: 1/2" = 1'-0"



SECTION "B-B"
 NOT TO SCALE

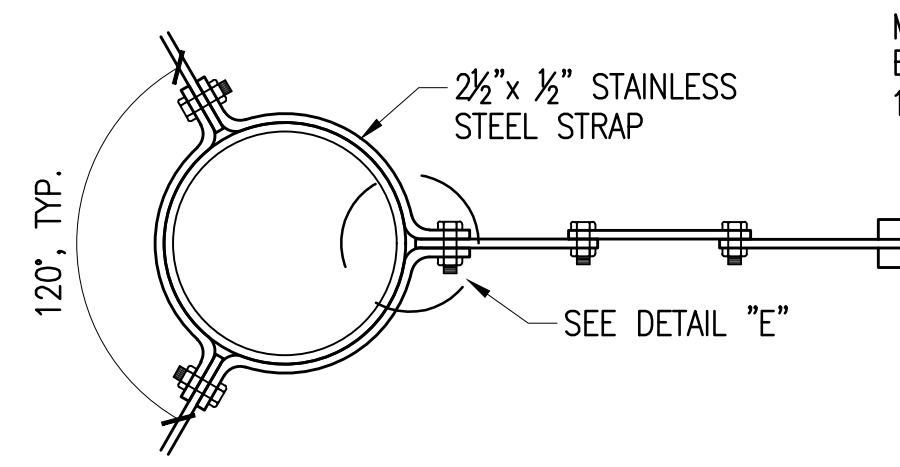


SECTION "C-C"
 NOT TO SCALE

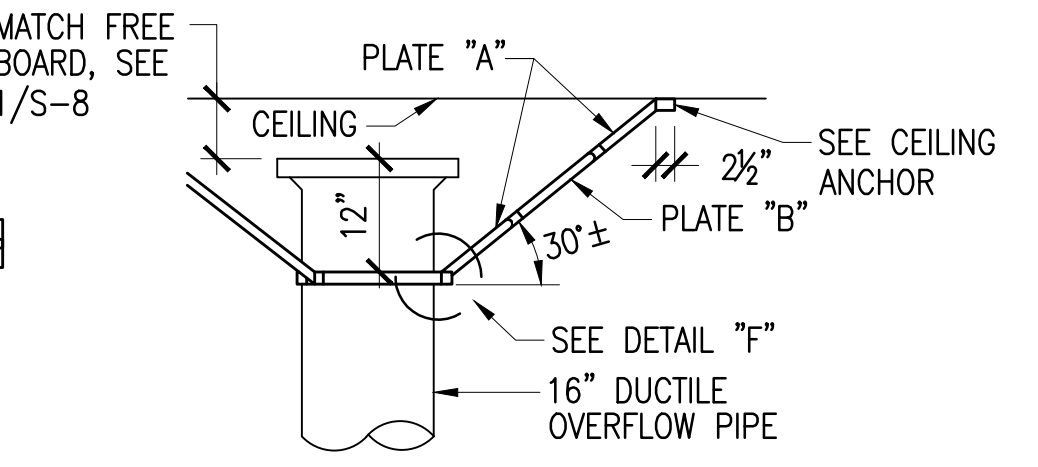


3 **WASHOUT LINE**
 S-8 NOT TO SCALE

- NOTE:**
- CONTRACTOR SHALL PROVIDE TEMPORARY APPURTENANCES FOR HYDROSTATIC PRESSURE TESTING OF INFLUENT, EFFLUENT AND WASH OUT LINES.
 - ALL PIPING WITHIN TANK FOUNDATION SHALL BE PRESSURE TESTED PRIOR TO POURING FOUNDATION.
 - ALL COATING(S) FOR INTERIOR PIPES SHALL BE NSF 61 APPROVED.
 - FOR ALL PIPES BENEATH RESERVOIR SHALL HAVE TAPE WRAP EVERY 2'-0", V-BIO POLY WRAP TUBE, OR APPROVED EQUAL. POLYETHYLENE WRAP SHALL EXTEND 2" INTO RESERVOIR FLOOR SLAB.



DETAIL "E"



DETAIL "F"

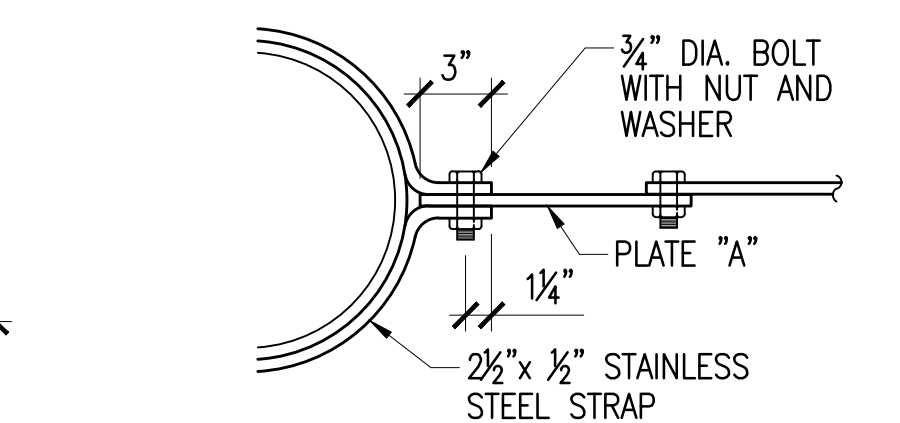


PLATE "A"

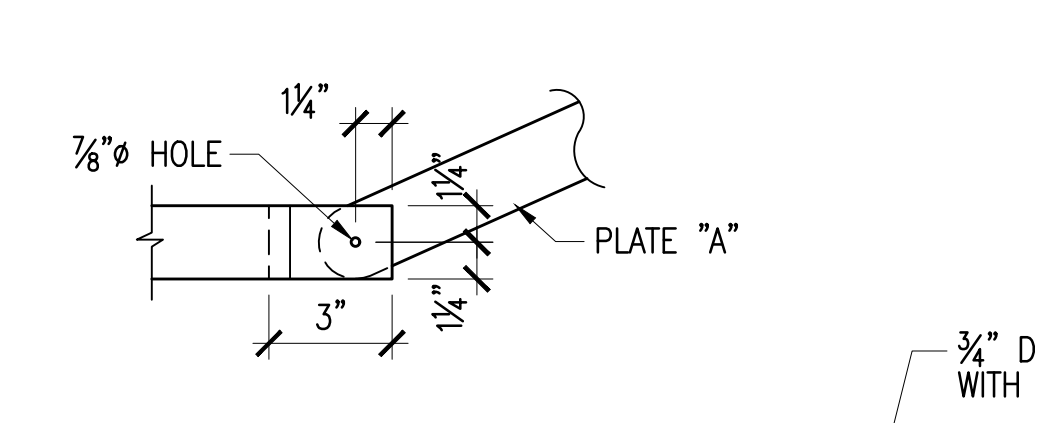
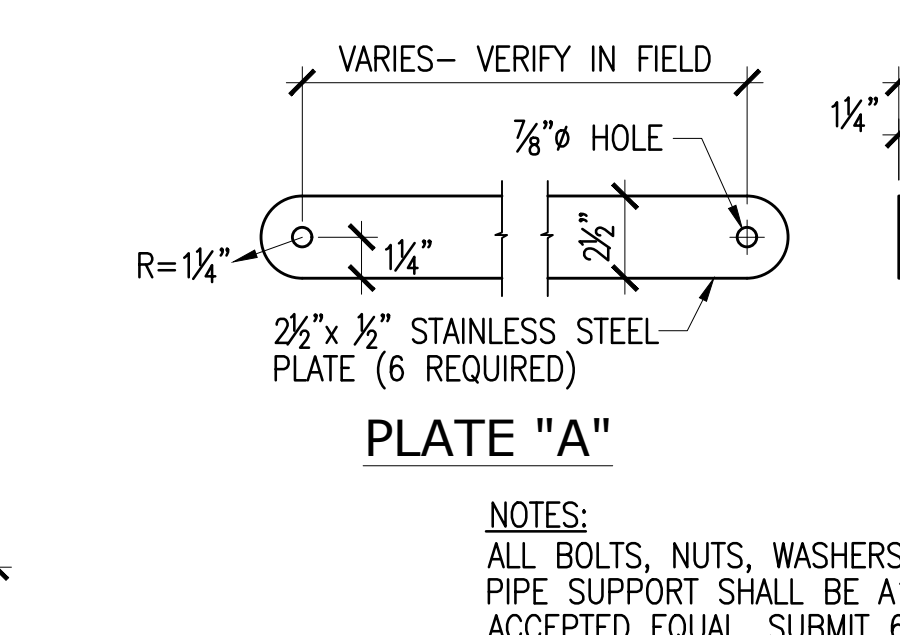


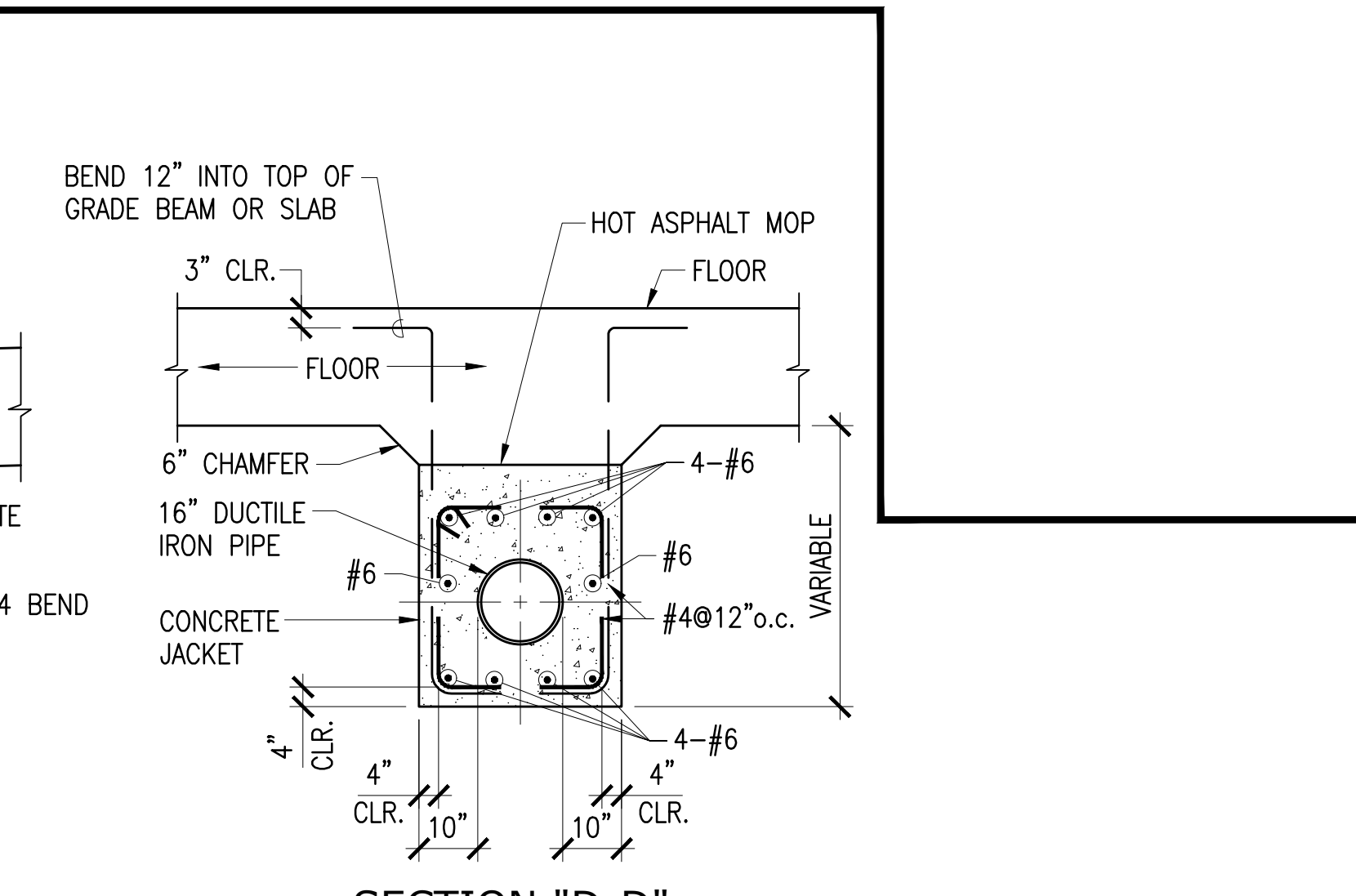
PLATE "B"



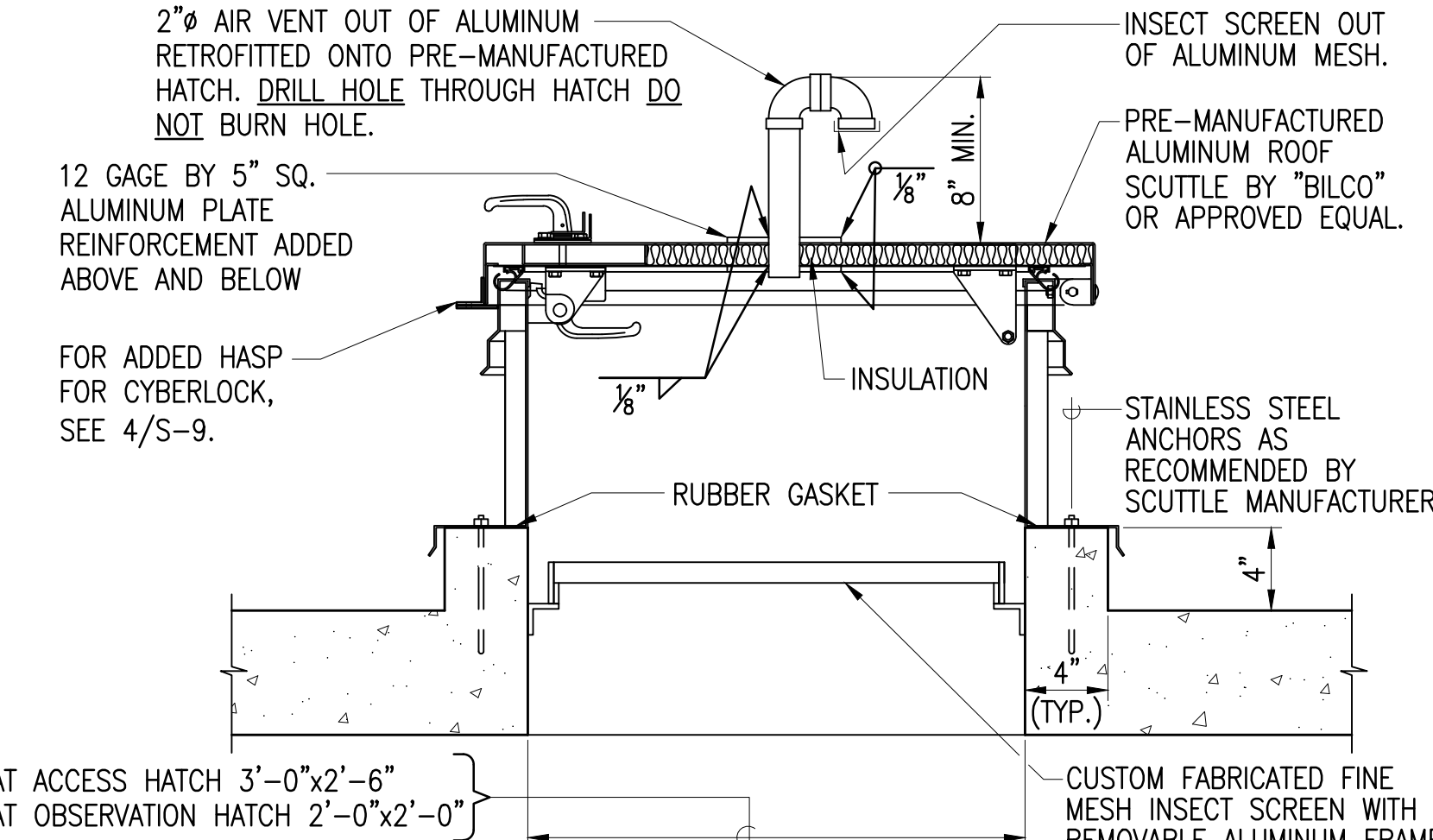
CEILING ANCHOR

- NOTES:**
- ALL BOLTS, NUTS, WASHERS AND ANCHOR BOLTS FOR OVERFLOW PIPE SUPPORT SHALL BE A151 STAINLESS STEEL OR DEPARTMENT ACCEPTED EQUAL. SUBMIT 6 SHOP DRAWINGS FOR REVIEW.

5 **OVERFLOW PIPE SUPPORT DET.**
 S-8 NOT TO SCALE

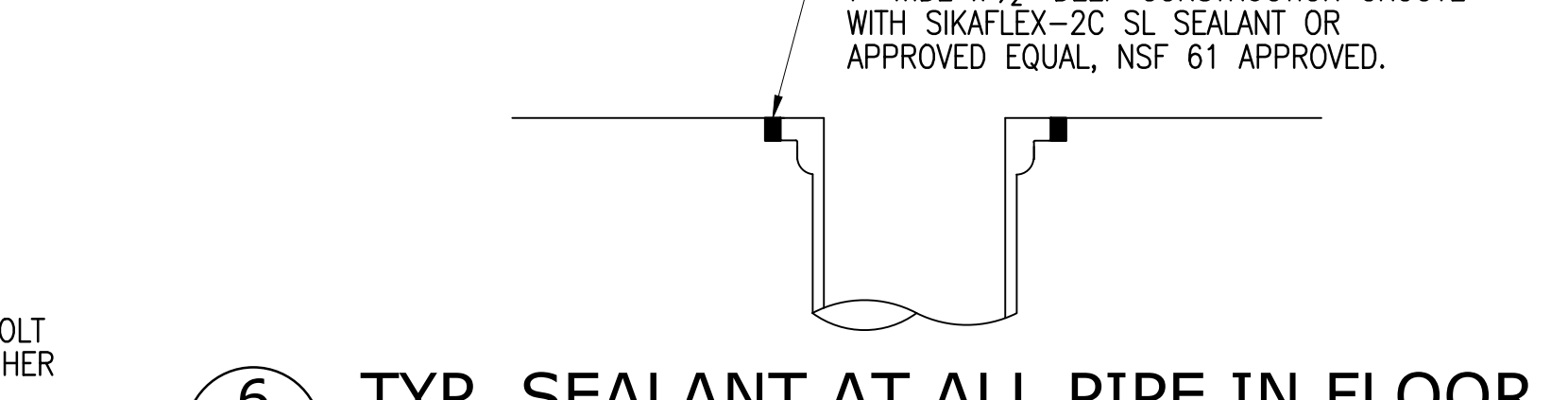


SECTION "D-D"
 NOT TO SCALE



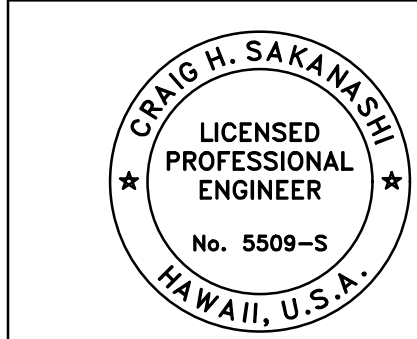
- NOTES:**
- TWO OBSERVATION HATCHES REQUIRED - ONE DIRECTLY OVER THE OVERFLOW PIPE AND ONE DIRECTLY OVER THE EFFLUENT PIPE. SEE CIVIL TO SEE IF MORE ARE REQUIRED.
 - SEE CIVIL FOR LOCATION OF HATCHES.

4 **DETAIL OF OBSERVATION HATCH**
 S-8 SCALE: 1 1/2" = 1'-0"



6 **TYP. SEALANT AT ALL PIPE IN FLOOR**
 S-8 NOT TO SCALE

TMK: 4 - 6 - 011-003



APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

REVISION	DATE	DESCRIPTION	APPROVED

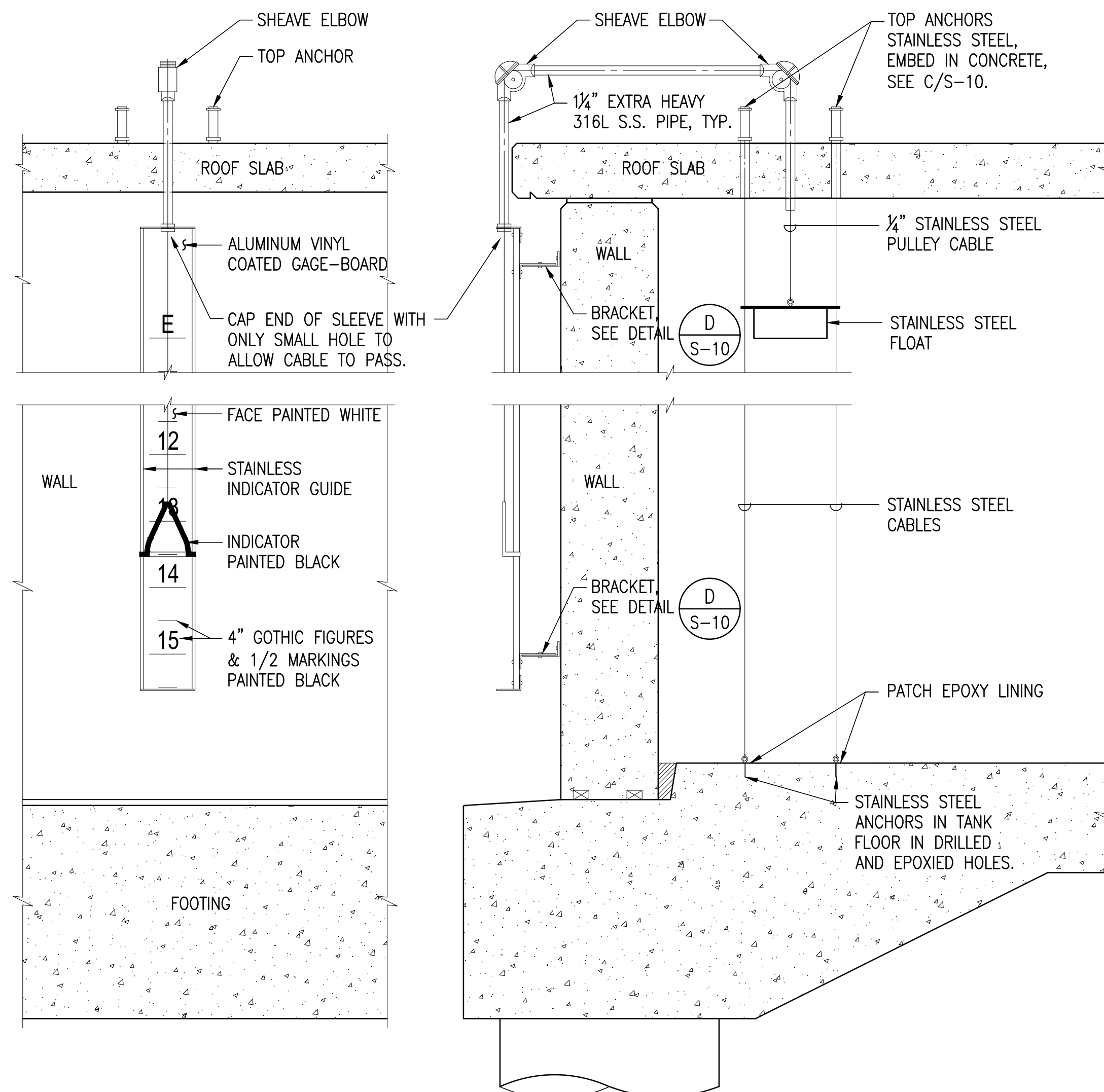
BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

PIPING AND OVERFLOW PIPE SUPPORT DETAILS

APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DRAWING NO.
S-8

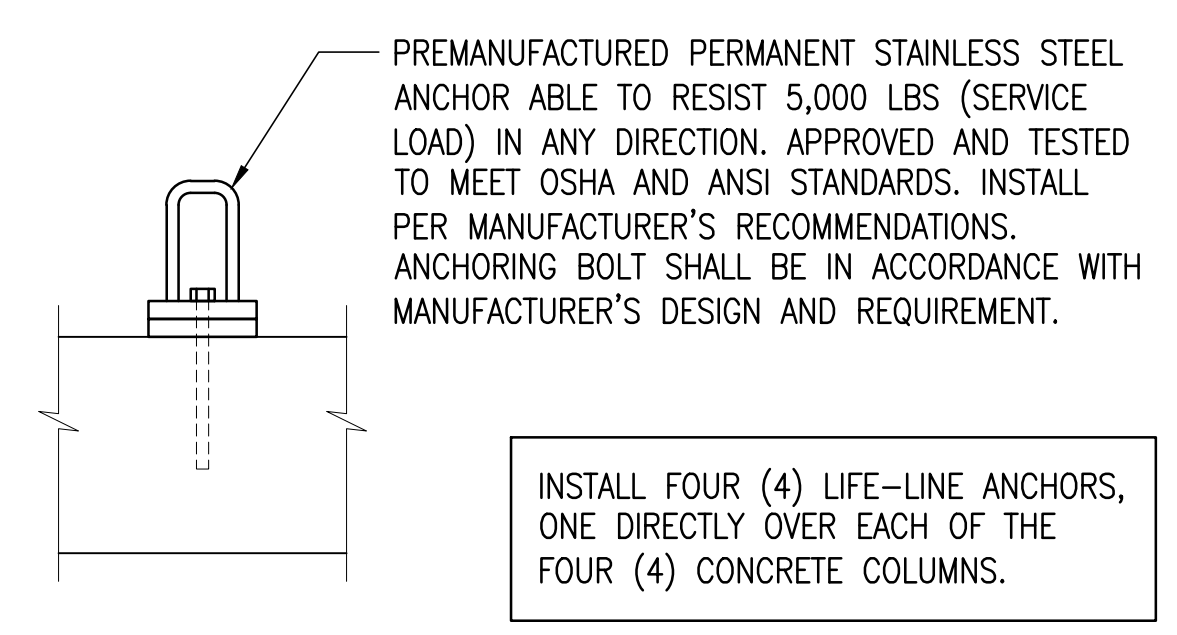


ELEVATION

SECTION

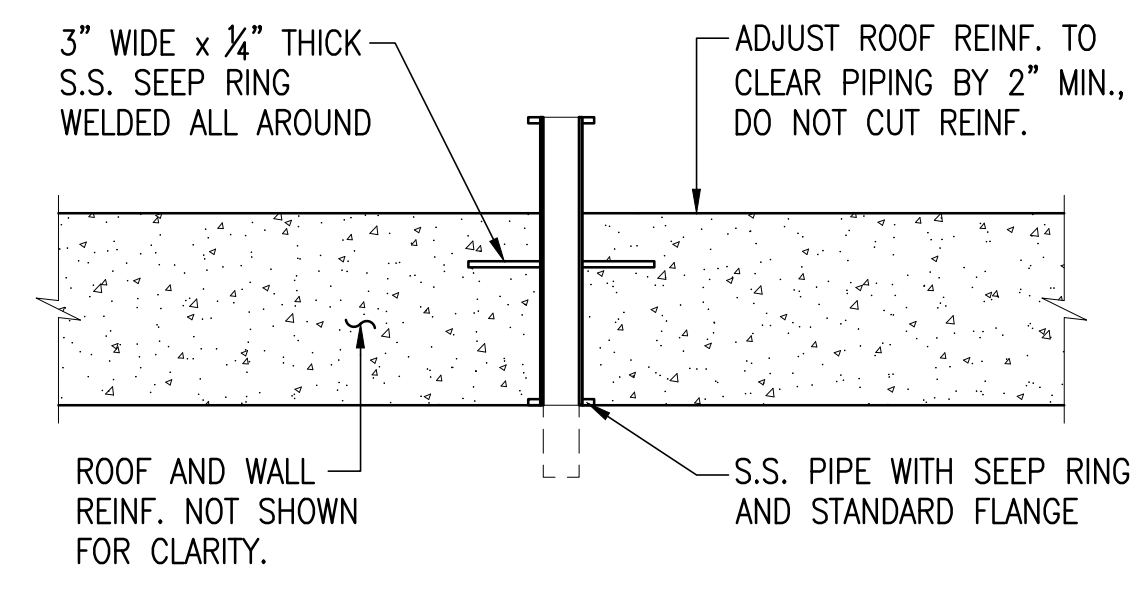
A WATER LEVEL INDICATOR
S-10 NOT TO SCALE

NOTE:
WATER LEVEL INDICATOR SHALL BE "VAREC LIQUID INDICATOR", (MODEL 6700 WITH GUIDED FLOAT) OR APPROVED EQUAL, AND INSTALLED AT A LOCATION THAT CAN BE SEEN FROM THE ACCESS ROAD. ALL BRACKET AND FASTENERS SHALL BE STAINLESS STEEL. WATER LEVEL INDICATOR SHALL BE LOCATED AS CLOSE TO THE ACCESS HATCH AS POSSIBLE. CONTRACTOR SHALL COORDINATE AND PROVIDE ATTACHMENT OF THE GAUGE BOARD TO THE TANK. BRACKETS SHALL BE FABRICATED USING STEEL 316L. ALL FASTENERS SHALL BE STAINLESS STEEL.

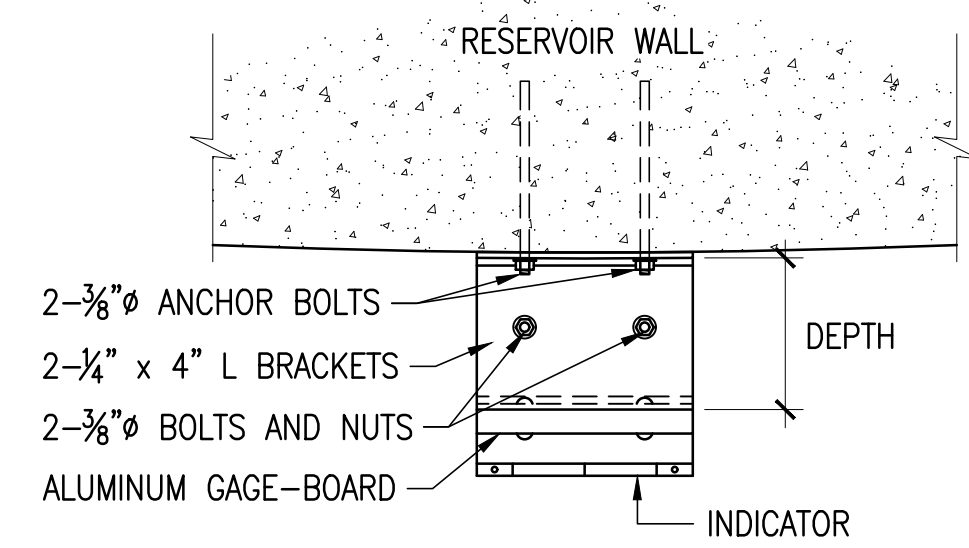


INSTALL FOUR (4) LIFE-LINE ANCHORS, ONE DIRECTLY OVER EACH OF THE FOUR (4) CONCRETE COLUMNS.

B LIFE-LINE ANCHOR (FOR ONE PERSON TIE-OFF ONLY)
S-10 SCALE: 1-1/2"-1'-0"



C TYP. PIPE THROUGH ROOF
S-10 NOT TO SCALE

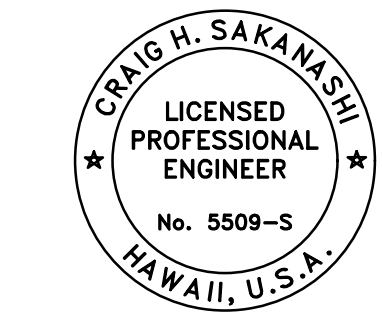


NOTES:
1. FOR SIZE OF INDICATOR BOARD AND BRACKET REQUIREMENTS, SEE MANUFACTURER LITERATURE.
2. BRACKETS, ANCHORS, NUTS AND BOLTS SHALL BE STAINLESS STEEL (TYPICAL).

D BRACKET DETAIL
S-10 NOT TO SCALE

HALF SIZE TRIMLINE FOR 11" X 17"
 M:\05_05_2023_9:01am_100202_kapa o homestead_325' Tanks\Original DWG Files\2023\09_19_S-10_Misc_Det - 2.dwg
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TMK: 4 - 6 - 011:003

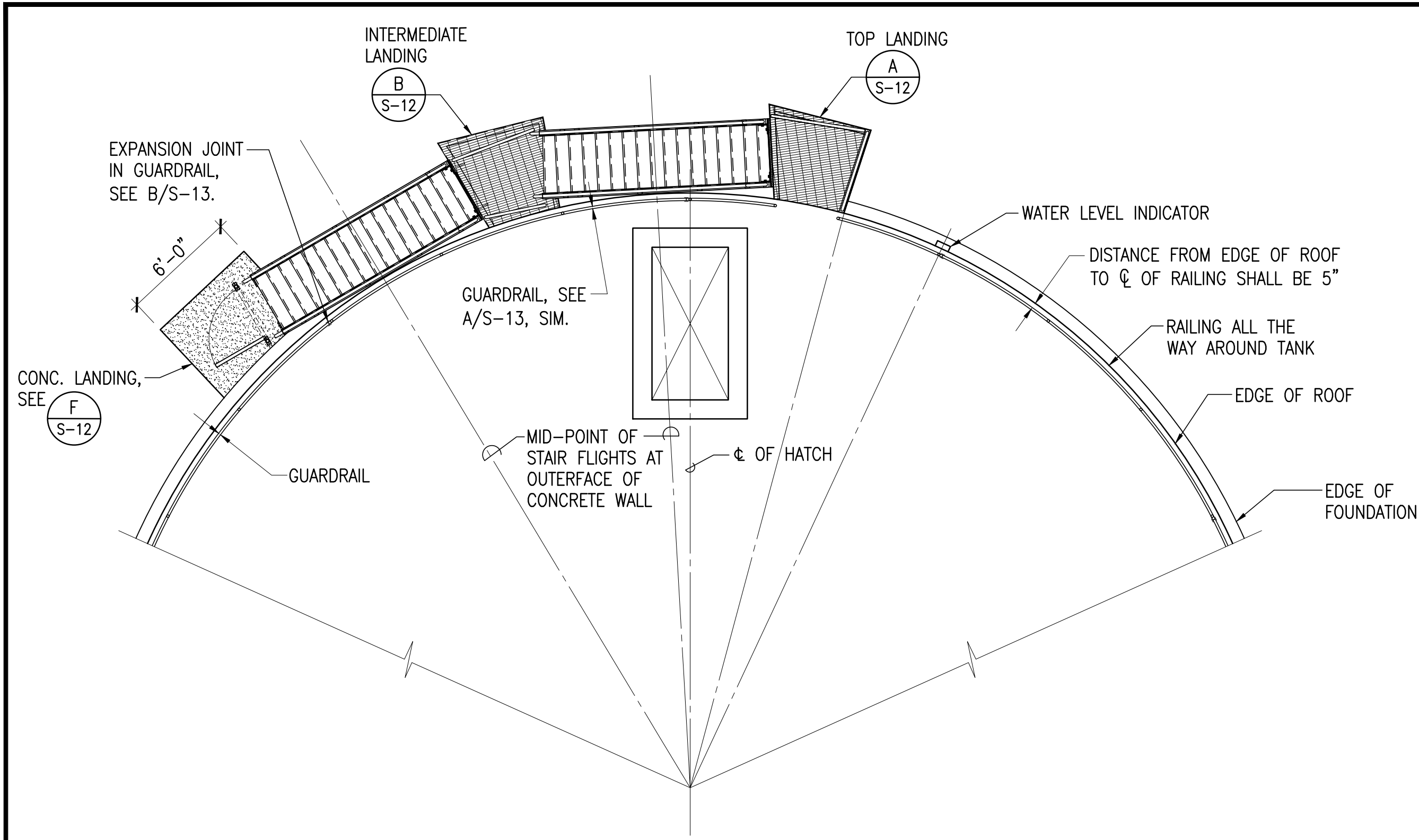


Craig H. Sakanashi
APPROVED:

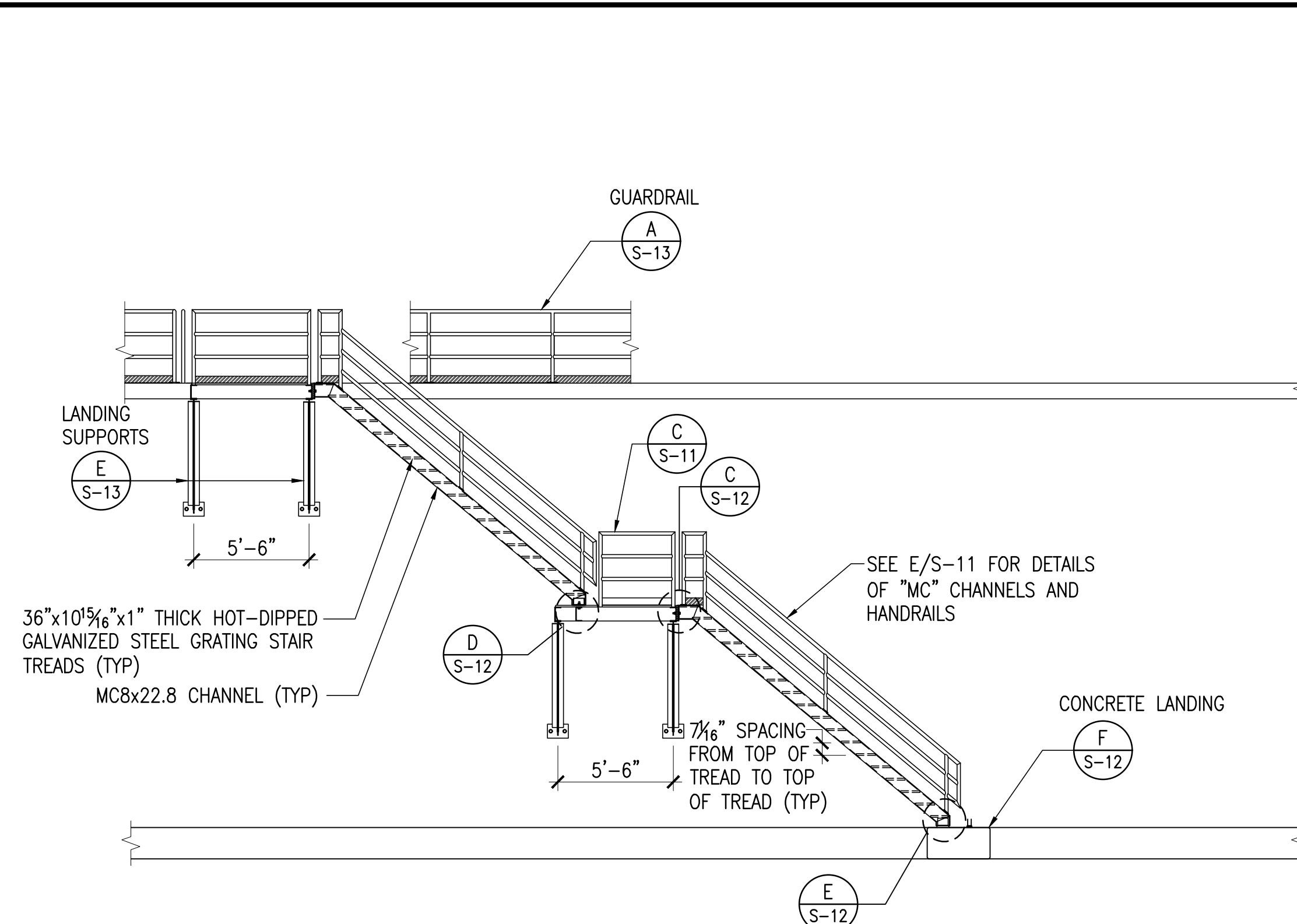
DRAWING NO.
S-10

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
MISCELLANEOUS DETAILS - 2			
APPROVED: N/A COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)			DATE _____
<i>Jason Kagimoto</i> COUNTY ENGINEER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE _____

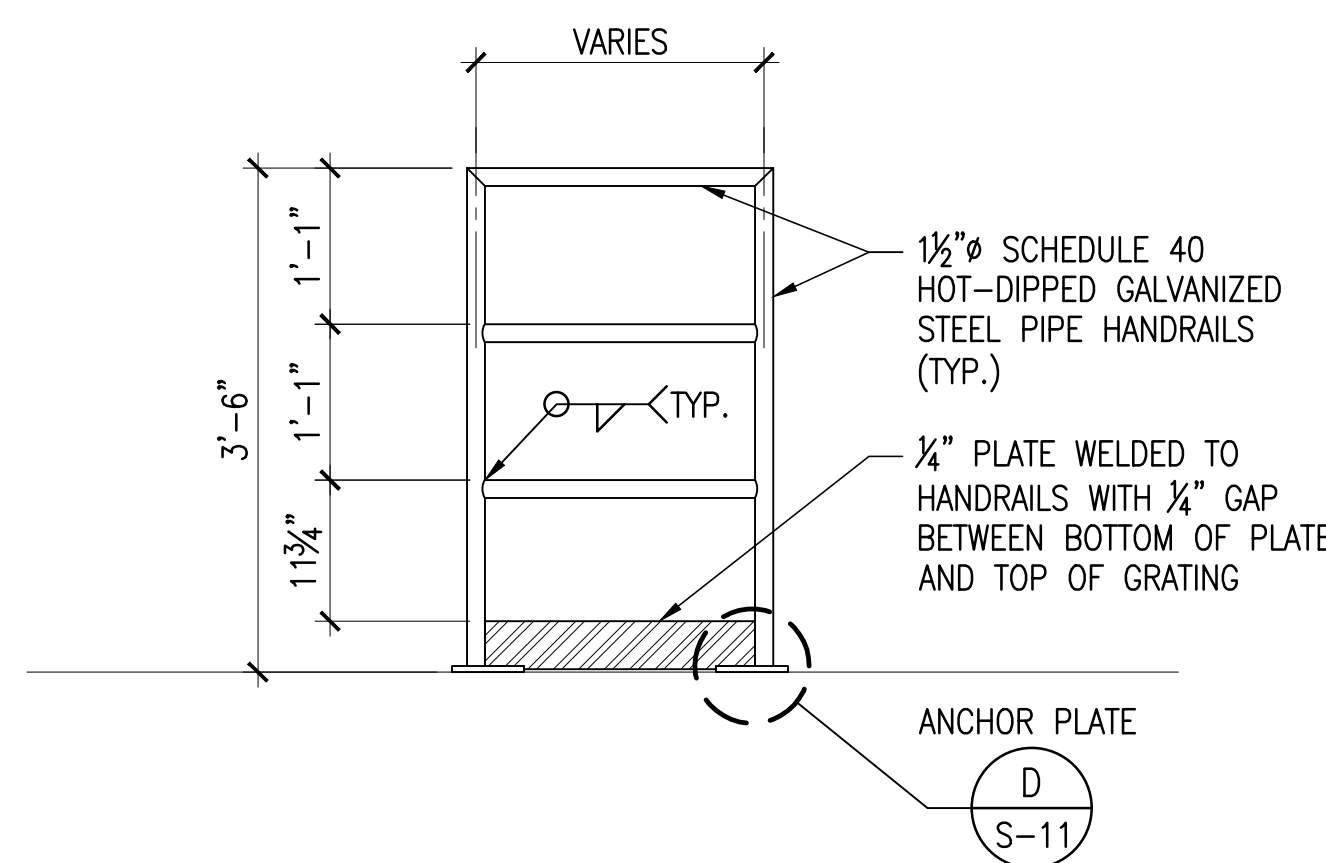


A EXTERIOR STAIR PLAN
S-11 SCALE: 3/16" = 1'-0"

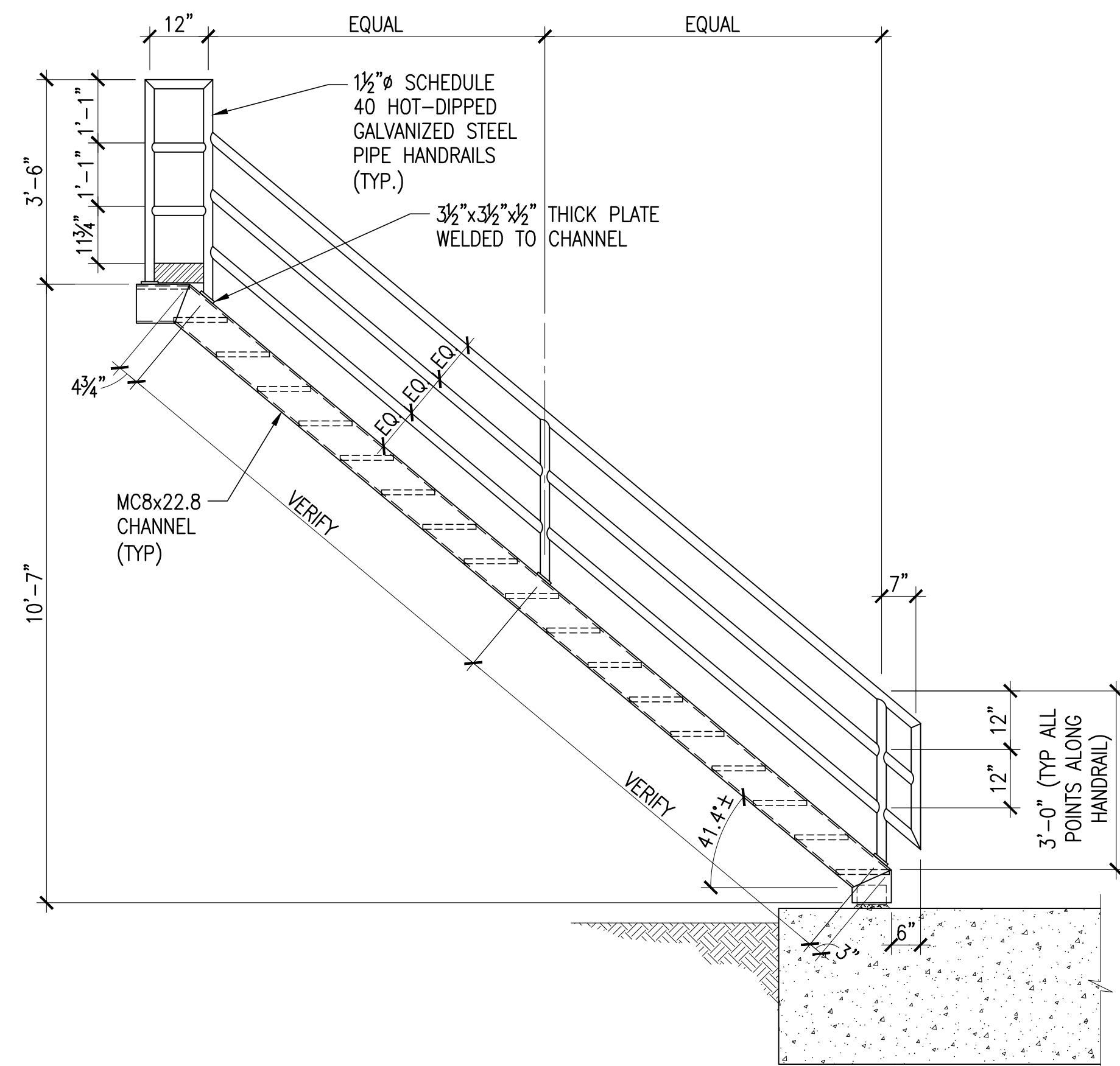


B EXTERIOR STAIR ELEVATION
S-11 SCALE: 3/16" = 1'-0"

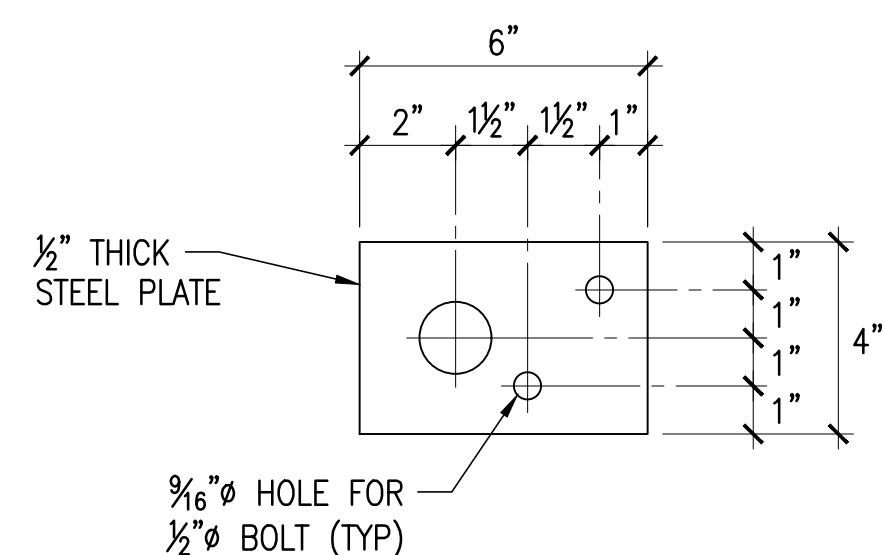
- STAIRWAY AND HANDRAIL NOTES:**
- ALL METALWORK SHALL BE HOT-DIPPED GALVANIZED STEEL UNLESS NOTED OTHERWISE.
 - ALL BOLTS SHALL BE STAINLESS STEEL 316 UNLESS NOTED OTHERWISE.
 - ALL WELDS TO BE 1/4" MINIMUM.
 - ALL WELDS AND TRANSITIONS TO BE SMOOTH AND FREE OF BURRS AND SHARP EDGES.
 - WHERE STAINLESS STEEL BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
 - FABRICATOR SHALL CONFORM TO ALL OSHA REGULATIONS FOR STAIRWAY AND HANDRAILS.
 - ALL PARTS SHALL BE SHOP FABRICATED IN LARGEST PIECES AS POSSIBLE THEN HOT-DIPPED GALVANIZED. IF WELDED AFTER BEING HOT-DIPPED GALVANIZED THE FOLLOWING SHALL BE DONE:
 - SANDBLAST FOR COMMERCIAL APPLICATION OF TWO COATS OF ZINC GALVILITE, WITH THE TOPCOAT FOR UV PROTECTION. PROVIDE 20-YEAR WARRANTY FOR PROTECTION AGAINST CORROSION.
 - APPLY ZINC-ENRICHED PRIMER AND EPOXY-TYPE COATING SUCH AS PPG AMERILOCK 2/400, WITH THE TOPCOAT FOR UV PROTECTION. PROVIDE 20-YEAR WARRANTY FOR PROTECTION AGAINST CORROSION.
 - MAKE SURE TREATMENT EXTENDS PAST WELDED AREAS ENOUGH TO BE EFFECTIVE. (TYPICAL FOR ALL SHEETS THAT MAY NEED HDG REPAIR)



C TYP. HANDRAIL AT LANDINGS
S-11 SCALE: 3/4" = 1'-0"



E TYPICAL STRINGER AND HANDRAIL DETAIL
S-11 NOT TO SCALE



D TYP. RAIL ANCHOR PLATE
S-11 SCALE: 3" = 1'-0"

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003



APPROVED:
N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

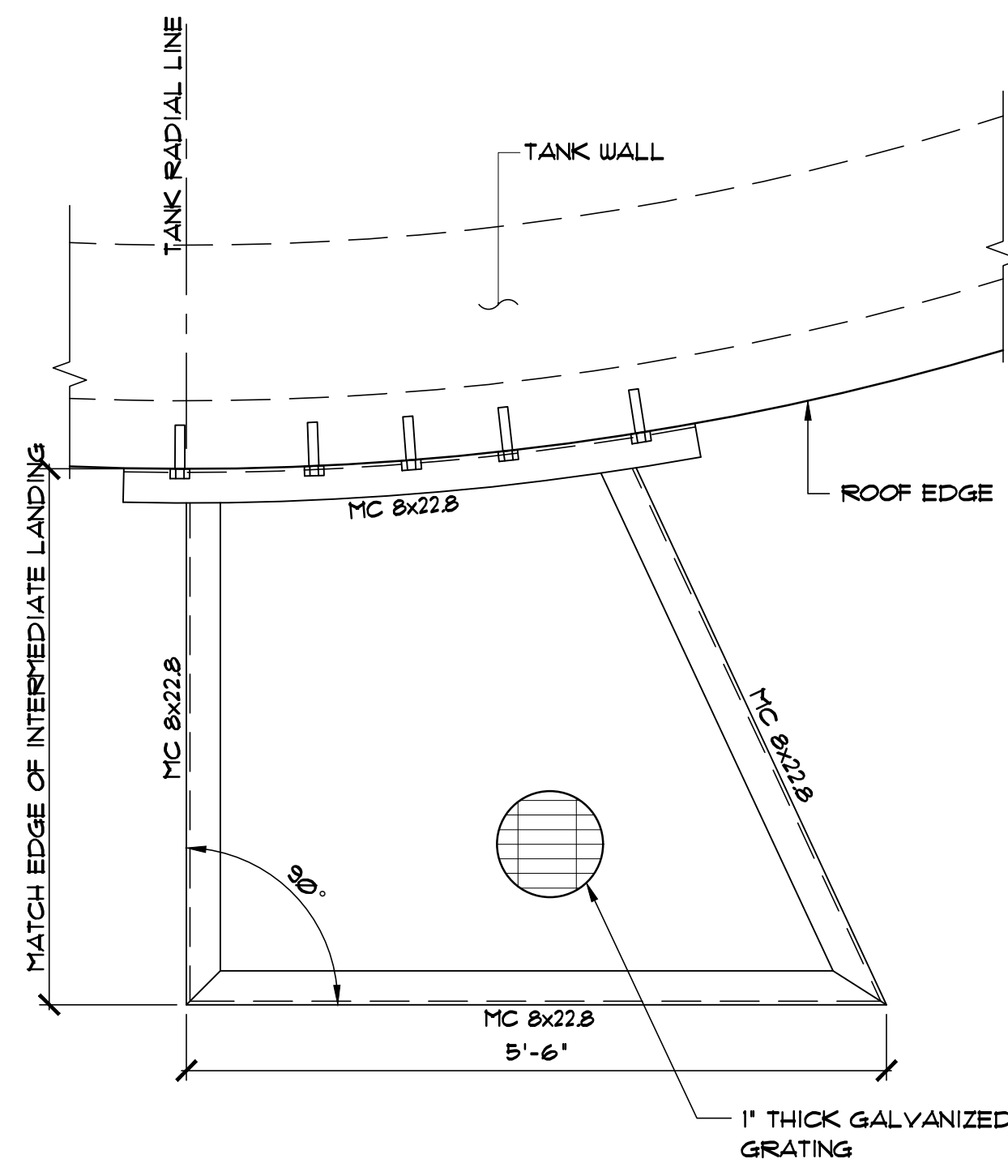
EXTERIOR STAIR PLAN, ELEVATION AND DETAILS

APPROVED: _____ DATE _____
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

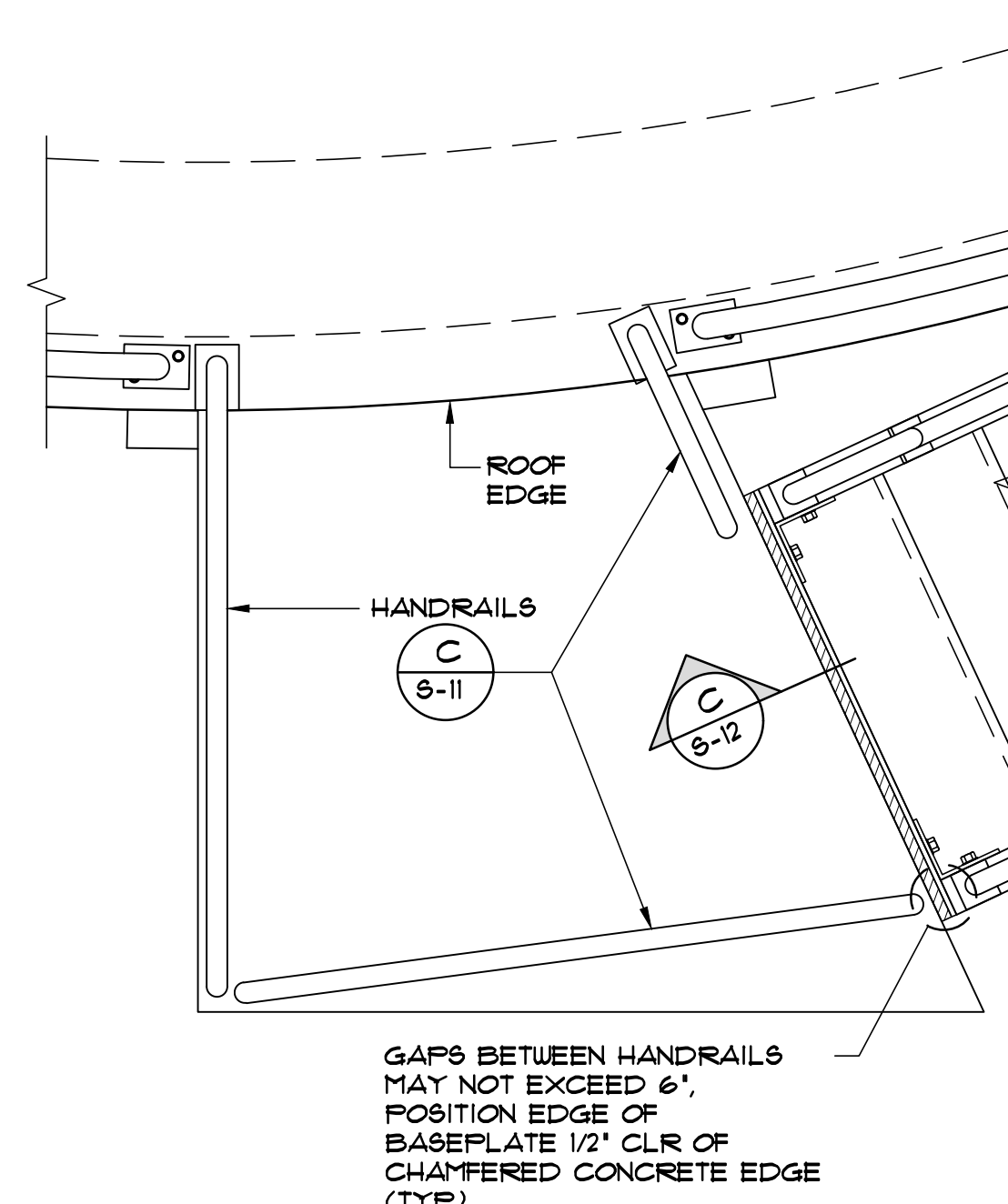
APPROVED: _____ DATE _____
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
S-11

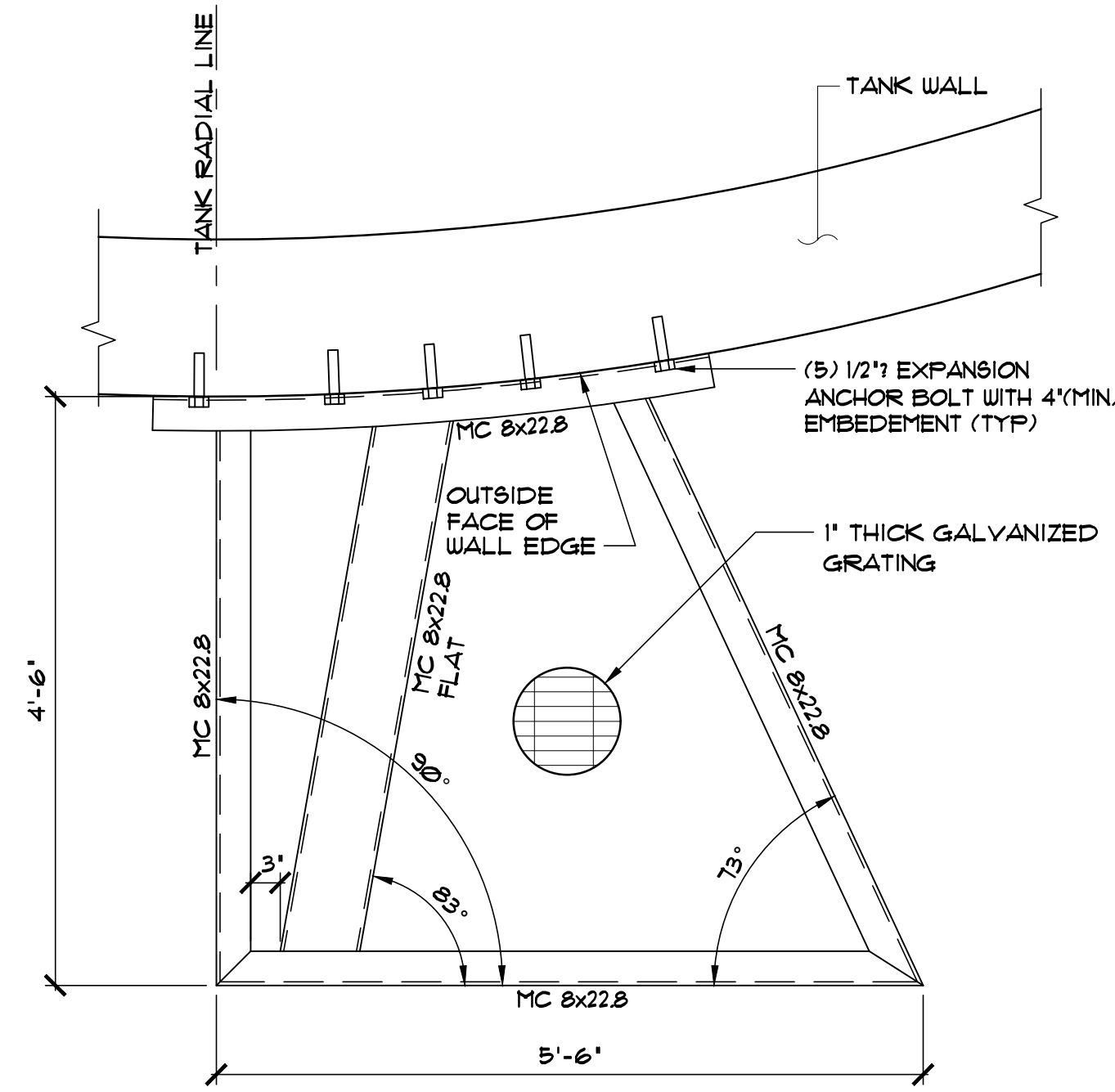
HALF SIZE TRIMLINE FOR 11" x 17"
 MAY 05 2023 9:01am
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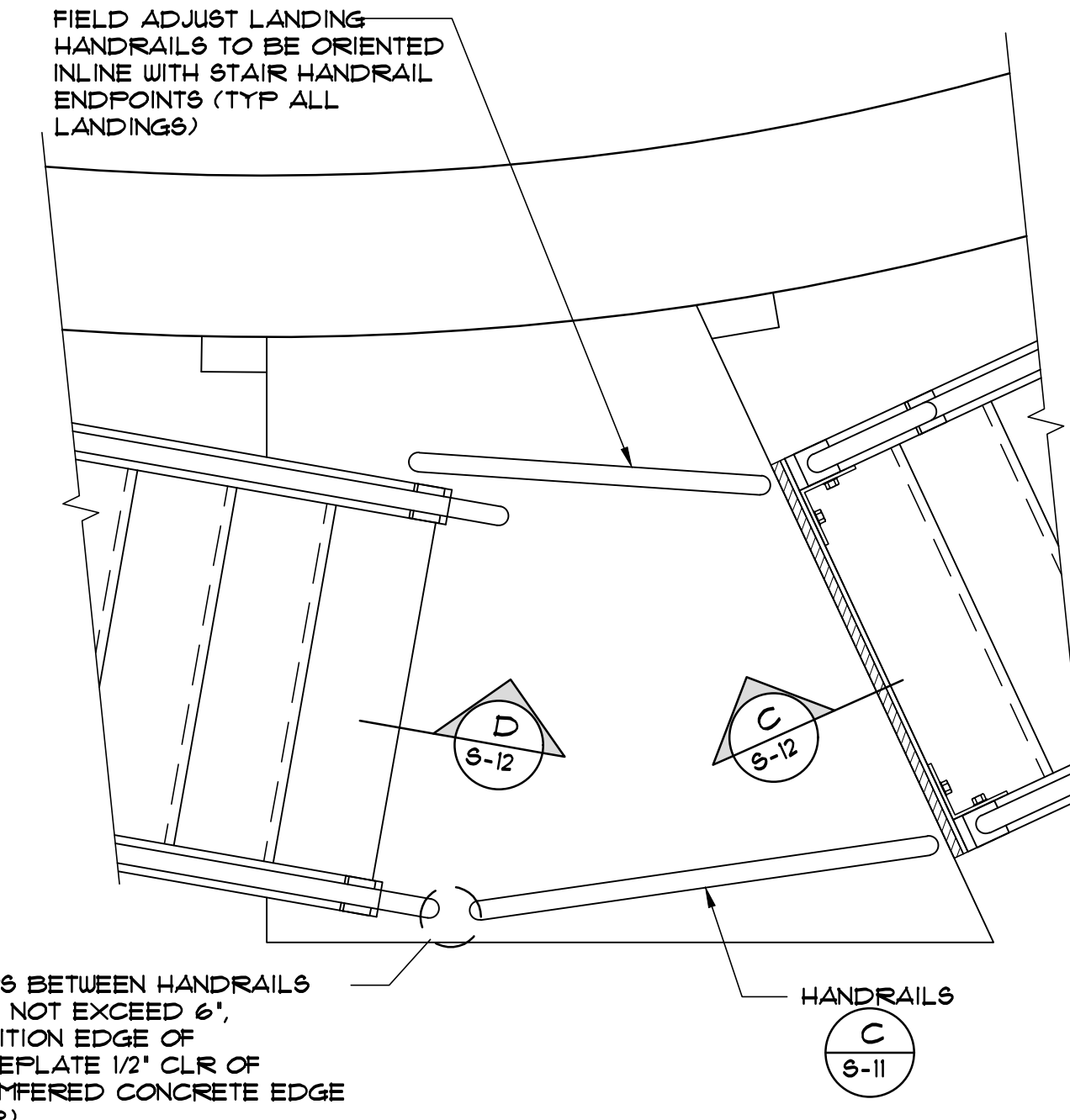
LANDING FRAMING PLAN



LANDING HANDRAIL PLAN

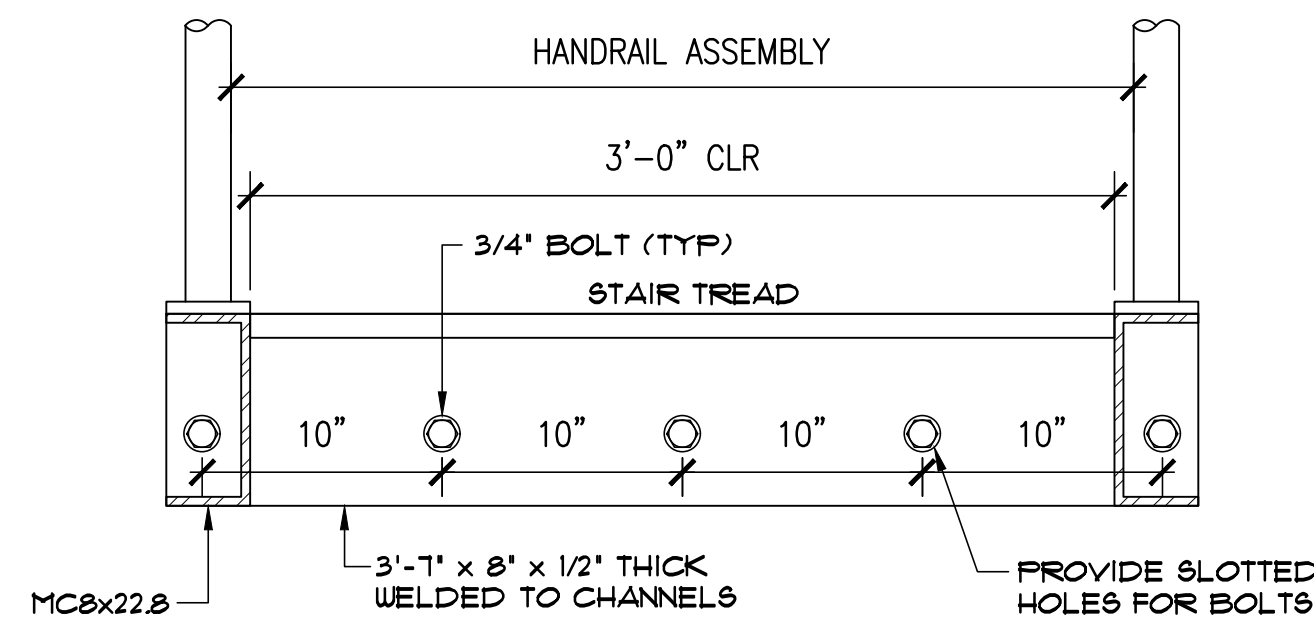


LANDING FRAMING PLAN



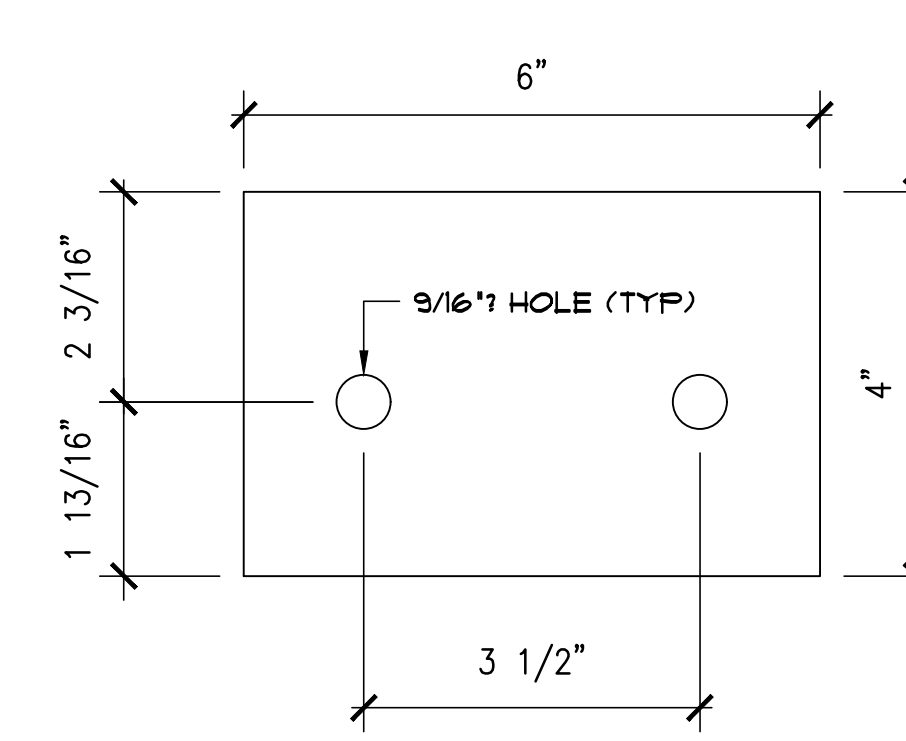
LANDING HANDRAIL PLAN

A TOP LANDING DETAIL
S-12 SCALE: 3/4" = 1'-0"

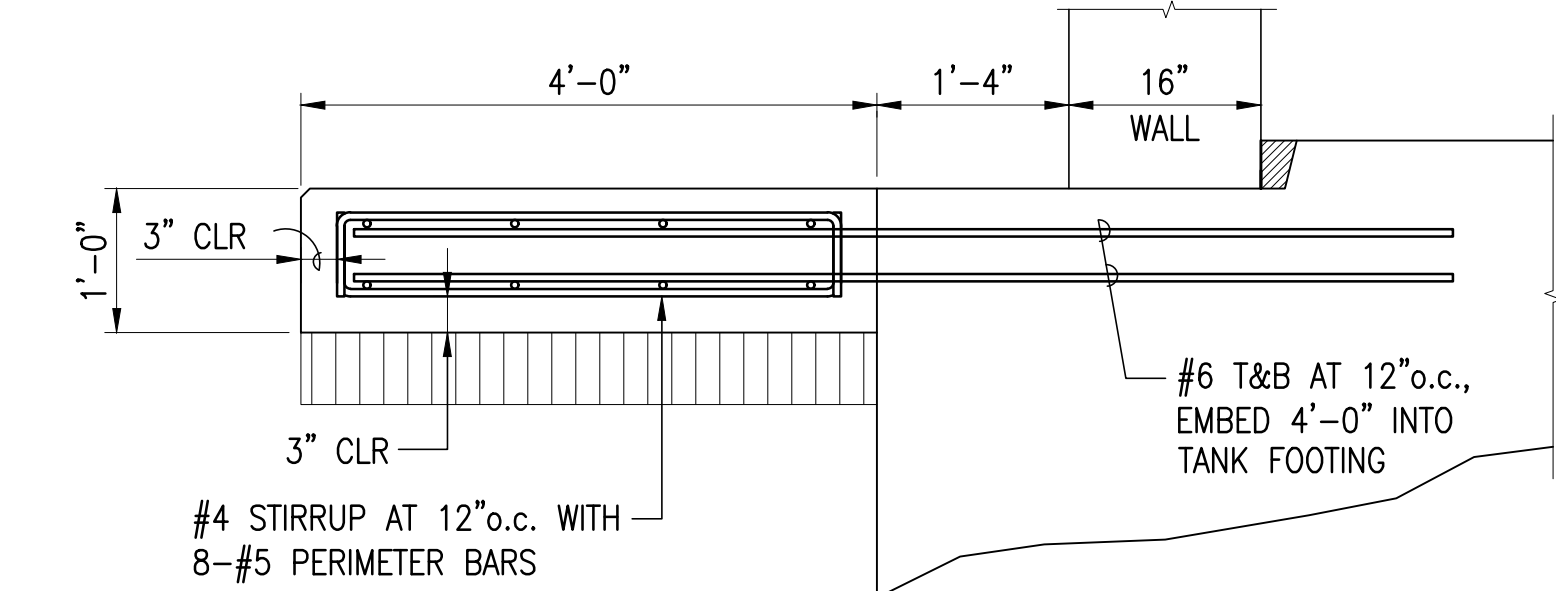


"X" STAIR TOP PLATE

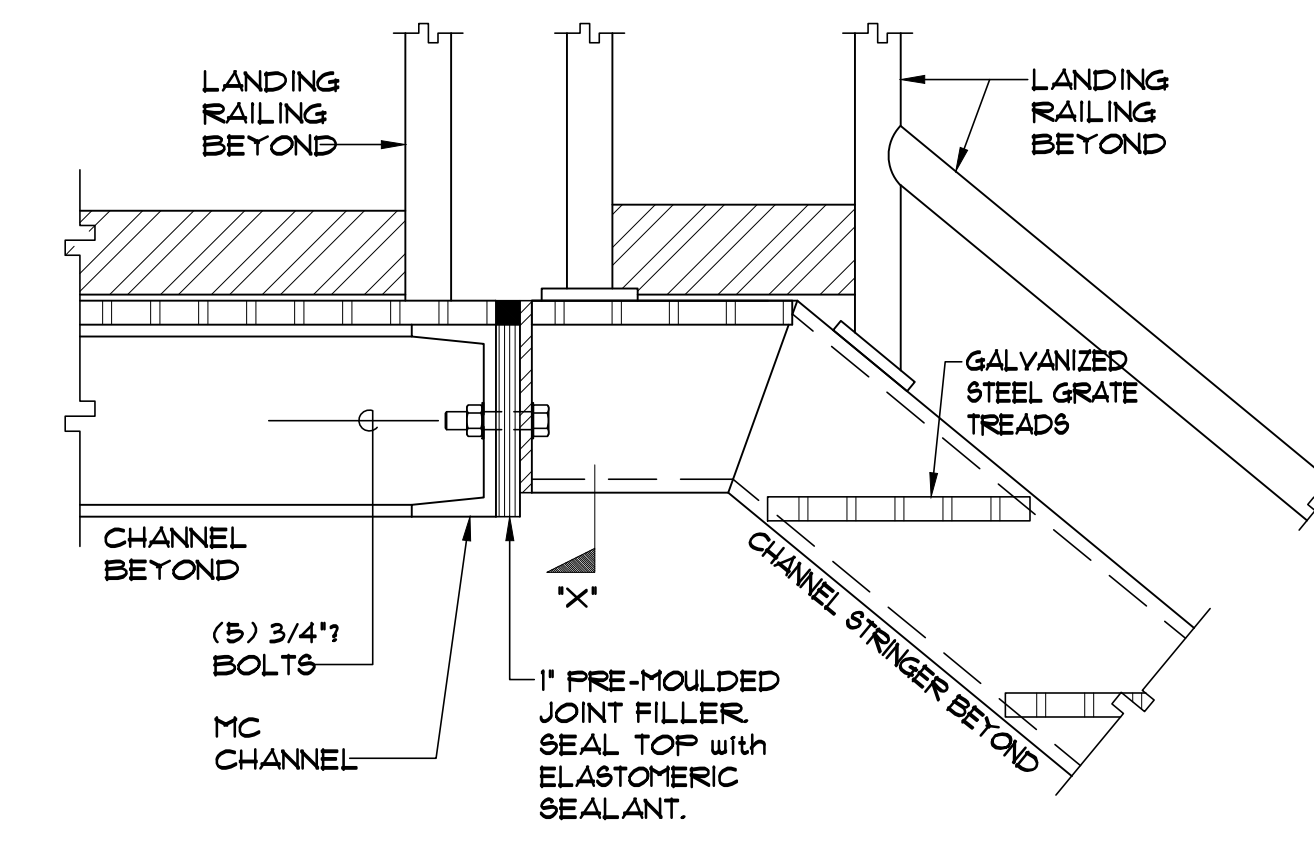
B INTERMEDIATE LANDING DETAIL
S-12 SCALE: 3/4" = 1'-0"



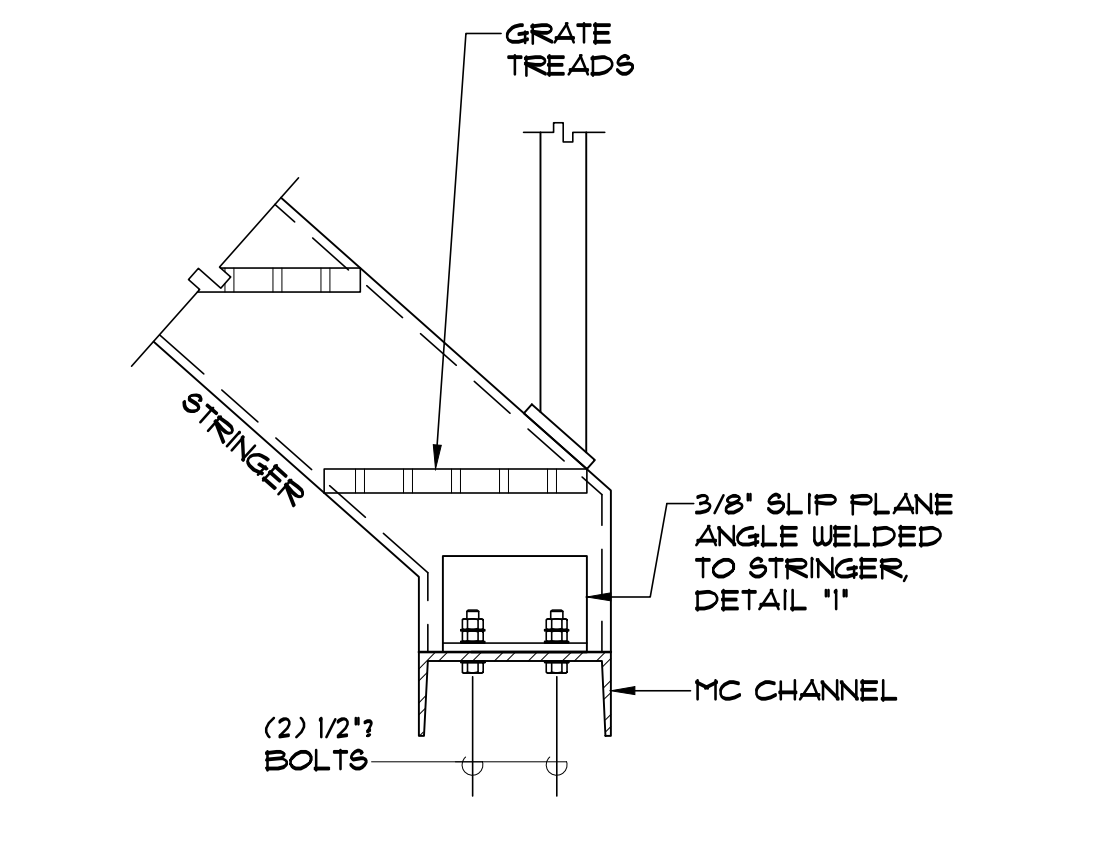
"2" SLIP PLATE DETAIL
HALF SCALE



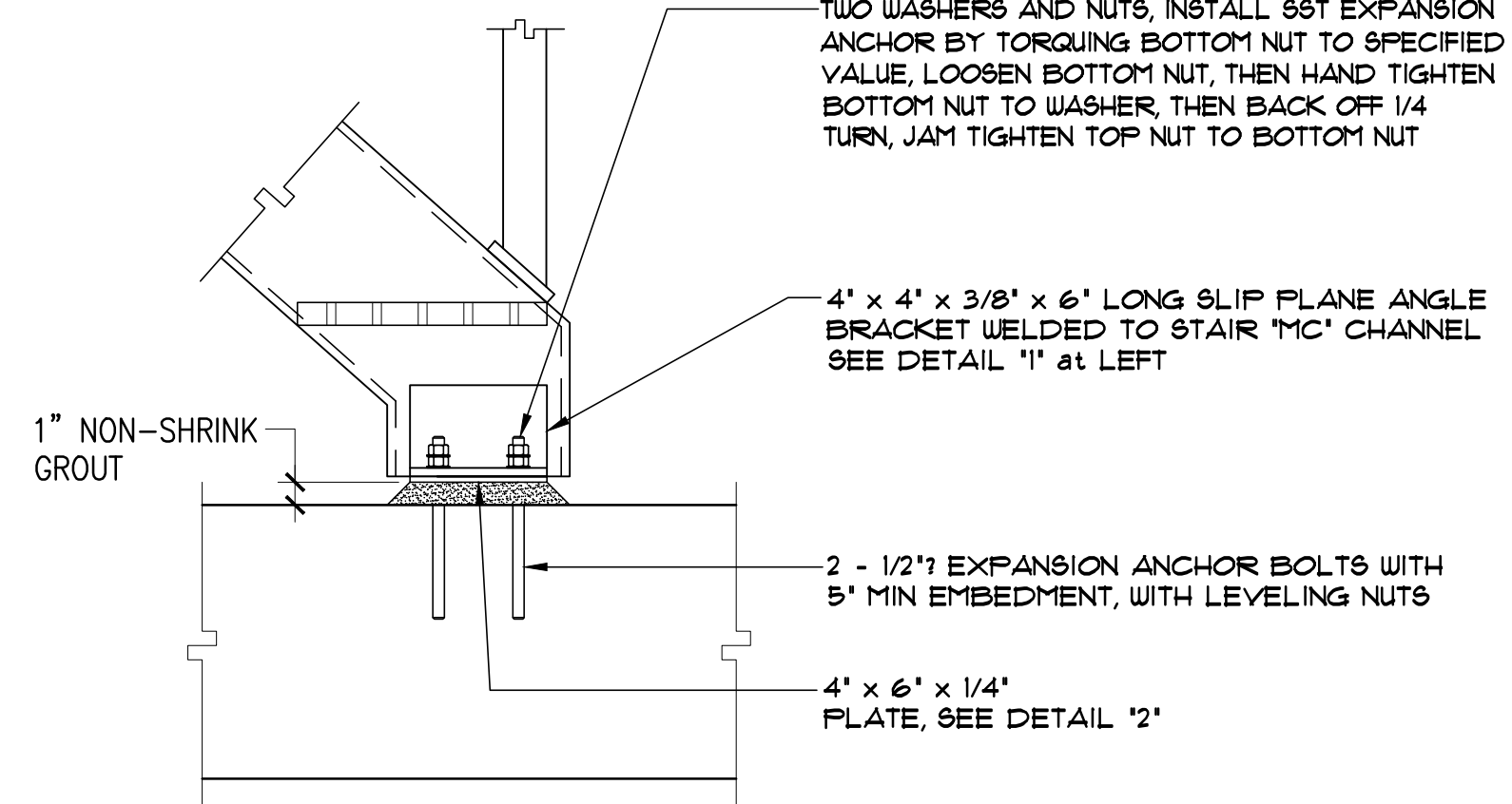
F BOTTOM LANDING REINF.
S-12 SCALE: 3/4" = 1'-0"



C TOP OF STRINGER
S-12 SCALE: 1 1/2" = 1'-0"

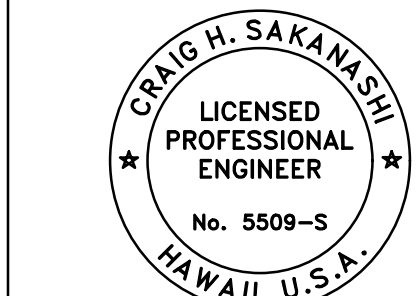


D BOTTOM OF STRINGER
S-12 SCALE: 1 1/2" = 1'-0"



E STRINGER TO CONCRETE LANDING
S-12 SCALE: 1 1/2" = 1'-0"

TMK: 4 - 6 - 011-003



APPROVED:
N/A

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

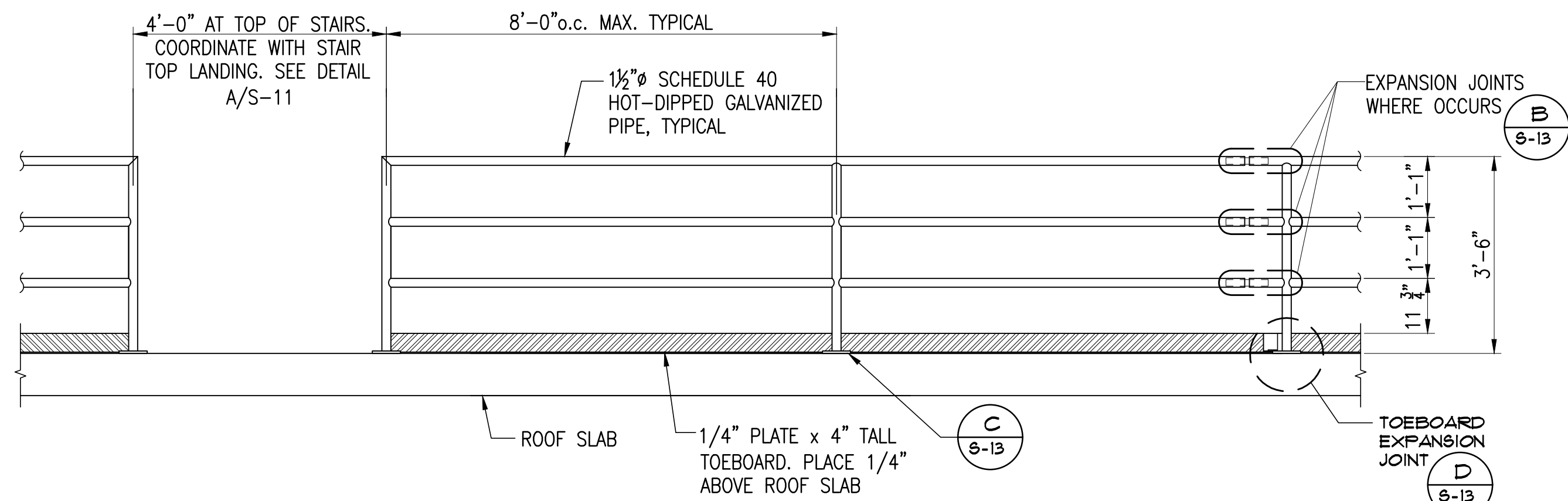
STAIR LANDING DETAILS

APPROVED:
N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
S-12

HALF SIZE TRIMLINE FOR 11" x 17"
 MAY 05 2023 9:02am
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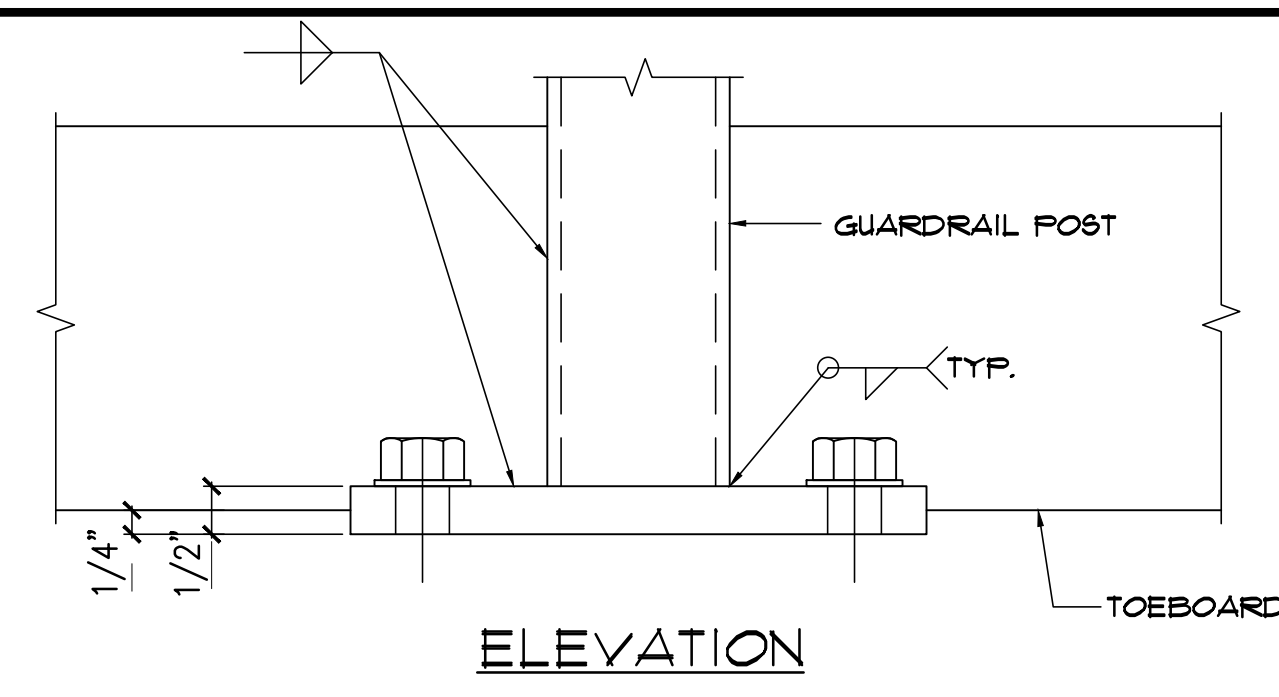


GUARDRAIL NOTES:

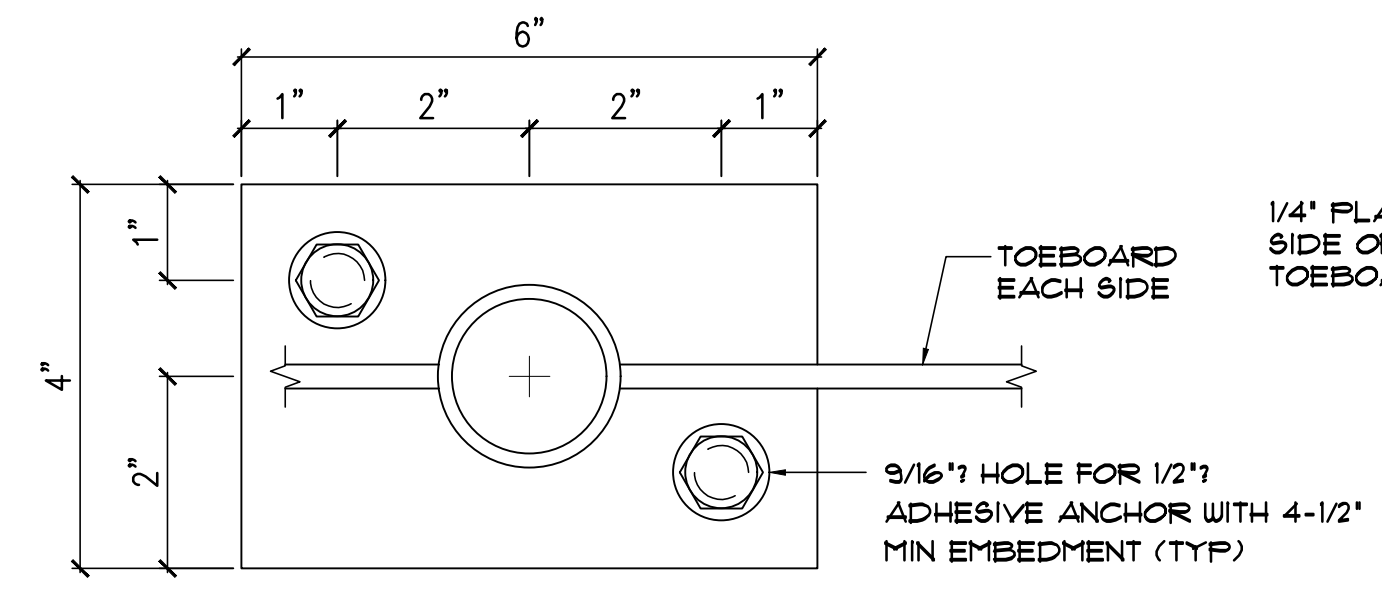
- 1) ALL MATERIAL FOR GUARDRAILS AND BASE PLATES TO BE HOT-DIPPED GALVANIZED STEEL.
- 2) ALL WELDS TO BE 1/4" MINIMUM. ALL WELD TRANSITIONS TO BE SMOOTH AND FREE OF BURRS AND SHARP EDGES.
- 3) USE STAINLESS STEEL 316 FOR ALL BOLTS UNLESS NOTED OTHERWISE.
- 4) WHERE STAINLESS STEEL BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
- 5) FABRICATE GUARDRAIL IN AS LONG LENGTHS AS POSSIBLE. PROVIDE EXPANSION JOINTS IN AT LEAST ONE END OF EVERY FABRICATED SECTION NOT TO EXCEED 24'-0".

A GUARDRAIL ELEVATION

S-13 SCALE: 1/2" = 1'-0"



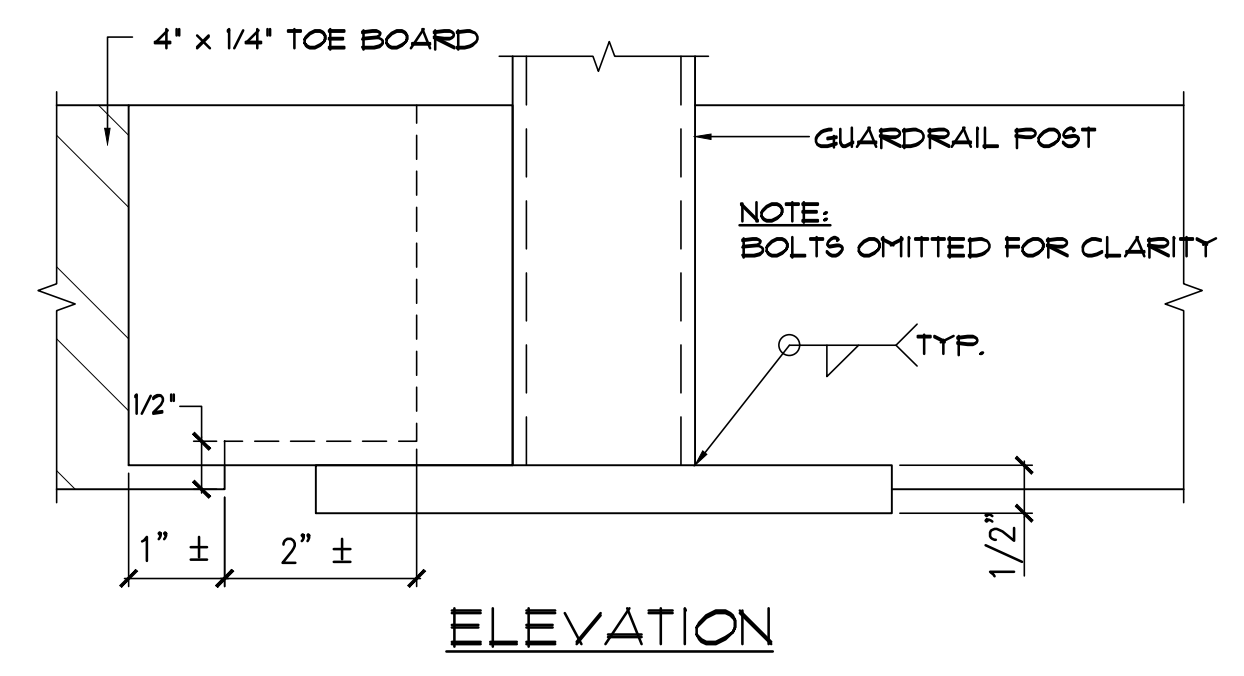
ELEVATION



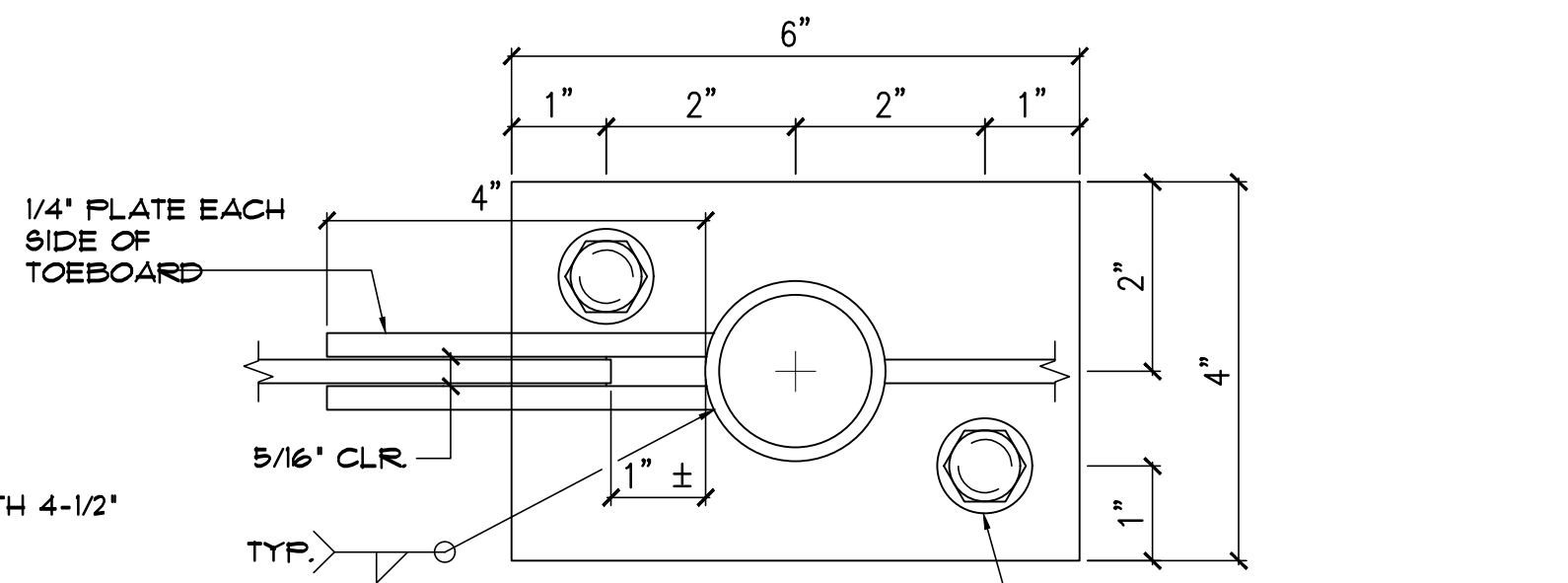
PLAN

C TYPICAL BASE PLATE

S-13 NOT TO SCALE



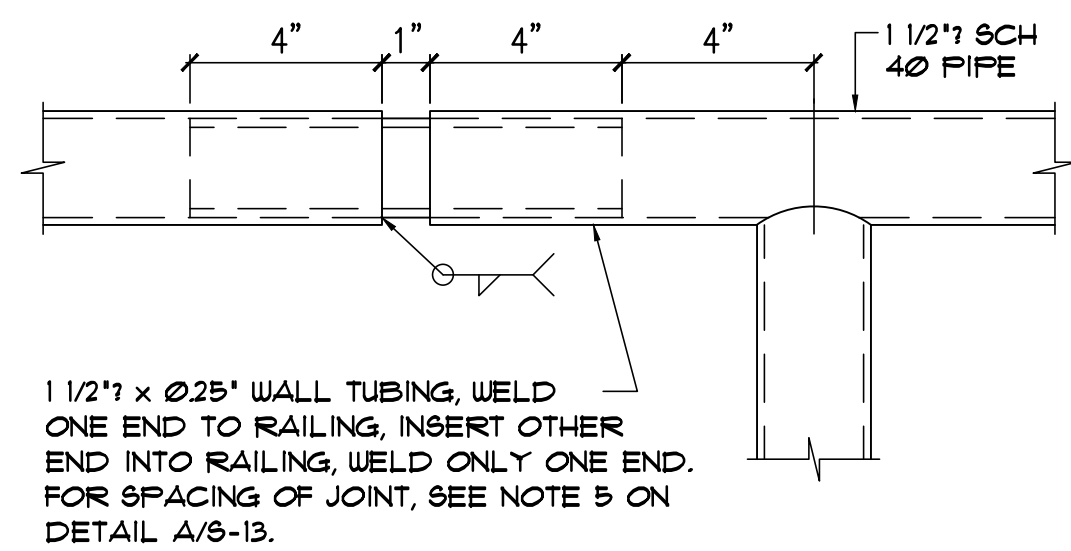
ELEVATION



PLAN

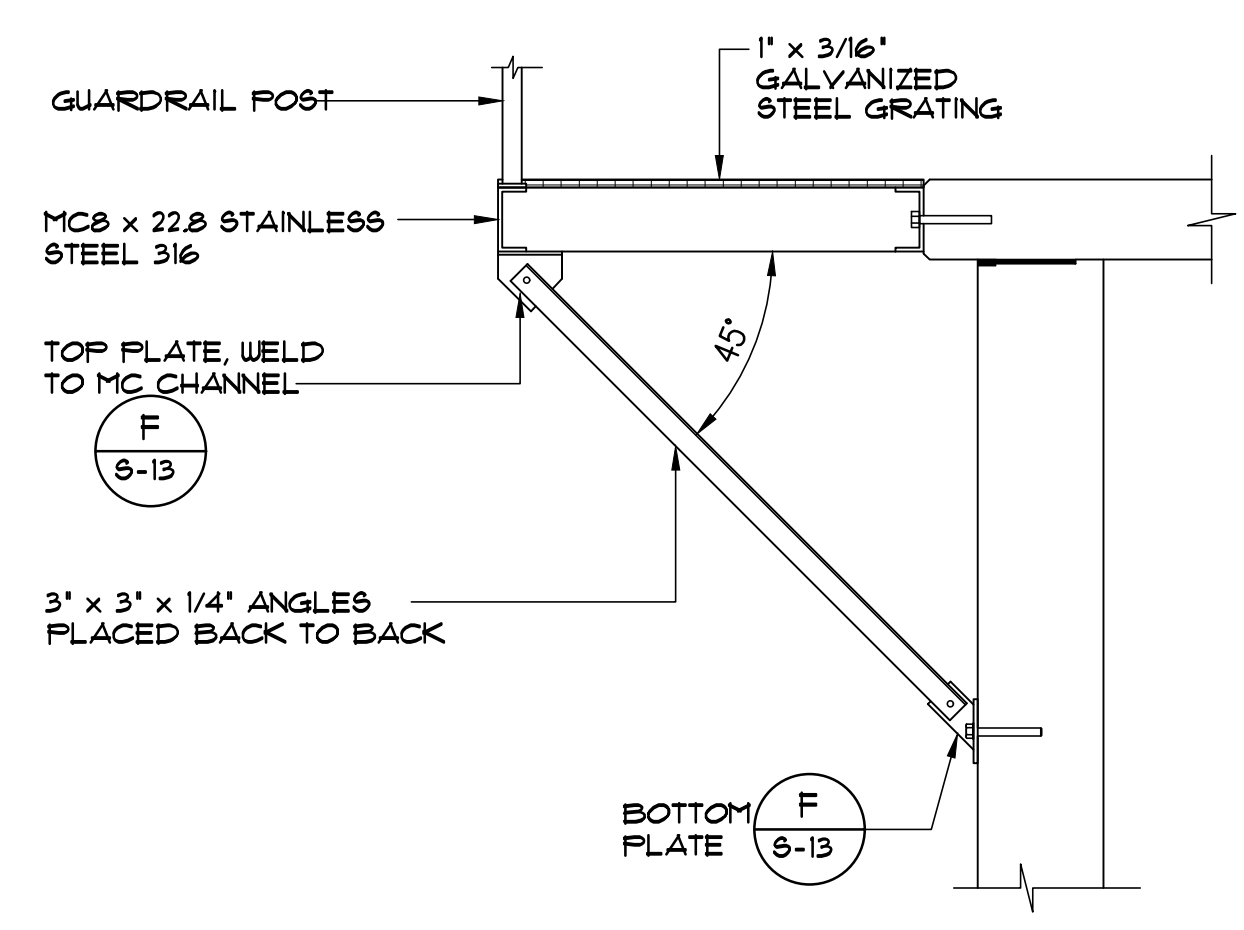
D TOEBOARD EXPANSION JOINT

S-13 NOT TO SCALE

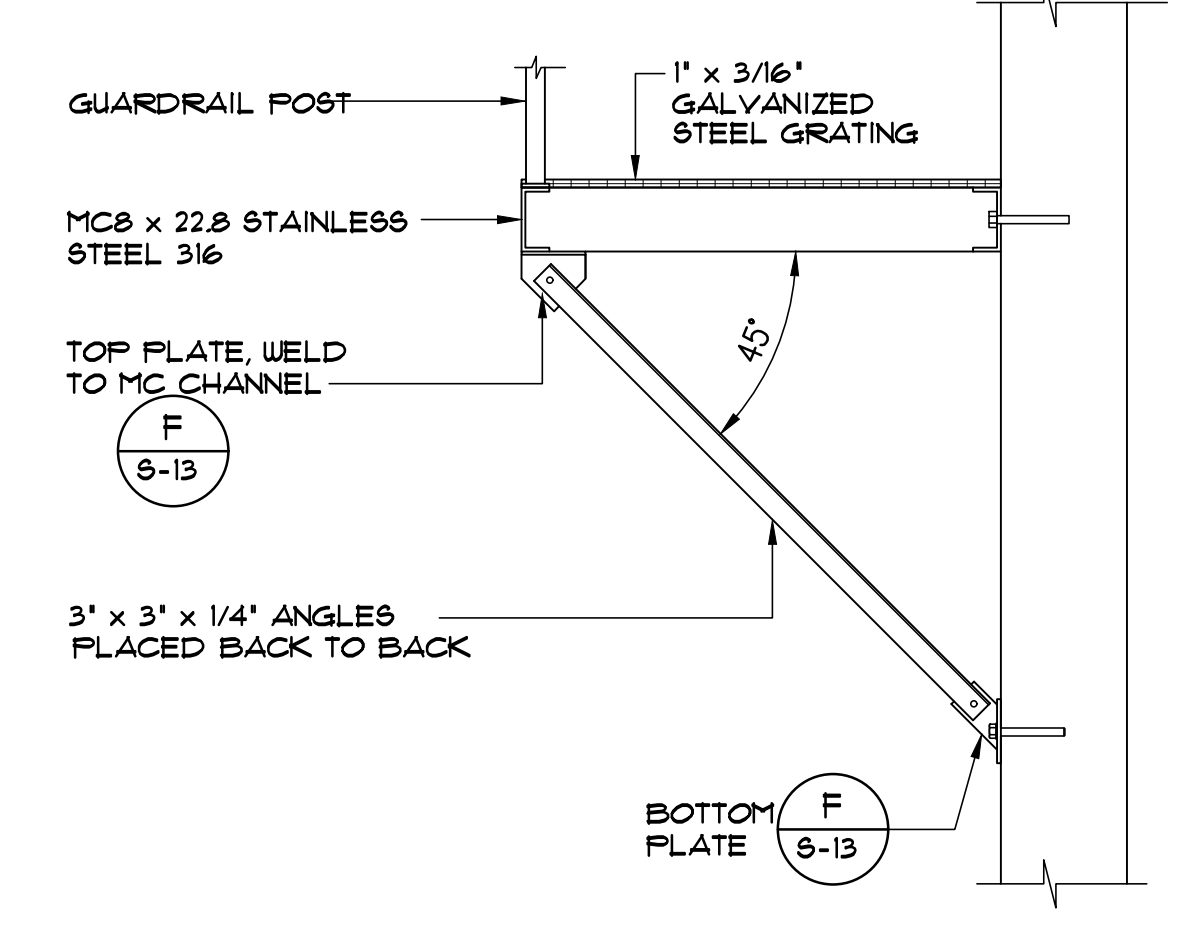


B RAIL EXPANSION JOINT

S-13 SCALE: 3" = 1'-0"



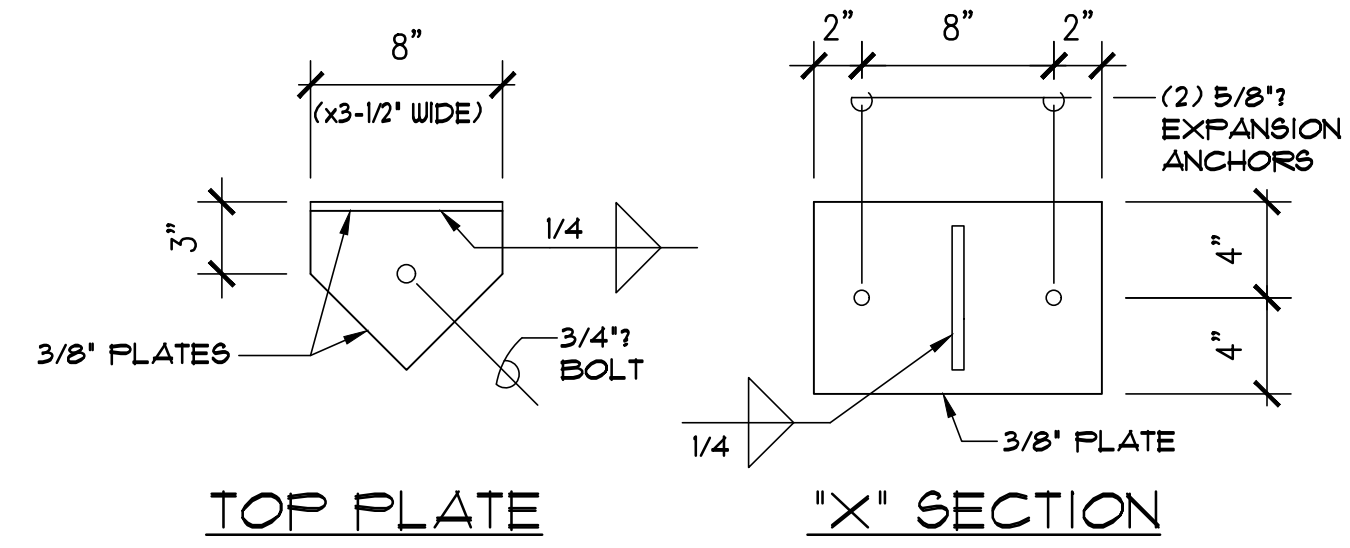
TOP LANDING



INTERMEDIATE LANDINGS

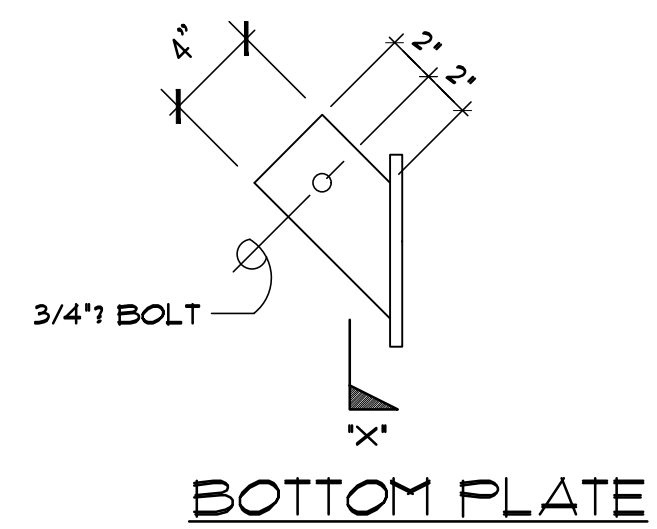
E STAIR LANDING SUPPORT DETAIL

S-13 SCALE: 1/2" = 1'-0"



TOP PLATE

"X" SECTION

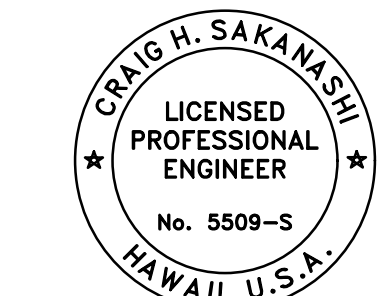


BOTTOM PLATE

F LANDING SUPPORT END PLATES

S-13 SCALE: 1 1/2" = 1'-0"

TMK: 4 - 6 - 011-003



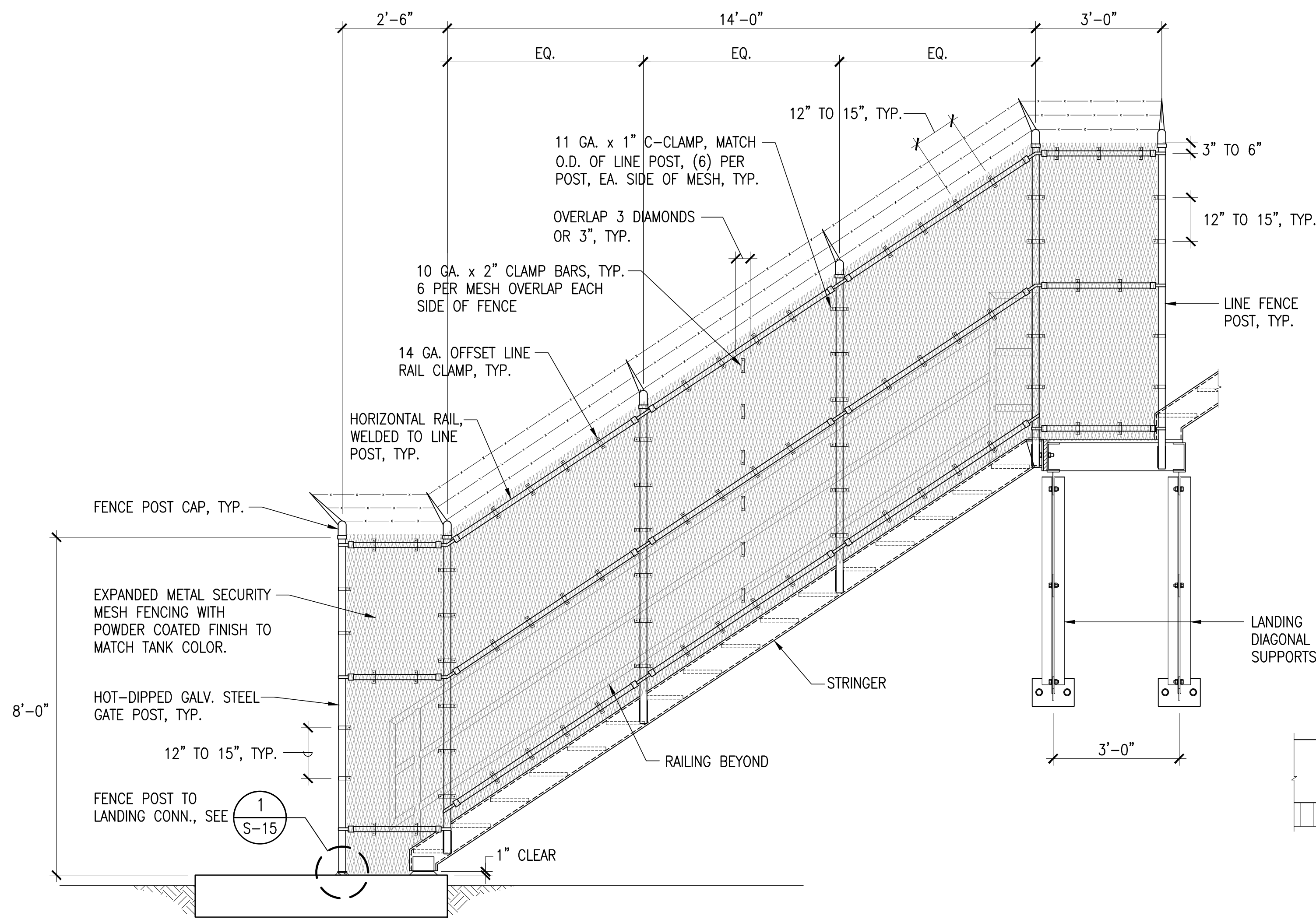
APPROVED: *Craig H. Sakanashi*

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII STAIR LANDING SUPPORT AND GUARDRAIL DETAILS			
APPROVED: N/A			DATE
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS, COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)			DATE
<i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER, COUNTY OF KAUAI			DATE

DRAWING NO. **S-13**

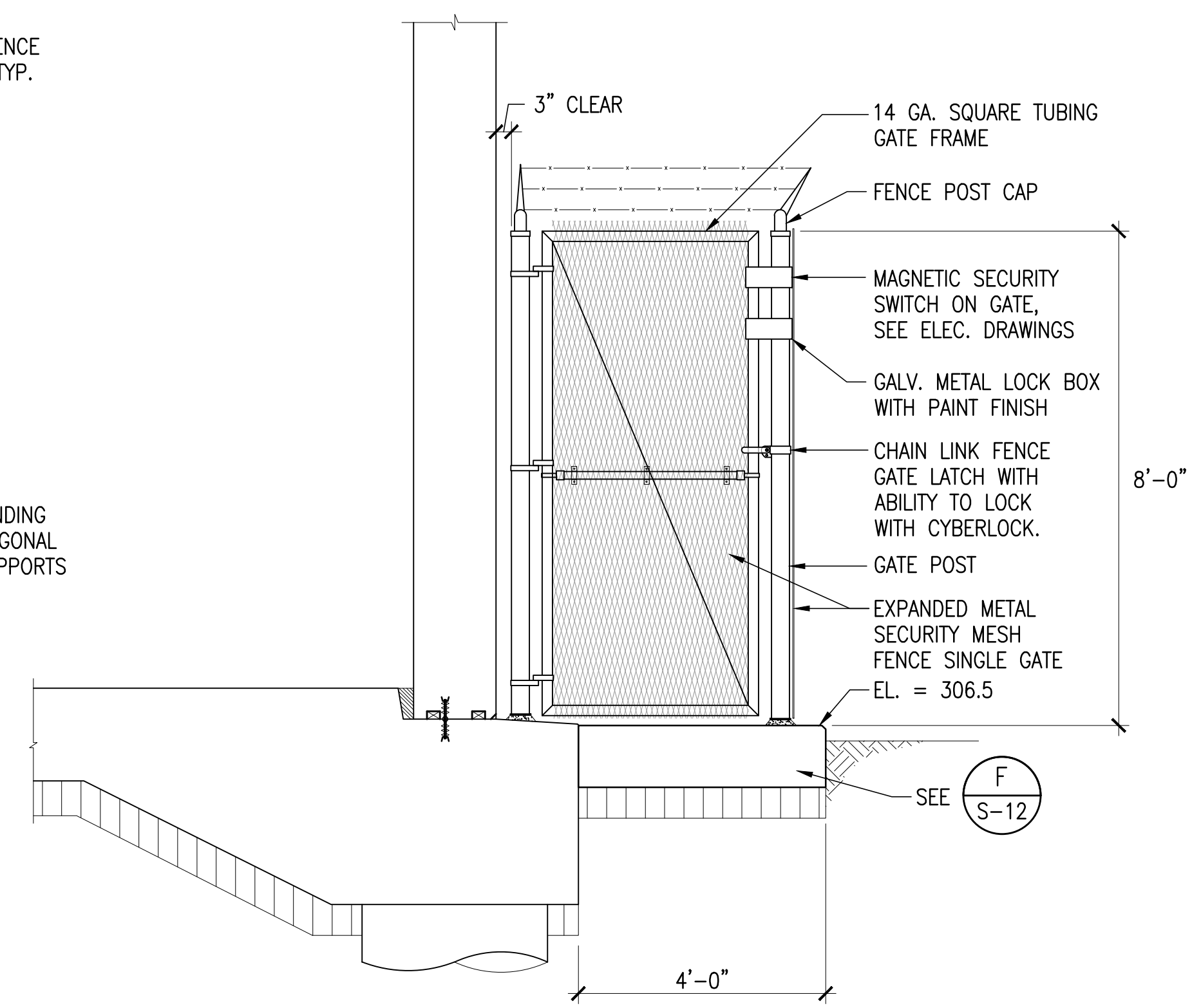
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. APRIL 30, 2024 EXPIRATION DATE OF THE LICENSE

HALF SIZE TRIMLINE FOR 11" x 17"
 M:_05_10_2023_9_0330m - 9/0330m
 C:\Temp\1002023_kapa a Homestead_325' Tanks\Original DWG Files\20231010\9_51_S-13 Stair Landing Support and Guardrail Det.dwg



1 STAIR SECURITY FENCE ELEVATION
S-14 SCALE: 1/2"=1'-0"

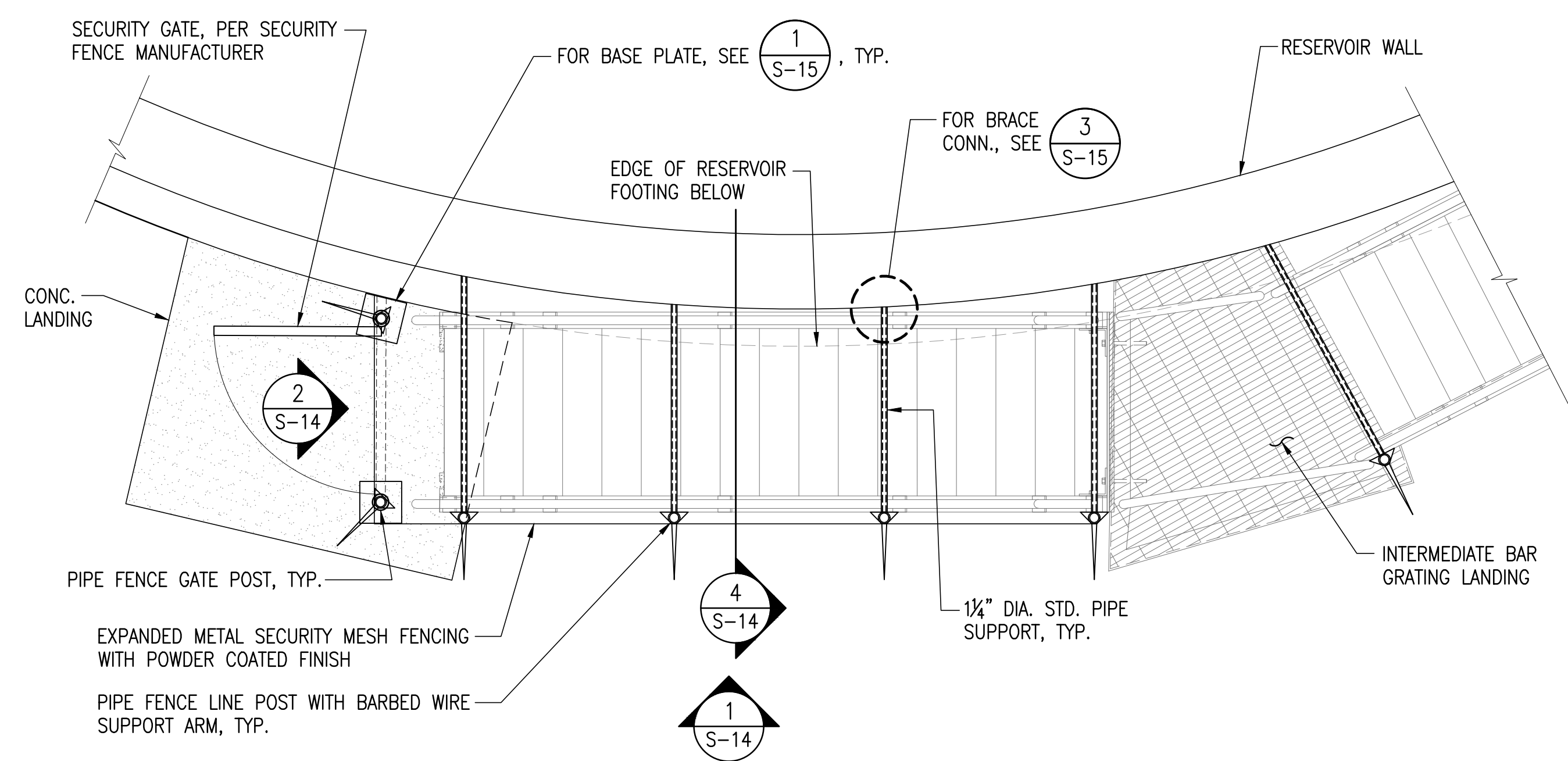
NOTES:
1. GATE DESIGNED AND PROVIDED BY FENCE MANUFACTURER. PROVIDE GATE LATCH AND BARBED WIRE.
2. CYBERLOCK AND KEY SHALL BE PROVIDED BY CONTRACTOR.



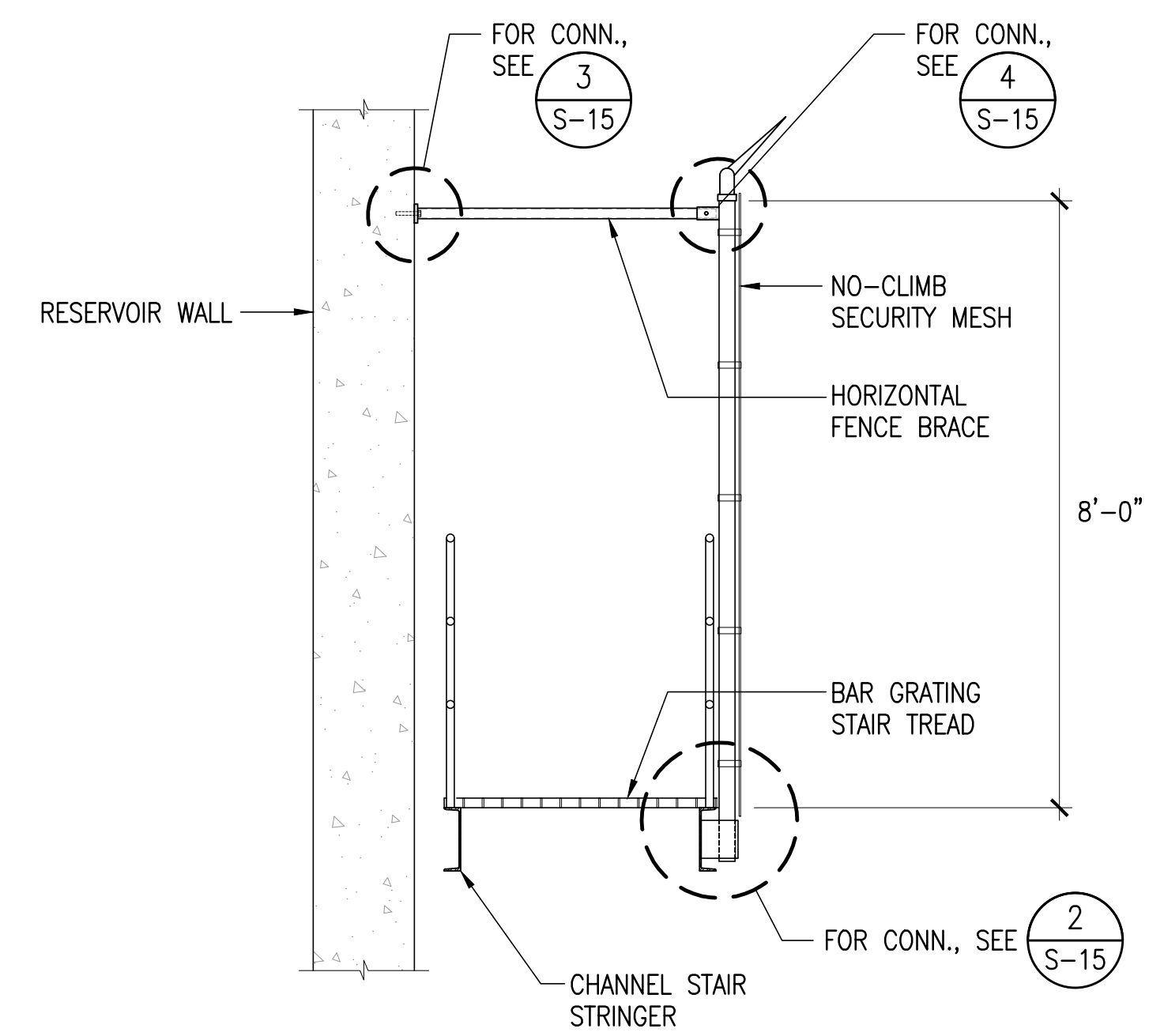
2 STAIR SECURITY FENCE GATE ELEVATION
S-14 SCALE: 1/2"=1'-0"

STAIR SECURITY FENCING NOTES:

- THE HIGH SECURITY FENCE SHALL BE A SECUREX FENCE EXPANDED METAL FENCE SYSTEM AS MANUFACTURED BY NILES FENCE AND SECURITY PRODUCTS OR APPROVED EQUAL.
- FENCING SYSTEM SHALL BE 8 FEET HIGH USING 3 HORIZONTAL RAILS (TOP, MID-HEIGHT AND BOTTOM) BETWEEN POSTS WITH A NO-CLIMB 9 GAUGE EXPANDED METAL MESH WITH A 3/4-INCH HOLE SIZE ENTIRE FENCING SYSTEM AND GATE SHALL BE FINISHED WITH A POLYESTER POWDER COATING FOR ENHANCED CORROSION PROTECTION.
- FENCE FRAMEWORKS SHALL CONSIST OF THE FOLLOWING HOT-DIPPED GALVANIZED MEMBERS:
 - A. LINE POSTS 2 1/2" DIA. SCH. 40
 - B. GATE POSTS 3 1/2" DIA. SCH. 40
 - C. HORIZONTAL RAILS 1 1/4" DIA. SCH. 40
- ALL FENCE FITTINGS AND HARDWARE SHALL BE POLYESTER POWDER COATING TO MATCH FENCING.
- FASTENERS SHALL BE STAINLESS STEEL 316 CARRIAGE BOLTS WITH BREAKAWAY NUTS OR OTHER APPROVED TAMPER-PROOF SECURITY FASTENER, UNLESS NOTED OTHERWISE. BOLT SIZE IS CONTINGENT ON MESH AND FITTINGS PER SECURITY FENCE MANUFACTURER.
- ALL PLATES SHALL CONFORM TO ASTM A36 HOT-DIPPED GALVANIZED.
- ALL HOT-DIPPED GALVANIZING SHALL CONFORM TO ASTM A123.
- THE FENCING ALIGNMENT SHALL BE LOCATED RELATIVE TO THE EXTERIOR STAIR STRINGER AS INDICATED ON THIS SHEET. NEW POSTS SHALL BE PROVIDED FOR FENCING.
- ATTACH AND SECURE MESH TO POSTS AND HORIZONTAL RAILS AND POSTS WITH FASTENERS AND IN MANNER SPECIFIED BY MANUFACTURER. PROVIDE SPECIAL SIZED POSTS, END TENSIONER ASSEMBLIES AT CORNERS AND TERMINATION (GATE) POSTS AS RECOMMENDED BY MANUFACTURER.
- MESH CONNECTION HARDWARE INDICATED IN DETAILS IS FOR GENERAL CONCEPT/REQUIREMENTS ONLY. THE ACTUAL TYPE, NUMBER, CONFIGURATION AND/OR LOCATION WILL VARY DEPENDING ON MANUFACTURER.
- INSTALL 3 STRANDS OF GALVANIZED STEEL BARBED WIRE ABOVE TOP OF FENCE. BARBED WIRE SUPPORT ARMS TO HAVE POLYESTER POWDER COATING TO MATCH FENCE SYSTEM.
- WHERE STAINLESS STEEL BOLTS ARE IN CONTACT WITH DISSIMILAR METALS, USE INSULATING SLEEVES AND PHENOLIC WASHERS TO ELECTRICALLY ISOLATE THE BOLTS.
- THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.

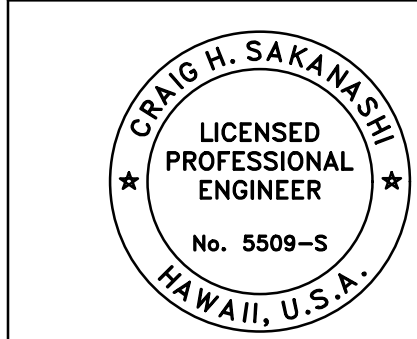


3 PARTIAL STAIR SECURITY FENCE PLAN
S-14 SCALE: 1/2"=1'-0"



4 STAIR SECURITY FENCE SECTION
S-14 SCALE: 1/2"=1'-0"

TMK: 4 - 6 - 011:003



APPROVED: *Jason Keginete*
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

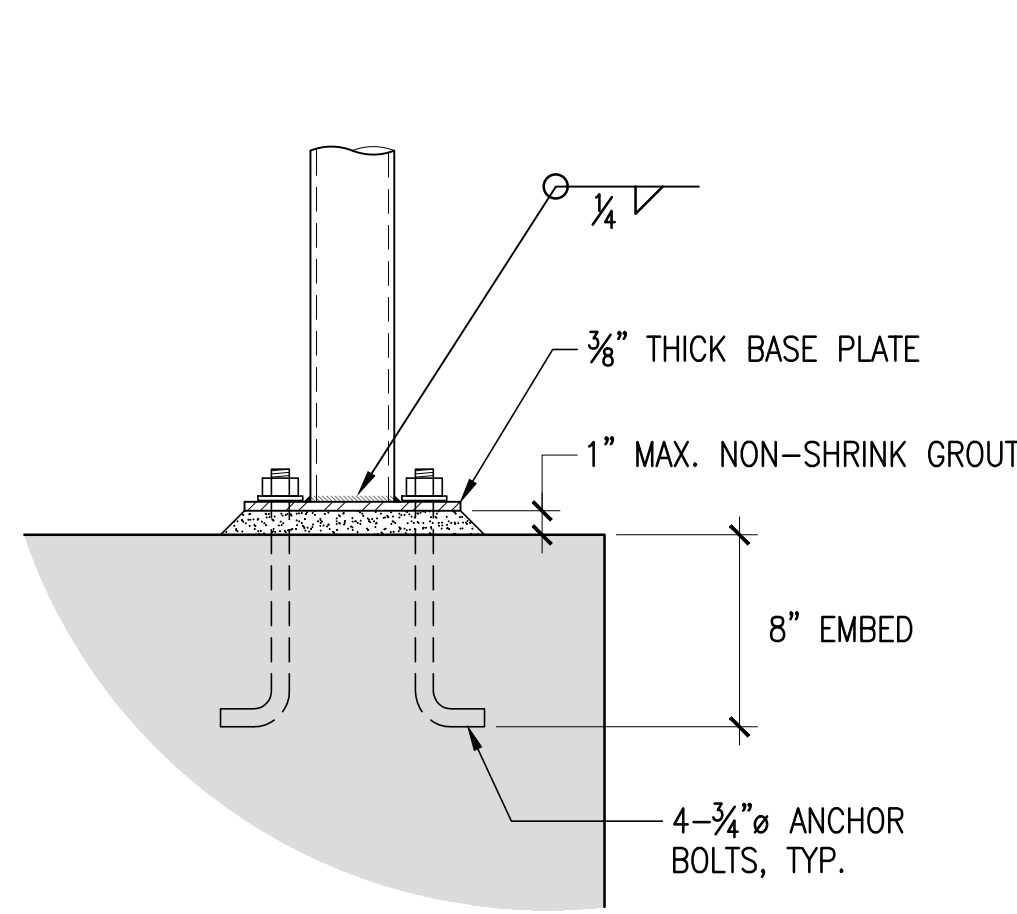
EXTERIOR STAIRCASE SECURITY FENCING PLAN, ELEVATION AND DETAILS

APPROVED: N/A
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

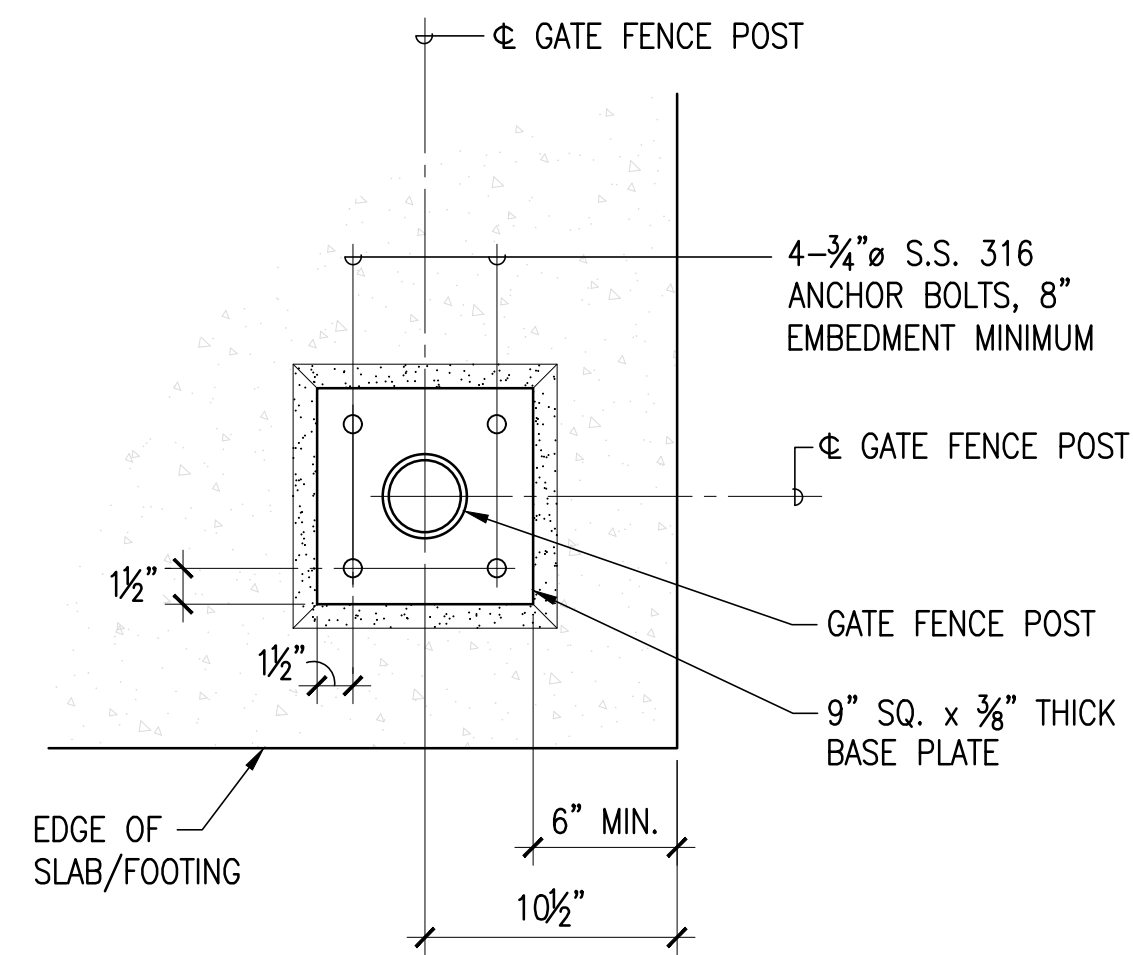
Jason Keginete
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO. **S-14**

HALF SIZE TRIMLINE FOR 11" X 17"
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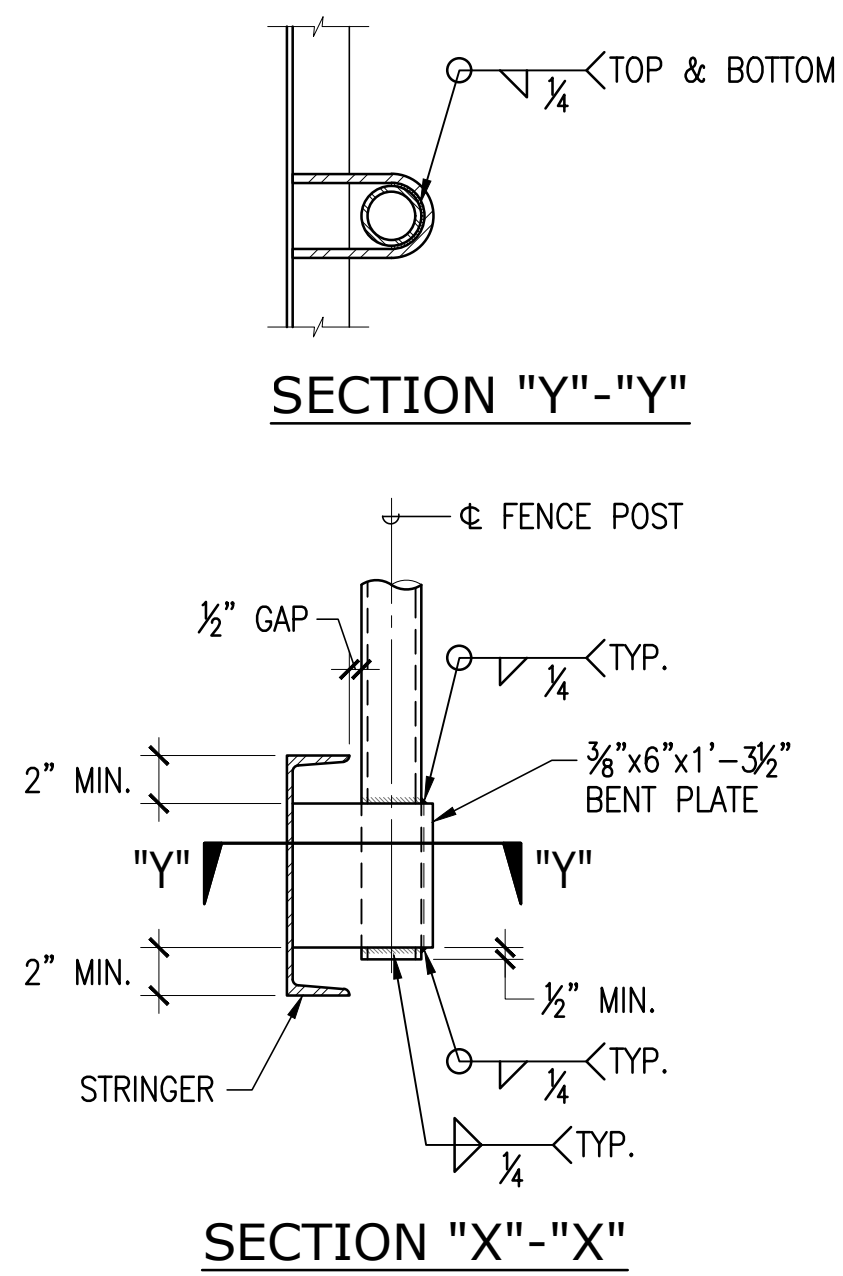


SECTION



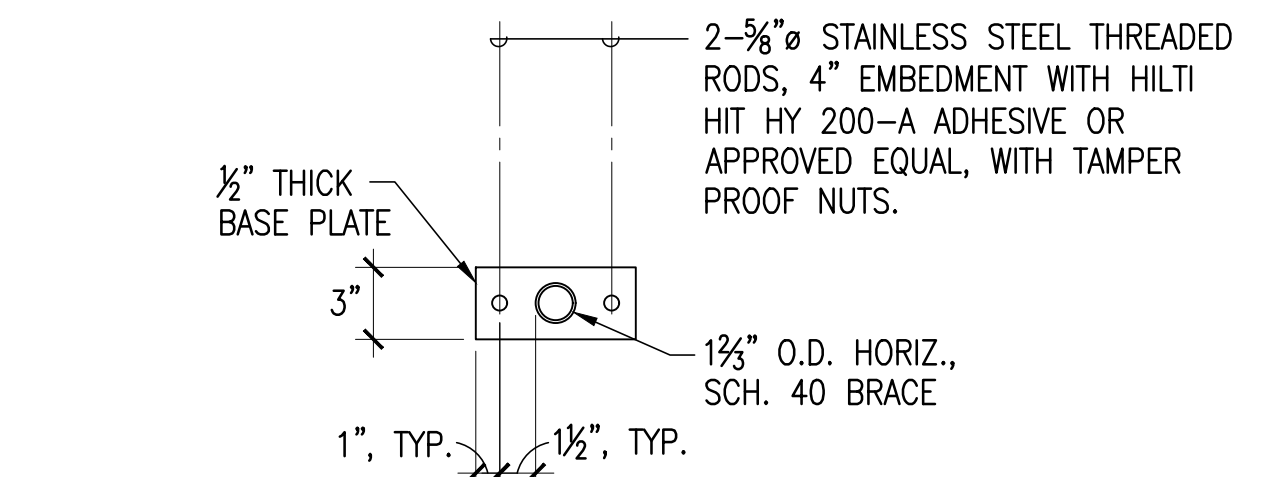
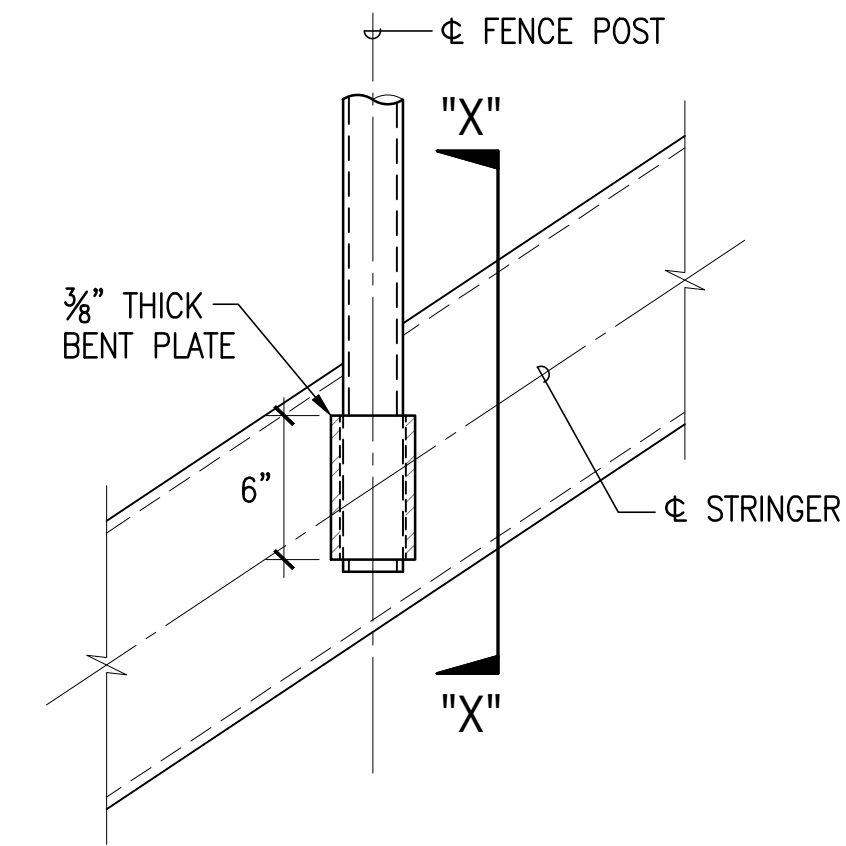
PLAN VIEW

1 GATE FENCE POST CONNECTION
S-15 SCALE: 1 1/2" = 1'-0"

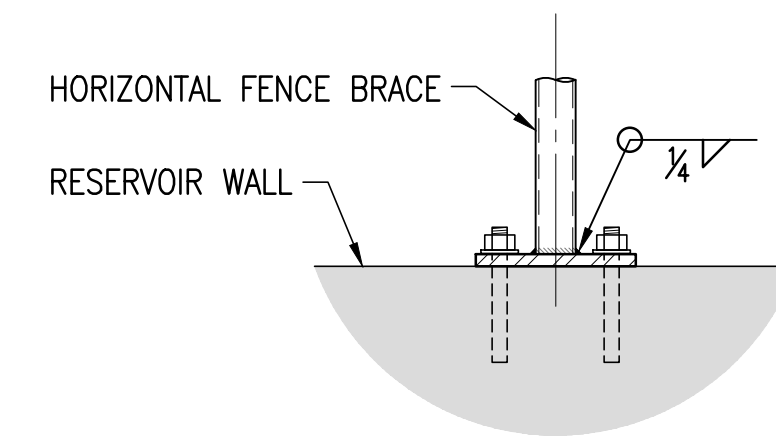


SECTION "X"- "X"

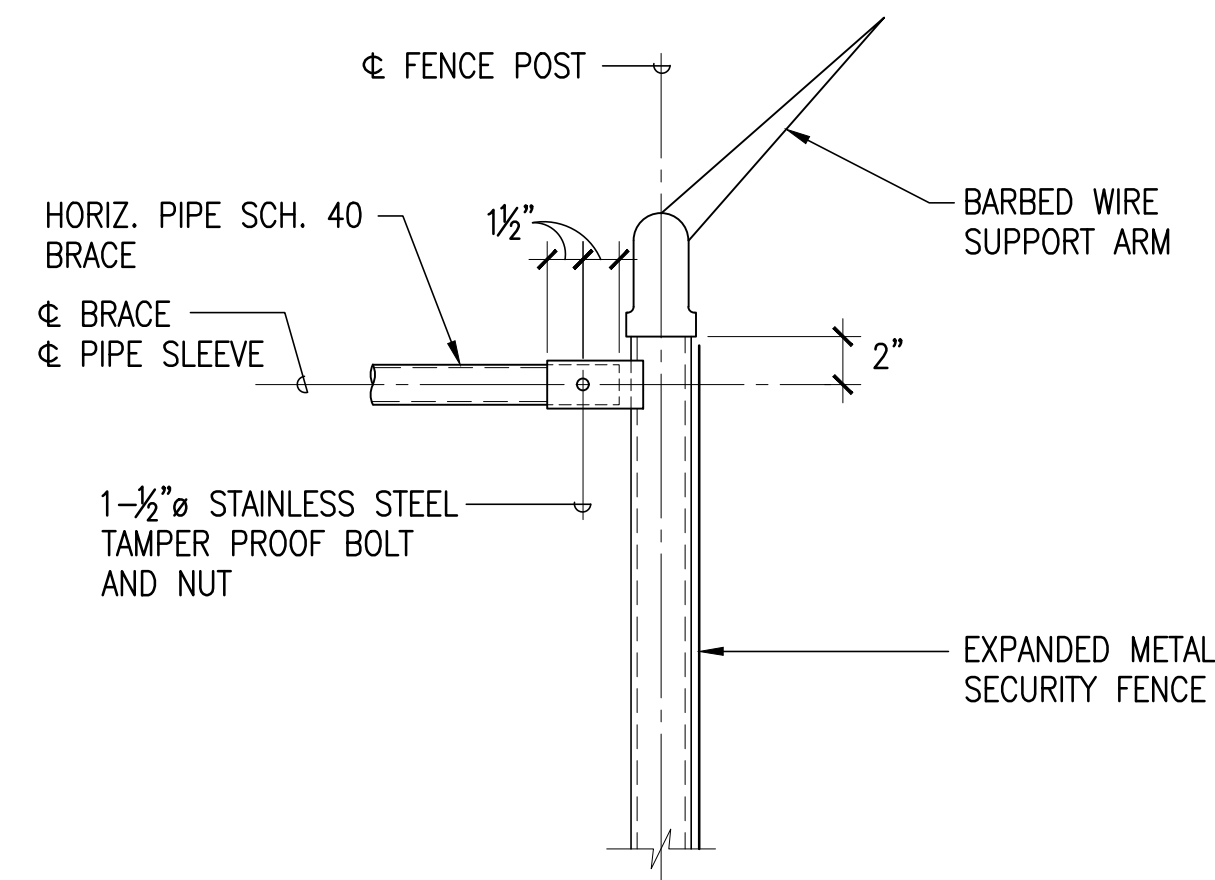
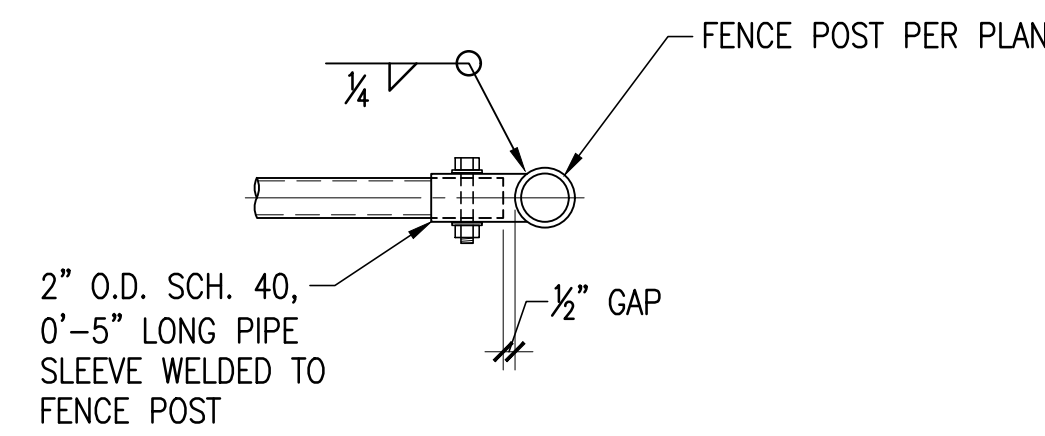
2 FENCE POST STRINGER CONNECTION
S-15 SCALE: 1 1/2" = 1'-0"



BASE PLATE



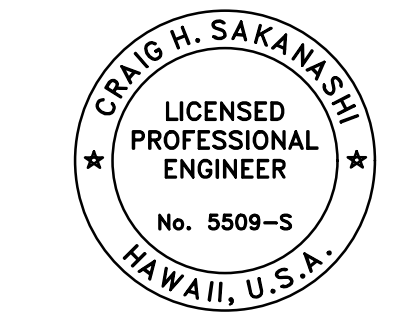
3 FENCE BRACE TO WALL CONNECTION
S-15 SCALE: 1 1/2" = 1'-0"



4 FENCE POST BRACE TO FENCE POST CONNECTION
S-15 SCALE: 1 1/2" = 1'-0"

HALF SIZE TRIMLINE FOR 11" X 17"
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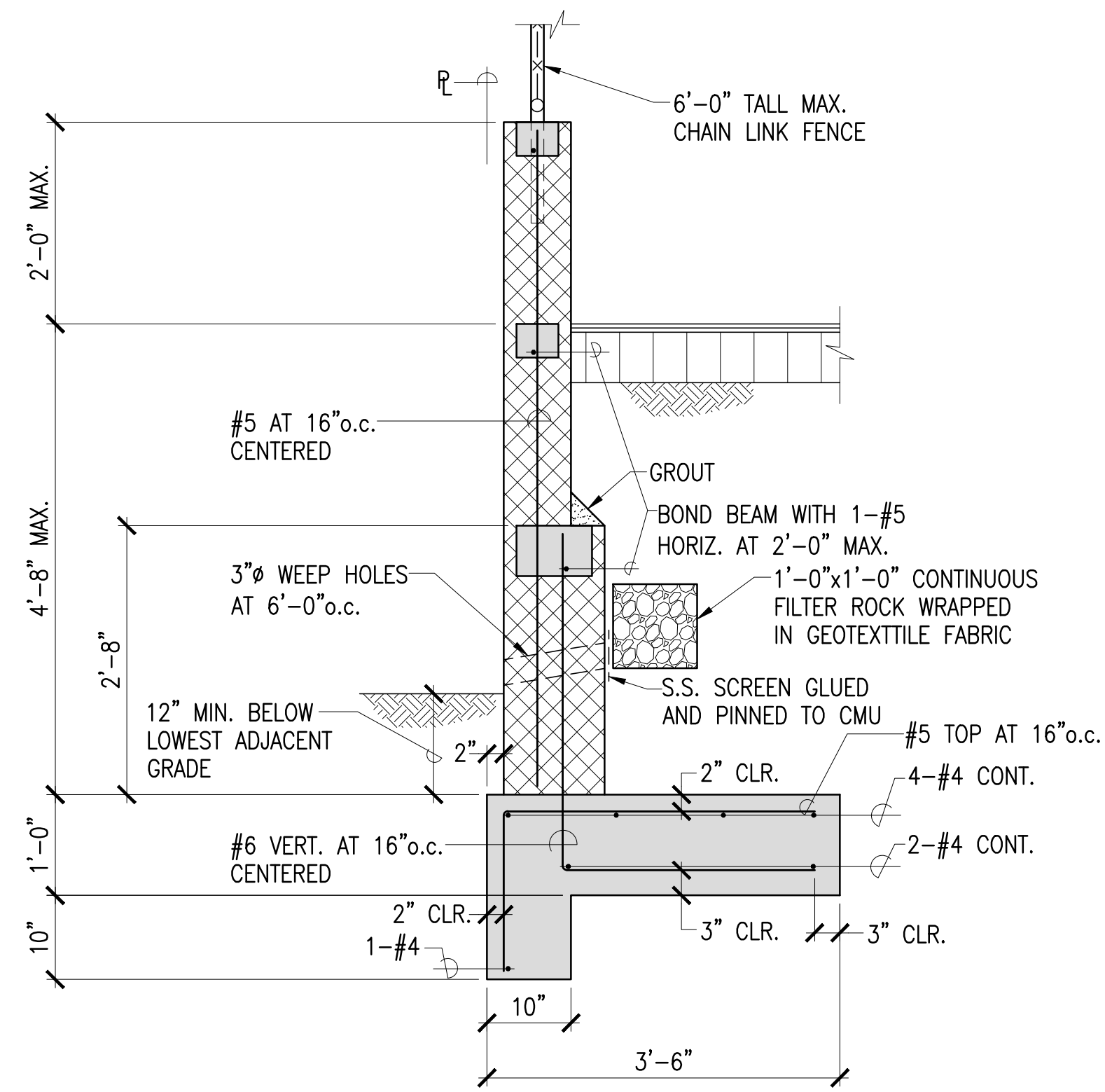
TMK: 4 - 6 - 011:003



APPROVED:
Craig H. Sakanashi
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

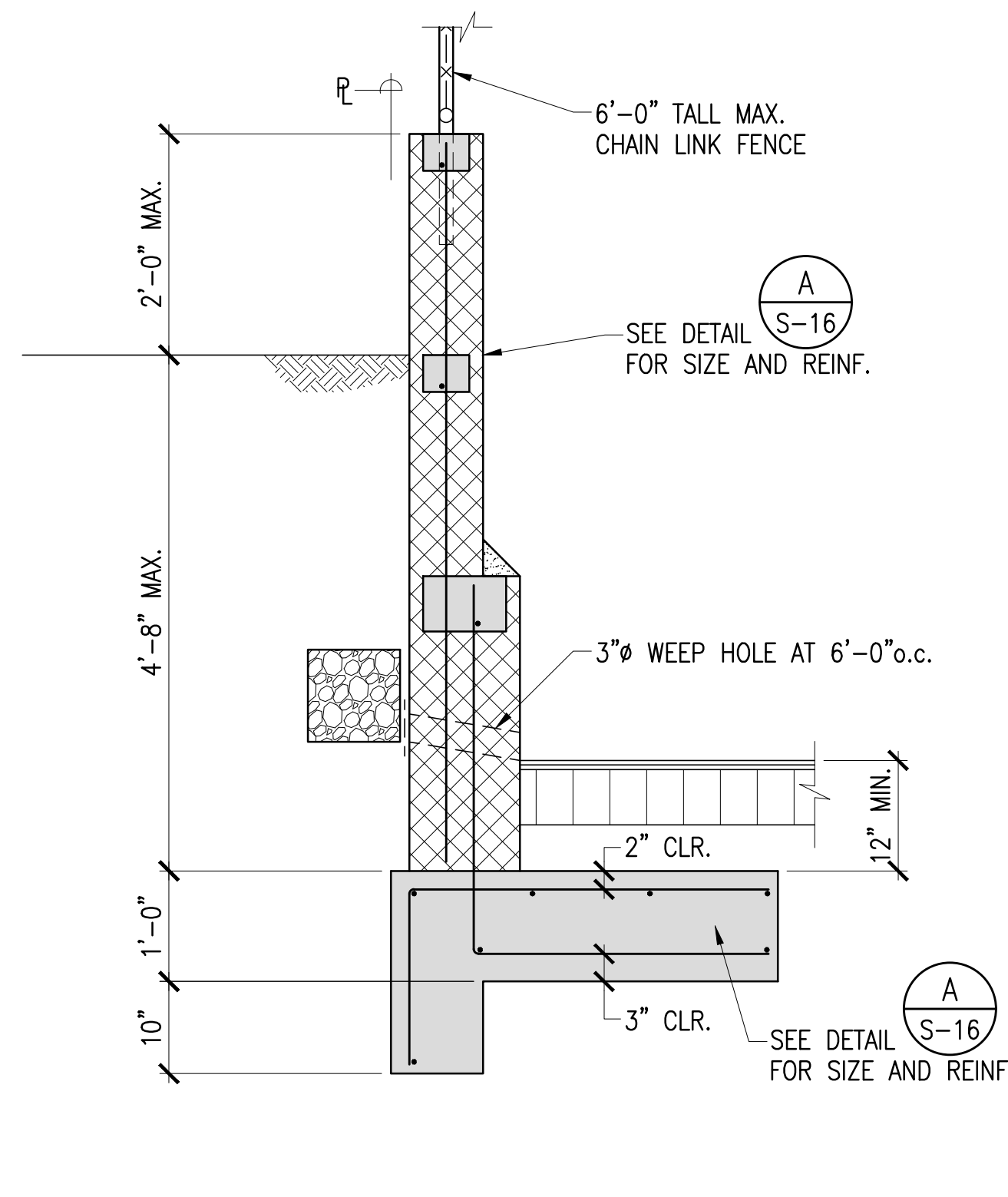
DRAWING NO.
S-15

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
EXTERIOR STAIRCASE SECURITY FENCING CONNECTION DETAILS			
APPROVED: N/A COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)			DATE _____
APPROVED: <i>Jason Kagimoto</i> COUNTY ENGINEER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE _____



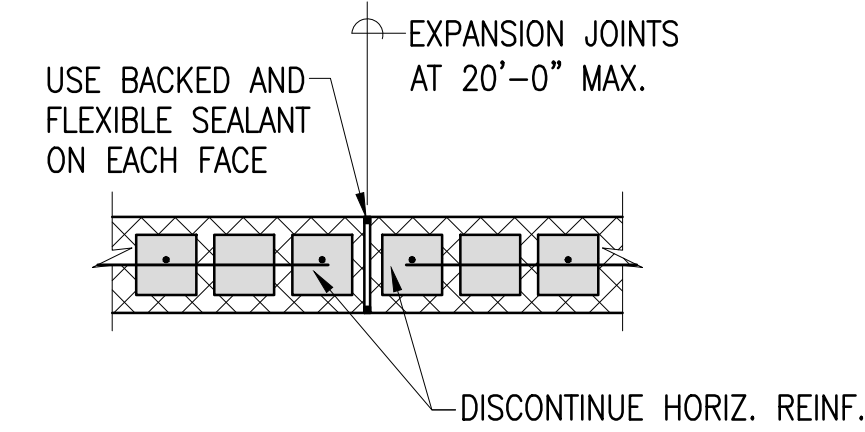
GRADE ADJUSTMENT

A CMU WALL - CONVENTIONAL ORIENTATION
S-16 SCALE: 3/4"=1'-0"

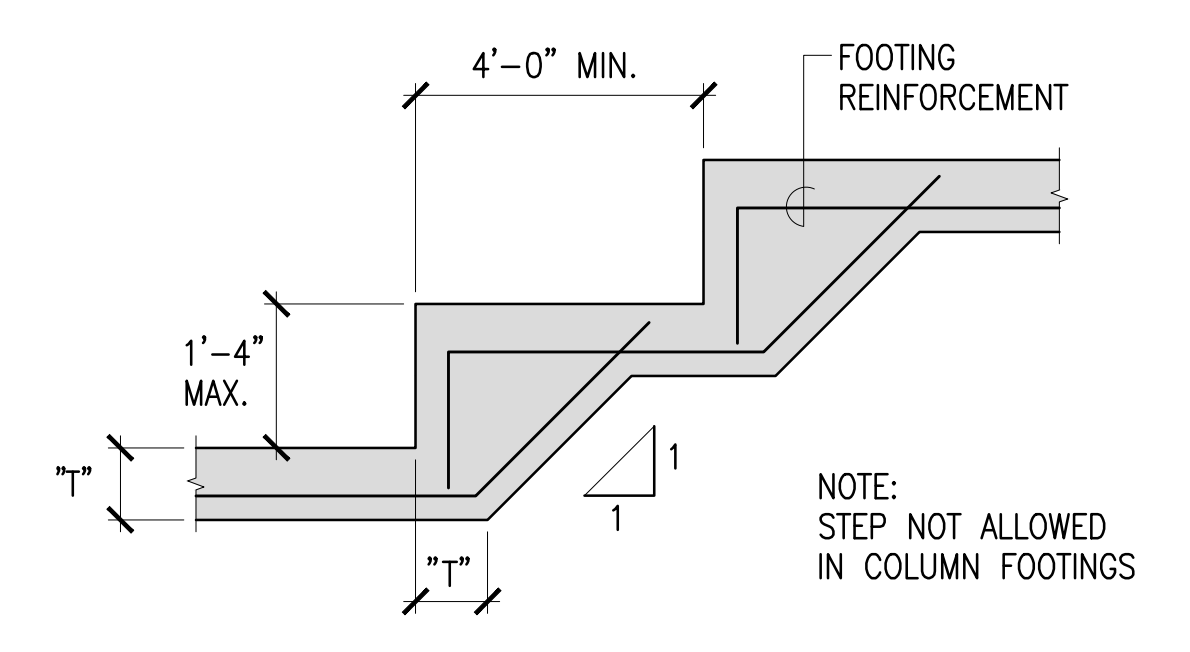


GRADE ADJUSTMENT

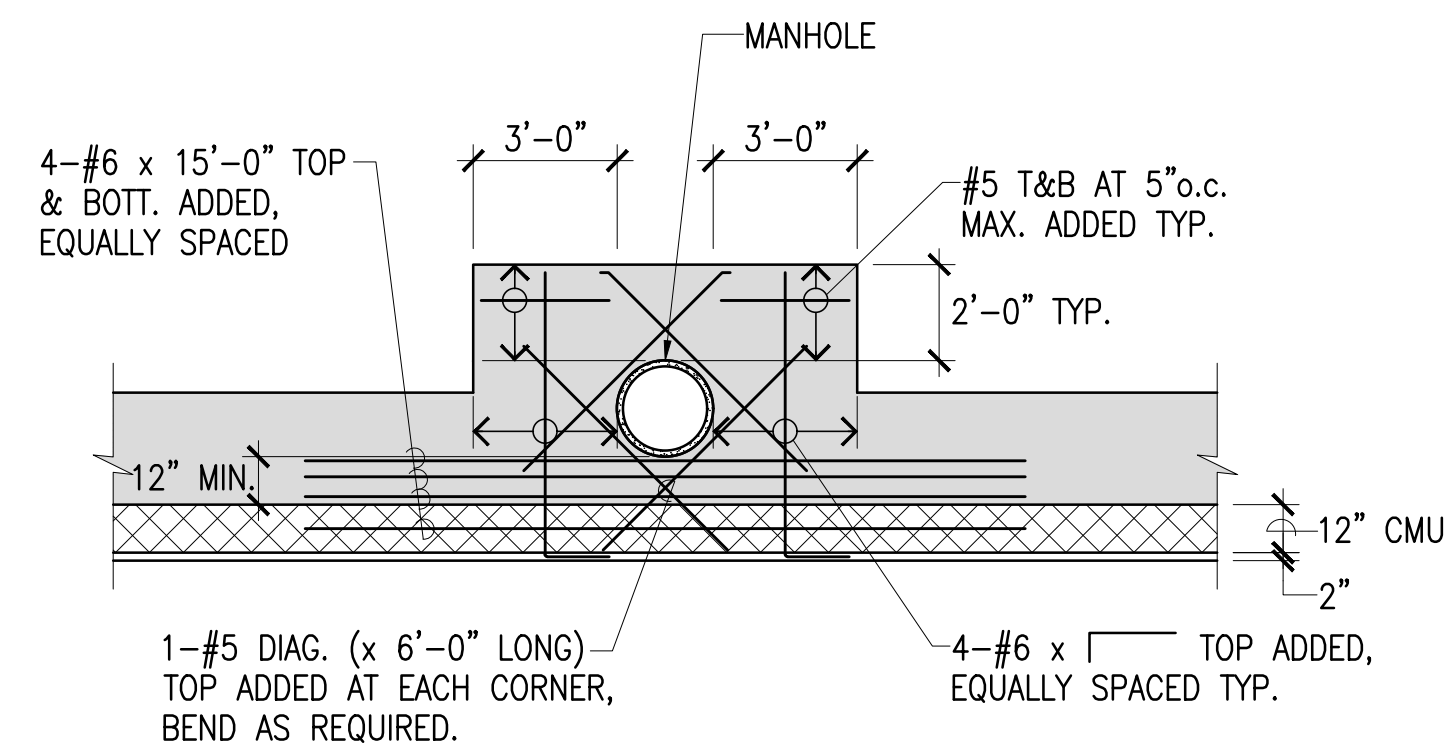
B CMU WALL - REVERSE CONDITION
S-16 SCALE: 3/4"=1'-0"



C TYP. CMU WALL EXPANSION JOINT
S-16 SCALE: 3/4"=1'-0"



D TYP. STEPPED FOOTING
S-16 NOT TO SCALE



PLAN VIEW AT DMH OR DI

E S-16 SCALE: 1/4"=1'-0"

MAX. 05.10.2023 9:04am
 C:\Temp\1002023\Kapa O Homestead 325 Tanks\Original DWG Files\20230109\55_S-16 Typ Det.dwg
 HALF SIZE TRIMLINE FOR 11" x 17"

REVISION	DATE	DESCRIPTION	APPROVED

TMK: 4 - 6 - 011:003

CRAIG H. SAKANASHI
LICENSED PROFESSIONAL ENGINEER
No. 5509-S
HAWAII, U.S.A.

BELT COLLINS HAWAII LLC
2153 North King Street, Suite 200
Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

TYPICAL DETAILS

APPROVED: N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

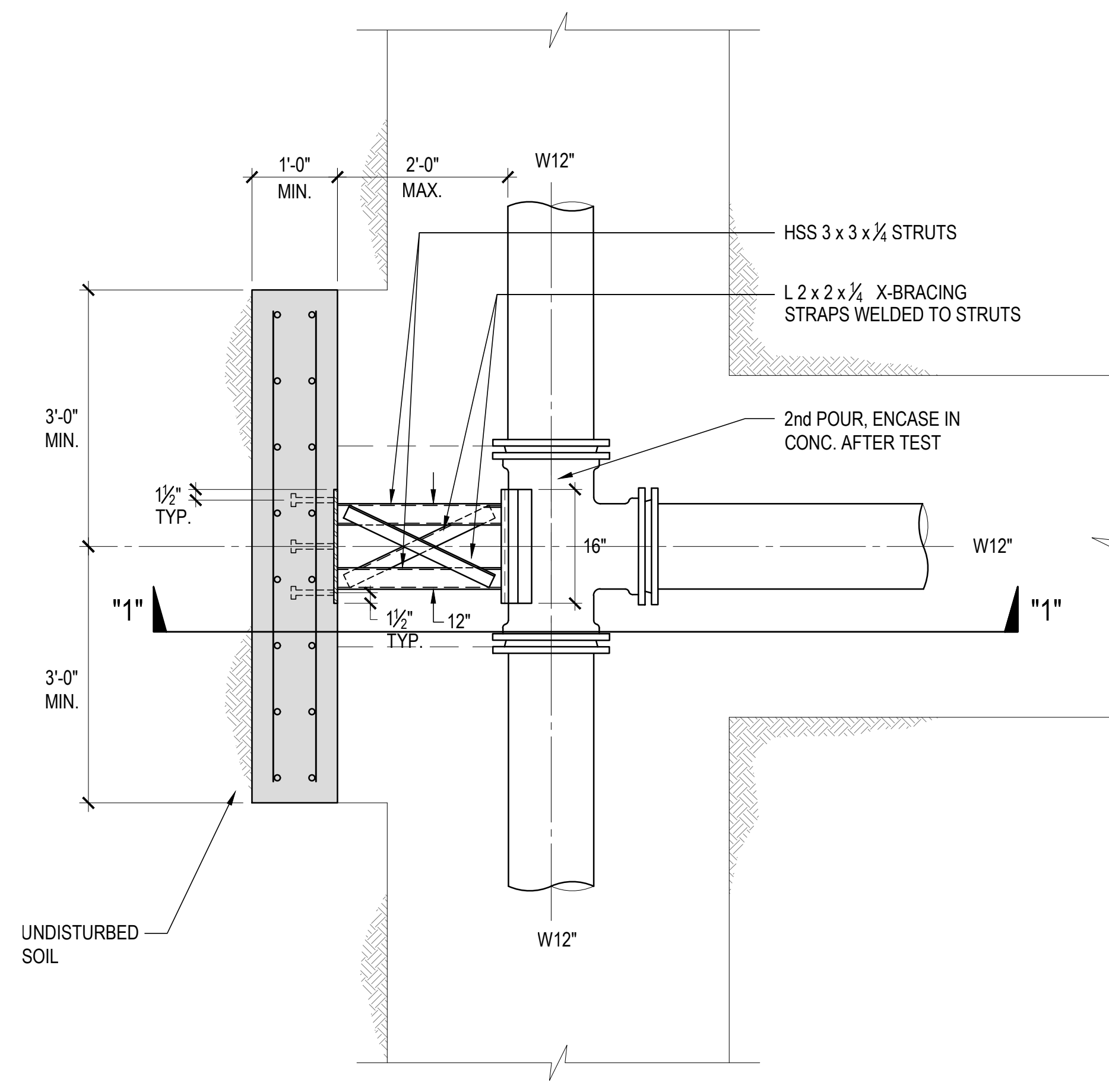
APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

DRAWING NO. **S-16**

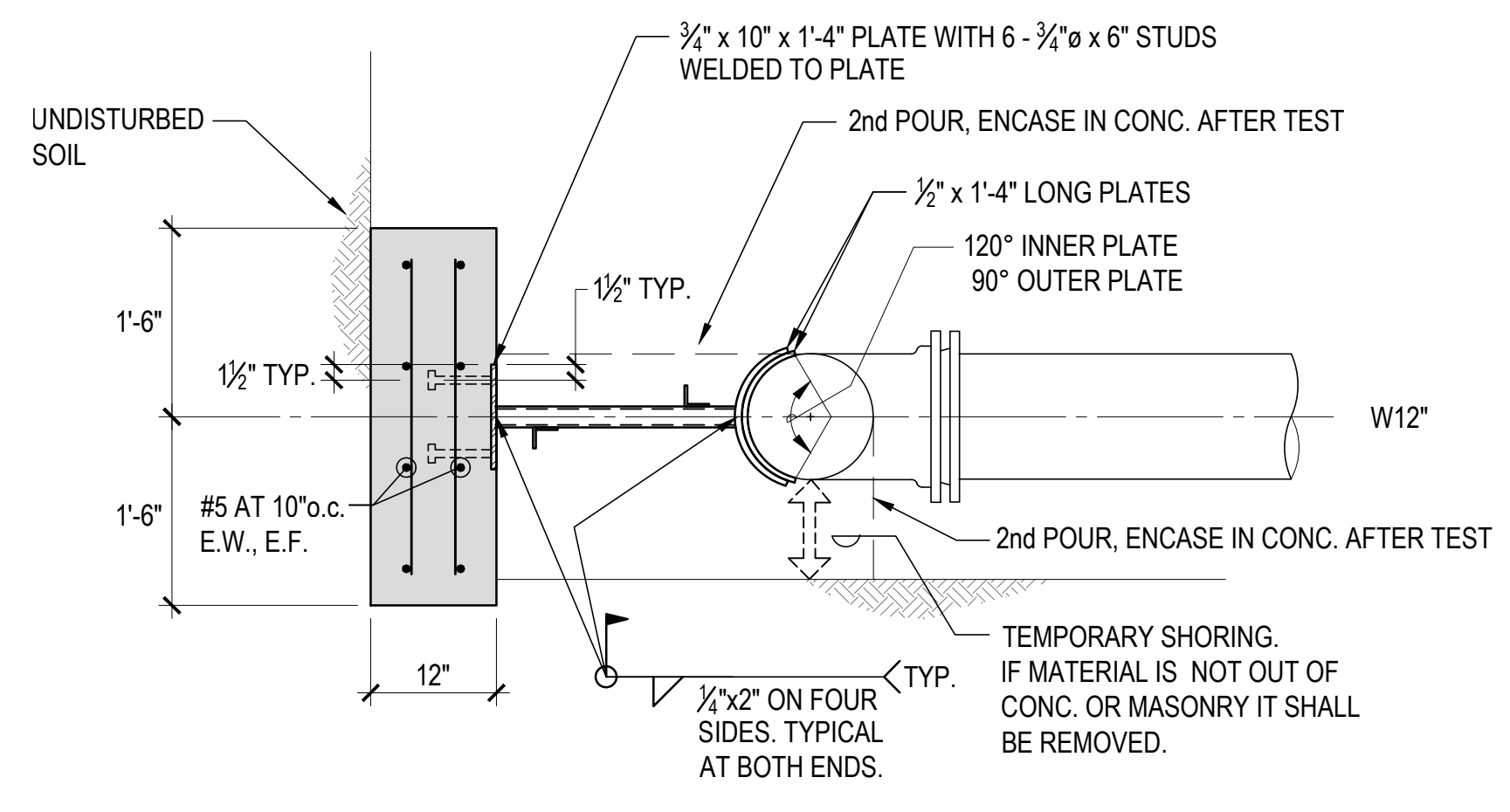
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.

SHEET 56 OF 66 SHEETS

FILE	POCKET	FOLDER	NO.
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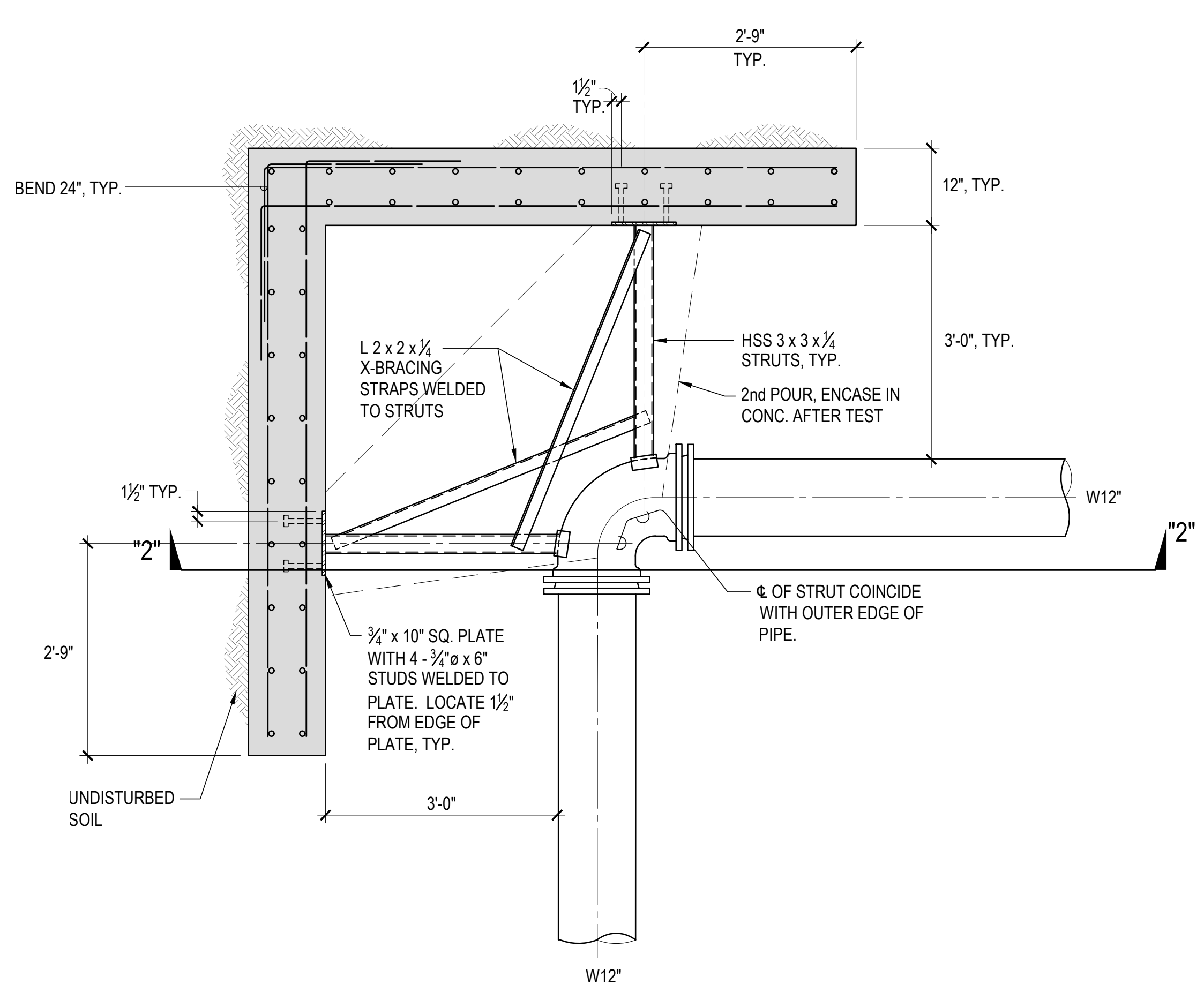


PLAN VIEW

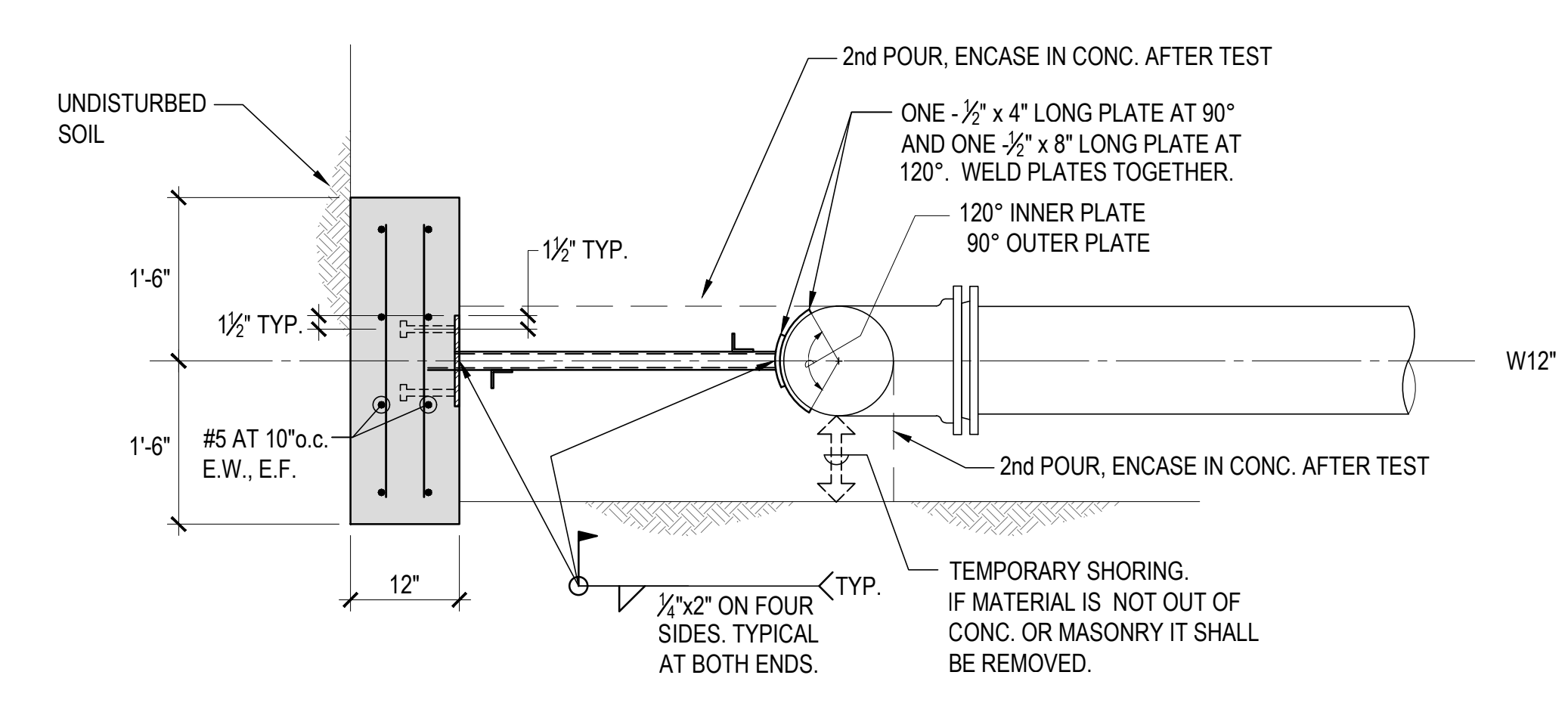


SECTION "1"- "1"

A THRUST BLOCK AND STRUT FOR 12"Ø WL AT TEE
SCALE: 3/4" = 1'-0"



PLAN VIEW



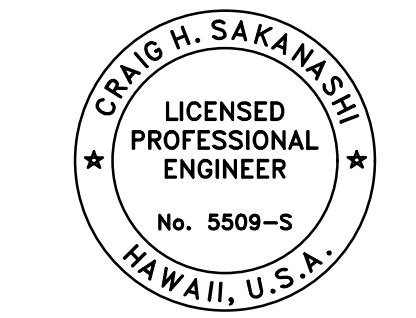
SECTION "2"- "2"

B THRUST BLOCK AND STRUT FOR 12"Ø WL AT 1/4 HORIZONTAL BEND
SCALE: 3/4" = 1'-0"

THRUST BLOCK AND STRUT

HALF SIZE TRIMLINE FOR 11" x 17"
 M:\05_10_2023_0_01050m
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TMK: 4 - 6 - 011:003

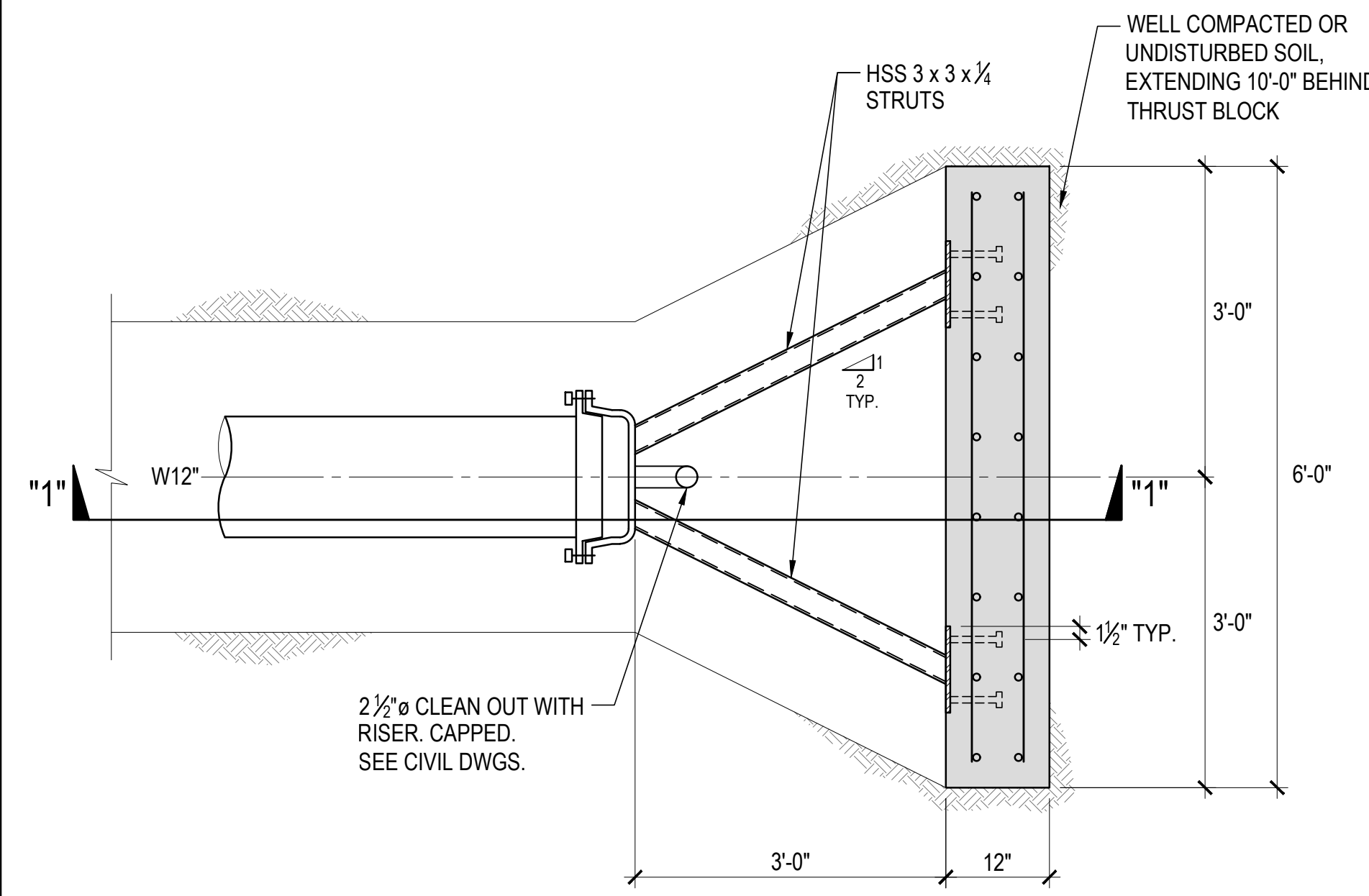


APPROVED:
N/A

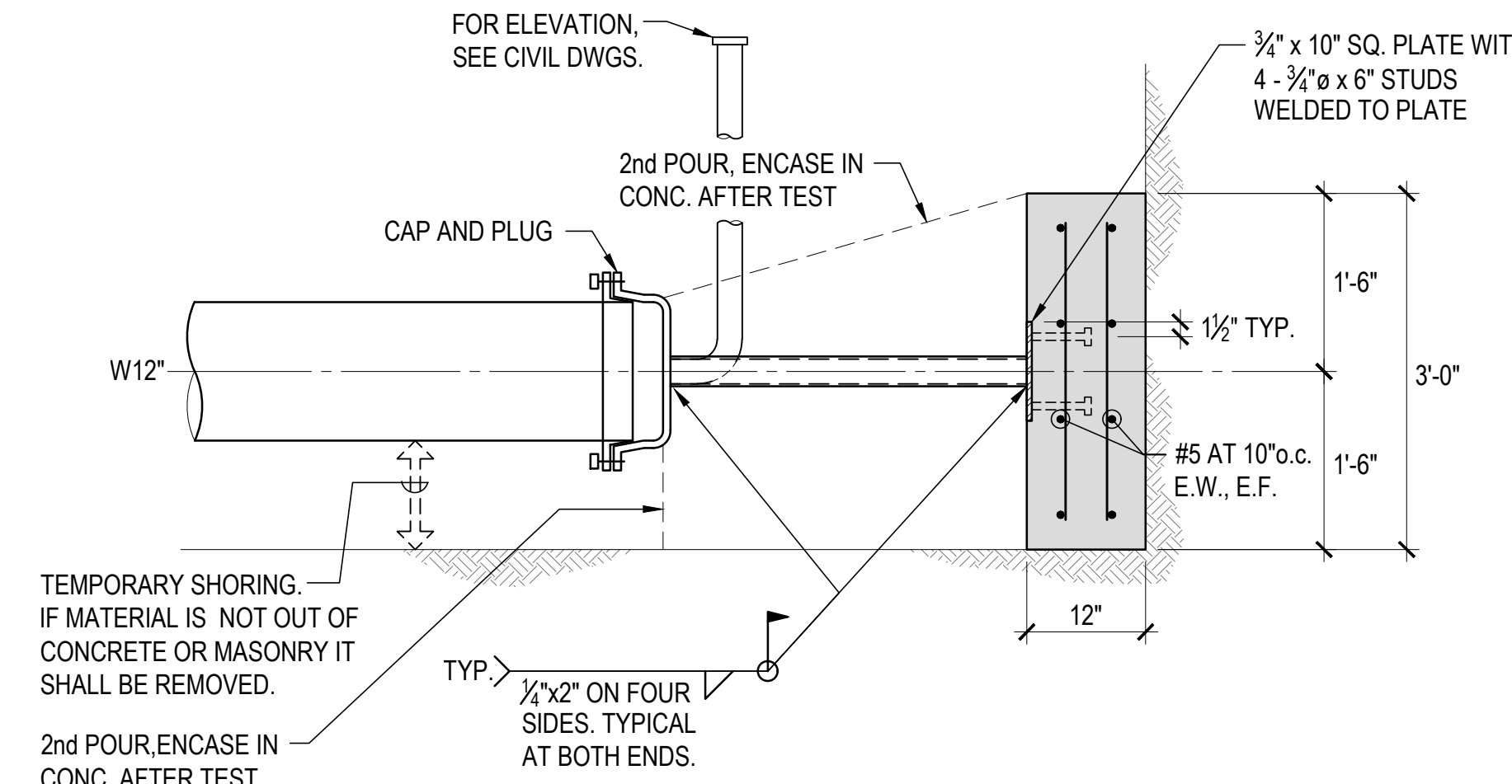
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
THRUST BLOCK AND STRUT DETAILS - 1			
APPROVED:		DATE	
N/A			
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)		DATE	
<i>Jason Kagimoto</i> MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI		DATE	

DRAWING NO.
S-17

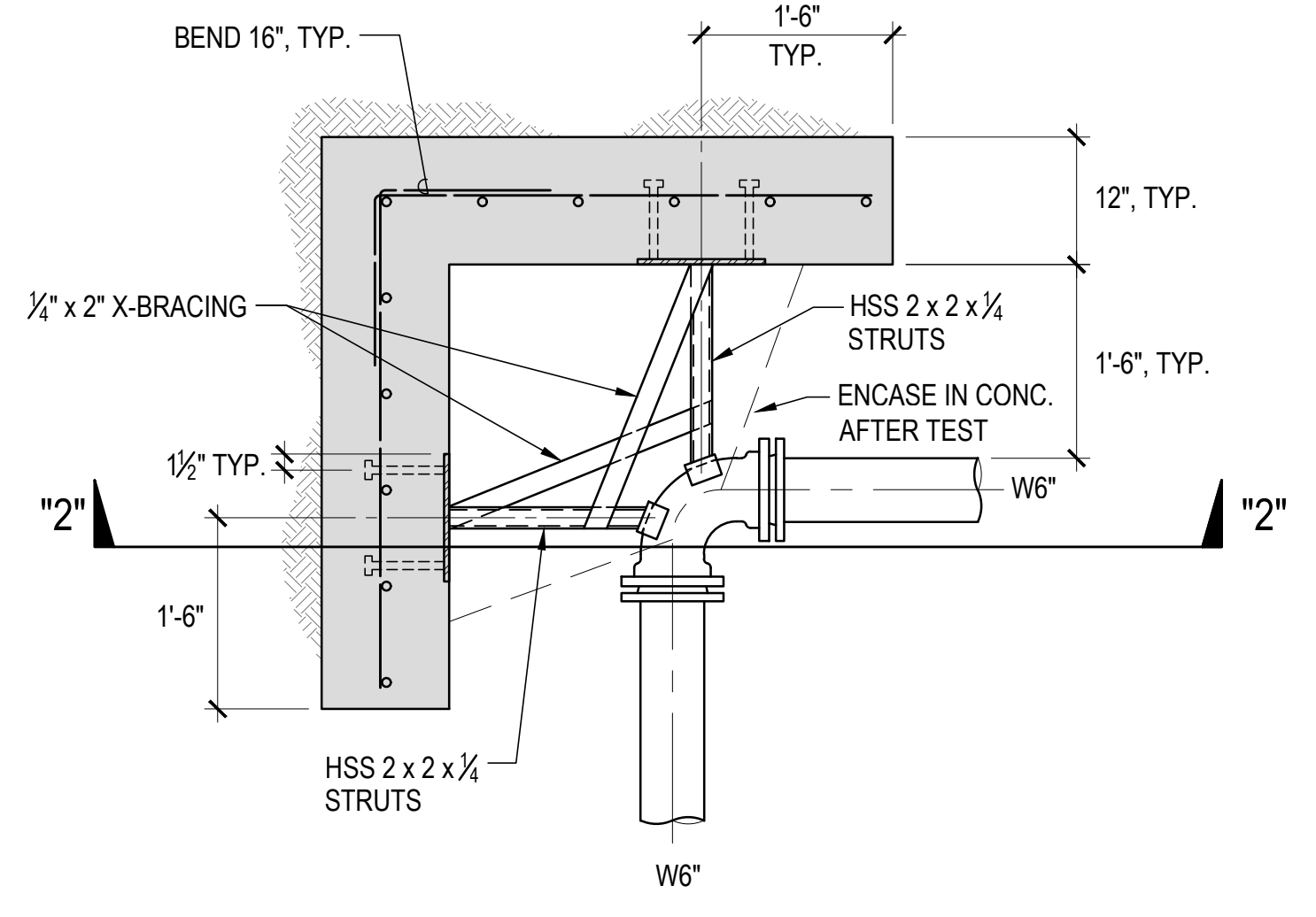


PLAN VIEW

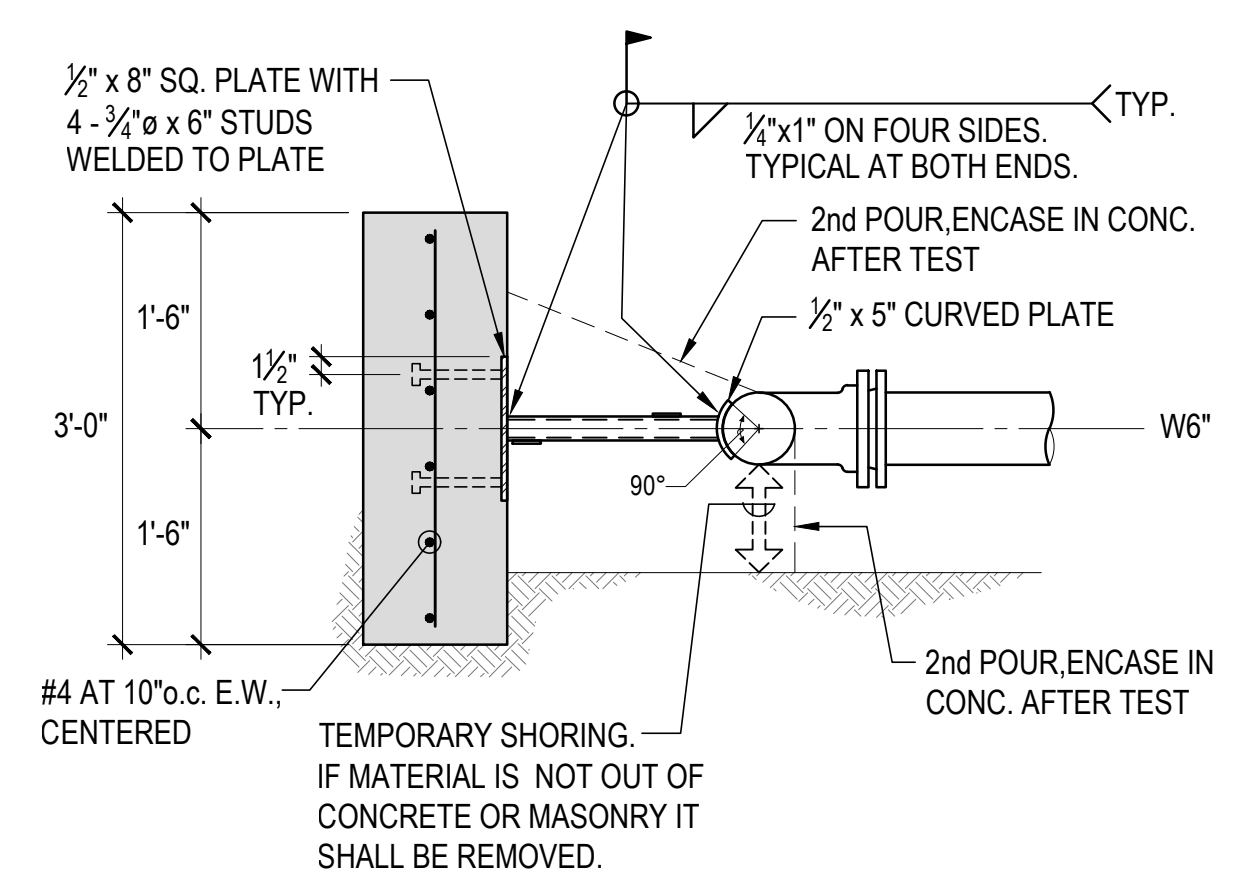


SECTION "1" - "1"

A THRUST BLOCK AND STRUT FOR 12"Ø WL AT DEAD END
S-18 SCALE: 3/4" = 1'-0"



PLAN VIEW



SECTION "2" - "2"

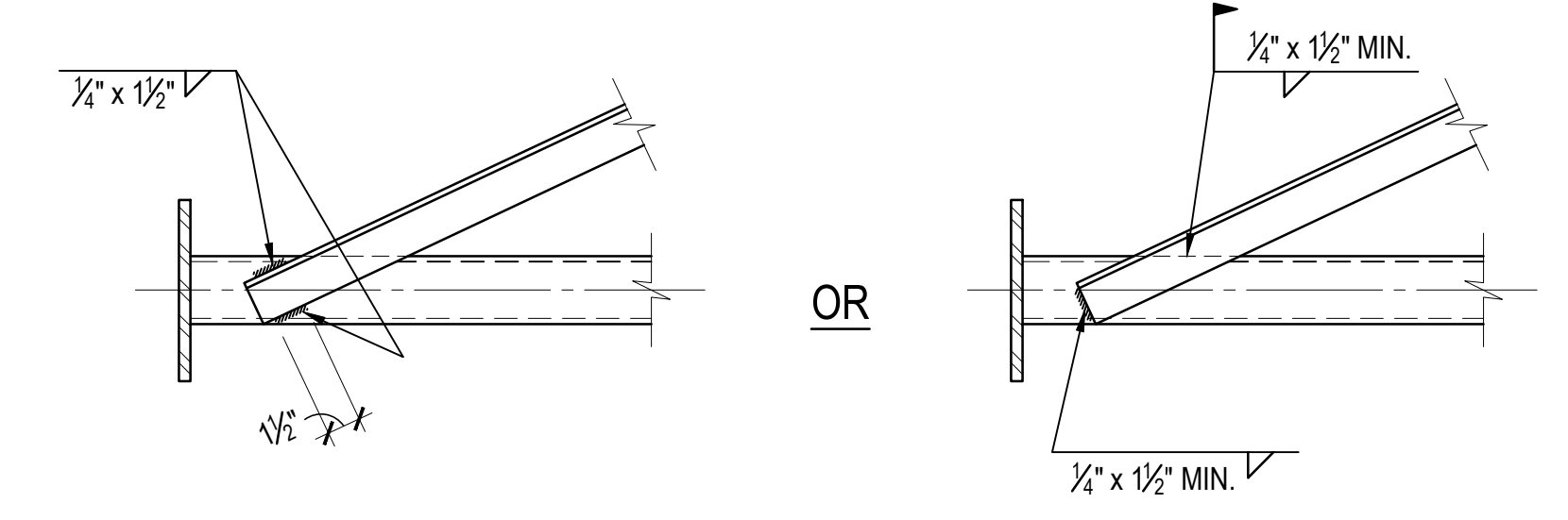
B THRUST BLOCK AND STRUT FOR 6"Ø WL AT 1/4 BEND
S-18 SCALE: 3/4" = 1'-0"

ABBREVIATIONS:

- CONC. CONCRETE
- D.I. DUCTILE IRON
- DIA., Ø DIAMETER
- DWGS. DRAWINGS
- E/, (E) EXISTING
- E.W. EACH WAY
- HSS HOLLOW STRUCTURAL SECTION
- MIN. MINIMUM
- TYP. TYPICAL
- O.C. ON CENTER
- W6" 6" WATER LINE
- SQ. SQUARE

NOTES:

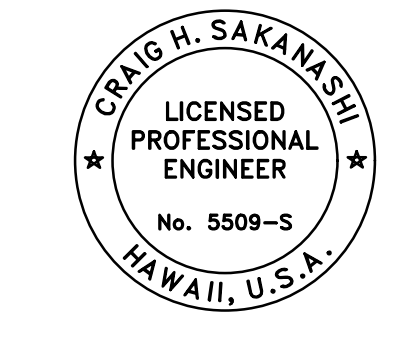
1. ALL STEEL WORK SHALL CONFORM TO THE "SPECIFICATION FOR STRUCTURAL STEEL" AS PUBLISHED BY THE AISC.
2. ALL PLATES SHALL CONFORM TO ASTM A-36.
3. ALL WELDS SHALL CONFORM TO THE "SPECIFICATION WELDING CODE-STEEL" OF THE AMERICAN WELDING SOCIETY AND DONE BY CERTIFIED WELDERS. WELDERS QUALIFICATION AND CERTIFICATION SHALL BE SUBMITTED.
4. HSS MEMBERS SHALL CONFORM TO ASTM A500, GRADE B.
5. ALL PLATES, HSS MEMBERS AND X-BRACINGS SHALL BE HOT-DIPPED GALVANIZED.
6. L 2 x 2 x 1/4 X-BRACING SHALL BE WELDED WITH 1/2" FILLET WELDS WITH TOTAL LENGTH OF 3" SYMMETRICALLY PLACED ABOUT LONGITUDINAL AXIS OF 2 x 2 x 1/4 BRACE, AT EACH END.
7. ALL CONCRETE SHALL BE f_c = 4,000 psi. ALL REINFORCING SHALL BE GRADE 60.



C TYPICAL CONNECTION OF L2 x 2 x 1/4 X-BRACING
S-18 NOT TO SCALE

HALF SIZE TRIMLINE FOR 11" x 17"
 M:_05_16_2023_9:06am
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TMK: 4 - 6 - 011-003



APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)
 Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DRAWING NO.
S-18

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 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

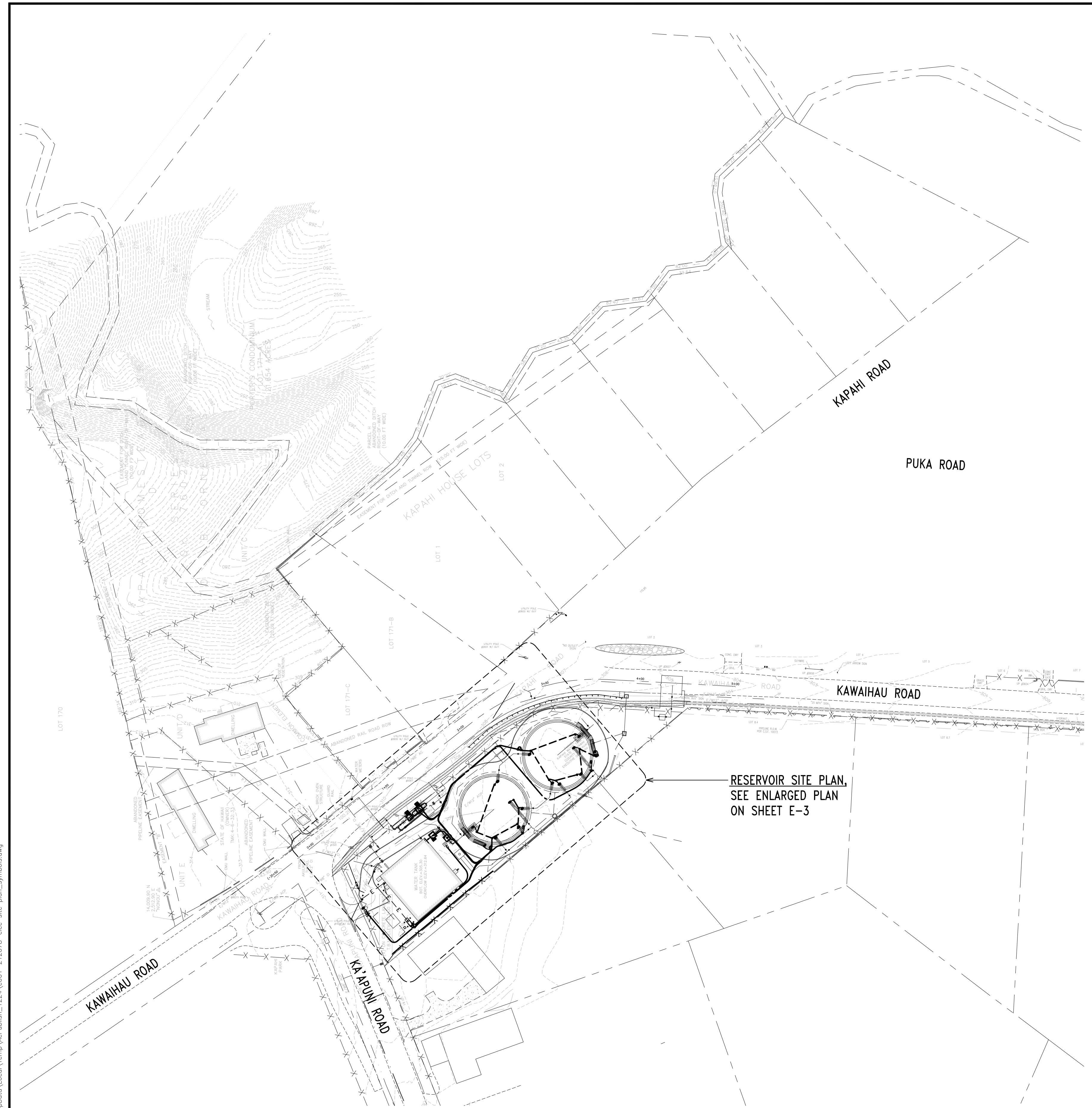
BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

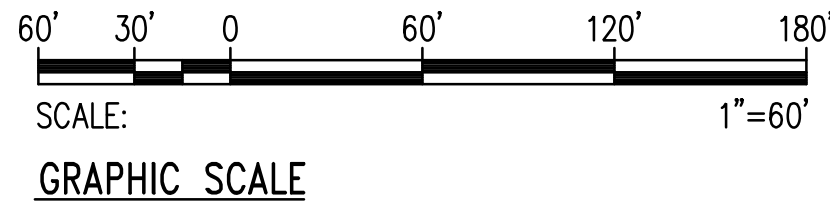
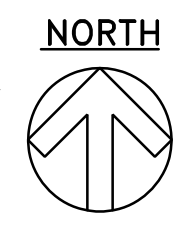
THRUST BLOCK AND STRUT DETAILS - 2

APPROVED:
 N/A
 COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITHIN COUNTY RW)
 Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

HALF SIZE FRINGELINE FOR 11" x 17"
 T:_31 Jan 2023 10:05am 10050m
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1 ELECTRICAL SITE PLAN
 E-1 SCALE: 1"=60'



KDOW CONSTRUCTION NOTES

1. A 8 FEET MINIMUM HORIZONTAL CLEARANCE SHALL BE MAINTAINED WHEN RUNNING KIUC CONDUIT PARALLEL TO WATER & SEWER LINES. IF CLEARANCE IS LESS THAN 8 FEET, KIUC CONDUIT SHALL BE CONCRETE ENCASED.
2. NO FOREIGN PULLBOXES, HANDHOLES, MANHOLES, CONCRETE SLABS/BOXES, STRUCTURES, ETC. ARE TO BE INSTALLED OVER KIUC FACILITIES WITH THE EXCEPTION OF HTI, CATV OR WATERLINE CONDUIT CROSSING. SUCH CROSSING MUST BE APPROVED BY KIUC'S SERVICE ASSURANCE DEPARTMENT AND KIUC CONDUIT TO BE CONCRETE ENCASED. CONCRETE ENCASEMENT MUST BE A MINIMUM OF 3 INCH ENCASEMENT AND EXTEND A MINIMUM OF MORE THAN 1 FOOT BEYOND CROSSING CONDUIT OR PIPE.

GENERAL CONSTRUCTION NOTES

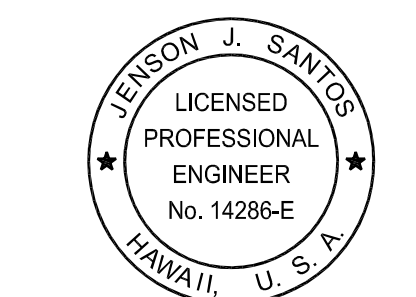
1. PROVIDE POLYOLEFIN 200LB TEST PULLCORD IN ALL EMPTY CONDUITS, UNLESS OTHERWISE NOTED.
2. ALL ELECTRICAL EQUIPMENT ENCLOSURES AND EQUIPMENT MOUNTING HARDWARE FOR OUTDOOR INSTALLATION SHALL BE TYPE 316 STAINLESS STEEL, UNLESS OTHERWISE NOTED.

ELECTRICAL SYMBOLS

SYMBOL	DESCRIPTION
	FLEXIBLE CONDUIT, LIQUIDTIGHT
	CONDUIT OR DUCTLINE BELOW REF. FL. OR GROUND
	12" X 20" WATER METER TYPE PRECAST CONCRETE PULLBOX, WITH STEEL COVER AND WITH "CONTROLS" INSCRIBED ON COVER
	12" X 20" WATER METER TYPE PRECAST CONCRETE PULLBOX, WITH STEEL COVER AND WITH "INSTRUMENTATION" INSCRIBED ON COVER
	JUNCTION BOX, WALL MTD., 4-11/16" NOM.
	JUNCTION BOX, CEIL. MTD., 4-11/16" NOM.
	JUNCTION BOX, WALL MTD., SIZE AS NOTED, ENCLOSURE TYPE AND RATING AS NOTED
	JUNCTION BOX, CEIL. MTD., SIZE AS NOTED, ENCLOSURE TYPE AND RATING AS NOTED
	SOLENOID VALVE CONNECTION
	TANK LEVEL TRANSMITTER CONNECTION
	PRESSURE TRANSMITTER CONNECTION
	GATE SECURITY SWITCH CONNECTION, SEE DETAIL 5/E-7
	TANK HATCH SECURITY SWITCH CONNECTION, SEE DETAIL 3/E-7
	FLOW TRANSMITTER CONNECTION
	POSITION TRANSMITTER CONNECTION
	JUNCTION BOX MTD. ON CHANNEL SUPPORT, SEE DETAIL 2/E-7
	WP DENOTES "WEATHERPROOF"
	SS DENOTES "TYPE 316 STAINLESS STEEL"
	ELECTRIC/SIGNAL DUCTLINE WITH DESIGNATORS; ITEMS IN CIRCLE INDICATES DUCT SECTION TYPE, WITH DUCT COMPLEMENTS NOTED BELOW (TYPE "A" DUCT INDICATED WITH 2-4"E DUCTS, AND TYPE "C" DUCT WITH 1-2"T DUCT; E=ELECTRIC, T=TELEPHONE, A=ANTENNA CABLE C=CONTROLS, I=INSTRUMENTATION); SEE SHEET E-2 FOR DUCT SECTION DETAILS

NOTE:
 NO HASH MARKS ON CONDUITS INDICATE 2 WIRES; INDICATES 3 WIRES; INDICATES 4 WIRES, ETC.

TMK: 4 - 6 - 011-003
 RONALD N. S. HO & ASSOCIATES, INC.
 ELECTRICAL ENGINEERS



APPROVED:
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION AND CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION.
 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

ELECTRICAL SITE PLAN, SYMBOLS, AND GEN. NOTES

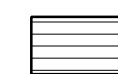
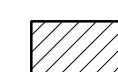


APPROVED: N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DRAWING NO.
E-1

DUCT SECTION BACKFILL NOTES:

-  TYPE "A" BACKFILL - EARTH & GRAVEL. ROCK SIZE TO BE 1" MAX. & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
-  TYPE "B" BACKFILL - EARTH & GRAVEL. MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE THAN 20% BY VOLUME OF ROCK PARTICLES. 95% COMPACTION.
-  NOTE - IF NORMAL MATERIAL AT BOTTOM OF TRENCH IS NOT TYPE "B", AN ADDITIONAL 3" SHALL BE EXCAVATED & TYPE "B" BACKFILL PROVIDED.
-  CONCRETE - 3" ENCASEMENT, 2500 PSI COMPRESSIVE STRENGTH @ 28 DAYS.

DESIGNATION DESCRIPTIONS

- ELEC = UTILITY CO. PRIMARY OR SECONDARY ELECTRIC
- TEL = UTILITY CO. TELEPHONE
- PWR = PRIMARY OR SECONDARY ELECTRIC
- CTL = CONTROL
- SIG = INSTRUMENTATION OR ANTENNA CABLE

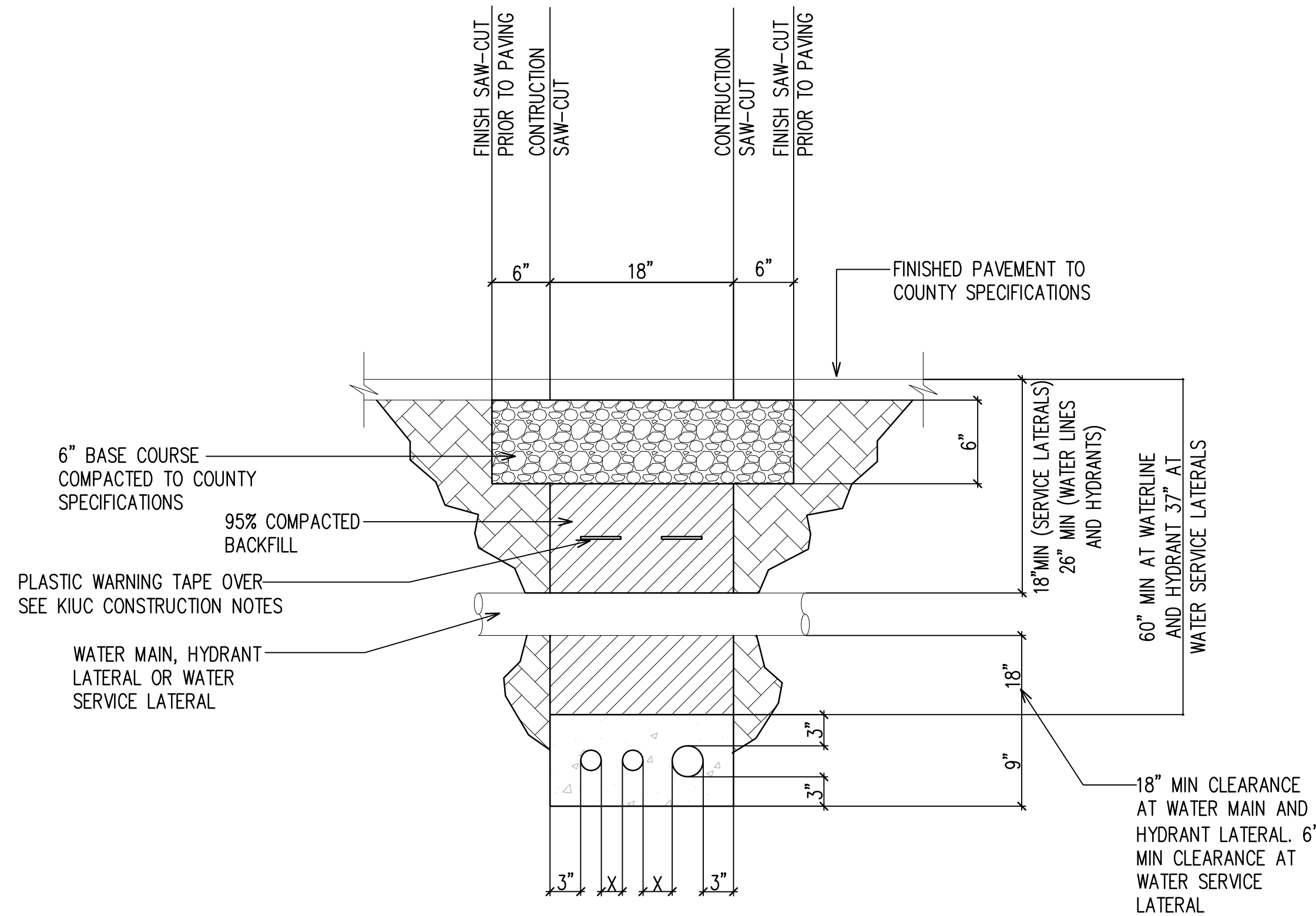
MINIMUM "X" DIMENSION

DUCT SEPARATION REQUIREMENTS

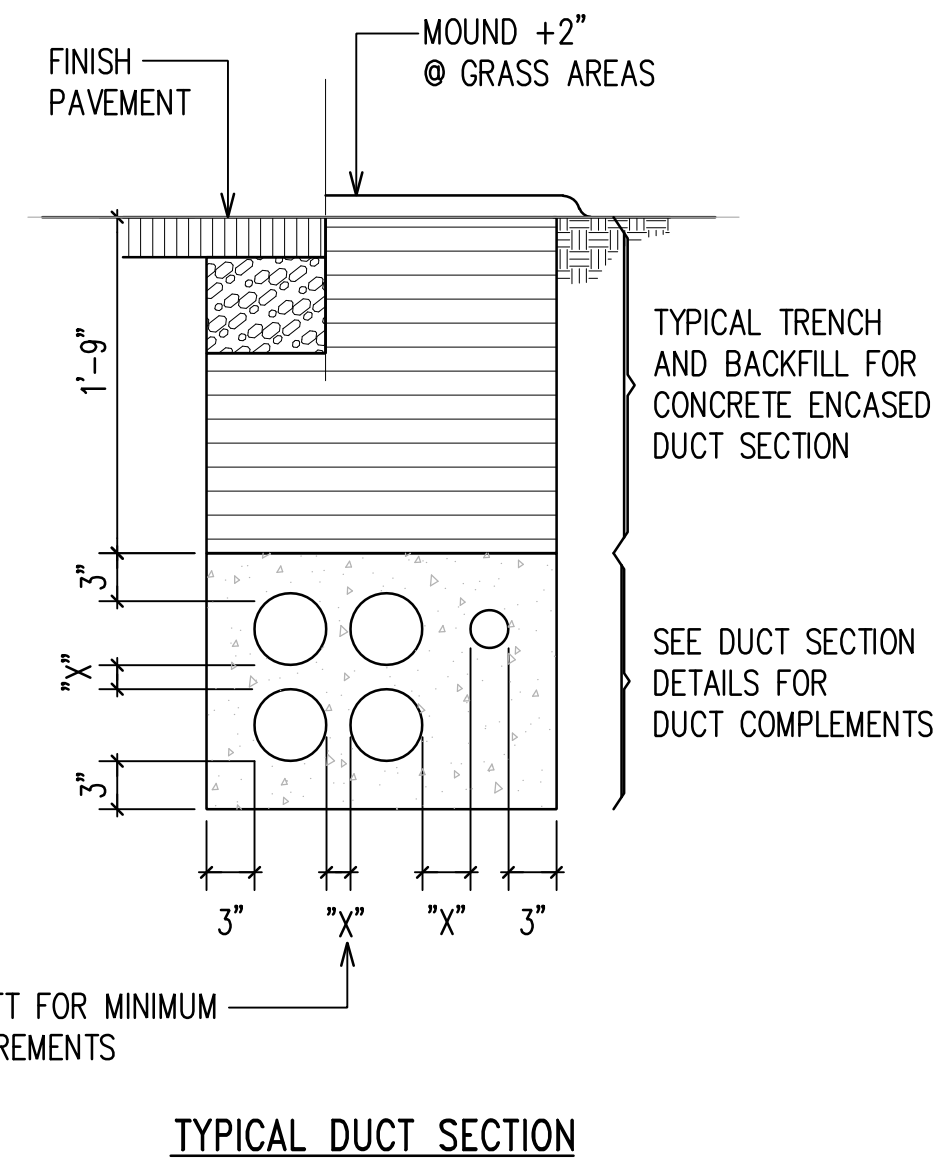
- ELEC - ELEC = 1 1/2"
- ELEC - TEL = 3"
- TEL - TEL = 1 1/2"
- ELEC - CTL/SIG = 3"
- TEL - CTL/SIG = 1 1/2"
- PWR - CTL/SIG = 3"
- ELEC - PWR = 1 1/2"
- TEL - PWR = 3"
- PWR - PWR = 1 1/2"
- CTL/SIG - CTL/SIG = 1 1/2"

WHERE DUCTLINE CROSSES OVER WATER LINE, PROVIDE THE FOLLOWING:

1. 6" MINIMUM SEPARATION BETWEEN DUCTLINES AND WATER LINE.
2. PROVIDE CONCRETE JACKET AROUND DUCTLINES.
3. PROVIDE ONLY TYPE "B" BACKFILL AROUND WATER LINE.



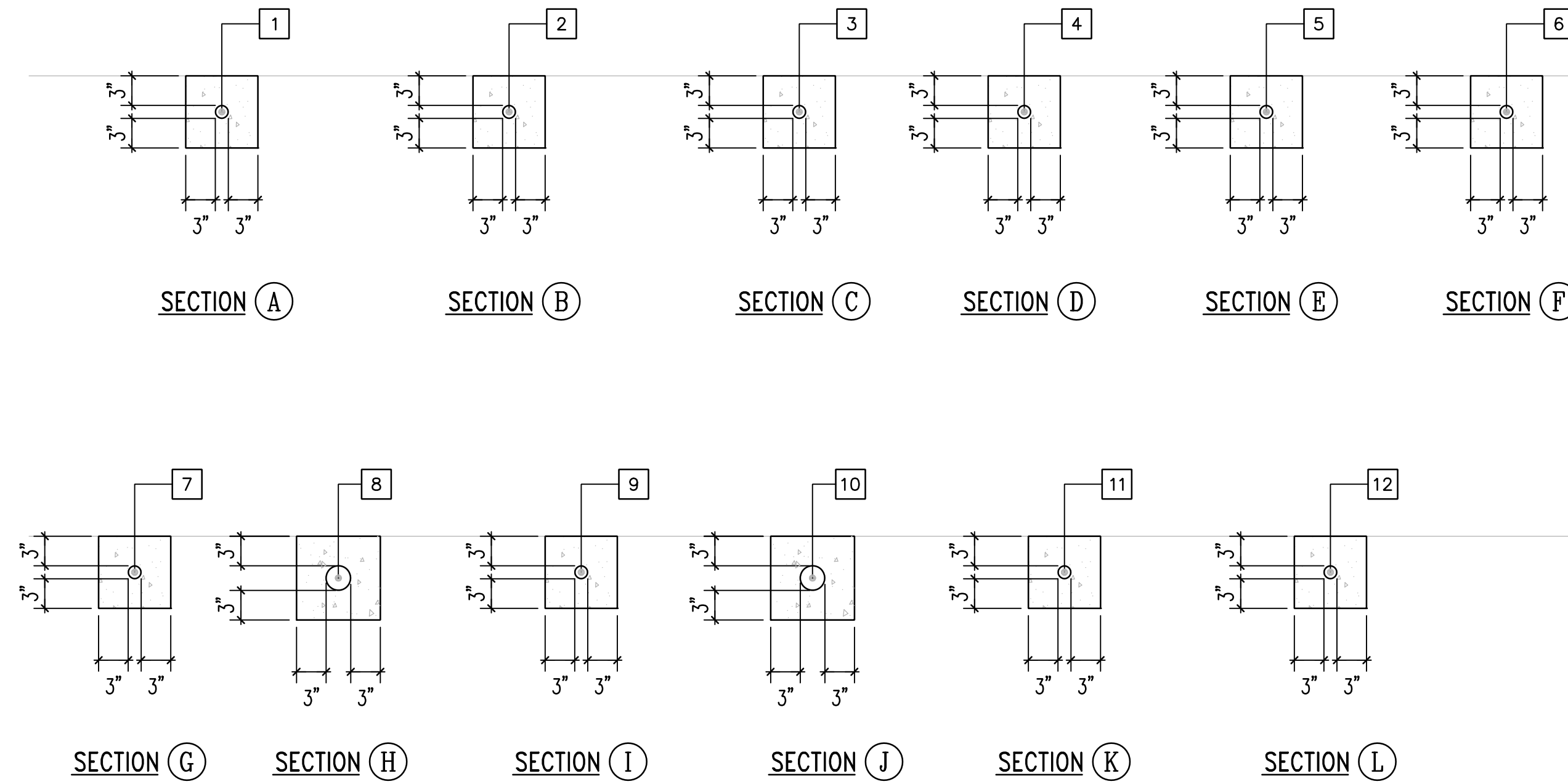
TYPICAL DUCT SECTION AT WATER FACILITIES CROSSING



TYPICAL DUCT SECTION

DUCT SECTION DETAILS AND REQUIREMENTS

NOT TO SCALE



WATER NOTES:

1. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF THE EXISTING WATER FACILITIES PRIOR TO TRENCHING. EXCAVATION AROUND EXISTING WATER FACILITIES SHALL BE DONE BY HAND.
2. MATERIAL USED FOR BACK FILLING AT THE WATER FACILITIES CROSSINGS SHALL NOT CONTAIN VEGETABLE MATTER OR DEBRIS OF ANY KIND. NO "ADOBE" OR SIMILAR MATERIAL SHALL BE USED.
3. PROVIDE CONCRETE ENCASEMENT FOR THE CONDUITS AT ALL WATERLINE, SERVICE LATERAL AND HYDRANT CROSSING. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER AT LEAST 24-HOURS PRIOR TO SCHEDULING BACK FILLING OPERATION AT THE WATER FACILITIES CROSSINGS.

DUCT AND WIRE SCHEDULE

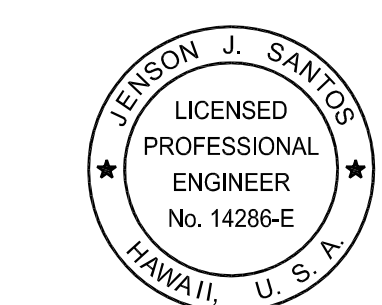
NO.	DUCT SIZE	WIRE SIZE	DESTINATION OR USE
1	1"	2#12 CONTROLS	GATE SECURITY SWITCH CONTROLS TO EXISTING SCADA CABINET
2	1"	1-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CABLES FROM INSTRUMENT TRANSMITTER TO SCADA CABINET
3	1"	2-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CABLES FROM INSTRUMENT TRANSMITTER TO SCADA CABINET
4	1 1/2"	5-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CABLES FROM INSTRUMENT TRANSMITTER TO SCADA CABINET
5	1"	2#12 CONTROLS (2#12 SPARES)	TANK ACCESS HATCH SECURITY SWITCH CONTROLS TO SCADA CABINET
6	1"	12#12 CONTROLS (2#12 SPARES)	CONTROL VALVE CONTROLS TO SCADA CABINET
7	1"	4-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CABLES FROM INSTRUMENT TRANSMITTER TO SCADA CABINET
8	1 1/2"	18#12 CONTROLS (4#12 SPARES)	TANK ACCESS HATCH SECURITY SWITCH CONTROLS AND CONTROL VALVE CONTROLS TO SCADA CABINET
9	1"	6#12 CONTROLS	CONTROL VALVE CONTROLS TO SCADA CABINET
10	2"	54#12 CONTROLS (8#12 SPARES)	TANK ACCESS HATCH SECURITY SWITCH CONTROLS AND CONTROL VALVE CONTROLS TO SCADA CABINET
11	1 1/2"	6-2/C#14 TWISTED, SHIELDED CABLES W/GNDS	INSTRUMENTATION CABLES FROM INSTRUMENT TRANSMITTER TO SCADA CABINET
12	1 1/4"	16#12 CONTROLS (2#12 SPARES)	CONTROL VALVE CONTROLS TO SCADA CABINET
13			

NOTES:

1. ALL CONCRETE ENCASED DUCTS SHALL BE SCHEDULE 40 PVC.
2. ALL DIRECT BURIED DUCTS SHALL BE SCHEDULE 80 PVC.
3. PC INDICATES PROVIDE PULLCORD.

TMK: 4 - 6 - 011-003

RONALD N. S. HO & ASSOCIATES, INC.
ELECTRICAL ENGINEERS



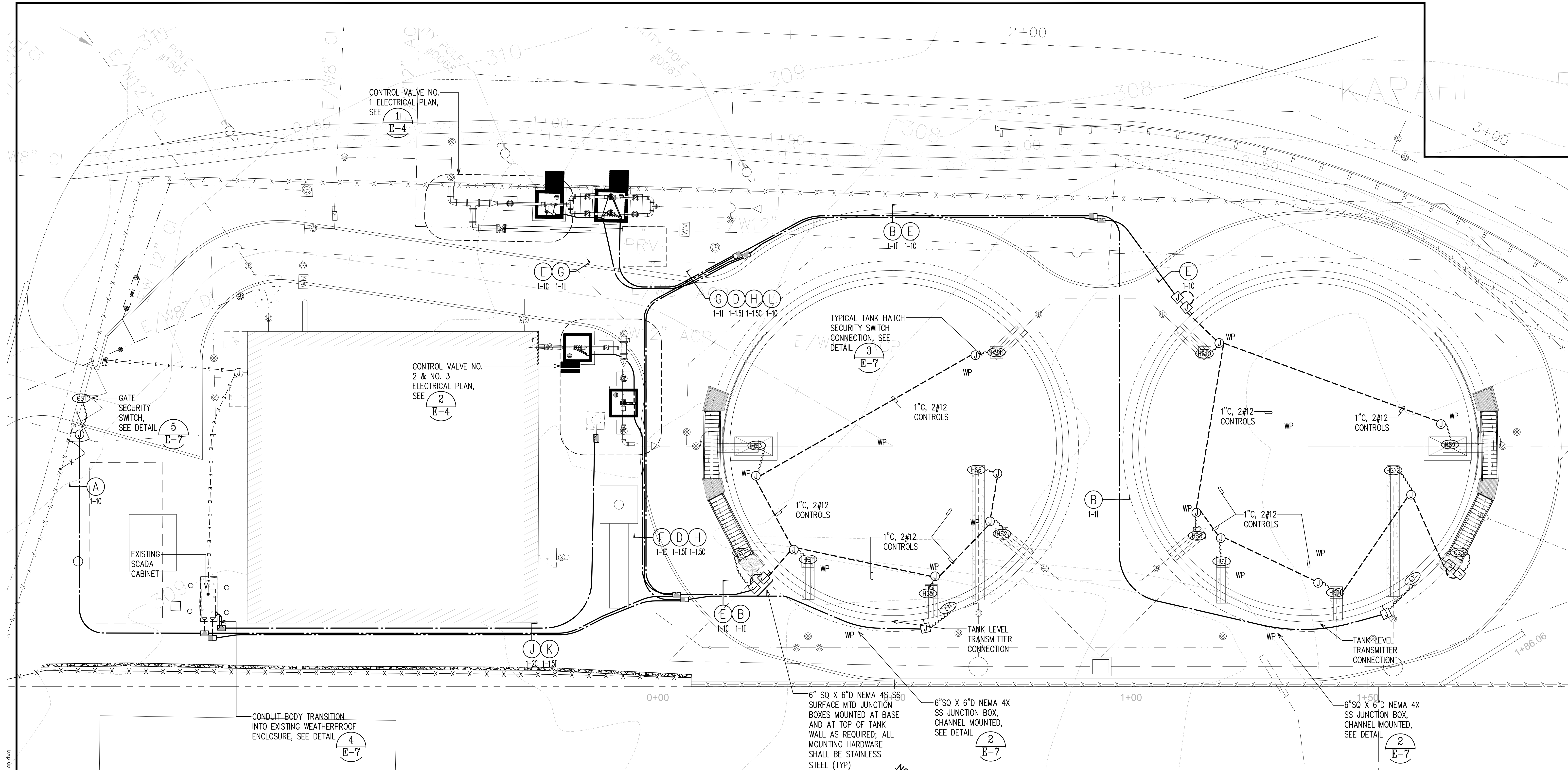
APPROVED:
N/A

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APRIL 30, 2024
EXPIRATION DATE OF THE LICENSE

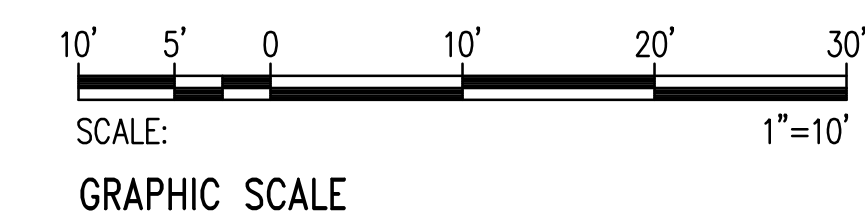
REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII DUCT SECTION DETAILS AND REQUIREMENTS			
APPROVED:		COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY R/W)	DATE
APPROVED:		MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI	DATE

DRAWING NO.
E-2

HALF SIZE FRIBLINE FOR 11" x 17"
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1 ENLARGED ELECTRICAL SITE PLAN
 20-0 SCALE: 1"=10'



REVISION	DATE	DESCRIPTION	APPROVED

BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
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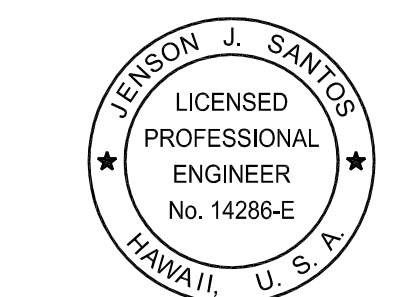
ENLARGED ELECTRICAL SITE PLAN

APPROVED:
 N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

TMK: 4 - 6 - 011-003
 RONALD N. S. HO & ASSOCIATES, INC.
 ELECTRICAL ENGINEERS

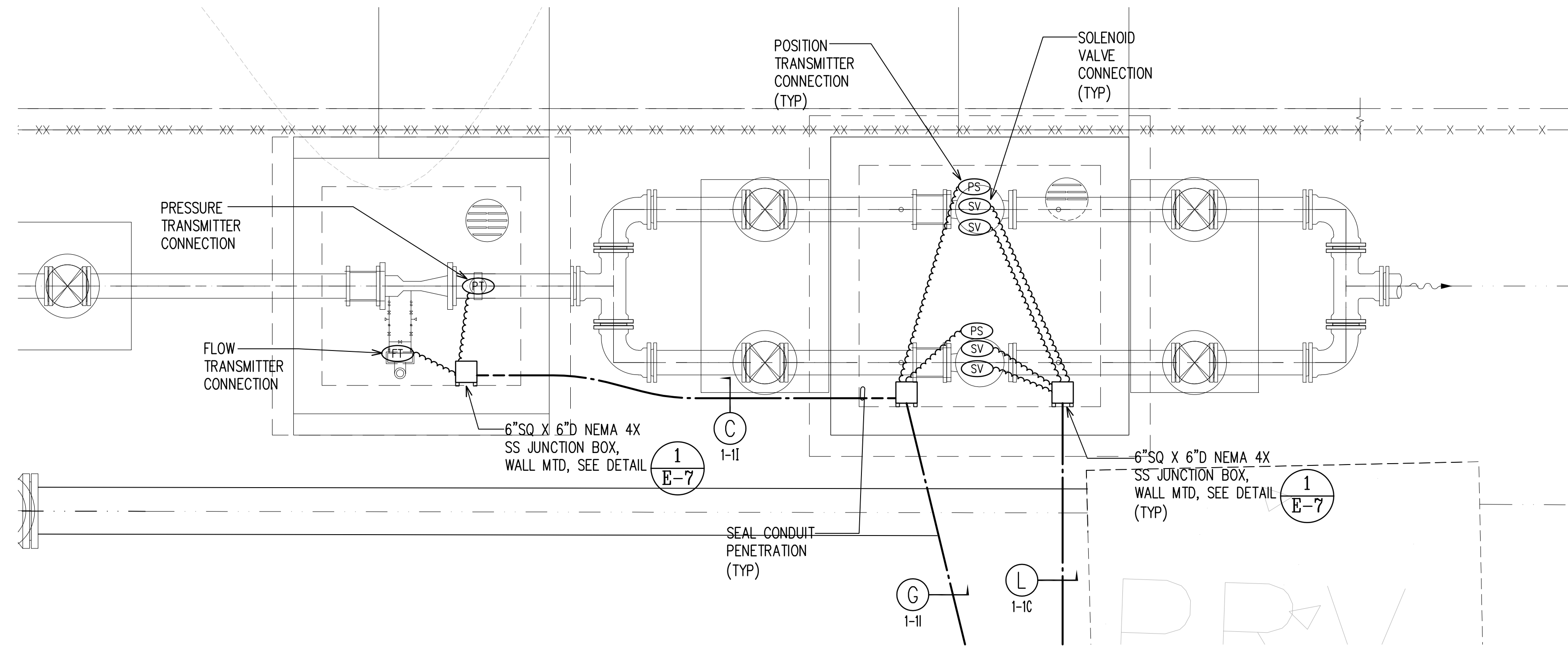


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 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

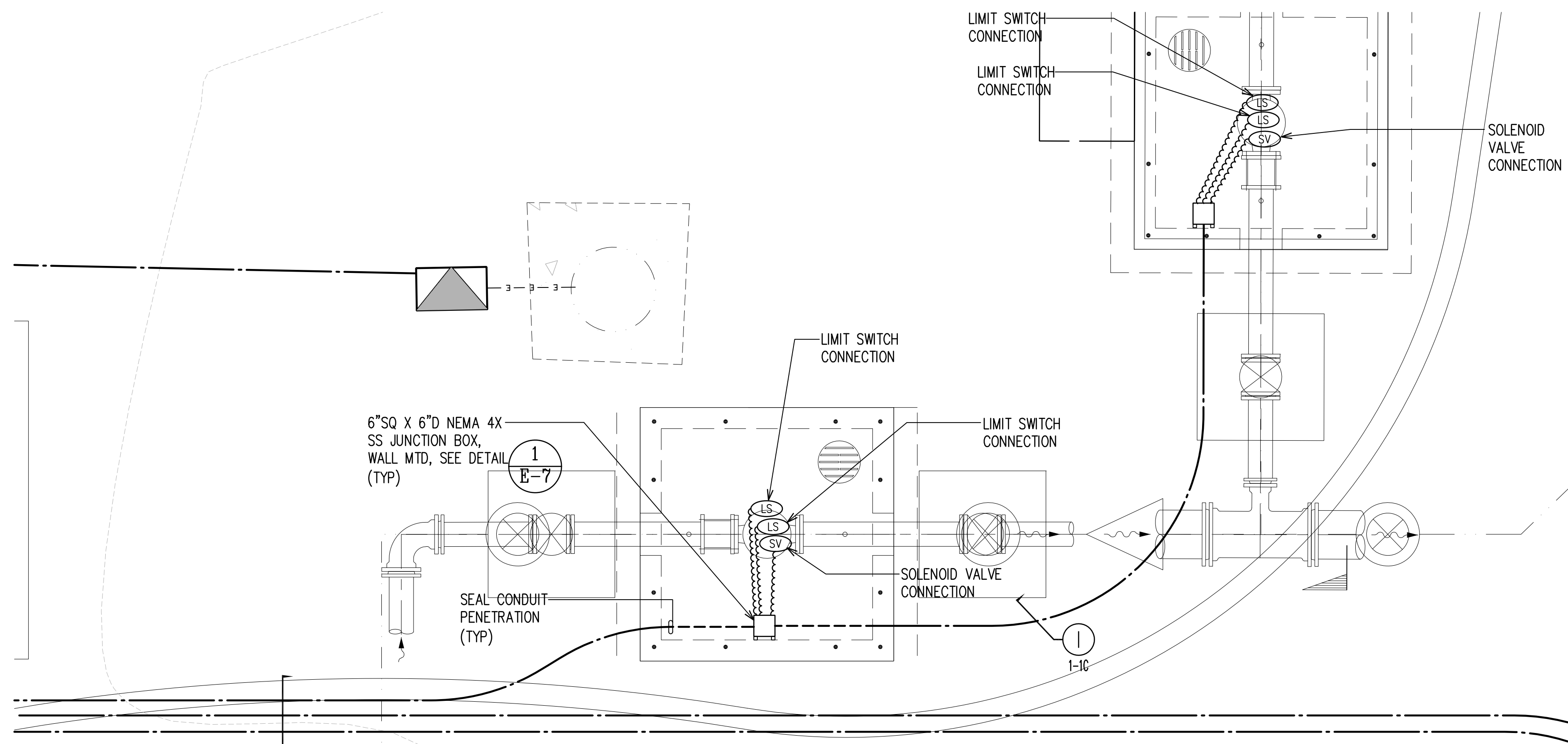
DRAWING NO.
E-3

FILE	POCKET	FOLDER	NO.

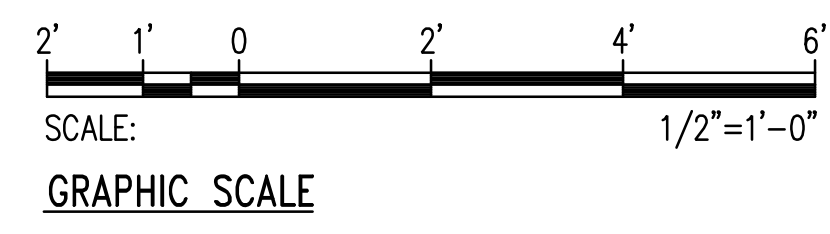
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 FILE PATH: Z:\Vocad\PROJECTS\212078\old-20180606-e003-212078-entg_elec_site_plan.dwg CAD USER: T\Fernandez PLOT DATE: 2023.01.09 XREFS: | _1212078-dllec | _1212078-alkbgrd | C-Base | Topo-Wagner-BCH | C-DRAINAGE | C-Water | EX-PL | DTL-AV-PLAN | DTL-PRV UNIT-EL | DTL-CY-03 | KAPAH STARS | V-Topo-Utility Poles | V-Topo-A66 | JS-STAMP |



1 CONTROL VALVE NO. 1 ELECTRICAL PLAN
 E-4 SCALE: 1/2"=1'-0" NORTH

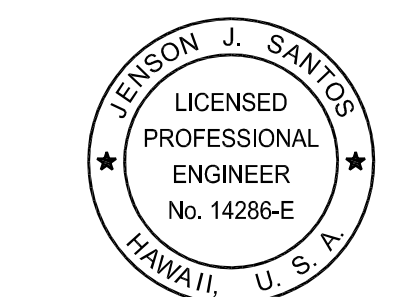


2 CONTROL VALVE NO. 2 & NO. 3 ELECTRICAL PLAN
 E-4 SCALE: 1/2"=1'-0" FIBRON



TMK: 4 - 6 - 011:003

RONALD N. S. HO & ASSOCIATES, INC.
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 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

CONTROL VALVE NOS. 1 & 2 ELECTRICAL PLAN

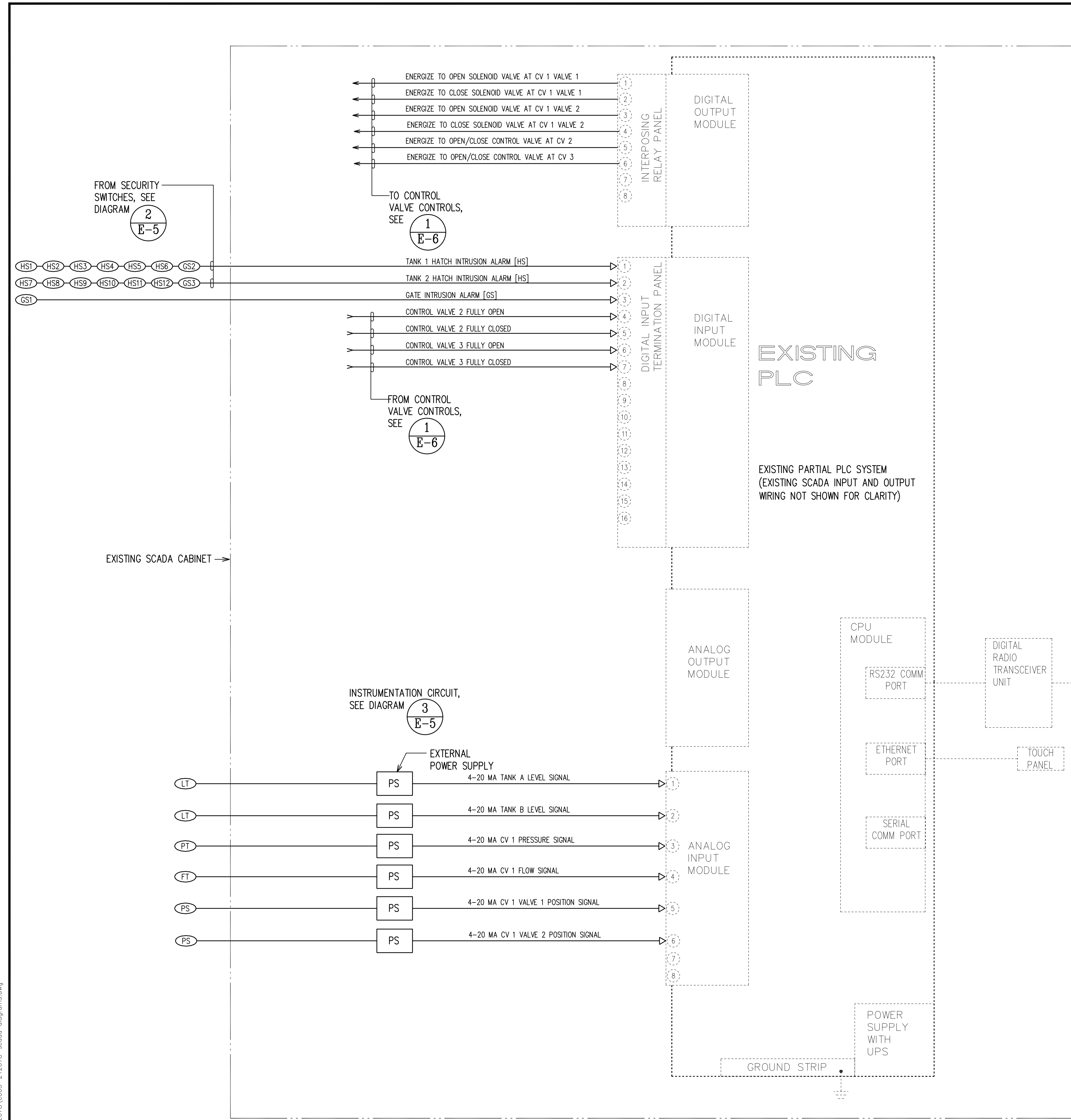
APPROVED:
 N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

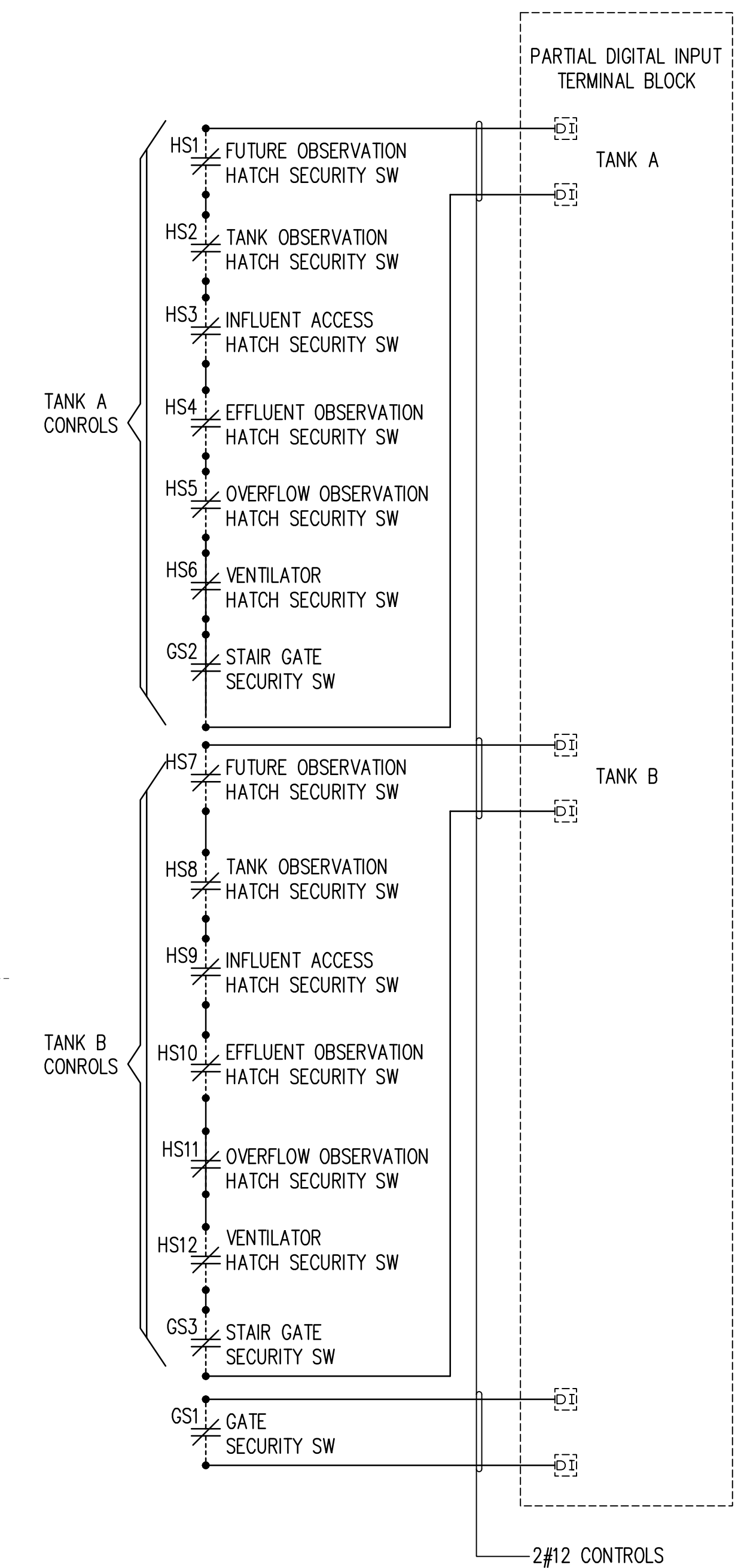
Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

DRAWING NO.
E-4

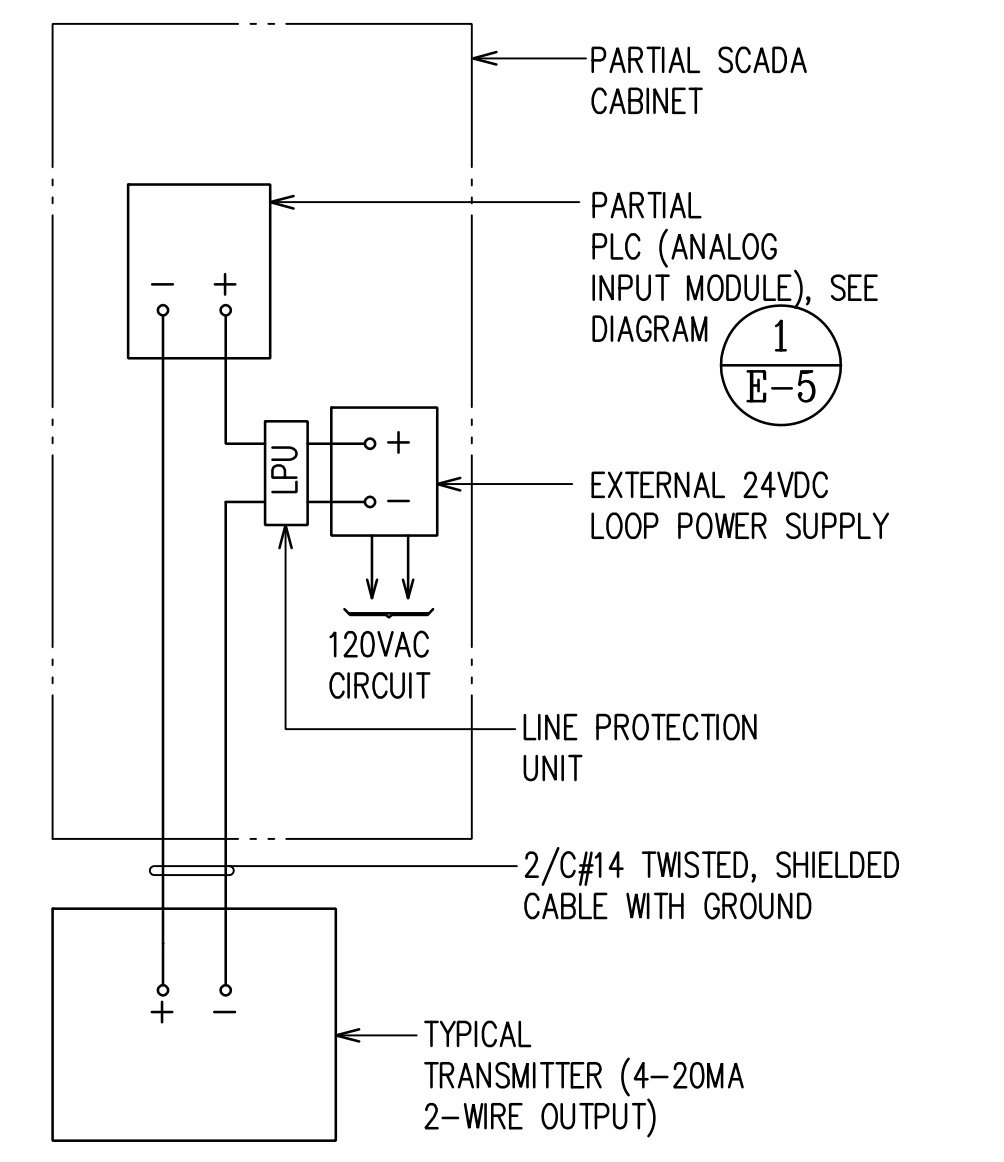
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1 EXISTING SCADA SYSTEM SCHEMATIC DIAGRAM WITH MODIFICATIONS
E-5



2 SECURITY SYSTEM CONNECTION DIAGRAM
E-5



3 TYPICAL INSTRUMENTATION DIAGRAMS
E-5

SCADA CONSTRUCTION NOTES:

- CONTRACTOR SHALL COORDINATE WITH THE KDO AND THE SCADA INTEGRATOR TO OBTAIN EXACT TERMINATION POINTS FOR THE DIGITAL AND ANALOG INPUT POINTS FOR THIS PROJECT.
- CONTRACTOR SHALL TERMINATE THE DIGITAL AND ANALOG INPUT CIRCUITS ONTO THE EXISTING RESPECTIVE TERMINAL BLOCKS PER THE KDO AND THE SCADA INTEGRATOR'S REQUIREMENTS AND APPROVAL.
- CONTRACTOR SHALL BE PRESENT AND ASSIST KDO WHEN THE RTU FOR THE FACILITY IS BROUGHT ON-LINE.

REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII			
APPROVED: N/A COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)			DATE
APPROVED: Jason Kagimoto COUNTY ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE

TMK: 4 - 6 - 011-003

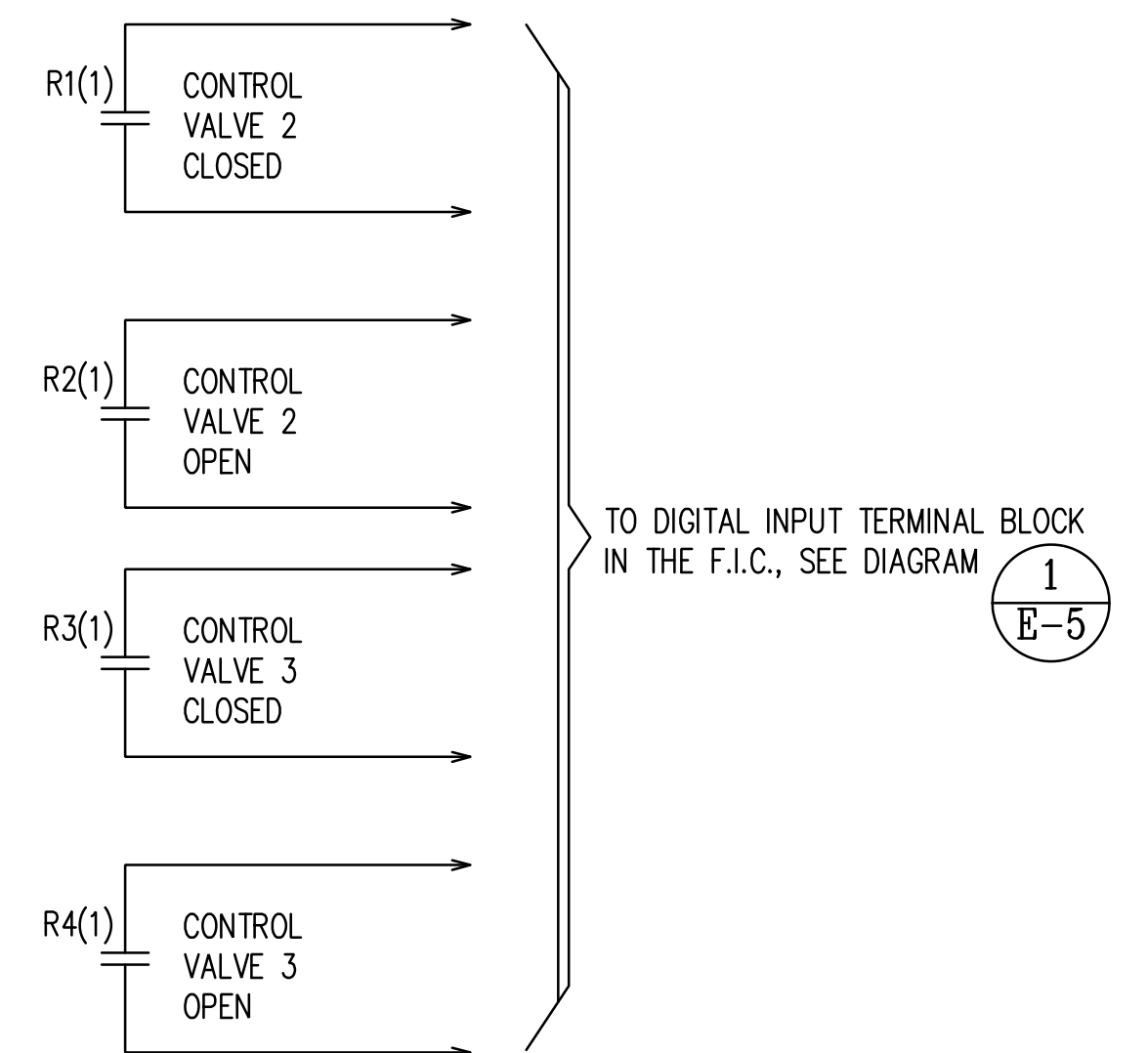
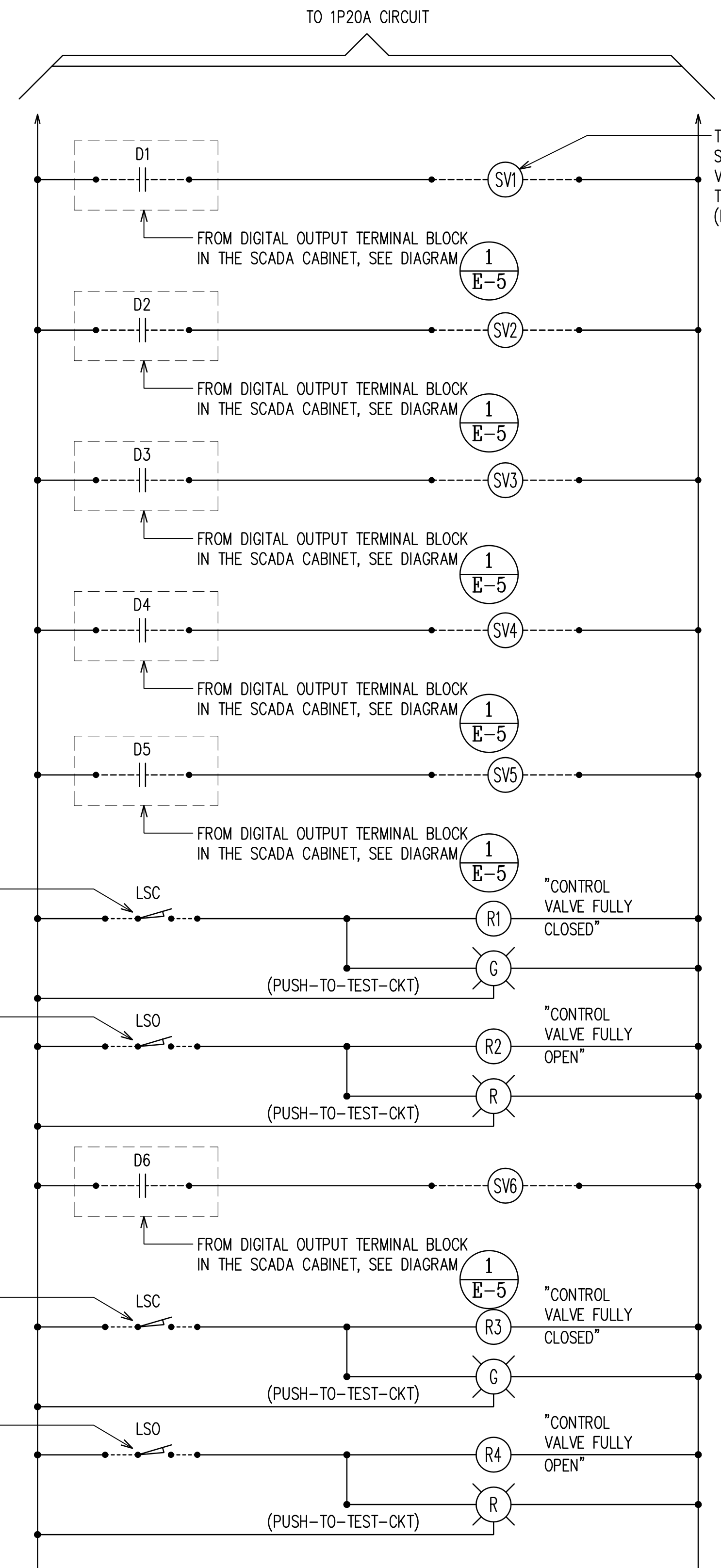
RONALD N. S. HO & ASSOCIATES, INC.
ELECTRICAL ENGINEERS

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E-5

FILE	POCKET	FOLDER	NO.

HALF SIZE FROM LINE FOR 11" x 17"
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NOTE:

- CONTROL DEVICES AND WIRING SHALL BE INSTALLED IN SCADA CABINET AND INDICATING LIGHTS TO BE MOUNTED ON THE SCADA CABINET DOOR.
- PROVIDE REQUIRED NAMEPLATES UNDER ALL DOOR MOUNTED DEVICES.

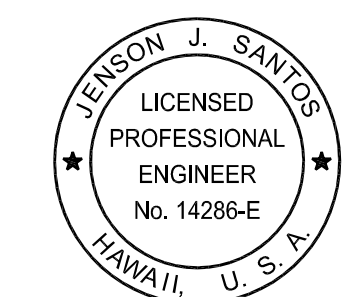
1/E-6 CONTROL VALVE CONTROL DIAGRAM

HALF SIZE TRIMLINE FOR 11" x 17"
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TMK: 4 - 6 - 011:003

RONALD N. S. HO & ASSOCIATES, INC.
 ELECTRICAL ENGINEERS



Jason Kato
 LICENSED PROFESSIONAL ENGINEER
 No. 14286-E
 HAWAII, U.S.A.

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 APRIL 30, 2024
 EXPIRATION DATE OF THE LICENSE

REVISION	DATE	DESCRIPTION	APPROVED

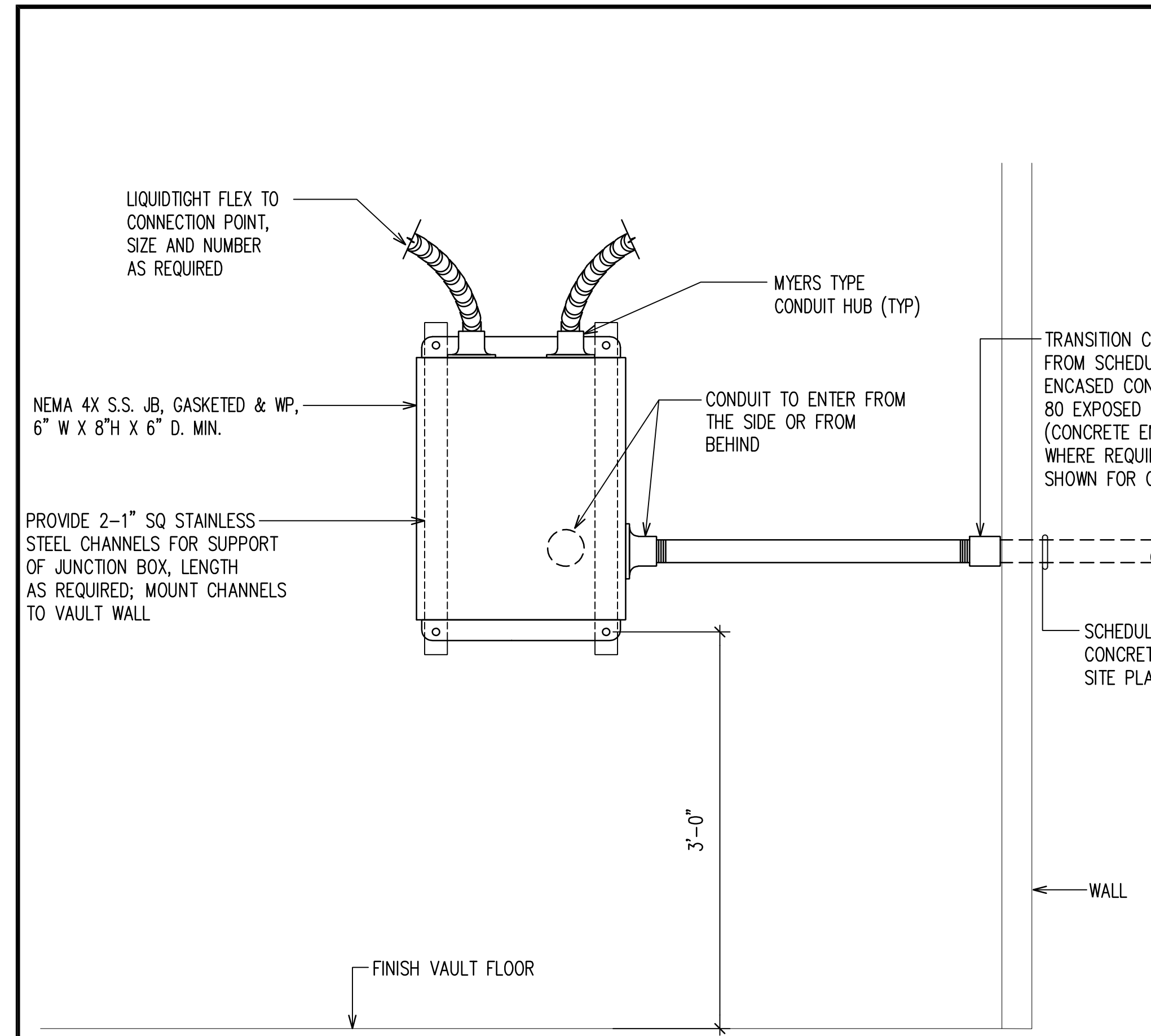
BELT COLLINS HAWAII LLC
 2153 North King Street, Suite 200
 Honolulu, Hawaii 96819
JOB NO. 02-14, WK-08
KAPA'A HOMESTEADS 325' TANKS
TWO 0.5 MG TANKS
 PACKAGE B - TANKS PACKAGE
 WAILUA-KAPA'A WATER SYSTEM
 KAPA'A, KAUAI, HAWAII

CONTROL VALVE CONTROL DIAGRAM

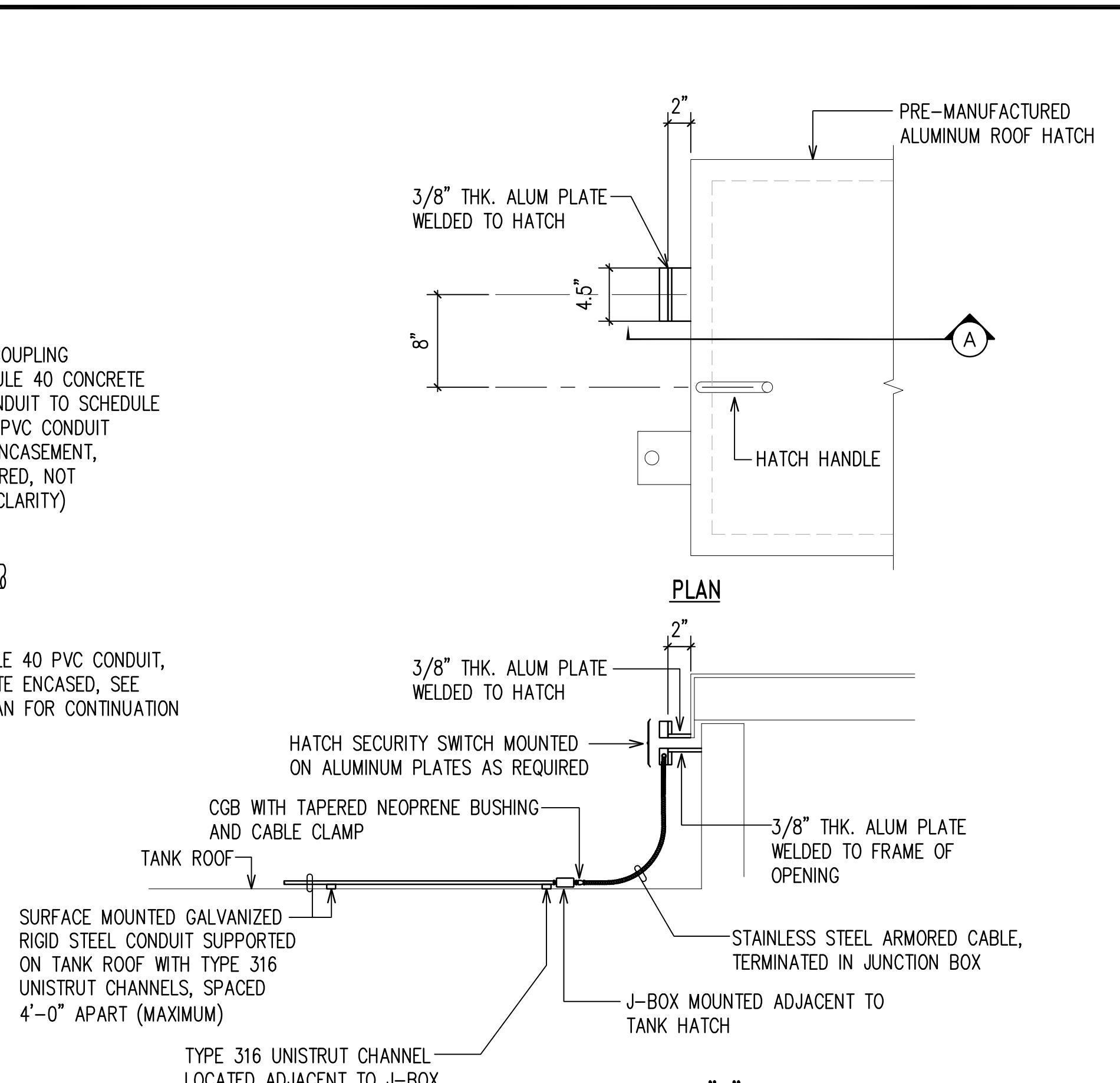
APPROVED:
 N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
 COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)
Jason Kagimoto
 MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
 COUNTY OF KAUAI

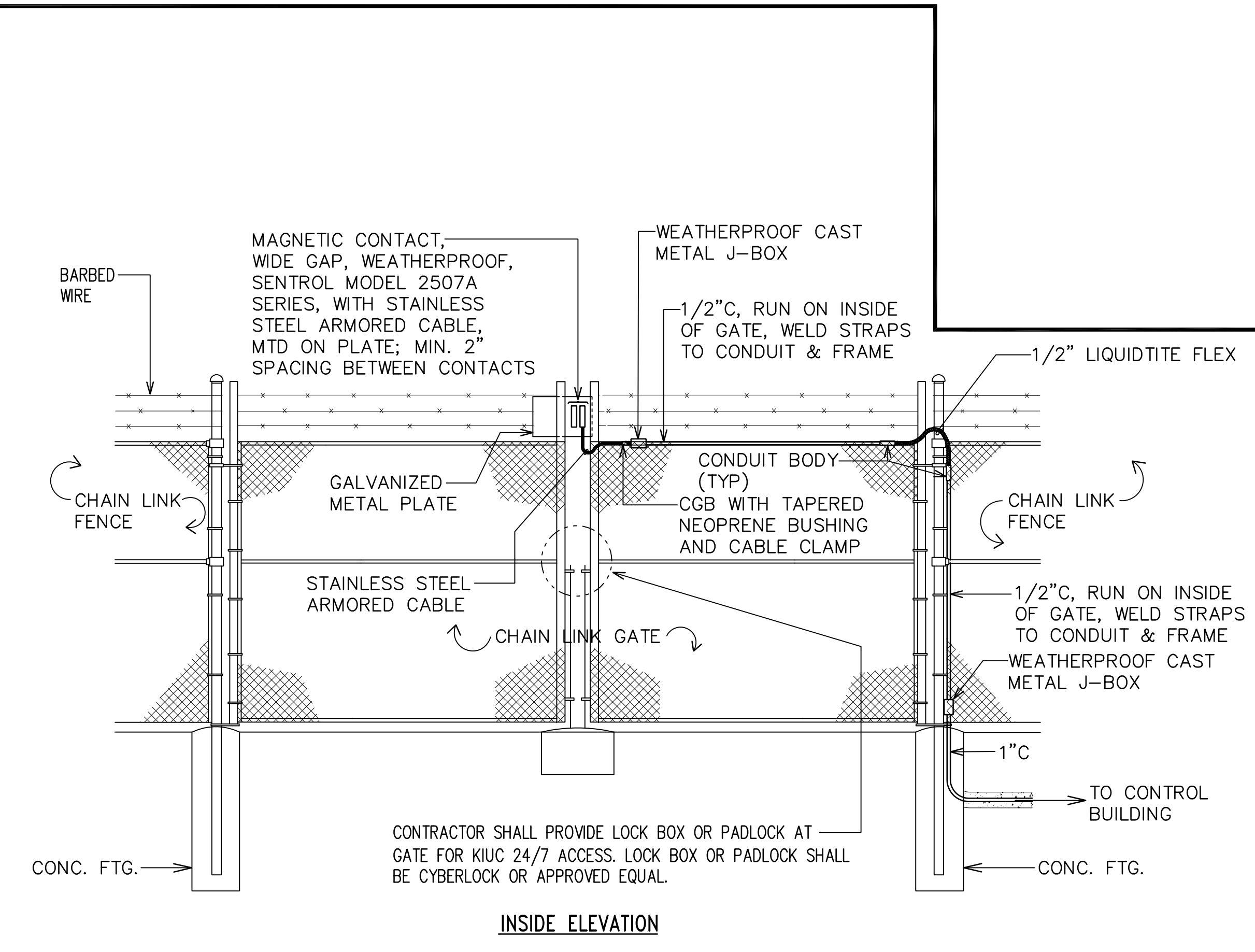
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E-6



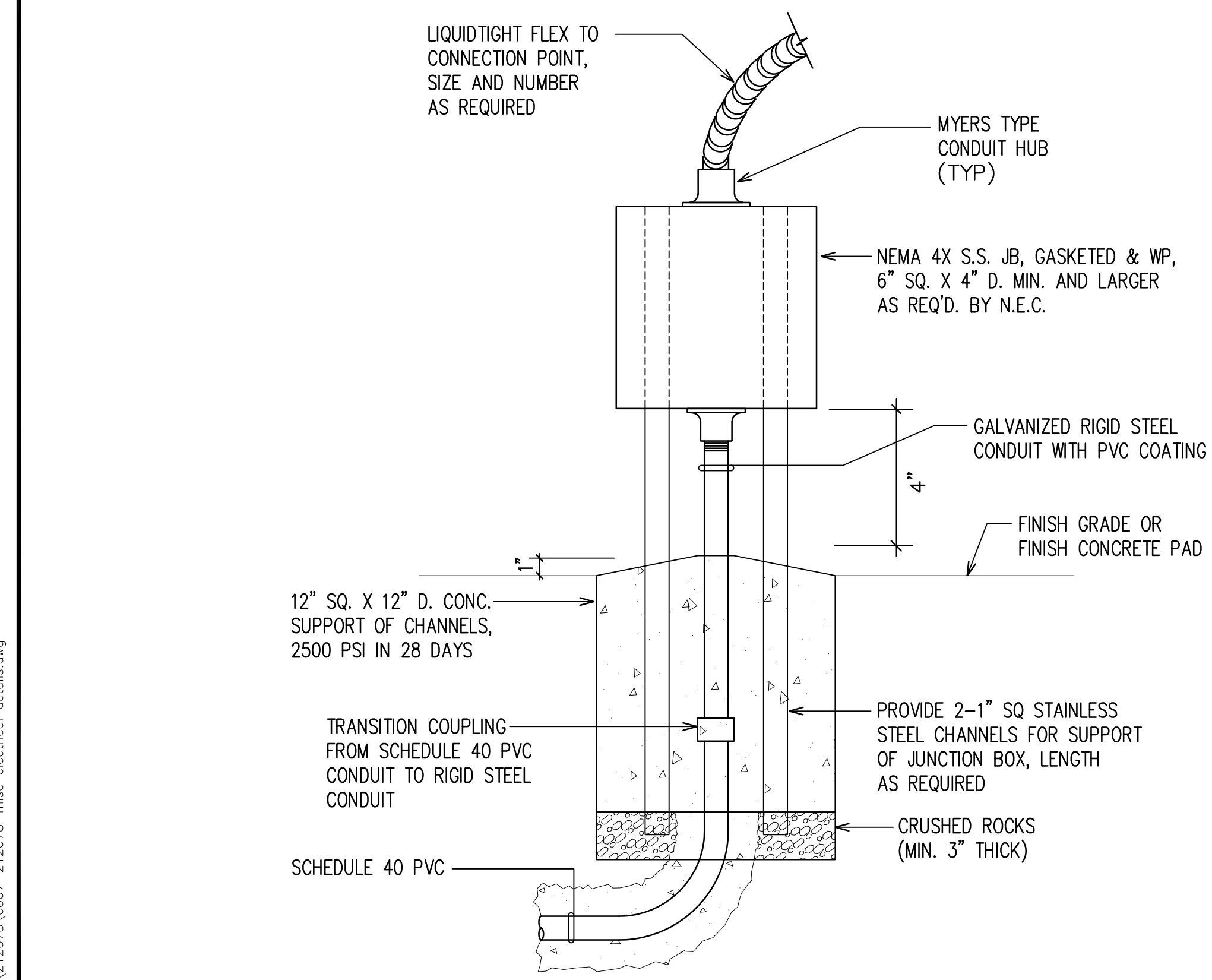
1 JUNCTION BOX MOUNTING DETAIL
E-7 NOT TO SCALE



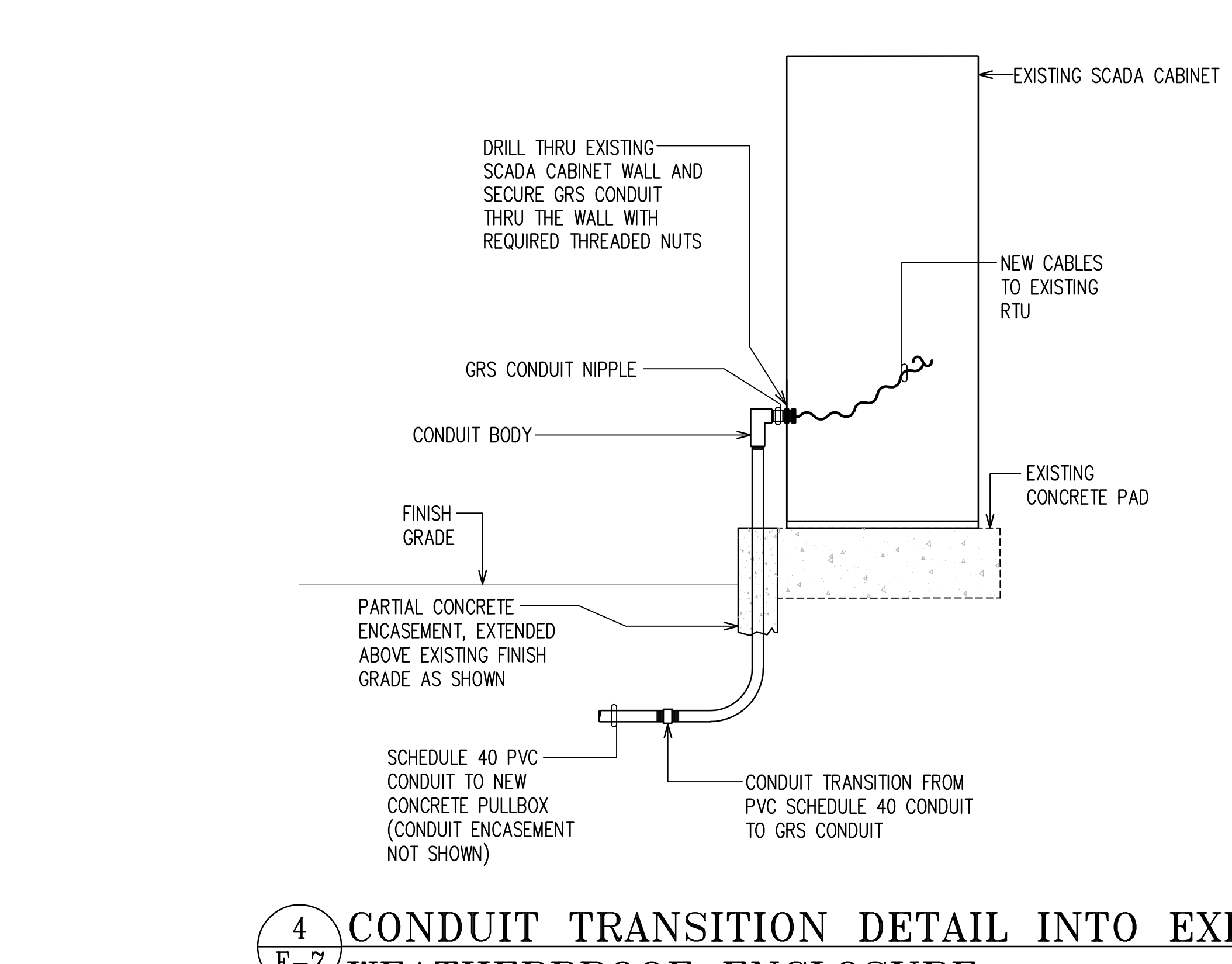
3 TANK HATCH SECURITY SWITCH DETAIL
E-7 NOT TO SCALE



5 GATE SECURITY ALARM SWITCH DETAIL
E-7 NOT TO SCALE



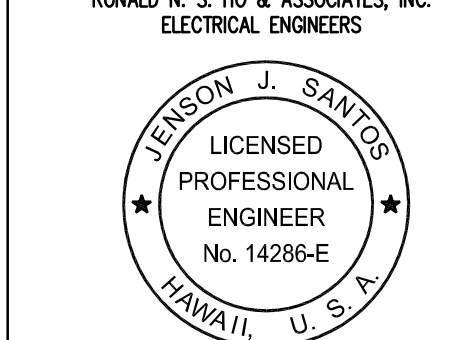
2 CHANNEL SUPPORTED JUNCTION BOX DETAIL
E-7 NOT TO SCALE



4 CONDUIT TRANSITION DETAIL INTO EXISTING WEATHERPROOF ENCLOSURE
NOT TO SCALE

- NOTES:**
- REFER TO WATER SYSTEM STANDARD DETAILS F1, F4, & F5 FOR ADDITIONAL ELECTRICAL REQUIREMENTS FOR INSTALLATION OF GATE MAGNETIC SWITCH.
 - ALL MOUNTING HARDWARE SHALL BE STAINLESS STEEL.

TMK: 4 - 6 - 011:003

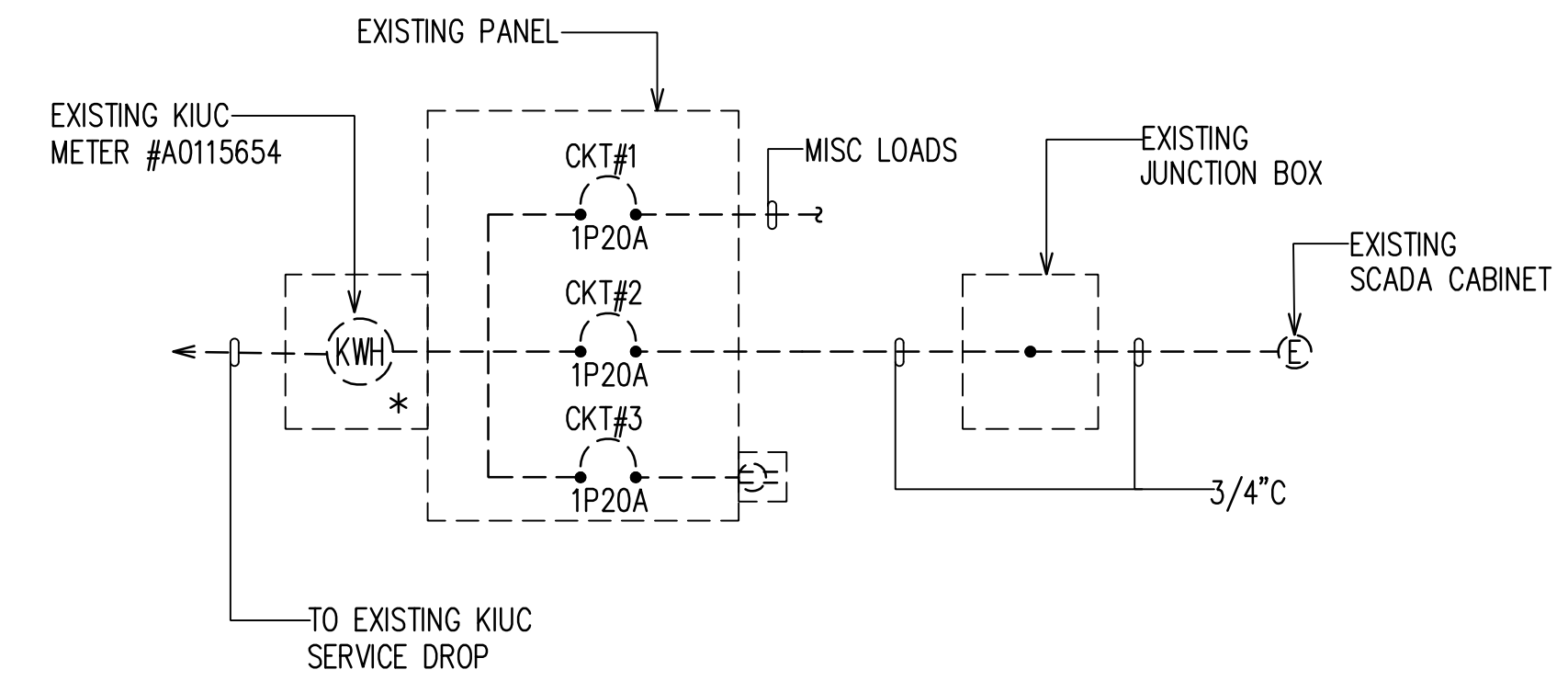
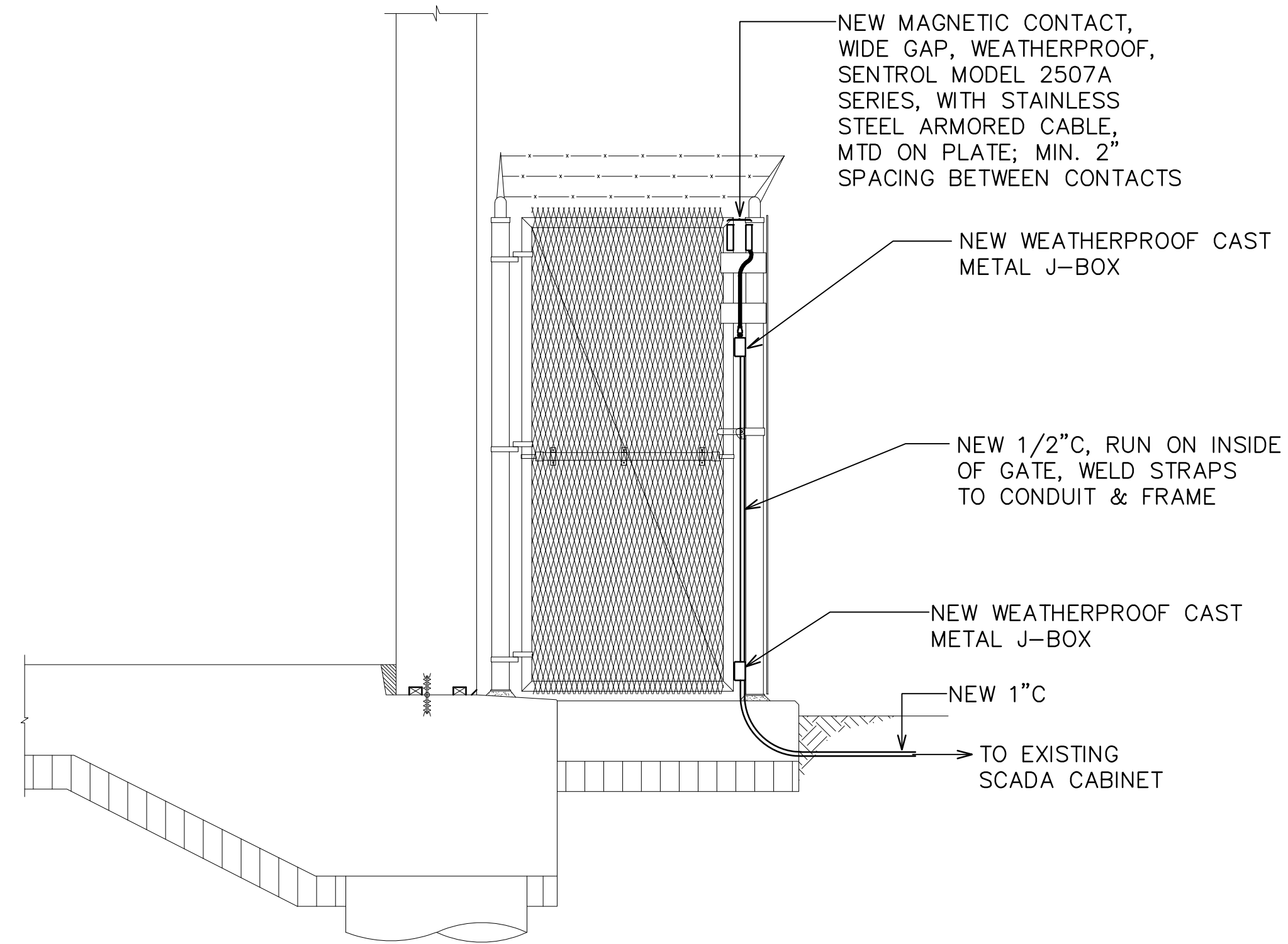


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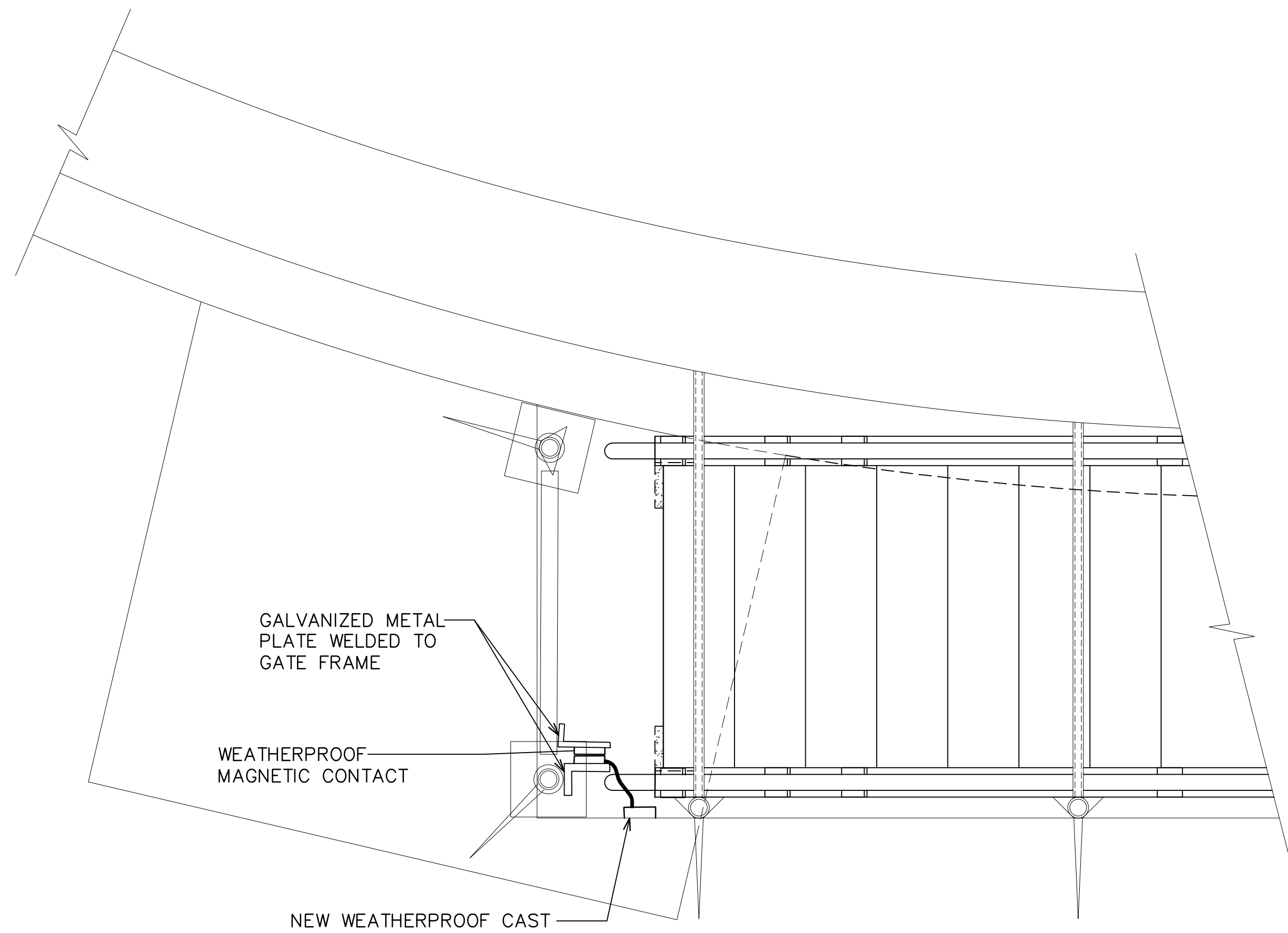
REVISION	DATE	DESCRIPTION	APPROVED
BELT COLLINS HAWAII LLC 2153 North King Street, Suite 200 Honolulu, Hawaii 96819 JOB NO. 02-14, WK-08 KAPA'A HOMESTEADS 325' TANKS TWO 0.5 MG TANKS PACKAGE B - TANKS PACKAGE WAILUA-KAPA'A WATER SYSTEM KAPA'A, KAUAI, HAWAII MISCELLANEOUS ELECTRICAL DETAILS			
APPROVED:			DATE
N/A			
COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)			DATE
Jason Kagitoto MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER COUNTY OF KAUAI			DATE

DRAWING NO.
E-7

HALF SIZE FROM LINE FOR 11" X 17"
 T:_01 Jan 2023 10:04:41
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2 ONE-LINE DIAGRAM
E-8 NOT TO SCALE



1 TANK STAIRS SECURITY ALARM SWITCH DETAIL
E-8 NOT TO SCALE

HALF SIZE FROM LINE FOR 11" x 17"
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TMK: 4 - 6 - 011:003

RONALD N. S. HO & ASSOCIATES, INC.
ELECTRICAL ENGINEERS

Jason J. Santos
LICENSSED PROFESSIONAL ENGINEER
No. 14286-E
HAWAII, U.S.A.

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Honolulu, Hawaii 96819

JOB NO. 02-14, WK-08
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TWO 0.5 MG TANKS
PACKAGE B - TANKS PACKAGE
WAILUA-KAPA'A WATER SYSTEM
KAPA'A, KAUAI, HAWAII

MISCELLANEOUS ELECTRICAL DETAILS II

APPROVED:
N/A

COUNTY ENGINEER, DEPARTMENT OF PUBLIC WORKS
COUNTY OF KAUAI (FOR WORK WITH COUNTY RW)

Jason Kagimoto
MANAGER AND CHIEF ENGINEER, DEPARTMENT OF WATER
COUNTY OF KAUAI

DRAWING NO.
E-8

FILE	POCKET	FOLDER	NO.