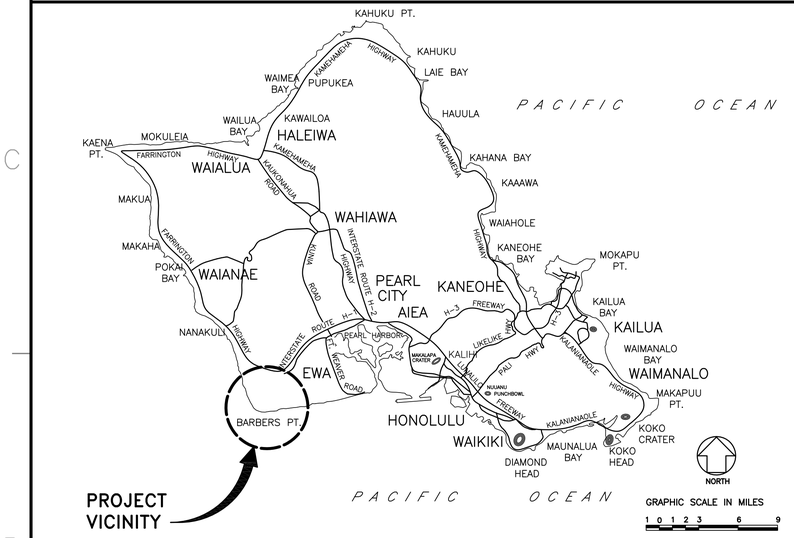
HAWAII ARMY NATIONAL GUARD
SITE UTILITIES REPLACEMENT

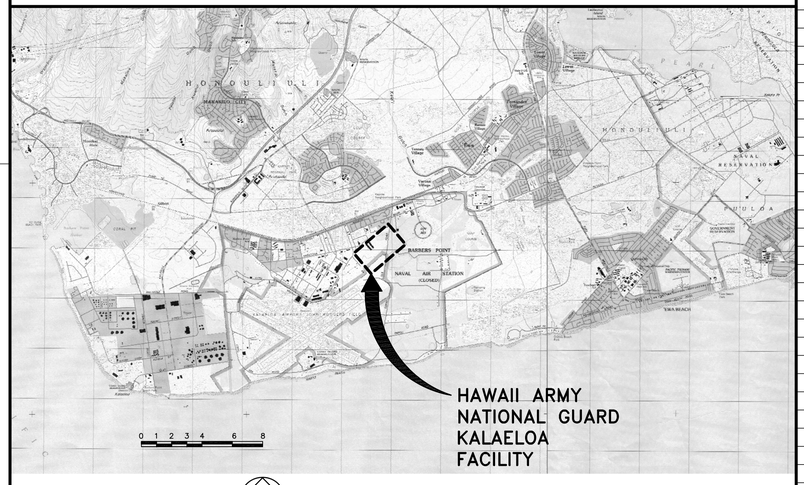
WATER LINE - WRIGHT STREET TO BUILDING 282

KALAELOA (KAPOLEI), HAWAII

VICINITY MAP



LOCATION MAP



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HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
DESIGN AND PROJECT MANAGEMENT BRANCH
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
WATER LINE -
WRIGHT STREET TO BUILDING 282
TITLE SHEET, LOCATION MAP, VICINITY MAP, AND INDEX OF DRAWINGS
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 1 OF 51

G-01

PM: TCL
OPER: BY
DATE REV. 01/03/14
DATE: 11/04/13
SCALE: 1:
FILE: 20120220-129

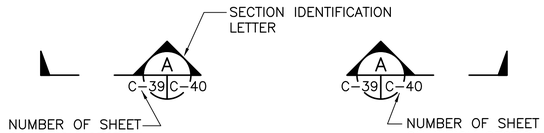
LIST OF ABBREVIATIONS

AASF	ARMY AVIATION SUPPORT FACILITY
ABAND	ABANDONED
A.C., AC	ASPHALT CONCRETE
A/C	AIR CONDITIONING
APPROX	APPROXIMATE
ARV	AIR RELEASE VALVE
BC	BOTTOM CURB
BFP	BACK FLOW PREVENTER
BGGV	BEVEL GEAR GATE VALVE
BLDG	BUILDING
BOT., BOT	BOTTOM
BW	BOTTOM WALL
CATV	CABLE TELEVISION
C.B., CB	CATCH BASIN
CI	CAST IRON
C.L.	CHAIN LINK
CMU	CONCRETE MASONRY UNIT
CO	CLEAN OUT
COL.	COLUMN
COMM.	COMMUNICATION
CONC., CONC	CONCRETE
CRM	CONCRETE RUBBLE MASONRY
D	DIAMETER OR DRAIN
D.I.	DRAIN INLET
DS	DOWNSPOUT
DUCT	DUCT LINE
DWY.	DRIVEWAY
E, ELEC	ELECTRIC
ELEV., EL., ELEV	ELEVATION
EXIST, E/	EXISTING
F.A. BOX	FIRE ALARM BOX
F.H., FH	FIRE HYDRANT
FM	FORCE MAIN
G	GAS
G.I.	GRATED INLET
GMH	GAS MANHOLE
GND., GND	GROUND
G.P.	GUARD POST/GUY POLE/GATE POST
G.W.	GUY WIRE
GV	GATE VALVE
H	HEIGHT
H.B., HB	HOSE BIBB
HH	HAND HOLE
ICV	IRRIGATION CONTROL VALVE
INV., INV	INVERT
IT	INFORMATION TECHNOLOGY
JTS	JOINT TRUNKING SYSTEM
LAT	LATERAL
L.P.	LIGHT POLE
MAX., MAX	MAXIMUM
MH	MANHOLE
MIN., MIN	MINIMUM
MTCo. MH	MUTUAL TELEPHONE COMPANY MANHOLE
O.C.	ON CENTER
O/H	OVERHEAD
PAV'T., PAVT	PAVEMENT
P.M.	PARKING METER
P/N	PROJECT NUMBER
P.P.	POWER POLE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PEDESTRIAN SIGNAL LIGHT
REQ'D	REQUIRED
S	SEWER OR SPREAD
SC	SIGNAL CORPS
SCMH	SIGNAL CORPS MANHOLE
SDMH	STORM DRAIN MANHOLE
S.L., SL	STREET LIGHT OR SEWER LINE
SLB	STREET LIGHT BOX
SMH	SEWER MANHOLE
SPR.	SPRINKLER
ST. NAME	STREET NAME
STA., STA	STATION
TBA	TO BE ABANDONED
TC	TOP CURB
TDC	TOP DROP CURB
TEL., TEL	TELEPHONE
TP	TOP PIPE
TRC	TOP ROLLED CURB
TS	TOP STEM
TV	TOP VALVE
TW	TOP WALL
TYP., TYP	TYPICAL
U.P.	UTILITY POLE
U.P./S.L.	UTILITY POLE W/STREET LIGHT
W	WATER OR WIDTH
WL	WATER LINE
WM	WATER METER
WWF	WELDED WIRE FABRIC
WWH	WATER MANHOLE
WV	WATER VALVE
X-WALK	CROSS WALK

SYMBOLS

EXISTING	NEW	
	PATCH	A.C. PATCH
		BACKFLOW PREVENTER
B-1	BORING #1	BORING LOCATION
		BUILDING
		CHAIN LINK FENCE
		CONCRETE PAVEMENT
110	110	CONTOUR LINE
		CONTROL POINT
		DIRT ROAD
D15		DRAIN LINE
E		ELECTRIC DUCT
		ELEC MANHOLE
		ELEC PULLBOX
FH #115		FIRE HYDRANT
G.V.	G.V.	GATE VALVE
G.P.		GUARD POST
H.B.		HOSE BIBB
		LAMP POLE
S8	S8"	SEWER LINE
SMH	SMH	SEWER MANHOLE
		SIGNS, VARIOUS TYPES
107.7		SPOT ELEVATION
		STORM DRAIN INLET
SDMH		STORM DRAIN MANHOLE
		TREES, VARIOUS TYPES
UL		UNDERGROUND LIGHTING
US		UNDERGROUND SECONDARY ELECTRICAL
UP		UNDERGROUND PRIMARY ELECTRICAL
		UTILITY POLE
W8	W8"	WATER LINE
WV		WATER VALVE
WM	WM	WATER METER
	S15	ABANDON IN PLACE
	S15	REMOVE
		FIRE HYDRANT
		A.C. PATCH/SIDEWALK PATCH
		ARV
		BACKFLOW PREVENTER
		BORING LOCATION
		BGGV VALVE VAULT
		CHAIN LINK FENCE
		CONCRETE PAVEMENT
		CONTOUR LINE
		GATE VALVE
		SEWER LINE
		SEWER MANHOLE
		WATER LINE
		WATER METER (BY OTHERS)

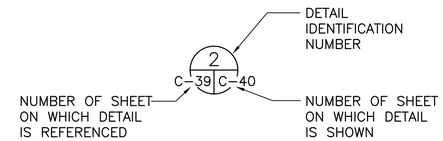
CROSS REFERENCING SYSTEM



SYMBOL WHERE SECTION IS TAKEN

SECTION A C-39|C-40
SCALE: 1/4" = 1'-0"

SUBTITLE FOR SECTION DRAWING



SYMBOL FOR CONDITION FOR WHICH THERE IS A DETAIL

DETAIL 2 C-39|C-40
SCALE: 1/4" = 1'-0"

SUBTITLE FOR DETAIL DRAWING

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A.

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DEPARTMENT OF DEFENSE
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DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

SYMBOLS AND ABBREVIATIONS

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 2 OF 51

G-02

FILE: 2012020-128
DATE REV.: 01/03/14

GENERAL NOTES:

1. ELEVATIONS SHOWN ARE BASED ON MEAN SEA LEVEL ELEVATION (ELEVATION = 0 FEET).

2. DIMENSIONS TAKE PRECEDENCE OVER SCALE.

3. THE TOPOGRAPHIC SURVEY WAS PREPARED BY CONTROL POINT SURVEYING INC. DATED JANUARY 2011 WITH ADDITIONAL TOPOGRAPHIC SURVEY DATED JANUARY 2013 AND SUPPLEMENTARY INFORMATION FROM RECORD DRAWINGS AND FIELD INVESTIGATIONS BY HDR. THE DRAWINGS DO NOT REFLECT SITE CHANGES THAT HAVE OCCURRED SINCE THE TOPOGRAPHIC SURVEY WAS COMPLETED. OF PARTICULAR NOTE ARE THE CONSTRUCTION OF THE BRIGADE READINESS CENTER AND BUILDINGS 117A AND 117B, AND GATE HOUSE AND BARRICADES AT GATES. THE BRIGADE READINESS CENTER FACILITIES TO INCLUDE SITE ROADWAYS AND UTILITIES FROM THE CONSTRUCTION CONTRACT DRAWINGS ARE SHOWN AS EXISTING CONDITIONS.

4. AZIMUTHS ARE REFERENCED FROM TRUE SOUTH = 0° 00' 00" AND INCREASE CLOCKWISE.

5. DURING NON-WORKING HOURS, ALL TRENCHES AND EXCAVATIONS SHALL BE BARRICADED, COVERED AND/OR MARKED.

6. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE BASED ON THE AVAILABLE DATA. THE CONTRACTOR SHALL TONE THE PROJECT AREA, VERIFY THE LOCATIONS AND DEPTHS OF THE EXISTING UTILITIES SHOWN AND EXERCISE CARE WHEN EXCAVATING IN THE AREA.

   WHEREVER CONNECTIONS AND CROSSINGS OF PROPOSED UTILITIES TO EXISTING UTILITIES ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. IF UTILITIES NOT SHOWN ARE ENCOUNTERED, OR IF POTENTIAL UTILITY CONFLICTS ARISE, NOTIFY THE PROJECT MANAGER IMMEDIATELY. THE CONTRACTOR SHALL PROVIDE STRUCTURAL SUPPORT FOR ALL EXISTING UTILITY LINES UNCOVERED IN THE TRENCHES.

7. IF EXISTING UTILITIES, WHETHER OR NOT SHOWN ON PLANS, ARE DAMAGED DURING CONSTRUCTION THE CONTRACTOR SHALL REPAIR SUCH UTILITIES AT HIS OWN EXPENSE.

8. CONTRACTOR SHALL, AT HIS OWN EXPENSE, KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE AND WITHIN ALLOWABLE NOISE LEVELS. THE WORK SHALL BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.

9. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE CONTRACTOR SHALL BEAR COSTS ASSOCIATED WITH ANY NECESSARY REMEDIAL ACTION.

10. EXISTING SITE DRAINAGE SYSTEMS SHALL BE FUNCTIONAL AT ALL TIMES.

11. PRIOR TO COMMENCING EXCAVATION, THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL COORDINATE, BE HELD RESPONSIBLE AND PAY FOR ALL DAMAGE TO EXISTING UTILITIES AND STRUCTURES. PERSONAL INJURY RESULTING FROM CONTACT WITH THE EXISTING UTILITIES SHALL BE THE CONTRACTOR'S RESPONSIBILITY.

12. EXISTING UTILITIES SHALL REMAIN IN-SERVICE AND IN PLACE. IF RELOCATION OF EXISTING UTILITIES, WHETHER OR NOT SHOWN ON PLANS, IS REQUIRED FOR THE CONTRACTOR'S CONVENIENCE, INTERRUPTION OF SERVICE SHALL BE KEPT TO A MINIMUM AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE PROJECT MANAGER.

13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENT AND FOR PROPERLY SUPPORTING EXISTING STRUCTURES AND FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING TO FULLY PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL PROVIDE AN EXCAVATION SHORING PLAN PREPARED AND STAMPED BY A LICENSED PROFESSIONAL ENGINEER COMPETENT IN SOILS AND A LICENSED STRUCTURAL ENGINEER, BOTH LICENSED IN THE STATE OF HAWAII.

14. IF DEWATERING IS REQUIRED, DISPOSE DEWATERING EFFLUENT WITHOUT DISCHARGE TO WATERS OF THE STATE OF HAWAII, STORM DRAIN SYSTEMS, DRAINAGE SWALES, ETC. THE DEWATERING EFFLUENT WILL NOT BE ALLOWED TO POND, EXCEPT IN AREAS APPROVED BY THE PROJECT MANAGER IF DISCHARGE OF DEWATERING EFFLUENT IS REQUIRED, CONTRACTOR IS RESPONSIBLE TO OBTAIN A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT PRIOR TO DISCHARGING TO THE STORM DRAINAGE SYSTEM. DEWATERING INTO SANITARY SEWER SYSTEM IS PROHIBITED.

15. WHEREVER INSTRUCTED TO "CUT AND PLUG" AN EXISTING UTILITY LINE:

    A. CUT THE EXISTING PIPE A MINIMUM OF 24 INCHES FROM THE EXISTING POINT OF CONNECTION EXCEPT WHEN DIRECTED BY THE PROJECT MANAGER.

    B. FILL THE PIPE OPENING WITH CONCRETE TO A LENGTH OF TWO TIMES THE DIAMETER OF THE PIPE. THE CONCRETE SHALL PROVIDE A WATERTIGHT SEAL.

GENERAL NOTES (CONTINUED):

16. THE CONTRACTOR SHALL RESTORE TO THEIR ORIGINAL CONDITION, WHETHER OR NOT SHOWN ON PLANS, ALL IMPROVEMENTS DAMAGED AS A RESULT OF THE CONSTRUCTION, INCLUDING PAVEMENTS, EMBANKMENTS, CURBS, SIGNS, LANDSCAPING, STRUCTURES, UTILITIES, WALLS, FENCES, ETC. UNLESS PROVIDED FOR SPECIFICALLY IN THE PROPOSAL AT CONTRACTOR'S EXPENSE.

17. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS AND LICENSES REQUIRED. THE CONTRACTOR SHALL CONDUCT ALL TESTS AS REQUIRED BY THE CONTRACTING OFFICER AND BE RESPONSIBLE FOR ALL EXPENSES INCURRED IN CONDUCTING THESE TESTS.

18. THE CONTRACTOR SHALL VERIFY AND CHECK ALL DIMENSIONS, ELEVATIONS, AND DETAILS SHOWN ON THE DRAWINGS PRIOR TO START OF CONSTRUCTION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE PROJECT MANAGER OF ANY DISCREPANCY OR CONFLICT FOUND IN THE FIELD PRIOR TO OR DURING THE COURSE OF CONSTRUCTION AND SHALL NOT PROCEED WITH CONSTRUCTION UNTIL THE PROJECT MANAGER RESOLVES THE SAID DISCREPANCY OR CONFLICT. DIMENSIONS AND ELEVATIONS SHOWN ARE BASED ON LIMITED FIELD MEASUREMENTS AND ORIGINAL CONSTRUCTION DRAWINGS. DIMENSIONS AND ELEVATIONS FOR THE NEW WORK SHALL BE ADJUSTED AS REQUIRED BASED ON THE CONTRACTOR'S FIELD MEASUREMENTS WITH THE APPROVAL OF THE PROJECT MANAGER.

19. THE CONTRACTOR SHALL BEAR ALL COSTS ASSOCIATED WITH THE REMOVAL/ AVOIDANCE OF ABANDONED UTILITIES, WHETHER OR NOT SHOWN ON PLANS.

20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL". BEST MANAGEMENT PRACTICES SHALL BE EMPLOYED AT ALL TIMES DURING THE CONSTRUCTION PERIOD.

21. THE CONTRACTOR SHALL OBTAIN AND COMPLY WITH 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 IS RECEIVED FROM THE DEPARTMENT OF HEALTH, STATE OF HAWAII AND ANY OTHER APPLICABLE REQUIREMENTS OF THE NPDES PERMIT PROGRAM HAVE BEEN MET.

22. IF CAVITIES AND/OR VOIDS ARE ENCOUNTERED DURING EXCAVATION WORK, STOP WORK IMMEDIATELY AND NOTIFY THE PROJECT MANAGER.

23. CONFINE ACTIVITIES WITHIN THE PROJECT LIMITS.

24. WHENEVER INSTRUCTED TO "ABANDON IN PLACE" EXISTING UTILITY STRUCTURE.

    A. REMOVE THE FRAME AND COVER, IF ANY. THE COVER AND FRAME SHALL BE CLEANED FREE OF CONCRETE. COORDINATE DELIVERY TO HIARNG FACILITIES THROUGH THE PROJECT MANAGER.

    B. DEMOLISH A MINIMUM OF THE TOP 3 FEET OF THE UTILITY STRUCTURE BELOW EXISTING GRADE.

    C. BREAK BASE OF STRUCTURE TO PERMIT FREE DRAINAGE OF WATER. ADEQUACY OF PENETRATION SHALL BE BASED SOLELY ON THE JUDGEMENT OF THE PROJECT MANAGER. CONTRACTOR SHALL FULLY DRAIN THE STRUCTURE PRIOR TO FILLING.

    D. CUT AND PLUG CONNECTING PIPES WITH MINIMUM OF 18 INCHES OF CONCRETE.

    E. FILL STRUCTURE WITH COMPACTED FILL. THE TOP OF THE CONTROLLED BACKFILL SHALL MATCH THE GRADE OF THE SURROUNDING AREA LESS THE THICKNESS OF THE TOP SOIL OR PAVEMENT STRUCTURE AS APPROPRIATE.

    F. IF THE SURROUNDING AREA IS GRASSED, PROVIDE A MINIMUM OF 6 INCHES OF TOPSOIL AND HYDROMULCH AND SEED WITH COMMON BERMUDA GRASS AT A RATE OF 12 Pa.

    G. WHEREVER AN EXISTING STRUCTURE IS WITHIN ASPHALTIC CONCRETE PAVEMENT, PROVIDE BASE COURSE AND ASPHALTIC CONCRETE PAVEMENT OF THICKNESS THAT MATCHES THE SURROUNDING PAVEMENT OR AS SPECIFIED BY THE CONTRACT DOCUMENTS.

25. PROJECT MANAGER IS THE COORDINATOR BETWEEN THE CONTRACTOR AND ACTIVITY. NOTIFY THE PROJECT MANAGER PRIOR TO CONTACTING THE ACTIVITY. COORDINATE ALL WORK WITH THE PROJECT MANAGER TO ENSURE THAT CONSTRUCTION ACTIVITIES DO NOT INTERFERE WITH BASE OPERATIONS.

26. THE CONTRACTOR SHALL OBSERVE AND COMPLY WITH ALL FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY.

27. ALL WORK PEFORMED SHALL COMPLY WITH US ARMY CORPS OF ENGINEERS EM 385-1-1, SAFETY AND HEALTH REQUIREMENTS, AND WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS REQUIRED FOR THE PROTECTION OF PUBLIC HEALTH, SAFETY AND ENVIRONMENTAL QUALITY. WHERE REQUIREMENTS VARY, THE MOST STRINGENT REQUIREMENTS SHALL APPLY.

GENERAL NOTES (CONTINUED):

28. CONFINED SPACE

    A. FOR ENTRY BY PROJECT MANAGER AND PERSONNEL, INCLUDING INSPECTORS AND REPRESENTATIVES, INTO A PERMIT REQUIRED CONFINED SPACE AS DEFINED IN 29 CFR PART 1910.146(B), THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING:

       1. FULL BODY HARNESSES FOR UP TO TWO PERSONNEL.
       2. LIFELINE AND ASSOCIATED CLIPS.
       3. INGRESS/EGRESS AND FALL PROTECTION EQUIPMENT.
       4. TWO-WAY RADIOS (WALKIE-TALKIES) IF OUT OF LINE-OF-SIGHT.
       5. EMERGENCY (ESCAPE) RESPIRATOR (10 MINUTE DURATION).
       6. CELLULAR TELEPHONE TO CALL FOR EMERGENCY ASSISTANCE.
       7. CONTINUOUS GAS DETECTOR (CALIBRATED) TO MEASURE OXYGEN, HYDROGEN SULFIDE, CARBON MONOXIDE, AND FLAMMABLE GASES (CAPABLE OF MONITORING AT A DISTANCE AT LEAST 20 FEET AWAY.
       8. PERSONAL MULTI-GAS DETECTOR TO BE CARRIED BY INSPECTOR.

    B. CONTINUOUS FORCED AIR VENTILATION ADEQUATE TO PROVIDE SAFE ENTRY CONDITIONS.

    C. ONE ATTENDANT/RESCUE PERSONNEL TOPSIDE (TWO, IF CONDITIONS WARRANT IT) FOR EACH ENTRANT INTO A CONFINED SPACE.

    D. ALL SAFETY EQUIPMENT SHALL COMPLY WITH THE STANDARDS OF THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) AND ALL APPLICABLE FEDERAL, STATE AND CITY LAWS AND REGULATIONS RELATING TO SAFETY.

29. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO AND FROM ALL DRIVEWAYS AND STREETS.

30. THE CONTRACTOR SHALL PLAN OPERATIONS TO MINIMIZE THE AMOUNT OF EXCAVATED TRENCHES LEFT OPEN AT THE END OF EACH WORK DAY WITH THE TOTAL LENGTH OF OPEN TRENCHES NOT TO EXCEED 500 FEET. OPEN TRENCHES SHALL BE COVERED BY NON-SKID STEEL PLATES CAPABLE OF CARRYING H-20 VEHICLES IN TRAFFIC AREAS AND 100 POUNDS PER SQUARE FOOT IN NON-TRAFFIC AREAS. PROVIDE ANCHORING OF THE PLATES IN NON-TRAFFIC AREAS. PROVIDE FLASHING BARRICADES TO DELINEATE COVERED TRENCHES IN NON-TRAFFIC AREAS AND ALL STOCK/SPOIL PILES.

31. WHEREVER EXISTING FENCE IS REMOVED, REINSTALL CHAIN LINK FENCE AS NECESSARY TO SECURE PROTECTED AREAS PRIOR TO THE END OF EACH WORK DAY. TRENCHES CROSSING ANY FENCE, EXISTING OR PROVIDED, SHALL NOT BE LEFT OPEN DURING NON-WORK HOURS. BACKFILL A MINIMUM OF 10 FEET ON EACH SIDE OF FENCE AT THE END OF WORK DAY. OTHER MEASURES MAY BE UTILIZED AS APPROVED BY THE PROGRAM MANAGER.

WATER NOTES:

1. THE WATER DISTRIBUTION SYSTEM SHALL BE OPERATIONAL AT ALL TIMES. NO SERVICE INTERRUPTION IS PERMITTED WITHOUT PRIOR OWNER APPROVAL. THE CONTRACTOR SHALL COORDINATE ALL PHASES OF HIS WORK AND OBTAIN OWNER APPROVAL IN ADVANCE FOR ALL WATER SYSTEM SHUTDOWNS AND OTHER WORK WHICH MAY IMPACT THE WATER DISTRIBUTION SYSTEM.

2. ALL EXISTING WATER LINES, WHETHER OR NOT SHOWN ON THE PLANS, SHALL BE REPAIRED BY THE CONTRACTOR IF DAMAGED DURING CONSTRUCTION, AND THE CONTRACTOR SHALL PAY ALL EXPENSES.

3. ALL WATER SYSTEM WORK SHALL BE PERFORMED BY CONTRACTORS POSSESSING VALID STATE OF HAWAII CONTRACTOR'S LICENSES, REGARDLESS OF THE VALUE OF WORK.

4. THE EXACT DEPTH, LOCATION AND MATERIAL TYPE OF EXISTING WATER LINES AND OTHER UTILITIES ARE NOT KNOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND VERIFY THE SAME PRIOR TO TRENCHING FOR THE NEW WATER LINE. THE COST OF LOWERING, RELOCATING OR ADJUSTING EXISTING WATER LINES AND OTHER UTILITIES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE NEW WATER LINE, UNLESS NOTED OTHERWISE, AND WILL NOT BE PAID FOR SEPARATELY.

5. THE CONTRACTOR SHALL SUBMIT A MATERIALS LIST TO OWNER FOR APPROVAL PRIOR TO CONSTRUCTION.

6. PRIOR TO FINAL ACCEPTANCE, ALL WATER LINES INSTALLED SHALL BE FLUSHED WITH WATER AND ANY ACCUMULATED CONSTRUCTION DEBRIS AND OTHER FOREIGN MATERIALS SHALL BE REMOVED.

WATER NOTES (CONTINUED):

7. WATER MAINS AND APPURTENANCES SHALL BE SUBJECT TO HYDROSTATIC TESTING IN ACCORDANCE WITH THE LATEST REVISION OF AWWA C600, UNDER THE "HYDROSTATIC TESTING" SECTION, TO A PRESSURE OF 150 PSI.

8. FLUSH AND DISINFECT WATER MAINS AND APPURTENANCES BEFORE ACCEPTANCE. NOTIFY THE OWNER 72 HOURS BEFORE TIME FOR DISINFECTION AND FLUSHING IN ACCORDANCE WITH THE APPLICABLE DEPARTMENT OF HEALTH AND NPDES REQUIREMENTS.

9. ALL NUTS AND BOLTS SHALL BE PAINTED WITH ASPHALTIC PAINT.

10. CONCRETE FOR REACTION BLOCKS AND ANCHOR BLOCKS SHALL BE CLASS 3000.

11. THE MAXIMUM DISTANCE BETWEEN VALVE NUT AND TOP OF VALVE MANHOLE COVER SHALL BE THREE (3) FEET.

12. CONNECTION TO OWNER SYSTEM:

    A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY FITTINGS AND OTHER MATERIALS AND EQUIPMENT REQUIRED FOR THE CONNECTION. THE CONTRACTOR SHALL VERIFY THE EXACT LOCATION, DEPTH, TYPE, SIZE AND CONDITION OF THE EXISTING LINE BEFORE ORDERING MATERIALS FOR THE CONNECTION. THE CONTRACTOR SHALL, HOWEVER, CHECK WITH THE PROJECT MANAGER BEFORE EXCAVATING FOR VERIFICATION PURPOSES. CONTRACTOR SHALL COORDINATE ALL REQUIRED SHUTDOWNS FOR CONNECTIONS WITH THE PROJECT MANAGER.

    B. WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED FOR BURIED APPLICATIONS, AND FLANGED JOINT FITTINGS SHALL BE USED FOR EXPOSED APPLICATIONS. ALL FITTINGS SHALL BE DUCTILE IRON.

    C. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL MATERIAL, EQUIPMENT AND LABOR FOR TRENCH EXCAVATION, BACKFILLING, CLEANING AND CHLORINATION, PAVING AND OTHER WORK NECESSARY TO COMPLETE THE CONNECTION, AS DIRECTED BY AND TO THE SATISFACTION OF OWNER.

13. ALL MATERIALS (PIPE, PIPE LUBRICANTS, PAINTS, SEALANTS, FORM OIL, CONCRETE ADMIXTURES, ETC.) IN DIRECT CONTACT WITH THE POTABLE WATER SHALL HAVE NATIONAL SANITATION FOUNDATIONS (NSF) APPROVALS. THE CONTRACTOR SHALL SUBMIT THESE APPROVALS TO THE DEPARTMENT OF WATER FOR REVIEW AND APPROVAL PRIOR TO ITS APPLICATION.

14. CONTRACTOR TO PROVIDE TEMPORARY CONNECTIONS AND CLEANOUTS/ TAPS/BRACING FOR PRESSURE TESTING AND DISINFECTION.

15. ALL ANGLE DEFLECTIONS FOR PVC PIPE SHALL BE COMPLETED WITH DEFLECTION COUPLINGS OR FITTINGS.

16. PVC PIPE SHALL BE AWWA C900 OR C905 CLASS 150, DR25. PIPE FITTINGS SHALL BE AWWA C151 DUCTILE IRON MECHANICAL CLASS 53, UNLESS INDICATED OTHERWISE.

17. CONTRACTOR SHALL NOTIFY PROJECT MANAGER OF HYDRANTS REMOVED FROM SERVICE.

18. ALL POLYVINYL CHLORIDE DEFLECTIONS SHALL BE ACCOMPLISHED ONLY BY USE OF SPECIAL PVC DEFLECTING COUPLINGS.

FILE: 2012020-126
DATE REV.: 11/04/13

HDR

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APPR	DATE	DESCRIPTION	SYM

SUBMITAL PHASE
BID FINAL

SUBMITAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

GENERAL NOTES, SHEET 1

SCALE: AS NOTED

STATE JOB NO.
CA-1220-C

FEDERAL PROJECT NO.
15140004

SHEET 3 OF 51

G-03

DISINFECTION/CHLORINATION NOTE:

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH PRIOR TO THE START OF CONSTRUCTION, FOR THE DISPOSAL OF WATER USED FOR HYDROTESTING AND CHLORINATION.

ARCHAEOLOGICAL NOTES:

1. PURSUANT TO CHAPTER 6E OF THE HAWAII REVISED STATUTES, ALL CONTRACTORS SHALL ENSURE THAT IN THE EVENT THAT ANY HUMAN SKELETAL REMAINS ARE INADVERTENTLY DISCOVERED DURING CONSTRUCTION, THE REMAINS SHALL NOT BE MOVED AND ANY ACTIVITY IN THE IMMEDIATE AREA THAT COULD DAMAGE THE REMAINS OR THE POTENTIAL HISTORIC SITE SHALL CEASE AND THE DEPARTMENT OF LAND AND NATURAL RESOURCES' HISTORIC PRESERVATION DIVISION (TELEPHONE: 243-5119), THE APPROPRIATE MEDICAL EXAMINER OR CORONER, AND THE POLICE DEPARTMENT (TELEPHONE: 244-6400), SHALL BE CONTACTED. SEE SECTION 00710, "GENERAL CONDITIONS", PARAGRAPH 6.6, "UNAVOIDABLE DELAYS" IF ARCHAEOLOGICAL FINDINGS RESULT IN UNAVOIDABLE DELAYS TO THE PROJECT.

2. THE PROJECT SITE IS AN ARCHAEOLOGICALLY SENSITIVE AREA. THE HIARNG ENVIRONMENTAL BRANCH WILL MONITOR GROUND DISTURBANCE IN AREAS OF CONSTRUCTION. NOTIFY THE PROJECT MANAGER TWO WEEKS IN ADVANCE TO COORDINATE WORK SCHEDULES WITH THE HIARNG ENVIRONMENTAL BRANCH. AFTER WORK BEGINS ACCORDING TO AN APPROVED COORDINATED SCHEDULE, THE HIARNG ENVIRONMENTAL BRANCH SHALL BE GIVEN A MINIMUM 24 HOUR NOTICE BEFORE ANY CONSTRUCTION SCHEDULE CHANGE CAN BE IMPLEMENTED. THE HIARNG ENVIRONMENTAL BRANCH WILL NOTIFY THE STATE HISTORIC PRESERVATION OFFICER WHEN GROUND DISTURBING ACTIVITIES ARE IN PROGRESS.

3. CAREFULLY PROTECT IN-PLACE AND REPORT IMMEDIATELY TO THE PROJECT MANAGER HISTORICAL AND ARCHAEOLOGICAL ITEMS, HUMAN SKELETAL REMAINS, STONE WALLS, STONE TOOLS, SHELL MIDDENS OR CHARCOAL DEPOSITS DISCOVERED IN THE COURSE OF WORK. STOP WORK IN THE IMMEDIATE AREA OF THE DISCOVERY UNTIL DIRECTED BY THE PROJECT MANAGER TO RESUME WORK. THE PROJECT MANAGER MAY REQUIRE THE CONTRACTOR TO RELOCATE TO OTHER PORTIONS OF THE PROJECT WHILE RECOVERY OPERATIONS, IF NECESSARY, ARE CONDUCTED. THE CONTRACTOR SHALL FOLLOW THE DIRECTIONS OF THE HIARNG ENVIRONMENTAL BRANCH SHOULD ARTIFACTS AND BURIALS BE DISCOVERED.

4. THE GOVERNMENT RETAINS OWNERSHIP AND CONTROL OVER HISTORICAL AND ARCHAEOLOGICAL RESOURCES.

TRAFFIC CONTROL NOTES:

1. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES SHALL CONFORM WITH THE TRAFFIC REGULATIONS "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS", ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI – STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY, AND INCIDENT MANAGEMENT OPERATIONS".

2. ALL LANES SHALL BE OPENED TO TRAFFIC DURING THE MORNING PEAK HOURS OF 6:30 A.M. TO 8:30 A.M. AND DURING THE AFTERNOON PEAK HOURS FROM 3:00 P.M. TO 5:00 P.M. DURING WORKING HOURS, TWO LANES OF TRAFFIC SHALL BE OPEN AT ALL TIMES. FOR STREETS WITH TWO LANES, ONLY ONE LANE OF TRAFFIC SHALL BE CLOSED AT ANY ONE TIME. THE CONTRACTOR SHALL PROVIDE AT LEAST TWO FLAGMEN TO DIRECT ALTERNATING TRAFFIC IN THE OPEN LANE. THE CONTRACTOR SHALL PROVIDE ONE LANE FOR TRAFFIC ACCESS TO ALL DRIVEWAYS, PARKING AREAS, ETC. AT ALL TIMES.

3. DURING NON-WORKING HOURS, ALL LANES SHALL BE OPEN TO TRAFFIC. ALL TRENCHES SHALL BE COVERED WITH NON-SKID BRIDGING MATERIAL WITH SUITABLE MATERIAL AT THE EDGES TO PROVIDE A SMOOTH TRANSITION.

4. WHEREVER PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.

5. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS, AND MARKINGS DISTURBED BY THE CONTRACTOR'S ACTIVITIES TO EXISTING CONDITIONS OR BETTER.

6. THE CONTRACTOR SHALL COORDINATE ALL TRAFFIC CONTROL PLANS WITH THE PROJECT MANAGER.

ACCESS TO PROJECT SITE AND MAINTAINING HAWAII NATIONAL GUARD PERIMETER SECURITY NOTES:

1. THE PROJECT IS GENERALLY LOCATED WITHIN A SECURED PERIMETER AREA HOUSING THE HAWAII ARMY NATIONAL GUARD KALAELOA COMPLEX. THE SECURED PERIMETER RUNS ALONG LANGLEY STREET, ENTERPRISE AVENUE, AND SARATOGA AVENUE. VEHICLE ACCESS IS CONTROLLED BY MAIN GATE 15 AT WRIGHT STREET OFF ENTERPRISE, AND BY GATE 19 AT THE END OF SARATOGA STREET NEAR BUILDING 134. PORTABLE GUARD HOUSES AND CONCRETE BARRICADES, AND SIGNS ARE LOCATED AT EACH GATE AND AROUND BUILDING 1898.

2. THE CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE WITH THE PROJECT MANAGER IMPACTS AND DISRUPTION TO GATE FACILITIES AND OPERATION(S). TEMPORARY RELOCATION OF GATE SECURITY FACILITIES AND TEMPORARY ACCESS CONTROL MAY BE BY THE HAWAII NATIONAL GUARD OR BY THE CONTRACTOR AS DIRECTED. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS FOR TEMPORARY AND RESTORATION WORK, AND SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE CONTRACT. TEMPORARY ACCESS VIA OTHER AVAILABLE GATES SHALL BE COORDINATED WITH THE PROJECT MANAGER AND SHALL BE PROVIDED FOR BY THE CONTRACTOR AS DIRECTED.

3. CONTRACTOR SHALL BE RESPONSIBLE TO RESTORE ALL GATE FACILITIES AND OPERATIONS BACK TO ORIGINAL CONDITIONS AND AS DIRECTED AT NO ADDITIONAL COST TO THE CONTRACT.

4. CONTRACTOR SHALL COORDINATE ACCESS FOR ALL CONTRACTOR PERSONNEL, VEHICLES, EQUIPMENT, AND DELIVERIES, AND SHALL OBTAIN ALL PERMISSIONS, CLEARANCES, PASSES, ETC. AS REQUIRED FROM THE HAWAII ARMY NATIONAL GUARD. CONSTRUCTION VEHICULAR TRAFFIC SHALL BE ONLY VIA GATES AS DIRECTED BY THE HAWAII ARMY NATIONAL GUARD.

5. CONTRACTOR SHALL COORDINATE WITH THE PROJECT MANAGER DESIGNATION BY THE HAWAIII ARMY NATIONAL GUARD OF SITE(S) WITHIN THE SECURED AREA FOR THE CONTRACTOR FIELD OFFICE AND BASEYARD.

EROSION/TEMPORARY DUST CONTROL NOTES:

1. DURING CONSTRUCTION, PREVENTIVE MEASURES SHALL BE USED TO CONTROL FORESEEABLE DUST, EROSION OR SEDIMENTATION PROBLEMS WHICH MAY ARISE AS WORK PROGRESSES.

2. FUGITIVE DUST AND SOLID WASTE DISPOSAL DURING GRUBBING AND GRADING ACTIVITIES SHALL MEET THE REQUIREMENTS OF STATE OF HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60, AIR POLLUTION CONTROL AND CHAPTER 56, SOLID WASTE MANAGEMENT CONTROL.

3. ALL AREAS WHICH ARE AT FINAL GRADE SHALL BE IMMEDIATELY HYDROMULCHED AND SEEDED WITH COMMON BERMUDA GRASS AT A RATE OF 5 POUNDS PER 1000 SQUARE FEET OR PERMANENTLY LANDSCAPED.

4. ALL EXPOSED AREAS WHICH ARE NOT AT FINAL GRADE AND WHICH ARE TO BE LEFT EXPOSED LONGER THAN 6 WEEKS SHALL BE HYDROMULCHED AND SEEDED WITH COMMON BERMUDA GRASS.

5. REGRASS ALL EXPOSED AREAS.

HAWAII ARMY NATIONAL GUARD ENVIRONMENTAL COMPLIANCE NOTES:

1. PRIOR TO START OF CONSTRUCTION AND WITHIN 30 DAYS OF COMPLETION OF THE PROJECT, CONTRACTOR SHALL SUBMIT TO HAWAII ARMY NATIONAL GUARD ENVIRONMENTAL OFFICE (HIARNG-ENV) A HAZARDOUS MATERIAL INVENTORY LOG OF CHEMICAL PRODUCTS TO BE USED IN THE PROJECT, AND PROVIDE AN UPDATE NO LATER THAN 31 JANUARY OF EACH CALENDAR YEAR. THE LOG SHALL INCLUDE THE PRODUCT NAME AND MANUFACTURER ID NUMBER, CONTAINER SIZE, AMOUNT USED, AND MAXIMUM NUMBER OF CONTAINERS TO BE STORED ON SITE AT ANY GIVEN DAY DURING THE PROJECT. MATERIAL SAFETY DATA SHEETS (MSDSs) SHALL BE PROVIDED OR MADE AVAILABLE TO THE PROJECT MANAGER AND HIARNG-ENV.

2. PRIOR TO START OF CONSTRUCTION, CONTRACTOR WILL PROVIDE TO HIARNG-ENV AN ESTIMATE OF THE MAXIMUM AMOUNT OF HAZARDOUS WASTE EXPECTED TO BE GENERATED PER MONTH, AND THE TOTAL AMOUNT ANTICIPATED TO BE STORED ON-SITE AT ANY GIVEN TIME. CONTRACTOR TO COORDINATE WITH HIARNG-ENV OFFICE OF THE DATES FOR THE QUANTITY OF HAZARDOUS WASTE THAT WILL BE GENERATED . ALL WASTE WILL BE STORED IN A SECURED AREA PENDING REMOVAL FOR DISPOSAL, LABELED IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

3. CONTRACTOR SHALL PROVIDE COPIES OF ALL WASTE DISPOSAL DOCUMENTATION (INCLUDING ANY REQUIRED LAB ANALYSES, WASTE PROFILES, AND ANY OTHER SUPPORTING DOCUMENTATION) TO THE PROJECT MANAGER AND HIARNG-ENV, ALONG WITH DRAFT COPIES OF THE WASTE MANIFESTS FOR REVIEW PRIOR TO WASTE SHIPMENT OFF-SITE FOR DISPOSAL. IF THE CONTRACTOR UTILIZES A HIARNG EPA ID NUMBER FOR WASTE DISPOSAL, MANIFESTS WILL ONLY BE SIGNED BY INDIVIDUALS AUTHORIZED BY HIARNG-ENV. ALL COSTS FOR DISPOSAL OF WASTE GENERATED BY THIS PROJECT SHALL BE PAID FOR BY THE CONTRACTOR.

4. HIARNG-ENV APPROVAL IS REQUIRED FOR ANY FUELED OPERATIONS BEING CONDUCTED ON-SITE, WHICH WILL BE CONDUCTED IN ACCORDANCE WITH (IAW) ALL APPLICABLE REQUIREMENTS.

5. HIARNG-ENV APPROVAL IS REQUIRED FOR ANY ABOVE GROUND STORAGE TANK STAGED ON-SITE. FOR STORAGE OF OIL EXCEEDING THE EPA THRESHOLD OF 1,320 GALLONS SHELL CAPACITY OF OIL IN CONTAINERS 55 GALLONS OR GREATER, CONTRACTOR IS RESPONSIBLE FOR PREPARING A SPILL PREVENTION, CONTROL, AND COUNTERMEASURES (SPCC) PLAN IN ACCORDANCE WITH 40 CFR 112, AND PROVIDING A COPY TO HIARNG-ENV.

6. CONTRACTOR SHALL USE PROTECTIVE MEASURES FOR ON-SITE CHEMICALS, EQUIPMENT AND VEHICLES TO PREVENT SPILLS AND LEAKS INTO THE ENVIRONMENT AND ENSURE ONLY RAINWATER, AS PERMITTED, ENTERS ON-SITE UICS, STORM DRAINS, SWALES, STREAMS, AND OTHER PATHS TO NAVIGABLE WATERS.

7. CONTRACTOR SHALL REPORT SPILLS IMMEDIATELY TO THE PROJECT MANAGER AND HIARNG-ENV AND COMPLETE THE HIARNG SPILL INCIDENT REPORT FORM AS REQUIRED. CONTRACTOR SHALL IMMEDIATELY CLEAN UP ALL SPILLS IAW FEDERAL AND STATE GUIDELINES AND TO THE SATISFACTION OF THE HIARNG-ENV, AND IS RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE CLEANUP. CONTRACTOR SHALL MAINTAIN ADEQUATE SPILL SUPPLIES COMMENSURATE WITH THE POTENTIAL FOR SPILLS, AND WILL CONTRACT OUT SPILL CLEANUP BEYOND THEIR CAPABILITIES. CONTRACTOR SHALL ACCOMPLISH ALL REGULATORY VERBAL AND WRITTEN NOTIFICATIONS TO THE STATE EMERGENCY RESPONSE COMMISSION (SERC), LOCAL EMERGENCY PLANNING COMMITTEE (LEPC), NATIONAL RESPONSE CENTER (NRC), ENVIRONMENTAL PROTECTION AGENCY (EPA), AS APPLICABLE, AND PROVIDE HIARNG-ENV COPIES OF ALL SPILL REPORTS.

8. CONTRACTOR IS RESPONSIBLE FOR OBTAINING ANY AND ALL REQUIRED ENVIRONMENTAL PERMITS, E.G., CONSTRUCTION-RELATED SURFACE DISCHARGE PERMITS, COUNTY-REQUIRED INDUSTRIAL WASTEWATER DISCHARGE PERMITS, MINOR (POLLUTION) SOURCE AIR PERMITS, ETC. FOR ANY CONTRACT-RELATED WORK.

HAWAII ARMY NATIONAL GUARD SOLID WASTE CONSTRUCTION NOTES:

1. THE CONTRACTOR SHALL SUBMIT SOLID WASTE REPORTS TO THE HIARNG PROJECT MANAGER FOR THE DURATION OF THE PROJECT. THE REPORTS SHALL ADDRESS:
   - A. DIVERTED WASTE (I.E. WASTE THAT DOES NOT GO INTO LANDFILL)
   - B. RECYCLED WASTE
   - C. LANDFILL WASTE
   - D. RECOVERED WASTE (I.E. FREON FROM AC EQUIPMENT AND REFRIGERATORS

2. THE CONTRACTOR SHALL SUBMIT LEGIBLE COPIES OF DUMP TICKET RECEIPT FROM VENDOR SHOWING THE TONNAGE OF WASTE TO THE HIARNG PROJECT MANAGER. IF WASTE PRODUCTS ARE COMBINED WITH OTHER PROJECTS, THE CONTRACTOR SHALL PROVIDE A BREAKDOWN PER PROJECT.

OTHER PROJECT NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH OTHER PROJECTS FOR UTILITY CROSSINGS AND INTERFERENCE. OTHER PROJECTS INCLUDE BUT ARE NOT LIMITED TO P/N 15140005 SEWER LINE – WRIGHT STREET TO BUILDING 282.

2. THE CONTRACTOR SHALL VERIFY SEPARATION OF WATER LINES OF P/N 15140004 AND SEWER LINES OF P/N 15140005.

FILE: 2012020-127
DATE REV.: 11/04/13

HDR

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DESCRIPTION	DATE	APPR
SYM		

SUBMITAL PHASE: BID FINAL

SUBMITAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

GENERAL NOTES, SHEET 2

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 4 OF 51

G-04

SURVEY HORIZ/VERT CONTROL POINT DATA				
HORIZ/VERT STATION	DESCRIPTION	ELEV	AZIMUTH	DISTANCE
STA 809	MON SPIKE	43.59		
			251° 55' 11"	229.35
STA 1108	"Y" CUT	43.98		
			261° 58' 13"	259.55
STA 1109	"Y" CUT	43.95		
			222° 55' 15"	240.94
STA 1110	1/2" PIPE	45.48		
			228° 53' 20"	540.43
STA 813	MON SPIKE	48.16		
			223° 02' 60"	466.50
STA 904	MAG NAIL	53.33		
			232° 28' 07"	326.04
STA 905	MAG NAIL	54.13		
			275° 33' 30"	537.92
STA 903	"+" CUT	49.95		
			51° 45' 46"	442.07
STA 902	"+" CUT	49.82		
			44° 51' 56"	543.51
STA 901	"+" CUT	47.65		
			51° 34' 31"	421.24
STA 826	MON SPIKE	44.25		
			31° 18' 34"	290.98
STA 1115	MAG NAIL	41.23		
			31° 18' 33"	235.31
STA 1114	MAG NAIL	43.51		
			31° 18' 33"	257.22
STA 827	MAG NAIL	46.01		
	WITH SHINER		123° 51' 02"	136.87
STA 1103	MAG NAIL	43.79		
			111° 26' 14"	442.78
STA 1118	"Y" CUT	42.86		
			143° 46' 31"	279.30
STA 809	MON SPIKE	43.59		

SURVEY HORIZ/VERT CONTROL POINT DATA				
HORIZ/VERT STATION	DESCRIPTION	ELEV	AZIMUTH	DISTANCE
STA 901	"+" CUT	47.65		
			224° 51' 56"	543.51
STA 902	"+" CUT	49.82		
			231° 45' 46"	442.07
STA 903	"+" CUT	49.95		
			140° 30' 03"	367.68
STA 819	"Y" CUT	54.43		
			308° 55' 18"	934.89
STA 823	MON SPIKE	48.87		
			35° 47' 05"	594.51
STA 899	"+" CUT	47.08		
			55° 20' 36"	792.01
STA 900	MAG NAIL	41.75		
	WITH SHINER		158° 42' 46"	619.73
STA 901	"+" CUT	47.65		

BENCHMARK

J-14 USC&GS
BRASS DISK
ELEV. = 54.46 FT LOCAL TIDAL DATUM, MSL
ALL COORDINATES AND AZIMUTHS ARE
BASED ON HAWAII STATE PLANE GRID
SYSTEM, NAD 83, ZONE 3, US FOOT

GENERAL LOCATION AND KEY PLAN

SCALE: 1" = 200'

LEGEND

20' SCALE SHEET LOCATION

200' 100' 0 200' 400'

SCALE: 1" = 200'

FILE: 2012020-119
DATE REV.: 10/31/13

HDR

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APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

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DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
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DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

GENERAL LOCATION AND KEY PLAN

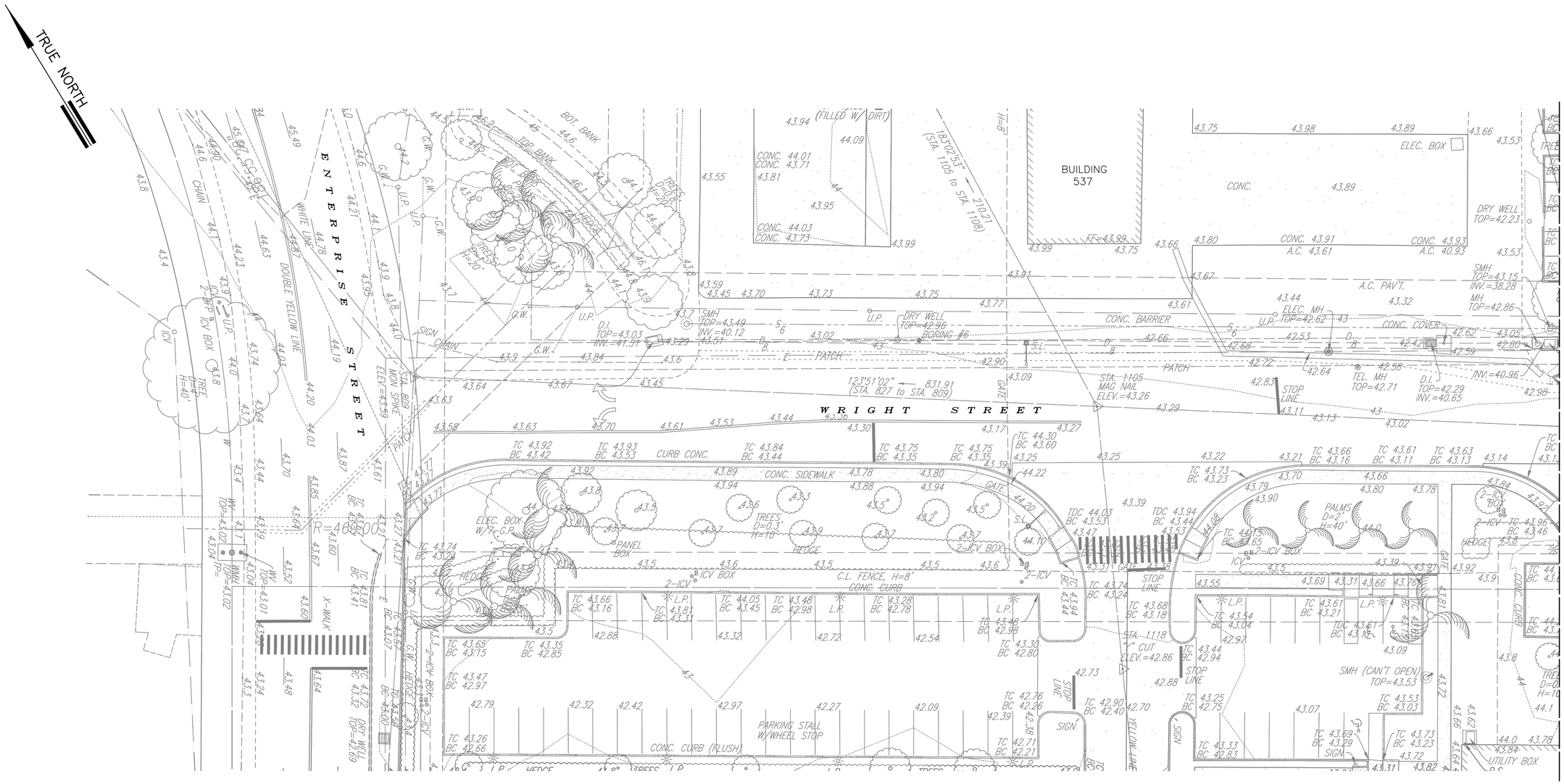
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 5 OF 51

G-05

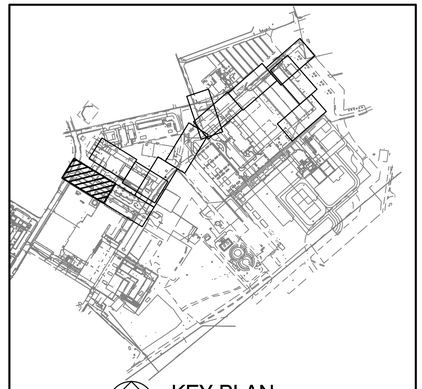


EXISTING CONDITIONS PLAN

SCALE: 1" = 20'

NOTE:

EXISTING GATE GUARD HOUSE AND PORTABLE BARRICADES ARE NOT INDICATED ON THIS SHEET. CONTRACTOR TO VERIFY.



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-110 10/29/13

HDR

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DESCRIPTION	DATE	APPR
STM		

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 1

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

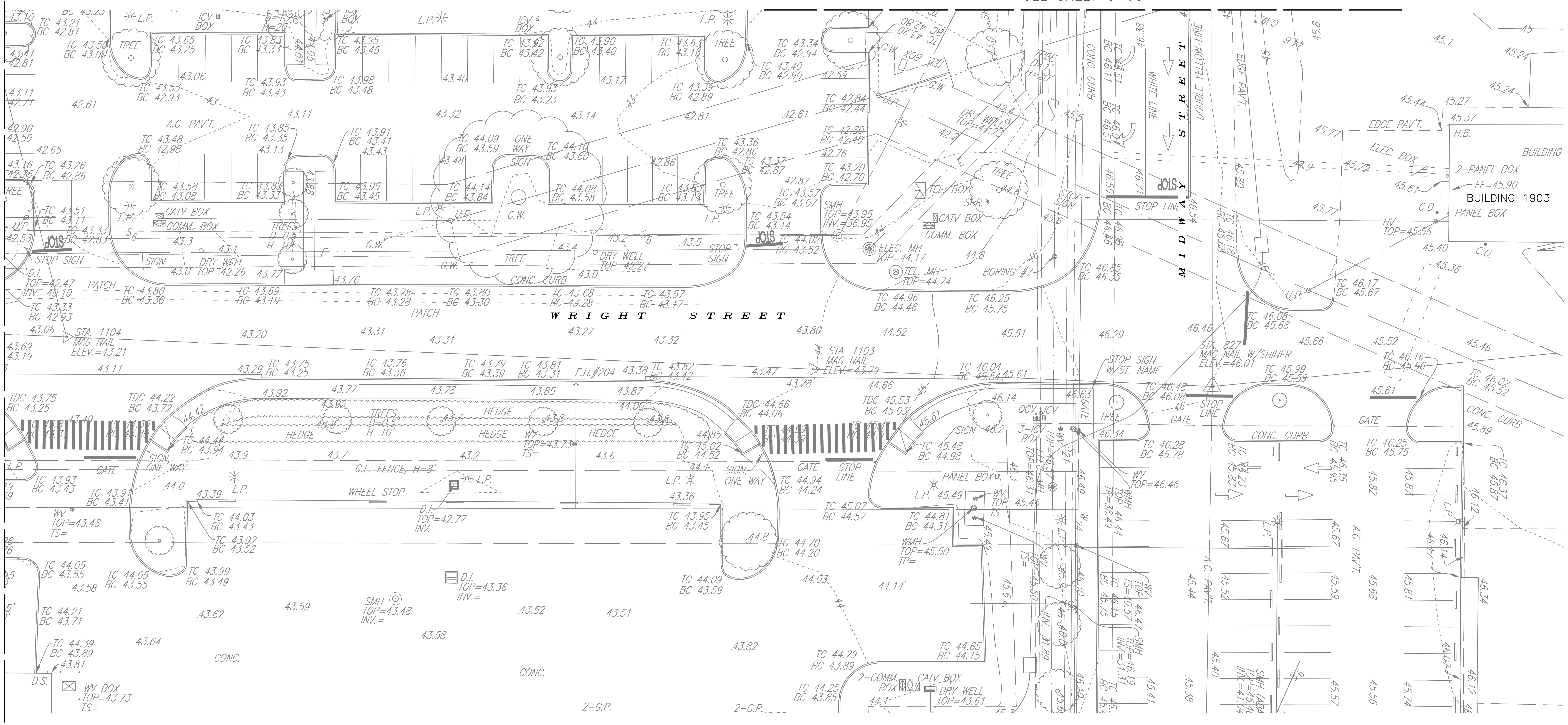
FEDERAL PROJECT NO. 15140004

SHEET 6 OF 51

G-06

TRUE NORTH

MATCH LINE
SEE SHEET G-08



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'

KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 201/2020-111
DATE REV.: 10/29/13

HDR

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SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES: RM | DRW: FAI | CHK: RA

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
DESIGN AND PROJECT MANAGEMENT BRANCH
HIARNG KALAELOA
KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT

WATER LINE -
WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 2

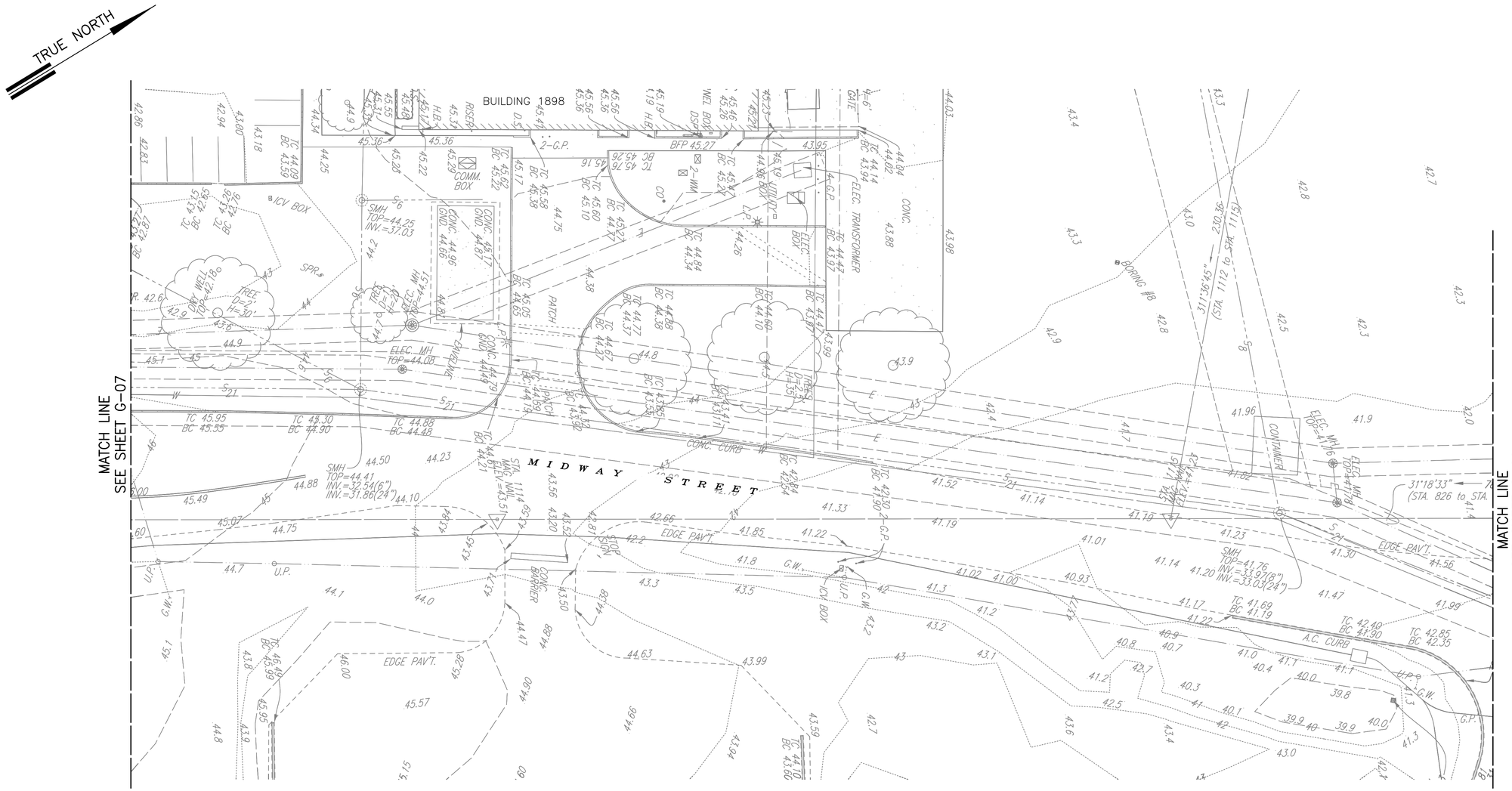
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

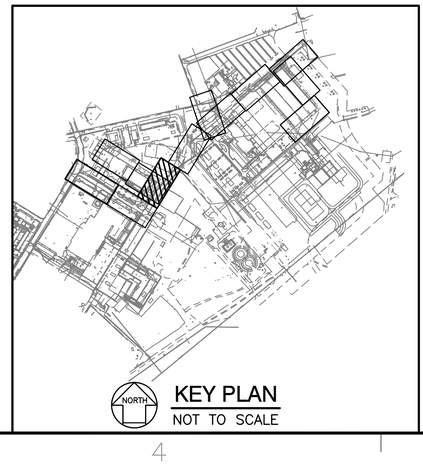
SHEET 7 OF 51

G-07



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-112
10/29/13

HAWAII ARMY NATIONAL GUARD

HDR

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SEAL

NO	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES RM | DRW FAI | CHK RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 3

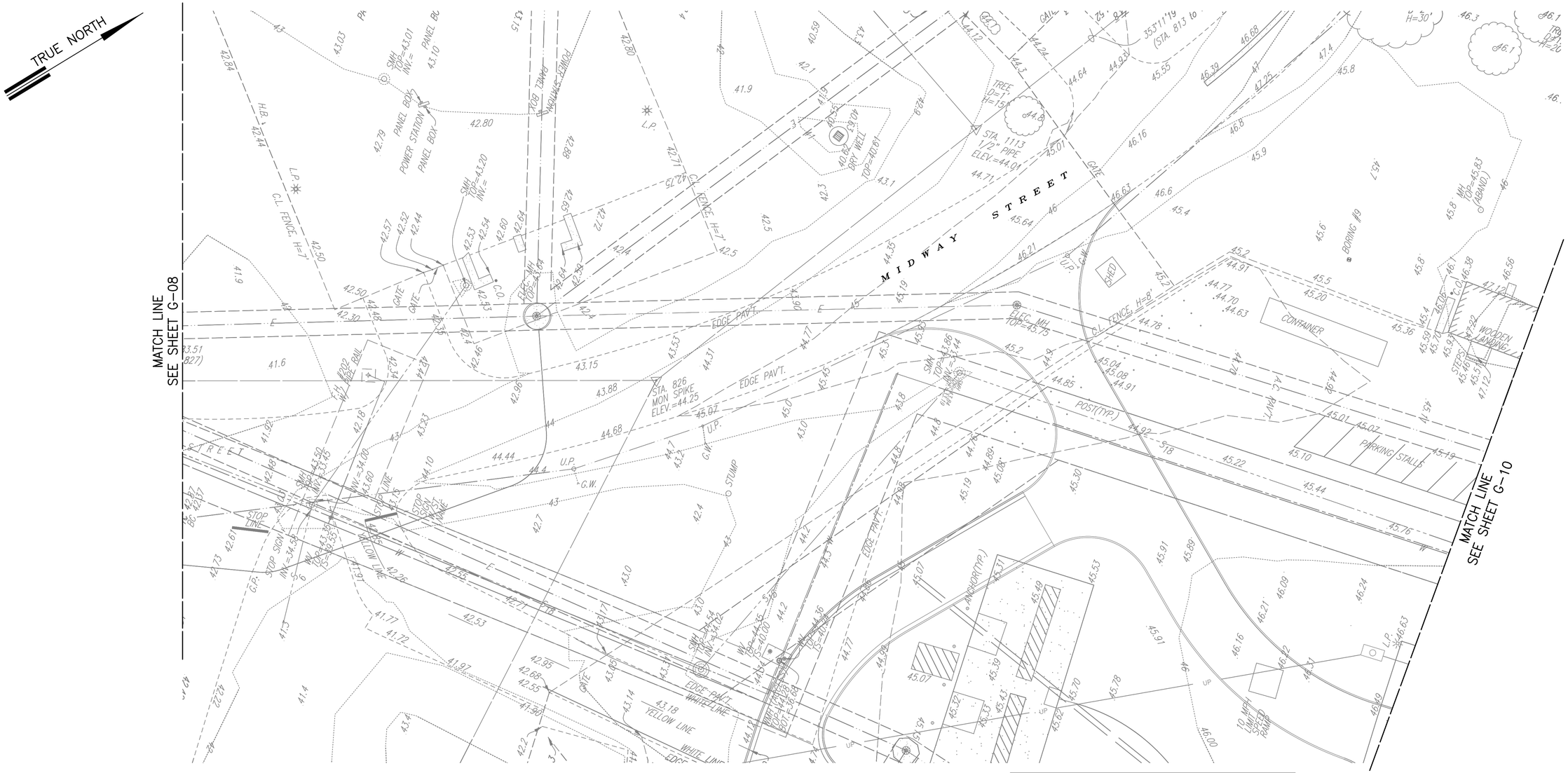
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

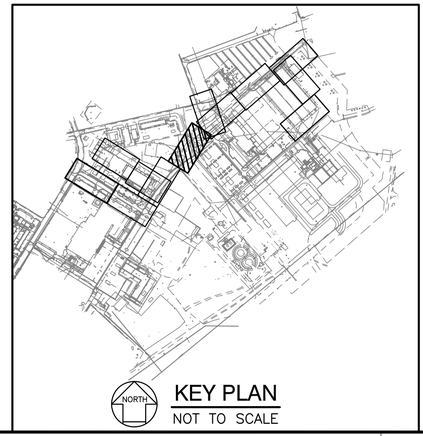
SHEET 8 OF 51

G-08



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

NOTE:

THE TOPOGRAPHIC SURVEY WAS PREPARED BY CONTROL POINT SURVEYING INC. DATED JANUARY 2011 WITH ADDITIONAL TOPOGRAPHIC SURVEY DATED JANUARY 2013 AND SUPPLEMENTARY INFORMATION FROM RECORD DRAWINGS AND FIELD INVESTIGATIONS BY HDR. THE DRAWINGS DO NOT REFLECT SITE CHANGES THAT HAVE OCCURRED SINCE THE TOPOGRAPHIC SURVEY WAS COMPLETED. OF PARTICULAR NOTE ARE THE CONSTRUCTION OF THE BRIGADE READINESS CENTER AND BUILDINGS 117A AND 117B, AND GATE HOUSE AND BARRICADES AT GATES. THE BRIGADE READINESS CENTER FACILITIES TO INCLUDE SITE ROADWAYS AND UTILITIES FROM THE CONSTRUCTION CONTRACT DRAWINGS ARE SHOWN AS EXISTING CONDITIONS.

FILE: 2012020-113
DATE REV.: 10/29/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 4

SCALE: AS NOTED

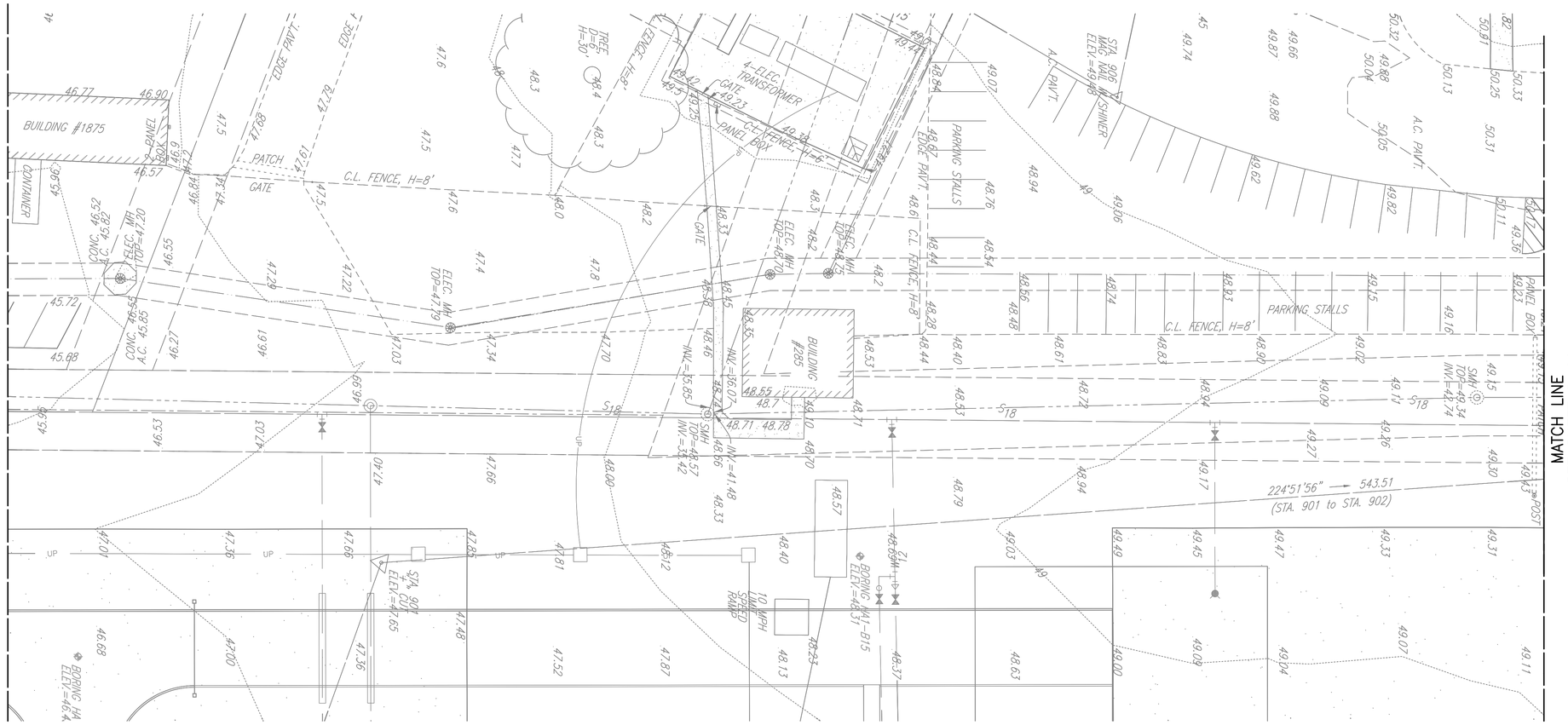
STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 9 OF 51

G-09

TRUE NORTH

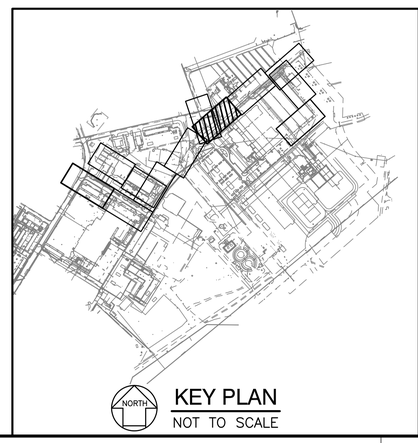


EXISTING CONDITIONS PLAN

SCALE: 1" = 20'

NOTE:

THE TOPOGRAPHIC SURVEY WAS PREPARED BY CONTROL POINT SURVEYING INC. DATED JANUARY 2011 WITH ADDITIONAL TOPOGRAPHIC SURVEY DATED JANUARY 2013 AND SUPPLEMENTARY INFORMATION FROM RECORD DRAWINGS AND FIELD INVESTIGATIONS BY HDR. THE DRAWINGS DO NOT REFLECT SITE CHANGES THAT HAVE OCCURRED SINCE THE TOPOGRAPHIC SURVEY WAS COMPLETED. OF PARTICULAR NOTE ARE THE CONSTRUCTION OF THE BRIGADE READINESS CENTER AND BUILDINGS 117A AND 117B, AND GATE HOUSE AND BARRICADES AT GATES. THE BRIGADE READINESS CENTER FACILITIES TO INCLUDE SITE ROADWAYS AND UTILITIES FROM THE CONSTRUCTION CONTRACT DRAWINGS ARE SHOWN AS EXISTING CONDITIONS.



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-114
DATE REV.: 10/29/13

HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION	STA

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 5

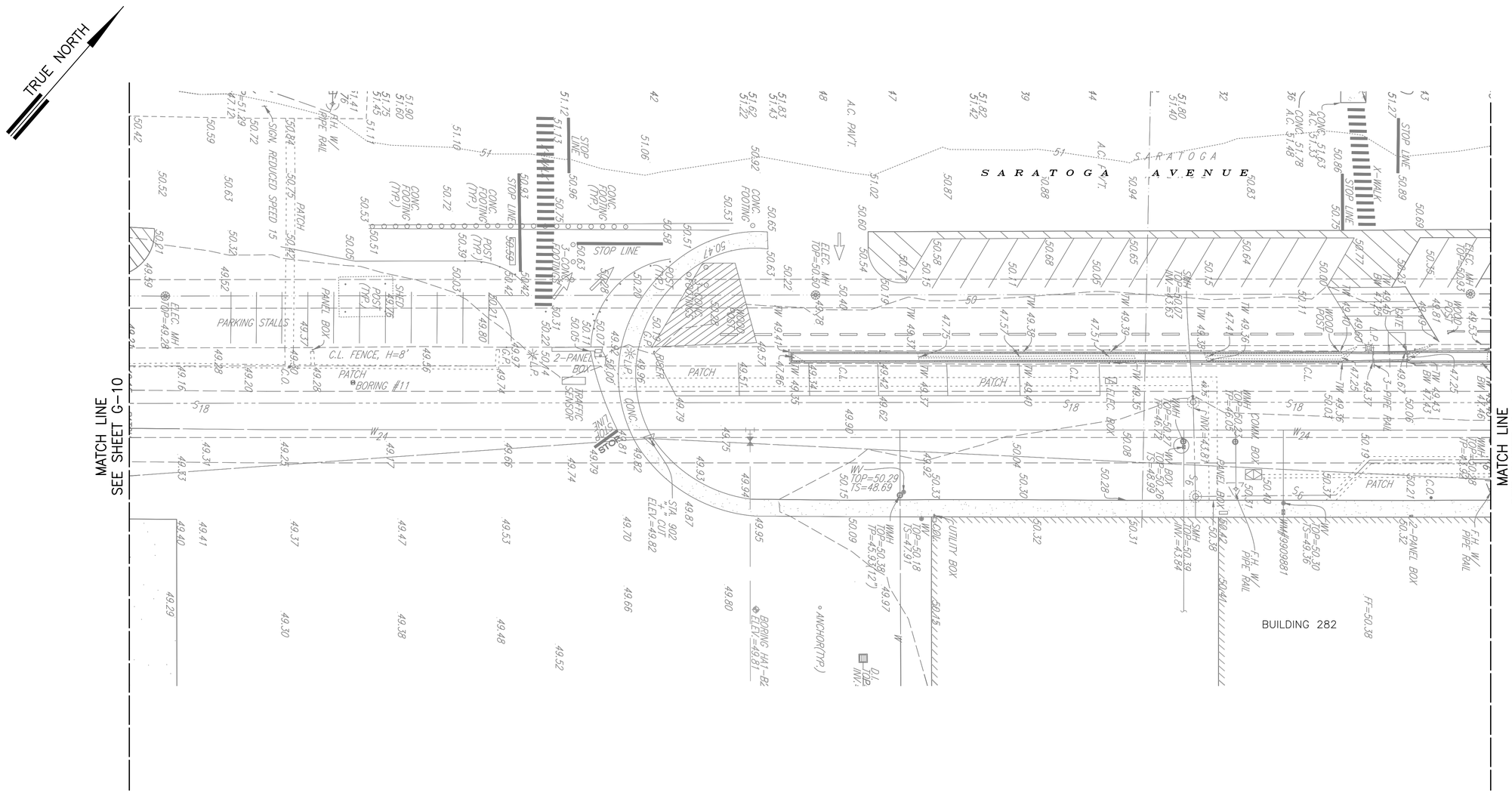
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

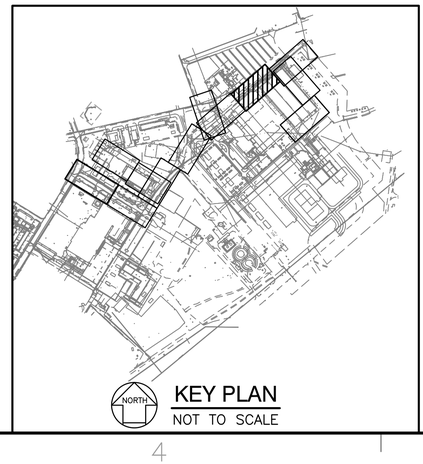
SHEET 10 OF 51

G-10



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

NOTE:

THE TOPOGRAPHIC SURVEY WAS PREPARED BY CONTROL POINT SURVEYING INC. DATED JANUARY 2011 WITH ADDITIONAL TOPOGRAPHIC SURVEY DATED JANUARY 2013 AND SUPPLEMENTARY INFORMATION FROM RECORD DRAWINGS AND FIELD INVESTIGATIONS BY HDR. THE DRAWINGS DO NOT REFLECT SITE CHANGES THAT HAVE OCCURRED SINCE THE TOPOGRAPHIC SURVEY WAS COMPLETED. OF PARTICULAR NOTE ARE THE CONSTRUCTION OF THE BRIGADE READINESS CENTER AND BUILDINGS 117A AND 117B, AND GATE HOUSE AND BARRICADES AT GATES. THE BRIGADE READINESS CENTER FACILITIES TO INCLUDE SITE ROADWAYS AND UTILITIES FROM THE CONSTRUCTION CONTRACT DRAWINGS ARE SHOWN AS EXISTING CONDITIONS.

FILE: 2012020-115
DATE REV.: 10/29/13

HAWAII ARMY NATIONAL GUARD

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TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 6

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

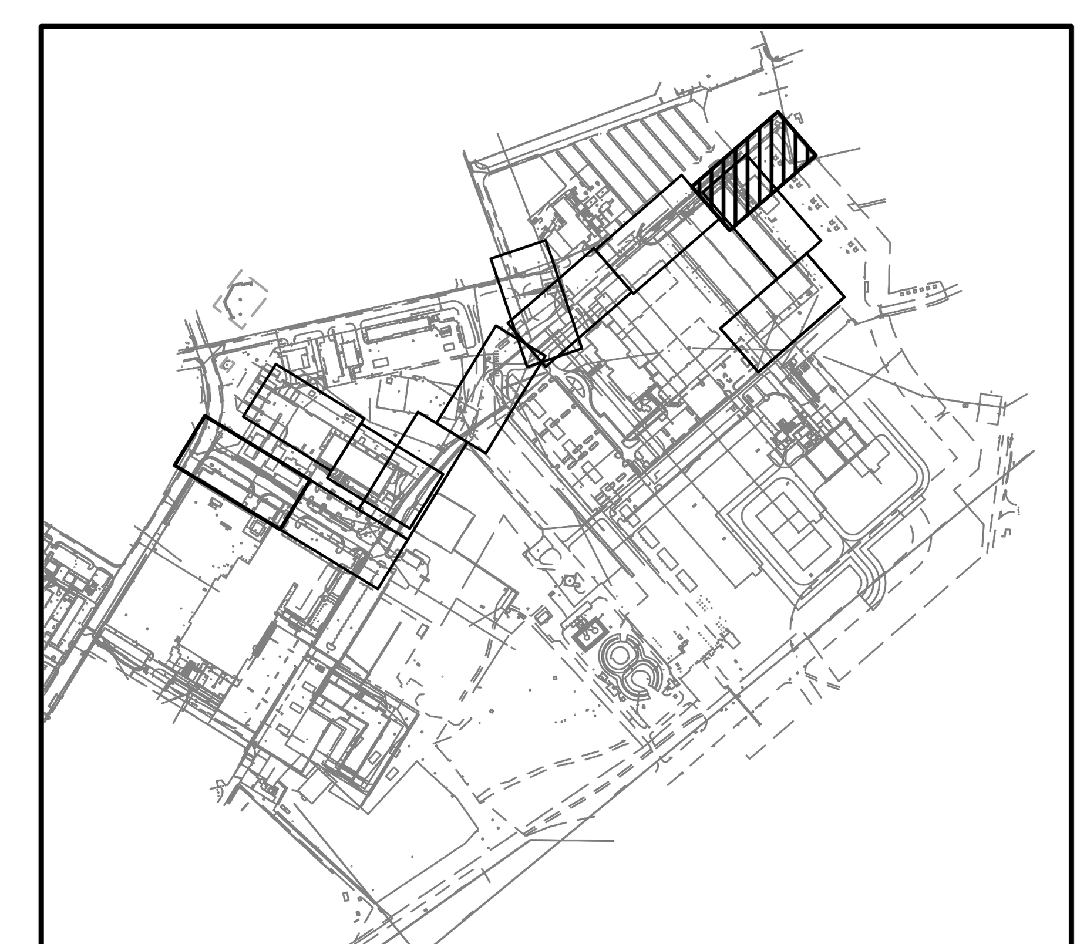
FEDERAL PROJECT NO. 15140004

SHEET 11 OF 51

G-11

EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-116
DATE REV.: 10/29/13

HAWAII ARMY NATIONAL GUARD

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LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.

SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

STATE OF HAWAII — DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE — DESIGN AND PROJECT MANAGEMENT BRANCH
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
HIARNG KALAELOA — KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 7

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

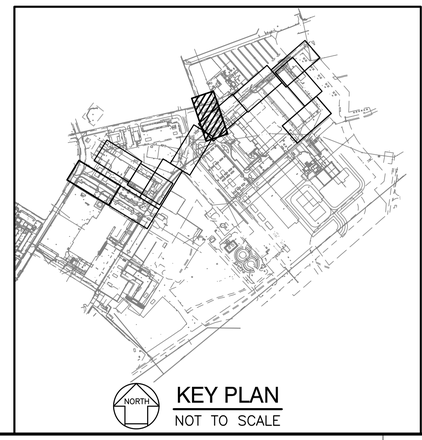
SHEET 12 OF 51

G-12

TRUE NORTH

EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-117
DATE REV.: 10/29/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

STM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 8

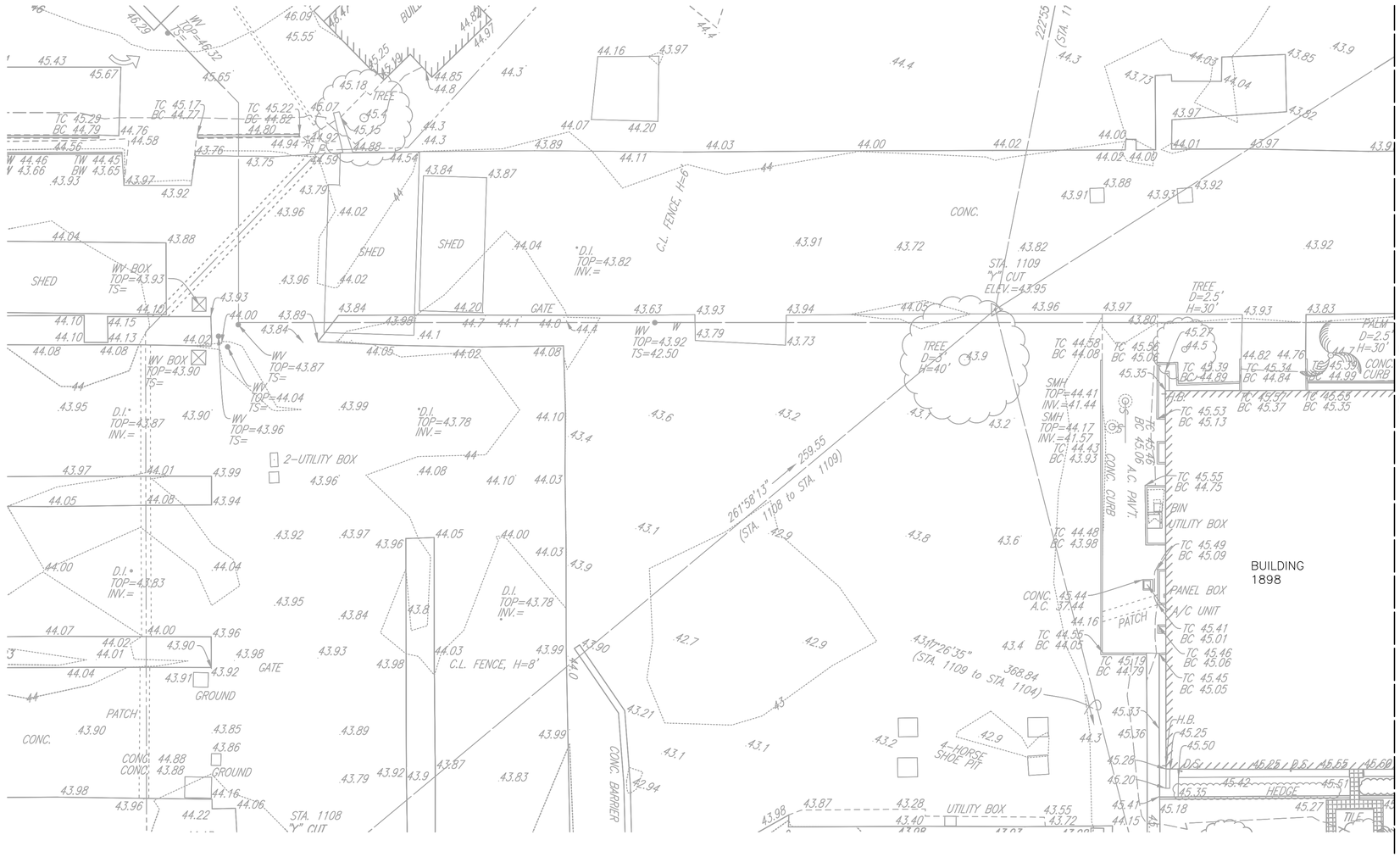
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

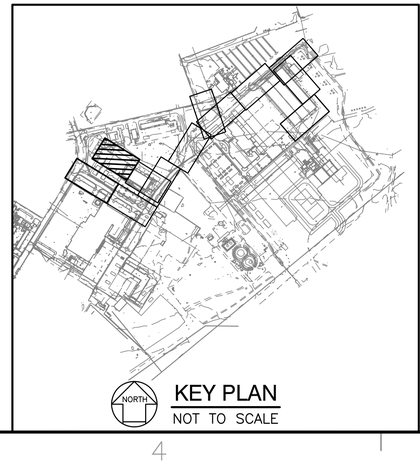
SHEET 13 OF 51

G-13



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-141
~

HAWAII ARMY NATIONAL GUARD

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LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITAL PHASE
BID FINAL

SUBMITAL DATE 03/12/14

DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH

KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 9

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

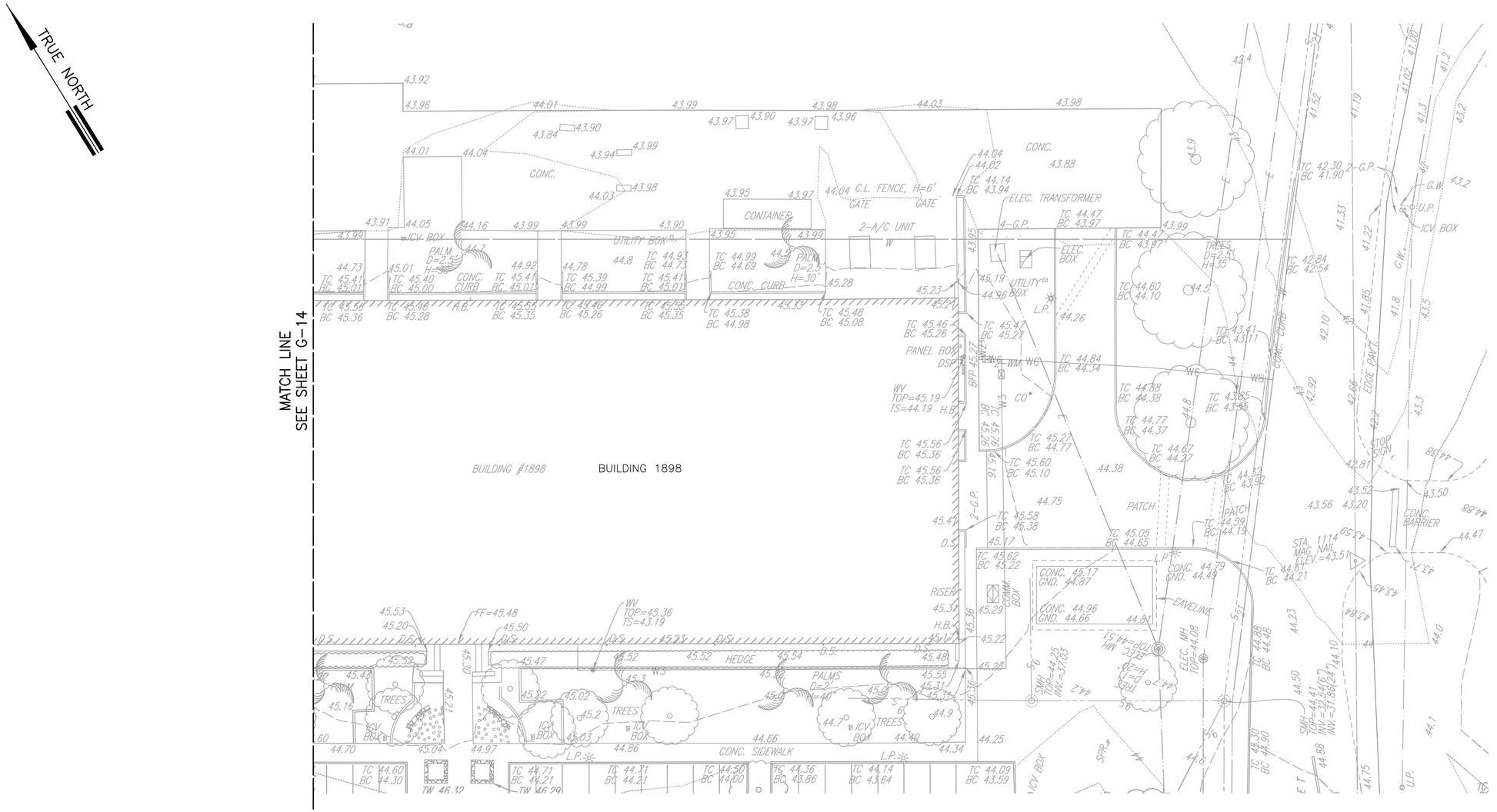
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

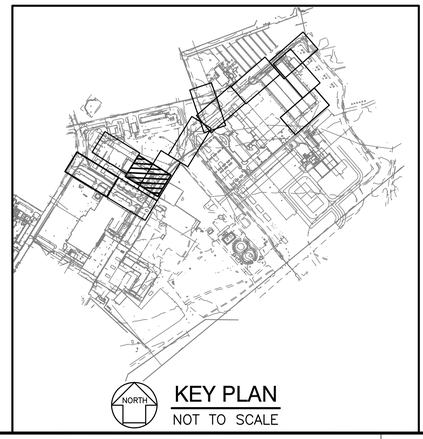
SHEET 14 OF 51

G-14



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-142

HAWAII ARMY NATIONAL GUARD

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LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

STM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 10

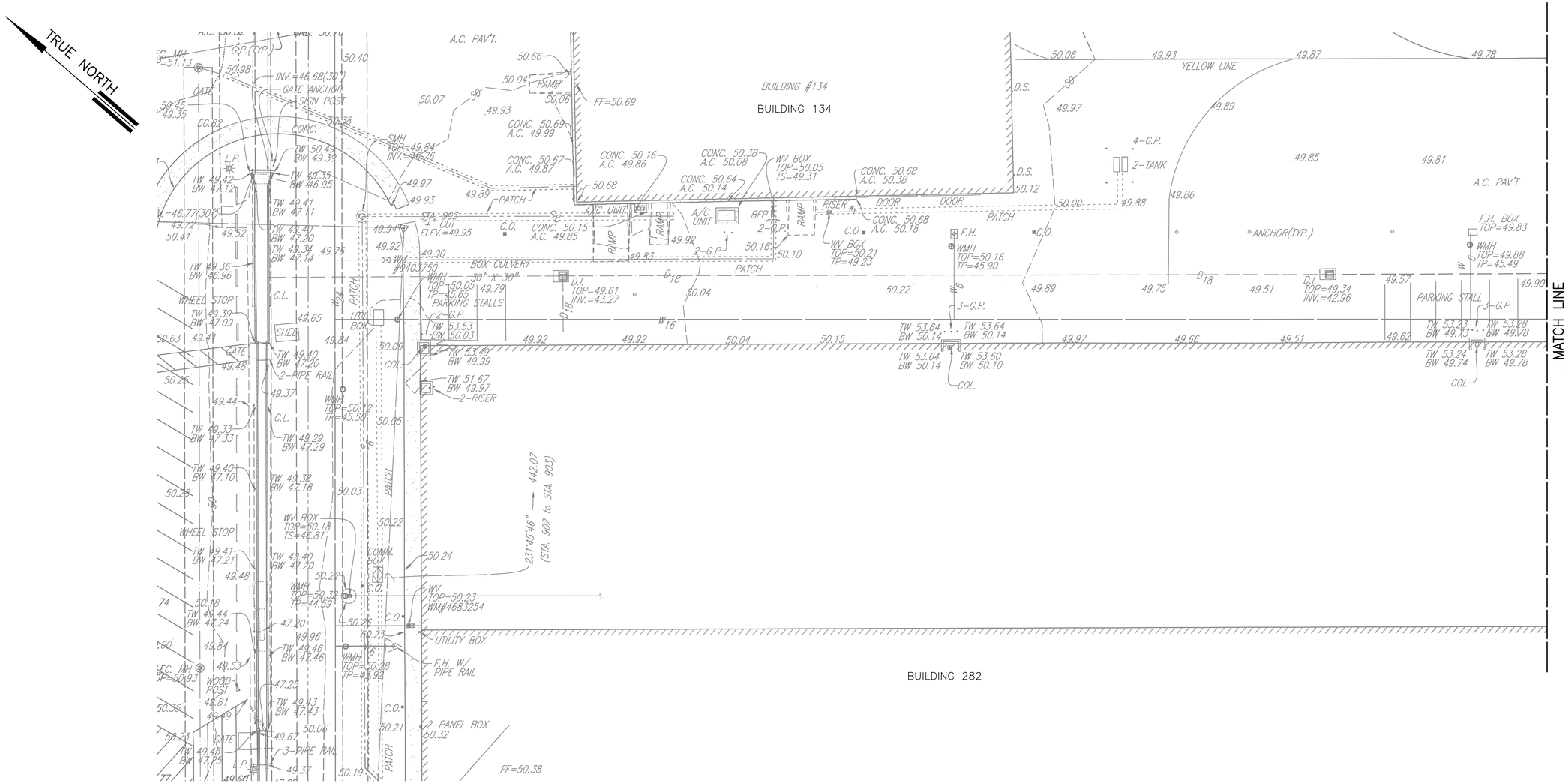
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

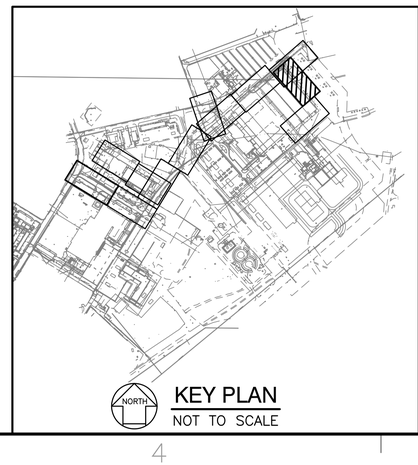
SHEET 15 OF 51

G-15



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-144
DATE REV.: 2/24/14

HAWAII ARMY NATIONAL GUARD

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LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES RM | DRW FAI | CHK RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 11

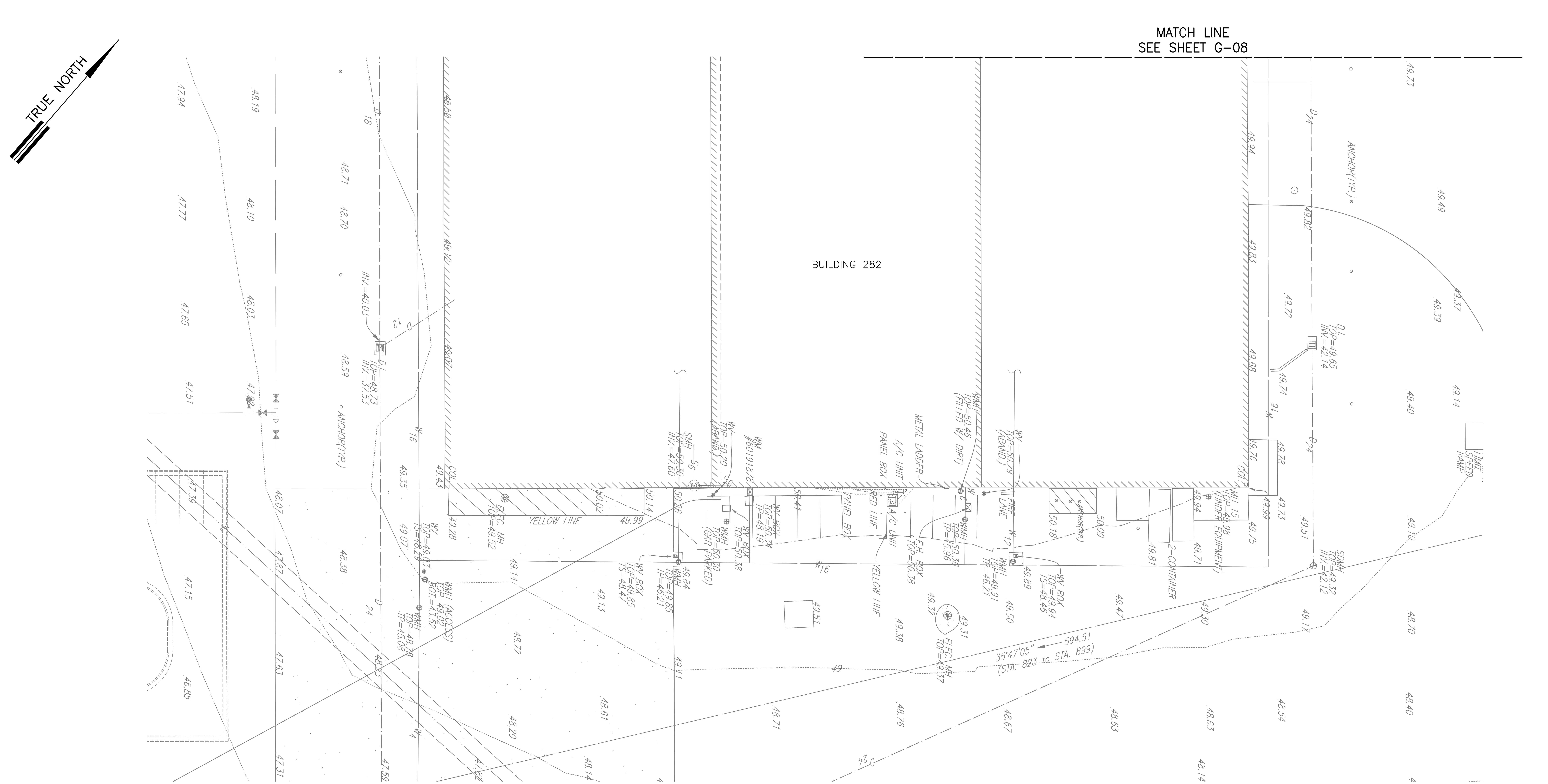
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

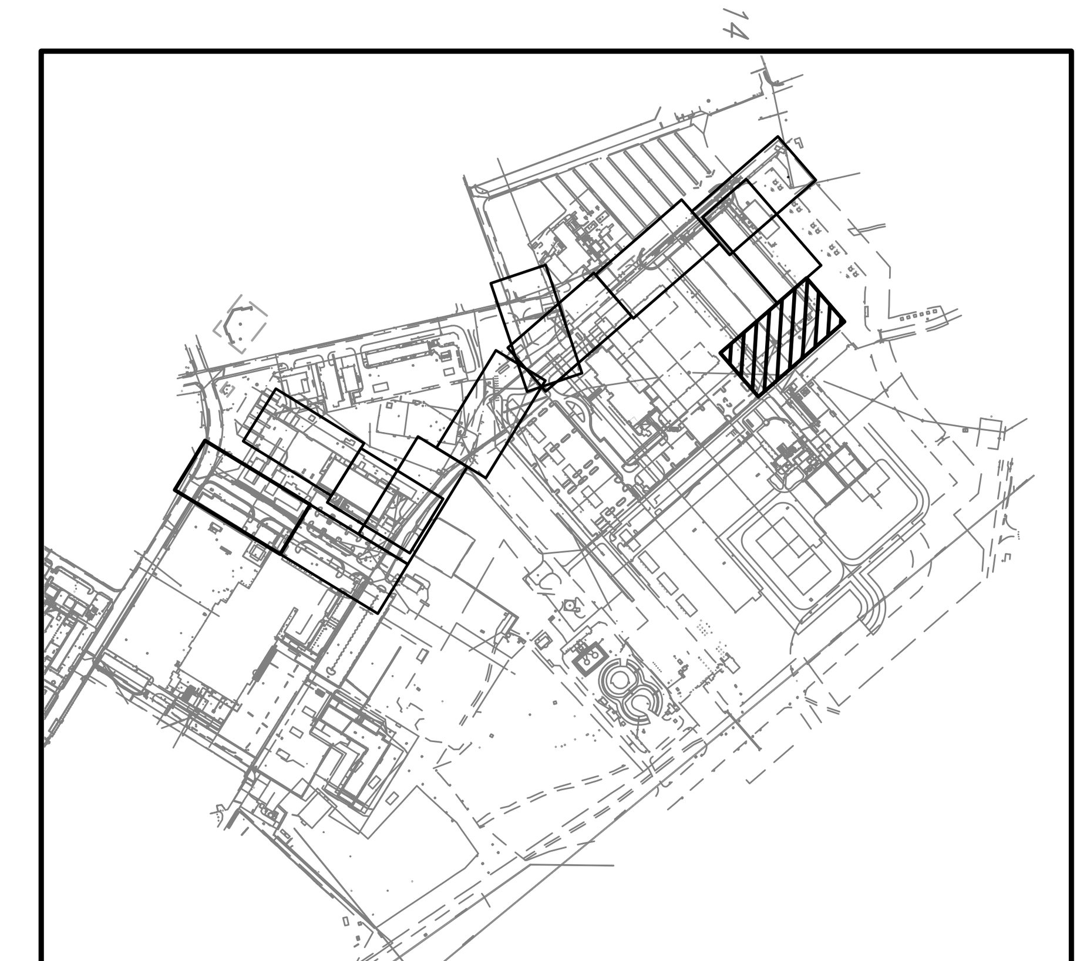
SHEET 16 OF 51

G-16



EXISTING CONDITIONS PLAN

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

HDR

LICENSED

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM DRW FAI CHK RA

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
DESIGN AND PROJECT MANAGEMENT BRANCH

HIARNG KALAELOA — KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

EXISTING CONDITIONS PLAN SHEET 12

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

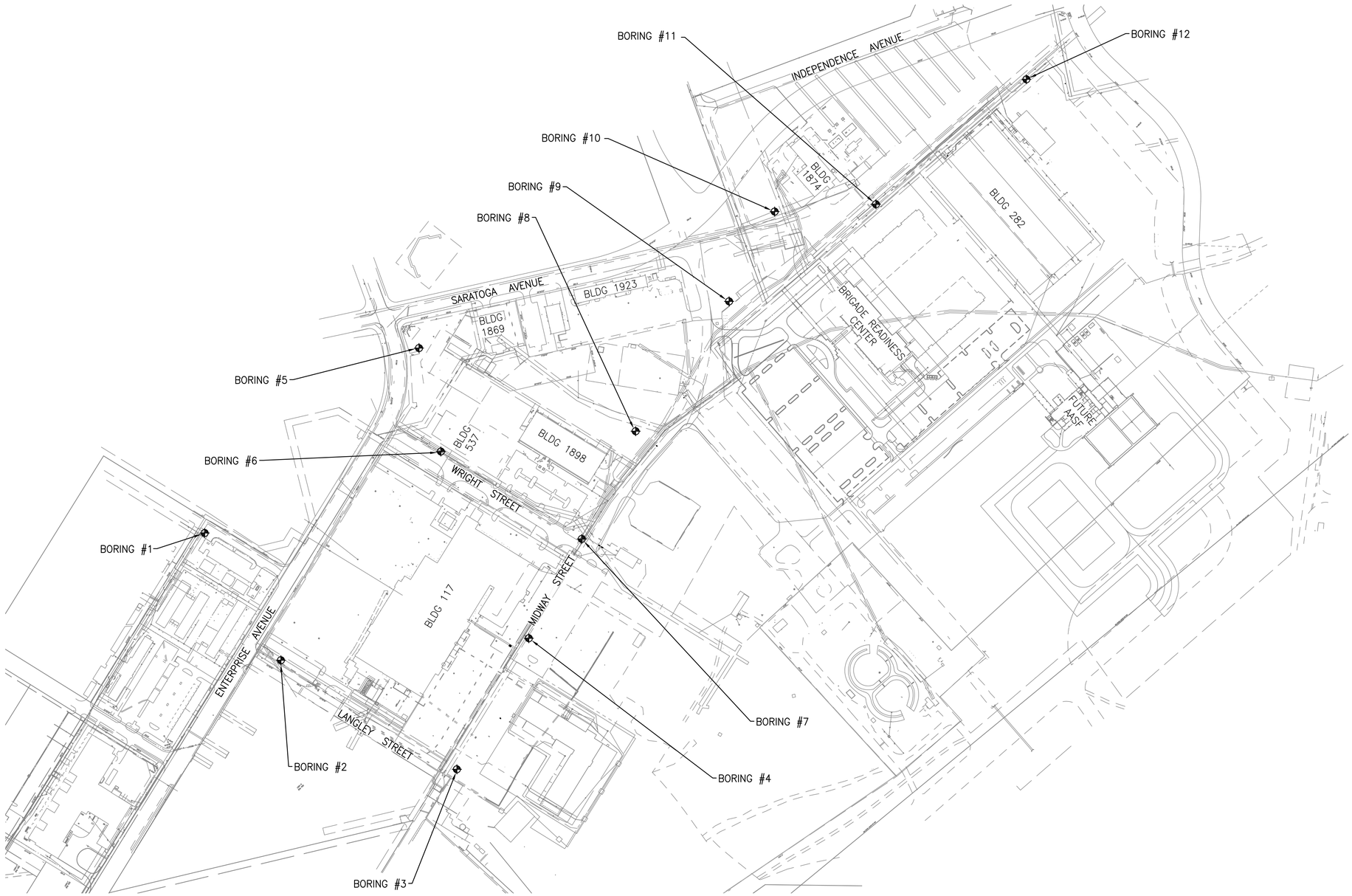
FEDERAL PROJECT NO. 15140004

SHEET 17 OF 51

G-17

FILE: 2012020-143
DATE REV.: 2/24/14

TRUE NORTH



NOTE:

1. SEE 20–SCALE PLAN SHEETS FOR MORE DETAILED LOCATION OF BORINGS.

GENERAL BORING LOCATION PLAN

SCALE: 1" = 200'

GRAPHIC SCALE:

200' 100' 0 200' 400'

SCALE: 1" = 200'

FILE: 2012020-138
DATE REV.: 01/03/14

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES RM | DRW FAI | CHK RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
DEPARTMENT OF DEFENSE

KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

GENERAL BORING LOCATION PLAN

SCALE: AS NOTED

STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

SHEET 18 OF 51

G-18

BORING LOGS LEGEND:

- ☒ - 3.3-inch outside diameter split-barrel sampler
- ☒ - Disturbed sample (3.3-inch O.D.)
- ☐ - Sample lost during extraction
- ◪ - 2-inch outside diameter Standard Penetration Test split-spoon sampler
- ⌶ - Core run
- ▮ - Piston sample

DRIVING ENERGY: 140-lb. dropping 30 inches

NOTES:

The logs of borings indicate the subsurface and groundwater conditions encountered only at the locations where the borings were drilled and at the times designated on the logs, and may not represent conditions at other locations or at other times. Subsurface and groundwater conditions may differ from the logs due to the passage of time, improvements constructed at the site, changes in surface drainage and irrigation patterns, and other changes.

The boring logs are furnished for the convenience of the bidder. No assurance is given that the subsurface or groundwater conditions shown on the boring logs are representative of the conditions to be encountered during construction. The bidder is solely responsible for all assumptions, deductions, or conclusions which he may make or derive from his examination of the subsurface information and data furnished herein.

The blow counts for 3.3-inch (84 mm) diameter split barrel sampler represent actual blow counts for the last 12 inches of penetration and have not been converted to equivalent SPT-N values.

CALCAREOUS ROCK CLASSIFICATION SYSTEM FOR HAWAII

BASIC TYPES OF CALCAREOUS ROCK

TYPE I

REEF ROCK
Composed largely of algal coral and/or skeletal coral in their growth positions. Algal coral is formed by calcareous algae that remove calcium carbonate from the water and secrete or deposit it throughout the thallus (plant body). Skeletal coral is formed by polyps having external skeletons composed of calcium carbonate. The skeletons join to form a structural framework. Coralline and other calcareous detritus commonly fill the framework interstices of the skeletal coral or fall onto the surface of the calcareous algae, becoming incorporated into the algal coral.

TYPE II

SECONDARY ROCK
Composed essentially of cemented fragments or coralline skeletons and/or calcareous shells. Cementation is believed to occur primarily after accretion is completed and the marine deposit begins to emerge above sea level. The common types of secondary rock are listed below.

1. Conglomerate- Cemented, non-uniform sand-and gravel- size particles of cemented coralline skeletons and/or calcareous shell. The skeletons and shells are originally deposited in near-shore waters. The cementing agent is calcium carbonate precipitated primarily from percolating ground water.
2. Shell Rock- Cemented shells and shell fragments that have accumulated in protected shallow sea water. The shells are often cemented in a clay-and silt-size matrix. Cementation develops from calcium carbonate deposited by ground water.
3. Dune Rock- Cemented dune sand. The cementing agent is generally calcium carbonate precipitated from percolating ground water. Dune rock generally has a relatively low density because the constituent sand grains are loosely packed and often poorly cemented.

TYPE III

CHALK
Poorly cemented mass of calcareous clay-and silt-size particles, believed to be precipitated from shallow sea water and associated with near-shore environments.

*The term coralline is used to indicate coral and/or other calcium compound secreting organisms.

Rock Description System

GRAPHIC SYMBOLS

Basalt	Coral (Type I)	Conglomerate	Boulders
Clinker	Coral (Type II)	Sandstone	Cobbles
Tuff	Coral (Type III)	Siltstone	
Breccia	Void / Cavity	Claystone	

A. DEGREE OF WEATHERING

The following terms describe the chemical weathering of a rock:

Fresh: No visible sign of decomposition or discoloration. Rings under hammer impact.

Slightly Weathered: Slight discoloration inwards from open fractures, otherwise similar to Fresh.

Moderately Weathered: Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock but cores cannot be broken by hand or scraped by knife. Texture preserved.

Highly Weathered: Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct but fabric preserved.

Completely Weathered: Minerals decomposed to soil but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.

Residual Soil: Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change relative to fresh rock.

B. HARDNESS

The following terms describe the resistance of a rock to indentation or scratching:

Very Soft: Can be peeled with a knife, material crumbles under firm blows with the sharp end of a geologic pick.

Soft: Can just be scraped with a knife, indentations of 2 to 4 mm with firm blows of the pick point.

Medium Hard: Cannot be scraped or peeled with a knife but can be scratched with knife point. Hand held specimen breaks with firm blows of the pick.

Hard: Difficult to scratch with knife point, cannot break hand held specimen.

Very Hard: Cannot be scratched with pocket knife.

C. ROCK FRACTURE CHARACTERISTICS

The following terms describe general fracture spacing of a rock:

Crushed: Less than 5 microns (mechanical clay) to 0.05 foot.

Intensely Fractured: 0.05 to 0.1 foot (contains no clay).

Highly Fractured: 0.1 to 0.5 feet.

Moderately Fractured: 0.5 to 1.0 feet

Occasionally Fractured: 1.0 to 3.0 feet

Slightly Fractured: Greater than 3.0 feet.

UNIFIED SOIL CLASSIFICATION SYSTEM – (ASTM D2487)

MAJOR DIVISIONS			LETTER SYMBOL	GRAPHIC SYMBOL	GROUP NAMES
COARSE-GRAINED SOILS MORE THAN 50% RETAINED ON NO. 200 SIEVE	GRAVELS MORE THAN 50% OF COARSE FRACTION RETAINED ON NO. 4 SIEVE	CLEAN GRAVELS LESS THAN 5% FINES	GW		WELL-GRADED GRAVEL, WELL-GRADED GRAVEL WITH SAND
			GP		POORLY GRADED GRAVEL, POORLY GRADED GRAVEL WITH SAND
		GRAVELS WITH MORE THAN 12% FINES	GM		SILTY GRAVEL, SILTY GRAVEL WITH SAND
			GC		CLAYEY GRAVEL, CLAYEY GRAVEL WITH SAND
	SANDS 50% OR MORE OF COARSE FRACTION PASSES NO. 4 SIEVE	CLEAN SAND LESS THAN 5% FINES	SW		WELL-GRADED SAND, WELL-GRADED SAND WITH GRAVEL
			SP		POORLY GRADED SAND, POORLY GRADED SAND WITH GRAVEL
		SANDS WITH MORE THAN 12% FINES	SM		SILTY SAND, SILTY SAND WITH GRAVEL
			SC		CLAYEY SAND, CLAYEY SAND WITH GRAVEL
FINE-GRAINED SOILS 50% OR MORE PASSES NO. 200 SIEVE	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50		ML		SILT, SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY SILT
			CL		LEAN CLAY, LEAN CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY LEAN CLAY
			OL		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
	SILTS AND CLAYS LIQUID LIMIT 50 OR MORE		MH		ELASTIC SILT, ELASTIC SILT WITH SAND OR GRAVEL, SANDY OR GRAVELLY ELASTIC SILT
			CH		FAT CLAY, FAT CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY FAT CLAY
			OH		ORGANIC SILT OR CLAY, ORGANIC SILT OR CLAY WITH SAND OR GRAVEL, SANDY OR GRAVELLY ORGANIC SILT OR CLAY
HIGHLY ORGANIC SOILS			PT		PEAT

NOTE:
DUAL SYMBOLS ARE USED TO INDICATE BORDERLINE CLASSIFICATIONS.
REFER TO ASTM D2487 FOR BORDERLINE CLASSIFICATIONS GW-GM, GW-GC, GP-GM, GP-GC, SW-SM, SW-SC, SP-SM, AND SP-SC.

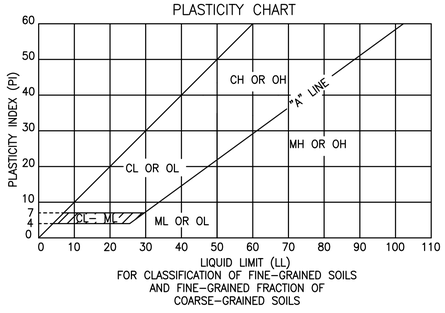
UNIFIED SOIL CLASSIFICATION SYSTEM (SHEET 1 OF 2)

GRADATION CHART

MATERIAL SIZE	PARTICLE SIZE			
	LOWER LIMIT		UPPER LIMIT	
	MILLIMETERS	SIEVE SIZE **	MILLIMETERS	SIEVE SIZE **
SAND				
FINE	0.075	#200 **	0.425	#40 **
MEDIUM	0.425	#40 **	2.00	#10 **
COARSE	2.00	#10 **	4.75	#4 **
GRAVEL				
FINE	4.75	#4 **	19.0	3/4" *
COARSE	19.0	3/4" *	75.0	3" *
COBBLES	75.0	3" *	300	12" *
BOULDERS	300	12" *	---	---

** U.S. STANDARD SIEVE * SQUARE OPENINGS

PLASTICITY CHART



FOR CLASSIFICATION OF FINE-GRAINED SOILS AND FINE-GRAINED FRACTION OF COARSE-GRAINED SOILS

NOTE:
WHEN SHOWN ON THE BORING LOGS, THE FOLLOWING TERMS ARE USED TO DESCRIBE THE CONSISTENCY OF FINE-GRAINED SOILS AND COARSE-GRAINED SOILS.

FINE-GRAINED SOILS APPROXIMATE SHEAR STRENGTH IN KSF		COARSE-GRAINED SOILS	
VERY SOFT	LESS THAN 0.25	VERY LOOSE	THESE ARE USUALLY BASED ON AN EXAMINATION OF SOIL SAMPLES, AND PENETRATION RESISTANCE.
SOFT	0.25 TO 0.5	LOOSE	
MEDIUM STIFF	0.5 TO 1.0	MEDIUM DENSE	
STIFF	1.0 TO 2.0	DENSE	
VERY STIFF	2.0 TO 4.0	VERY DENSE	
HARD	GREATER THAN 4.0		

UNIFIED SOIL CLASSIFICATION SYSTEM (SHEET 2 OF 2)

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C. G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A. SEAL

APPR | DATE | DESCRIPTION | SYM

SUBMITAL PHASE: BID FINAL

SUBMITAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
KALAELOA, (KAPOLEI) HAWAII
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

BORING LOGS, LEGEND AND NOTES

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 19 OF 51

G-19

FILE: 2012020-138A
DATE REV.: 03/12/14

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/7/2013* Date Ended *2/7/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-1 (Page 1 of 1)

Surface Elevation *+44.0* ± feet
Datum *Mean Sea Level*
Northing *55308.60 ft (NAD83, Zone 3)*
Easting *1617314.86 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												ML	Reddish brown silt, moist (fill)
												GM	Brown and white silty coralline gravel, medium dense, with coralline sand, moist (fill)
11	93							86				SM	White silty coralline sand, dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
22								21	4				grades medium dense
17	91	35	8					40				SC	Light brown to white clayey coralline sand, medium dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
13								27	8				
11	100							27					
									12				
													grades white
8								11					

Boring completed at 15.5 feet on 2/7/2013.
Ground water not encountered.

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/13/2013* Date Ended *2/13/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-2 (Page 1 of 1)

Surface Elevation *+42.1* ± feet
Datum *Mean Sea Level*
Northing *54853.53 ft (NAD83, Zone 3)*
Easting *1617587.55 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												AC	4 inches of asphaltic concrete
7								28				GM	Grayish brown to dark brown silty basaltic gravel, medium dense, with basaltic sand, moist (fill)
												GM	Light brown and white silty coralline gravel, medium dense, with coralline sand, moist (fill)
												GM	Dark brown silty tuffaceous gravel, medium dense, with tuffaceous sand, moist (fill)
15	85	73	36					27	4			GC	
												SP	Light brown to white clayey coralline gravel, medium dense, weakly cemented, moist (fill)
20								40				MH	Light brown poorly graded coralline sand, medium dense, moist (fill)
												SC	Dark yellowish brown elastic silt, stiff, moist (alluvium)
16	106							70/4"	8				grades mottled yellowish brown and white, hard and locally weakly cemented
16								30/3"					Mottled light grayish brown and yellowish brown clayey coralline sand, very dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
													grades light brown to white
									12			GC	White clayey coralline gravel, medium dense, with coralline sand, moist (coral reef deposit)
13	93							26					

Boring completed at 15.5 feet on 2/13/2013.
Ground water not encountered.

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/13/2013* Date Ended *2/13/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-3 (Page 1 of 1)

Surface Elevation *+40.2* ± feet
Datum *Mean Sea Level*
Northing *54463.50 ft (NAD83, Zone 3)*
Easting *1618216.98 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												AC	4 inches of asphaltic concrete
9	102							56/4"				GM	Grayish brown silty basaltic gravel, very dense, with basaltic sand, moist (fill)
												SC	White and brown clayey coralline sand, very dense, weakly cemented, with coralline gravel, moist (coral reef deposit)
8								58	4				
												SM	Light yellow to white silty coralline sand, very dense, weakly cemented, moist (coral reef deposit)
10	100							84/6"				SM	Light brown to white silty coralline sand, very dense, locally weakly to moderately cemented, with coralline gravel, moist (coral reef deposit)
													grades white and locally weakly cemented
		0	NP					52	8				
4								58/6"				GM	White silty coralline gravel, very dense, locally weakly cemented, with coralline sand, moist (coral reef deposit)
									12				
													grades dense
8								36					

Boring completed at 15.5 feet on 2/13/2013.
Ground water not encountered.

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/13/2013* Date Ended *2/13/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-4 (Page 1 of 1)

Surface Elevation *+44.7* ± feet
Datum *Mean Sea Level*
Northing *54932.12 ft (NAD83, Zone 3)*
Easting *1618474.29 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												AC	2 inches asphaltic concrete
22	74							124/5"				GW	Reddish brown well-graded basaltic gravel, with silt and basaltic sand, moist (fill)
												GM	
												GC	Grayish brown silty basaltic gravel, with basaltic sand, moist (fill)
27								21	4			SC	Light brown to white clayey coralline gravel, very dense, weakly cemented, moist (coral reef deposit)
													Light brown to white clayey coralline sand, medium dense, locally weakly cemented, moist (coral reef deposit)
21	98							25					grades white and loose
15								14	8				grades medium dense
16	86							21					grades loose
									12				
													grades very dense
7								57					

Boring completed at 15.0 feet on 2/13/2013.
Ground water not encountered.

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/7/2013* Date Ended *2/7/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-5 (Page 1 of 1)

Surface Elevation *+46.2* ± feet
Datum *Mean Sea Level*
Northing *55969.86 ft (NAD83, Zone 3)*
Easting *1618081.52 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												ML	Reddish brown silt, very stiff, moist (fill)
3								30				SC	White clayey coralline sand, medium dense to dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
													grades dense
								98	4				
6								14					grades medium dense
													grades light reddish brown
8	94							12					
									8				grades white and loose
16								4					grades very loose to loose
									12			GC	White clayey coralline gravel, medium dense, locally weakly cemented, with coralline sand, moist (coral reef deposit)
13	85							27					

Boring completed at 15.5 feet on 2/7/2013.
Ground water not encountered.

Project *Hawaii Army National Guard, Site Utilities Replacement* Job No. *3771-140*
Location *Kalaeloa (Kapolei), Hawaii* Drawn By *LML*
Date Started *2/7/2013* Date Ended *2/7/2013*
Drilling Method *4-inch Augers, Rotary Wash* Drilling Equipment *SIMCO 2400 SK-1*
Logged By *L. Oshiro* Water Level (depth) *Not Encountered*

BORING B-6 (Page 1 of 1)

Surface Elevation *+42.9* ± feet
Datum *Mean Sea Level*
Northing *55600.02 ft (NAD83, Zone 3)*
Easting *1618159.75 ft (NAD83, Zone 3)*

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												AC	2 inches of asphaltic concrete
13	101							70/3"				GC	White clayey coralline gravel, very dense, locally weakly cemented, with coralline sand, moist (coral reef deposit)
12								53/4"				SM	White silty coralline sand, very dense, with coralline gravel, moist (coral reef deposit)
									4				
12	94							58					grades medium dense
13								26				SC	White clayey coralline sand, medium dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
									8				
12	94	30	8					63/4"				GC	White clayey coralline gravel, very dense, locally weakly cemented, with coralline sand, moist (coral reef deposit)
									12				
													grades dense
16								48					

Boring completed at 15.5 feet on 2/7/2013.
Ground water not encountered.

FILE: 2012020-139
DATE REV.: 01/03/14

HAWAII ARMY NATIONAL GUARD
LICENSED
A/E INFO
TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL
APPR
DATE
DESCRIPTION
SYM
SUBMITTAL PHASE
BID FINAL
SUBMITTAL DATE 03/12/14
DES RM DRW FAI CHK RA
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA
WATER LINE - WRIGHT STREET TO BUILDING 282
BORING LOGS, SHEET 1
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 20 OF 51
G-20

BORING B-7 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/5/2013 — Date Ended 2/5/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

Surface Elevation +46.0 ± feet
Datum Mean Sea Level
Northing 55287.34 ft (NAD83, Zone 3)
Easting 1618663.69 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												ML	Dark yellowish brown sandy silt, with coralline sand, damp (fill)
3	99							26				GM	Brown silty coralline gravel, loose to medium dense, with coralline sand, moist (fill)
5	92							10	4			SM	Light brown to white silty coralline sand, loose to medium dense, with coralline gravel, moist (fill)
								14				ML	Brown sandy silt, stiff, with coralline sand and gravel, and fine roots, moist (fill)
10	96	29	10					43	8			GC	Brown and white clayey coralline gravel, medium dense, with coralline sand and elastic silt, moist (fill)
5								4/8"				GM	White silty coralline gravel, medium dense, with coralline sand, moist (coral reef deposit)
									12				
7	104							41					

Boring completed at 15.5 feet on 2/5/2013.
Ground water not encountered.

BORING B-8 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/5/2013 — Date Ended 2/5/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

Surface Elevation +43.1 ± feet
Datum Mean Sea Level
Northing 55672.59 ft (NAD83, Zone 3)
Easting 1618856.40 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
7								36				GM	Light brown to white silty coralline gravel, moist (fill)
												MH	Reddish brown elastic silt, stiff, with coralline sand and gravel, moist (fill)
8	86							55	4			GM	Light brown silty coralline gravel, dense, with coralline sand, moist (fill)
												MH	Reddish brown elastic silt, very stiff, with coralline sand and gravel, moist (fill)
5								10				GM	Light brown silty coralline gravel, medium dense, with coralline sand, moist (fill)
												SM	Light brown silty coralline sand, loose to medium dense, with coralline gravel (fill)
7	101							43	8				grades medium dense
													grades with seam of black carbon
3								56				SC	White clayey coralline sand, very dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
									12				
4	93							149					

Boring completed at 15.0 feet on 2/5/2013.
Ground water not encountered.

BORING B-9 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/5/2013 — Date Ended 2/5/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

Surface Elevation +45.5 ± feet
Datum Mean Sea Level
Northing 56136.97 ft (NAD83, Zone 3)
Easting 1619190.72 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
13								26/1"				MH	Brown elastic silt, moist (alluvium)
												SC	White clayey coralline sand, very dense, locally weakly to moderately cemented, with coralline gravel, moist (coral reef deposit)
11								64/5"	4				
												CL-ML	White silty clay, very stiff, locally weakly cemented, with coralline sand and gravel, moist (coral reef deposit)
14	102	24	4					45					
													grades stiff
								11	8				
												SC	White clayey coralline sand, very loose, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
13	90							7					
									12				
													grades very dense
13								62					

Boring completed at 15.5 feet on 2/5/2013.
Ground water not encountered.

BORING B-10 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/4/2013 — Date Ended 2/4/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

Surface Elevation +49.6 ± feet
Datum Mean Sea Level
Northing 56458.07 ft (NAD83, Zone 3)
Easting 1619353.66 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												SM	Brown silty coralline sand, moist (fill)
11	76							69/4"				ML	Brown silt, stiff, with coralline gravel, damp (alluvium)
													White coral reef rock, soft, strongly cemented, highly fractured (Type I coral)
				NX	25	0		68/4"	4				
												SM	White silty coralline sand, medium dense, with coralline gravel, moist (coral reef deposit)
10								21					
									8				
23	95							149				GM	Light brown silty coralline gravel, medium dense, with coralline sand, moist (coral reef deposit)
													grades light brown to white, very dense, locally weakly cemented, and with coralline sand
									12				
28								47					

Boring completed at 15.5 feet on 2/4/2013.
Ground water not encountered.

BORING B-11 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/4/2013 — Date Ended 2/4/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

Surface Elevation +49.3 ± feet
Datum Mean Sea Level
Northing 56484.20 ft (NAD83, Zone 3)
Easting 1619716.03 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
												AC	6 inches of asphaltic concrete
12	100							13/2"				GM	Light brown silty coralline gravel, medium dense, with coralline sand, moist (fill)
												GM	Light yellowish brown silty coralline gravel, very dense, locally weakly to moderately cemented, with coralline sand and grayish brown lean clay, moist (coral reef deposit)
24								27/3"	4			SM	Light yellowish brown silty coralline sand, very dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
5	108							57				GM	Light yellowish brown silty coralline gravel, medium dense, locally weakly cemented, with coralline sand, moist (coral reef deposit)
21								68	8			SM	White silty coralline sand, very dense, locally weakly cemented, with coralline gravel, moist (coral reef deposit)
21	83							17/1"				GM	Light brown to white silty coralline gravel, very dense, with coralline sand and cobbles, moist (coral reef deposit)
									12			SM	Light brown silty coralline sand, medium dense, with coralline gravel, moist (coral reef deposit)
18								24					

Boring completed at 15.5 feet on 2/4/2013.
Ground water not encountered.

BORING B-12 (Page 1 of 1)

Project: Hawaii Army National Guard, Site Utilities Replacement — Job No. 3771-140
Location: Kalaeloa (Kapolei), Hawaii — Drawn By LML
Date Started 2/4/2013 — Date Ended 2/4/2013
Drilling Method 4-inch Augers, Rotary Wash — Drilling Equipment SIMCO 2400 SK-1
Logged By L. Oshiro — Water Level (depth) Not Encountered

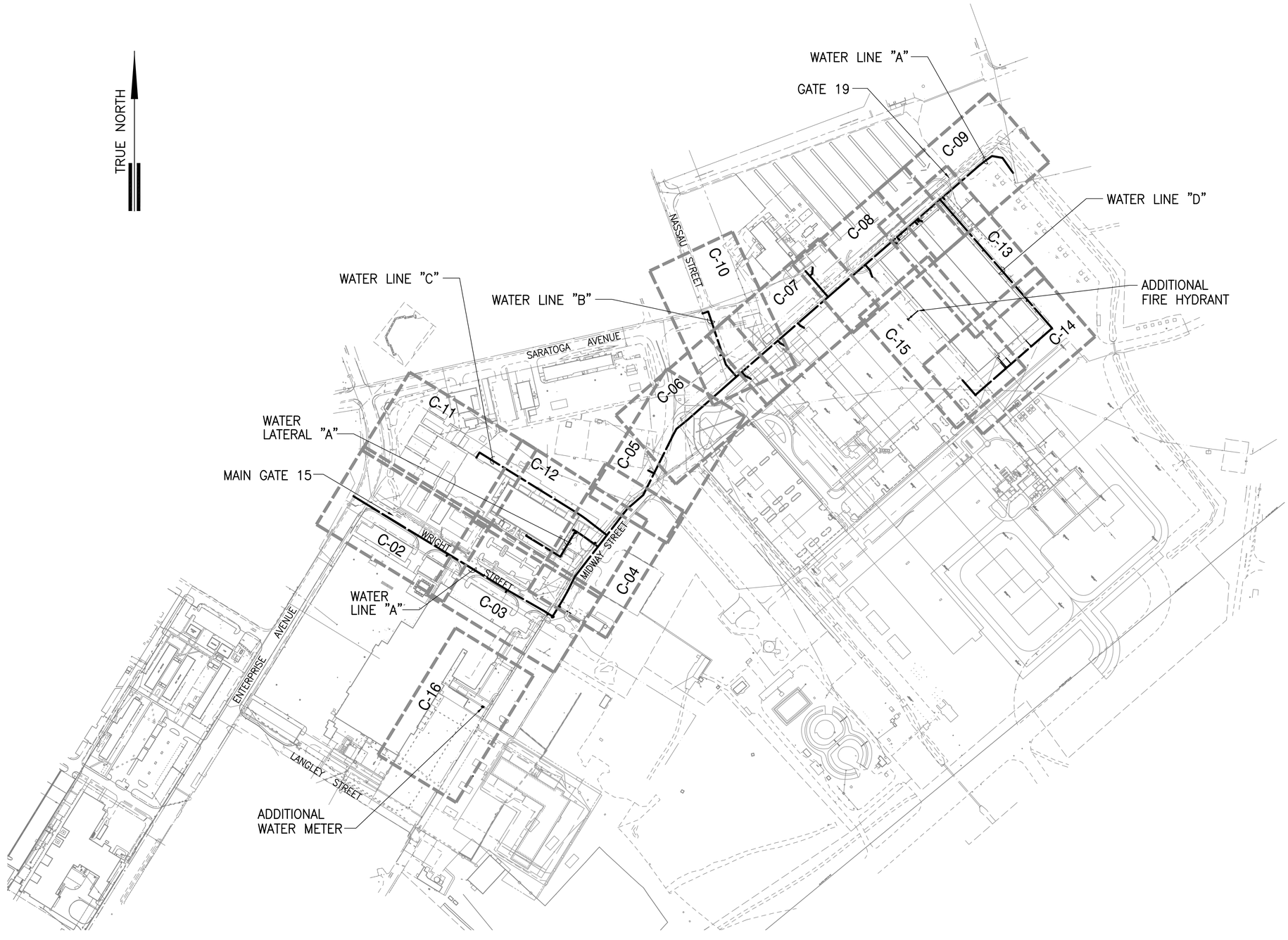
Surface Elevation +50.0 ± feet
Datum Mean Sea Level
Northing 56931.11 ft (NAD83, Zone 3)
Easting 1620254.11 ft (NAD83, Zone 3)

Lab Data: Moisture Content (%)	Lab Data: Dry Density (pcf)	Lab Data: Liquid Limit	Lab Data: Plasticity Index	Core Info: Core Type	Core Info: Recovery (%)	Core Info: RQD (%)	Core Info: Drill Rate min/ft	Blows/ft	Depth (ft)	Samples	Graphic Log	Soil Class	Description
													SURFACE
								10/1"				SP-SM	Light brown to white poorly graded coralline sand, with silt, moist (fill)
													Light brown to white coral reef rock, medium hard, strongly cemented, highly fractured (Type I coral)
				NX	20	0			4			GM	Light brown to white silty fine coralline gravel, medium dense, locally weakly cemented with coralline sand, moist (coral reef deposit)
20								14					
									8				
13								24					grades loose
												SM	White silty coralline sand, medium dense, locally weakly cemented, coarse, with coralline gravel, moist (coral reef deposit)
									12				
17	115							45					

Boring completed at 15.5 feet on 2/4/2013.
Ground water not encountered.

FILE:
DATE REV.: 2012020-140 01/03/14

HAWAII ARMY NATIONAL GUARD
LICENSED
A/E INFO
TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL
APPR
DATE
DESCRIPTION
SYM
SUBMITTAL PHASE
BID FINAL
SUBMITTAL DATE 03/12/14
DES RM DRW FAI CHK RA
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA
WATER LINE - WRIGHT STREET TO BUILDING 282
BORING LOGS, SHEET 2
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 21 OF 51
G-21



GENERAL KEY PLAN - WATER LINE

SCALE: 1" = 200'

LEGEND

- 20' SCALE SHEET LOCATION
- NEW WATER LINE
- EXISTING WATER LINE

200' 100' 0 200' 400'

SCALE: 1" = 200'

FILE: 2012020-118
DATE REV.: 10/31/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

GENERAL KEY PLAN – WATER LINE

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 22 OF 51

C-01

TRUE NORTH

TIE: 98° 41' 27"
72.38 (STA 809 TO BEGIN WATER LINE "A"

STA 809
MON. SPIKE
ELEV.=43.59

WATER LINE "A"
STA 4+15.00
CONNECT TO EXIST W24
1 – 24–INCH x 6–INCH TEE
1 – FIRE HYDRANT, SEE DETAIL 2 C–02 | C–26
1 – 6–INCH GATE VALVE AND BOX
10± LF 6–INCH PIPE
1 – CONC BLOCK

SEE INSET "A"

BEGIN WATER LINE "A"
STA 0+00
CONNECT TO EXIST W24
1 – 24–INCH TEE
2 – 24–INCH TRANSITION COUPLING
6± LF 24–INCH PIPE
1 – CONC BLOCK WITH STRUCTURAL STRUT, SEE DETAIL 3 C–02 | C–28
1 – 24–INCH BGGV AND VAULT, SEE DETAIL 1 C–02 | C–29
1 – CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C–02 | C–26

SEE INSET "B"

WATER LINE "A"

SEWER LINE "A", SEE P/N 1514005 DRAWINGS

BUILDING 537

W R I G H T S T R E E T

E N T E R P R I S E S T R E E T

1+00 2+00 3+00 4+00

301° 22' 18" 415.00

301° 22' 18" 260.00

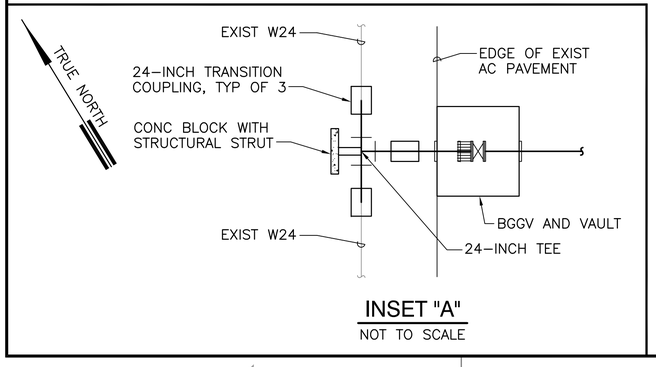
RESTORE CONC CURB

REMOVE/SALVAGE EXIST METER AND ABANDON CONCRETE VAULT. SEE GENERAL NOTE 24 ON SHEET G–03

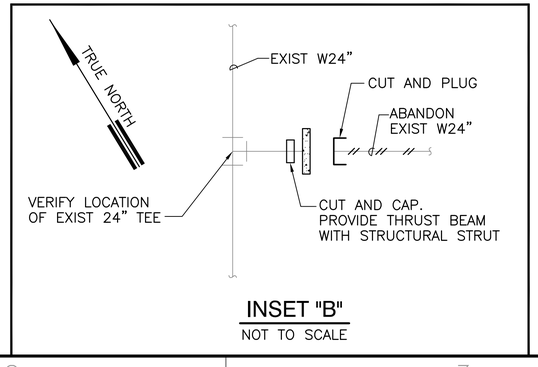
ABANDON EXIST W24 IN PLACE

MATCH LINE – WATER LINE "A" STA 4+50
SEE SHEET C–03

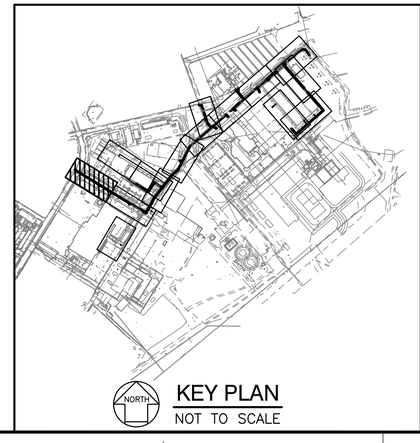
PLAN - WATER LINE "A"
SCALE: 1" = 20'



INSET "A"
NOT TO SCALE



INSET "B"
NOT TO SCALE



KEY PLAN
NOT TO SCALE

NOTE:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C–02 | C–24
2. SEE ACCESS NOTES ON SHEET G–04.
3. EXISTING GATE GUARD HOUSE AND PORTABLE BARRICADES ARE NOT INDICATED ON THIS SHEET. CONTRACTOR TO VERIFY.

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

HDR

LICENSED PROFESSIONAL ENGINEER
TONY C. G. LAU
No. 9021–C
HAWAII, U.S.A.

APPR	DATE	DESCRIPTION
		3YM

SUBMITTAL PHASE: BID FINAL
SUBMITAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HI/ARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" BEGIN TO STA 4+50

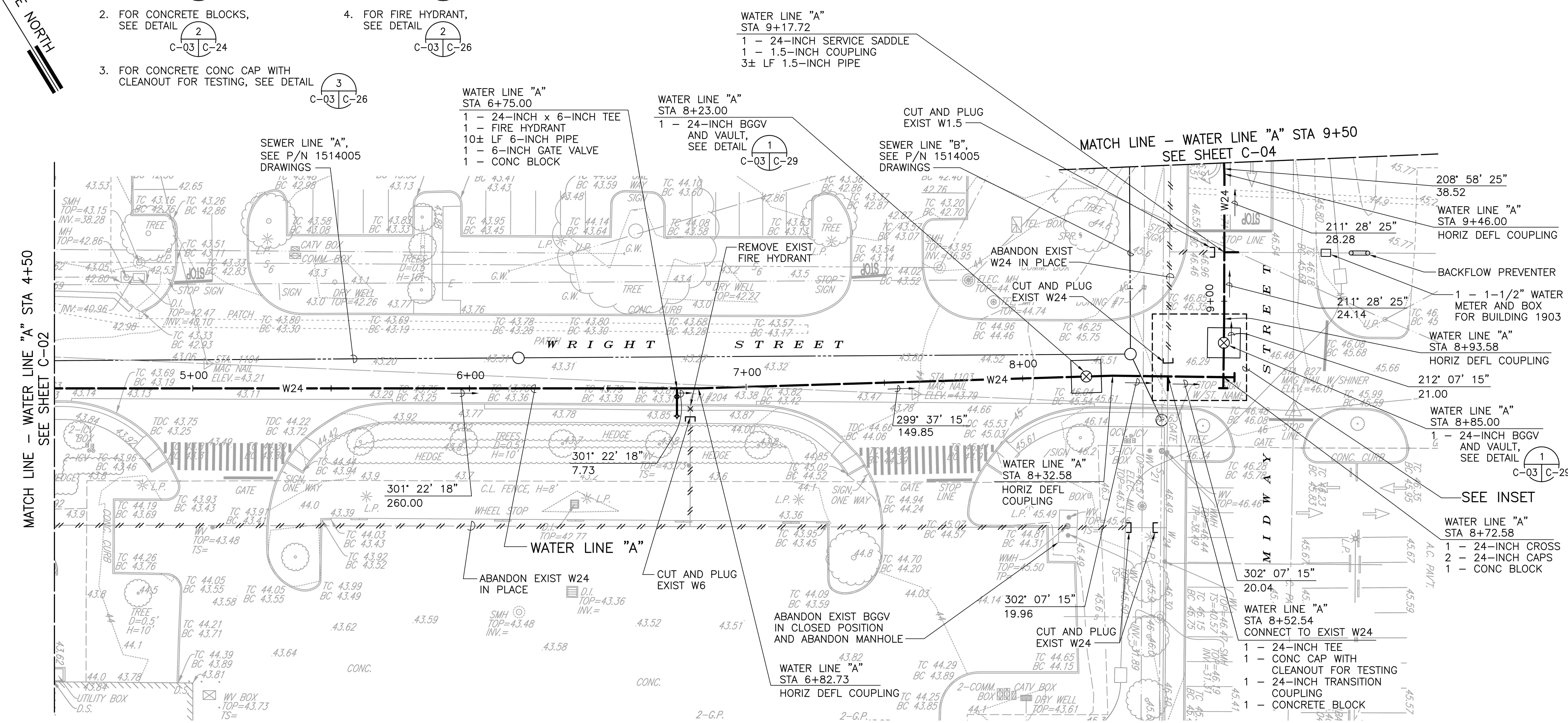
SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 23 OF 51

C-02

FILE: 2012020-101
DATE REV.: 12/30/13

NOTES:

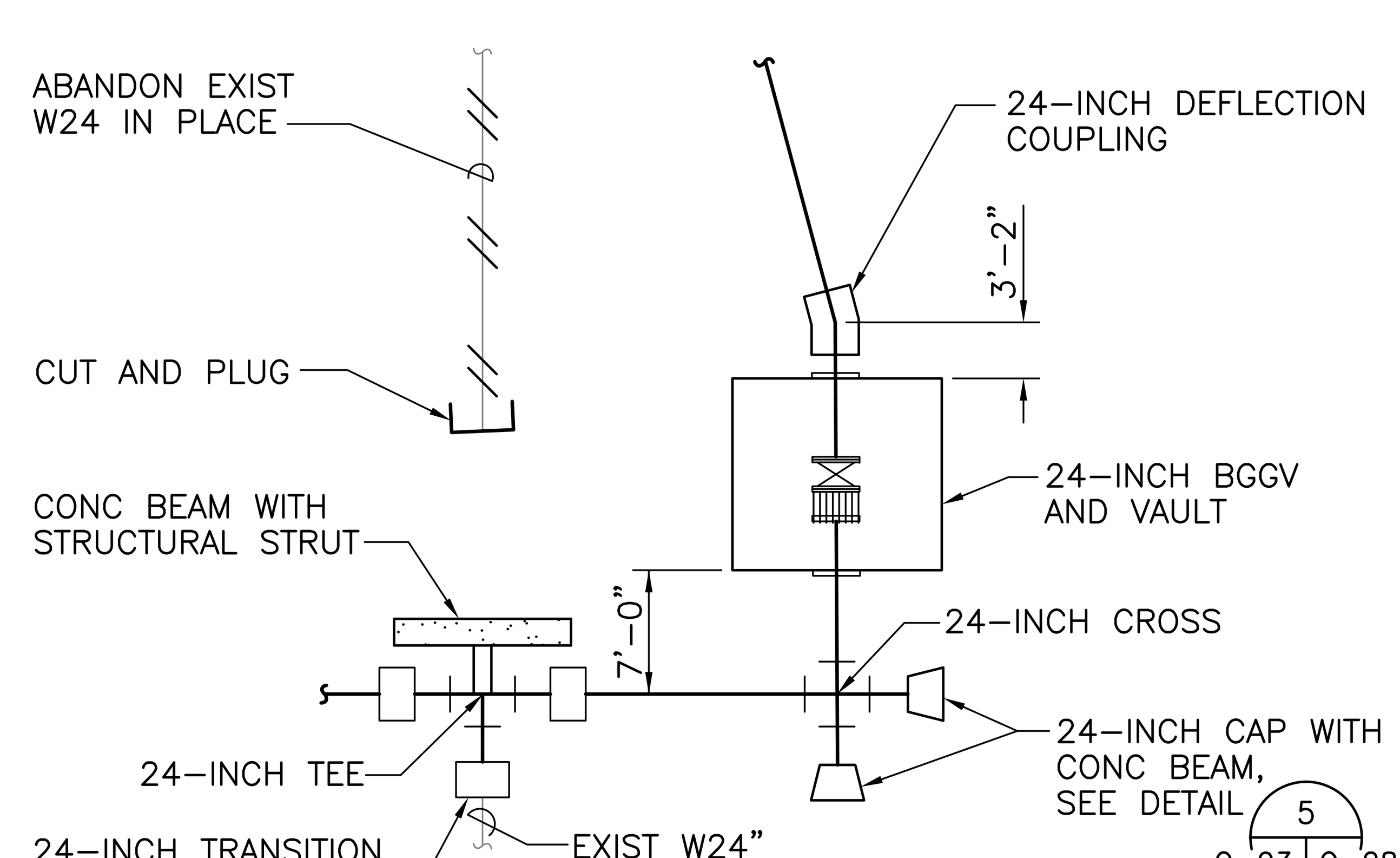
1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C-03 | C-24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 C-03 | C-24
3. FOR CONCRETE CONC CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C-03 | C-26
4. FOR WATER METER AND BOX, SEE DETAIL 1 C-03 | C-30
4. FOR FIRE HYDRANT, SEE DETAIL 2 C-03 | C-26



TRUE NORTH
WATER LINE "A"
STA 6+75.00
1 – 24–INCH x 6–INCH TEE
1 – FIRE HYDRANT
10± LF 6–INCH PIPE
1 – 6–INCH GATE VALVE
1 – CONC BLOCK
WATER LINE "A"
STA 8+23.00
1 – 24–INCH BGGV AND VAULT, SEE DETAIL 1 C-03 | C-29
WATER LINE "A"
STA 9+17.72
1 – 24–INCH SERVICE SADDLE
1 – 1.5–INCH COUPLING
3± LF 1.5–INCH PIPE
CUT AND PLUG EXIST W1.5
SEWER LINE "A", SEE P/N 1514005 DRAWINGS
SEWER LINE "B", SEE P/N 1514005 DRAWINGS
MATCH LINE – WATER LINE "A" STA 9+50
SEE SHEET C-04
MATCH LINE – WATER LINE "A" STA 4+50
SEE SHEET C-02
208° 58' 25"
38.52
WATER LINE "A"
STA 9+46.00
HORIZ DEFL COUPLING
211° 28' 25"
28.28
BACKFLOW PREVENTER
211° 28' 25"
24.14
1 – 1-1/2" WATER METER AND BOX FOR BUILDING 1903
WATER LINE "A"
STA 8+93.58
HORIZ DEFL COUPLING
212° 07' 15"
21.00
WATER LINE "A"
STA 8+85.00
1 – 24–INCH BGGV AND VAULT, SEE DETAIL 1 C-03 | C-29
SEE INSET
WATER LINE "A"
STA 8+72.58
1 – 24–INCH CROSS
2 – 24–INCH CAPS
1 – CONC BLOCK
REMOVE EXIST FIRE HYDRANT
ABANDON EXIST W24 IN PLACE
CUT AND PLUG EXIST W24
W R I G H T   S T R E E T
M I D W A Y   S T R E E T
5+00
6+00
7+00
8+00
9+00
W24
299° 37' 15"
149.85
301° 22' 18"
7.73
301° 22' 18"
260.00
WATER LINE "A"
STA 8+32.58
HORIZ DEFL COUPLING
WATER LINE "A"
ABANDON EXIST W24 IN PLACE
CUT AND PLUG EXIST W6
ABANDON EXIST BGGV IN CLOSED POSITION AND ABANDON MANHOLE
WATER LINE "A"
STA 6+82.73
HORIZ DEFL COUPLING
302° 07' 15"
19.96
CUT AND PLUG EXIST W24
302° 07' 15"
20.04
WATER LINE "A"
STA 8+52.54
CONNECT TO EXIST W24
1 – 24–INCH TEE
1 – CONC CAP WITH CLEANOUT FOR TESTING
1 – 24–INCH TRANSITION COUPLING
1 – CONCRETE BLOCK

PLAN - WATER LINE "A"

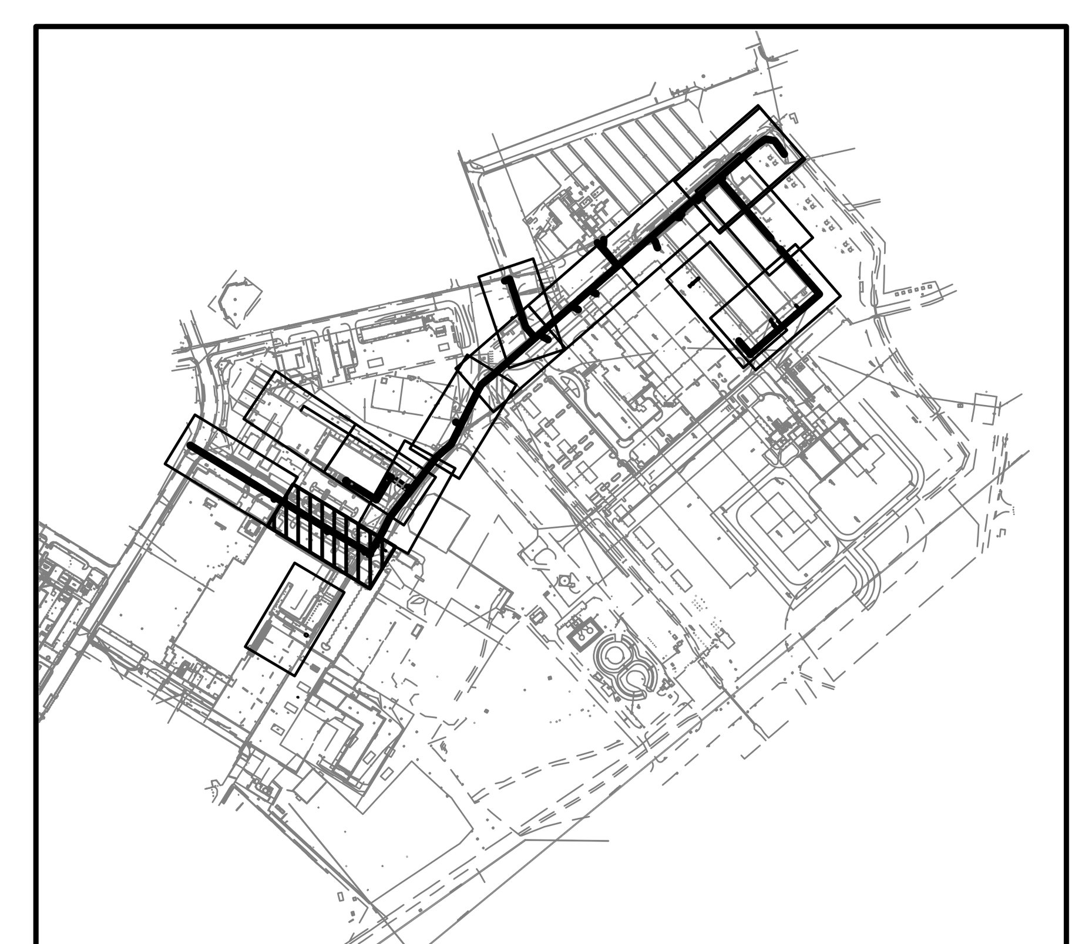
SCALE: 1" = 20'



TRUE NORTH
ABANDON EXIST W24 IN PLACE
CUT AND PLUG
CONC BEAM WITH STRUCTURAL STRUT
24–INCH TEE
24–INCH TRANSITION COUPLING, TYP OF 3
EXIST W24"
24–INCH DEFLECTION COUPLING
3'–2"
24–INCH BGGV AND VAULT
24–INCH CROSS
7'–0"
24–INCH CAP WITH CONC BEAM, SEE DETAIL 5 C-03 | C-28

INSET

NOT TO SCALE



KEY PLAN

NOT TO SCALE

NOTE:

FOR BACKFLOW PREVENTER, SEE DETAIL 2 C-03 | C-28

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-102
DATE REV.: 01/10/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
DESIGN AND PROJECT MANAGEMENT BRANCH
HIARNG KALAELOA
KALAELOA, (KAPOLEI) HAWAII

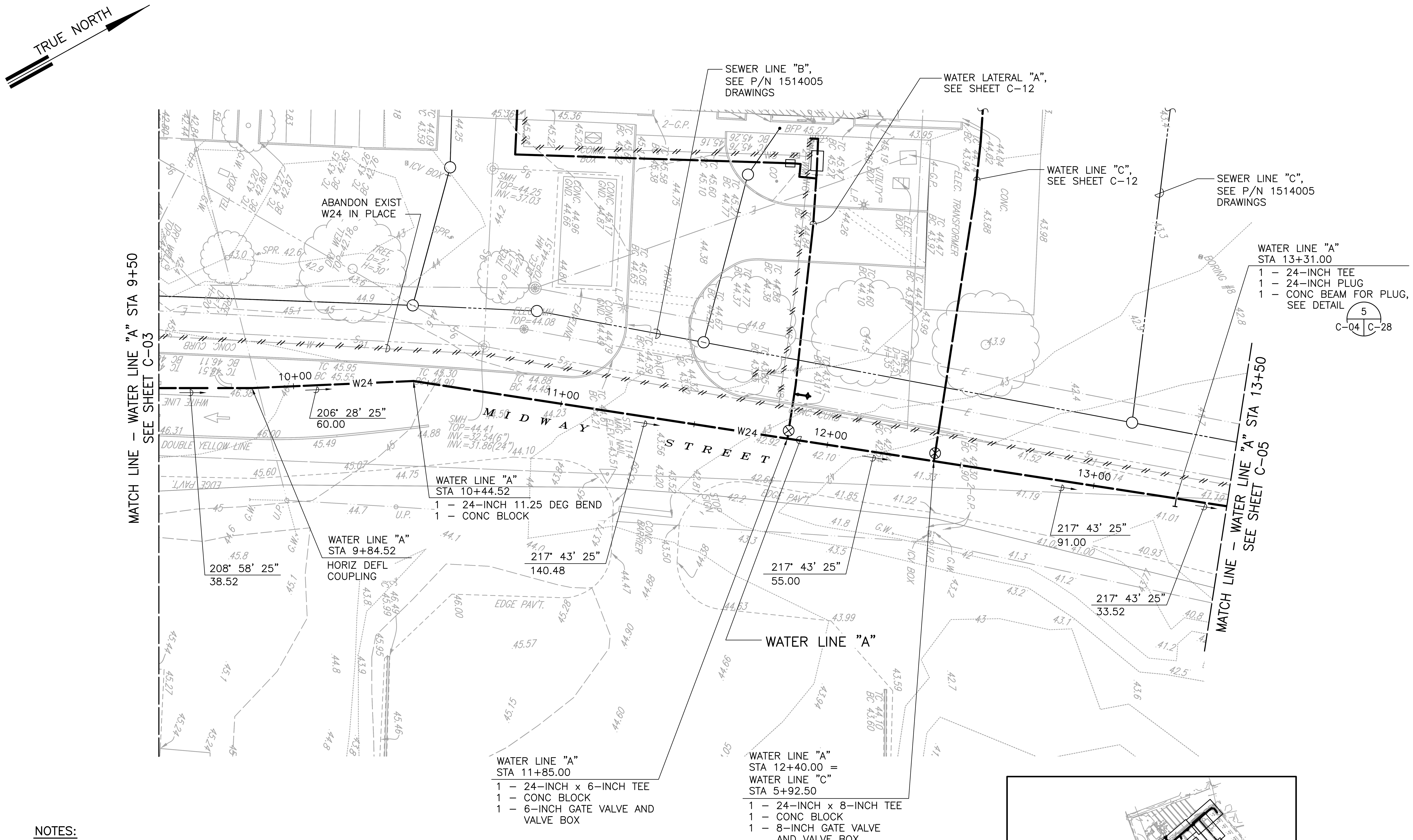
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" STA 4+50 TO STA 9+50

SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 24 OF 51

C-03

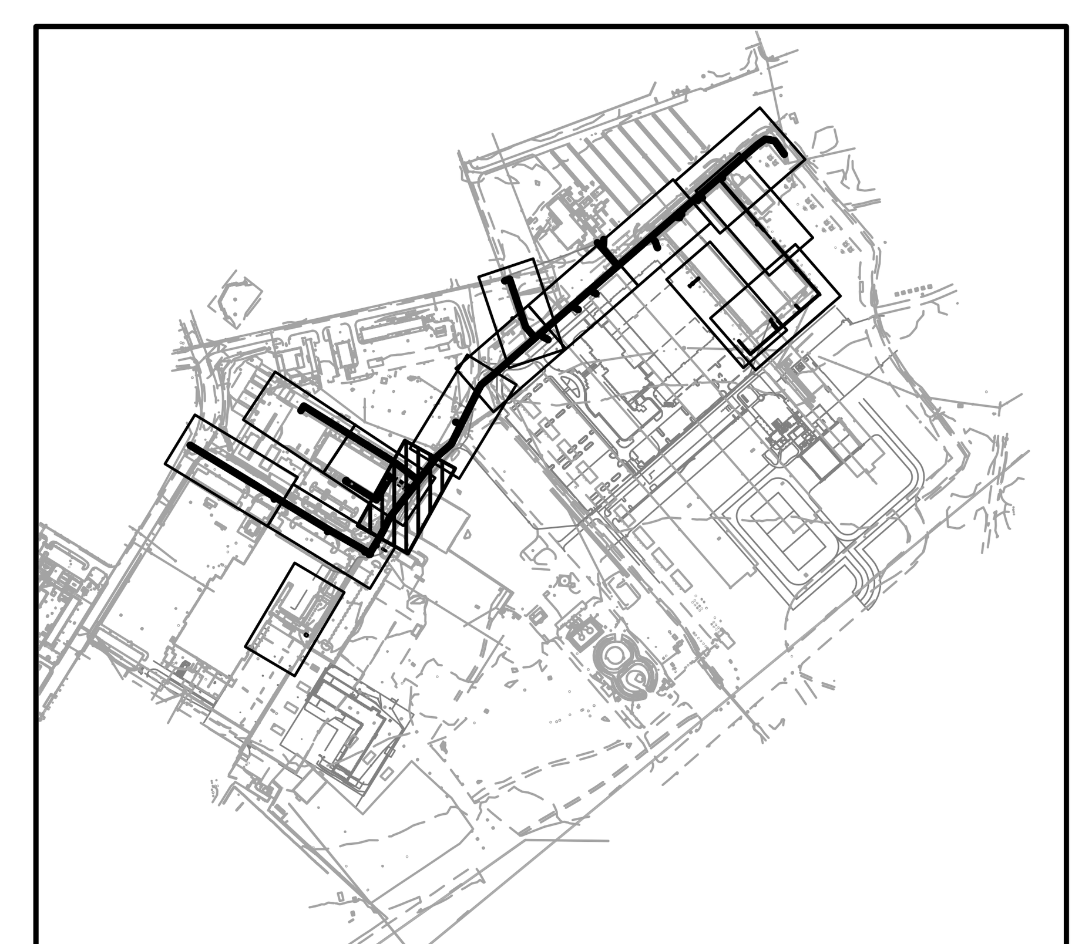


NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C–04 C–24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 C–04 C–24
3. FOR GATE VALVE, SEE DETAIL 5 C–04 C–24
4. FOR CONC CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C–04 C–26

PLAN - WATER LINE "A"

SCALE: 1" = 20'



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020–103
DATE REV.: 01/10/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021–C HAWAII, U.S.A.

SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES RM | DRW FAI | CHK RA

STATE OF HAWAII
DEPARTMENT OF DEFENSE
FACILITY MANAGEMENT OFFICE
DESIGN AND PROJECT MANAGEMENT BRANCH
HIARNG KALAELOA
KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

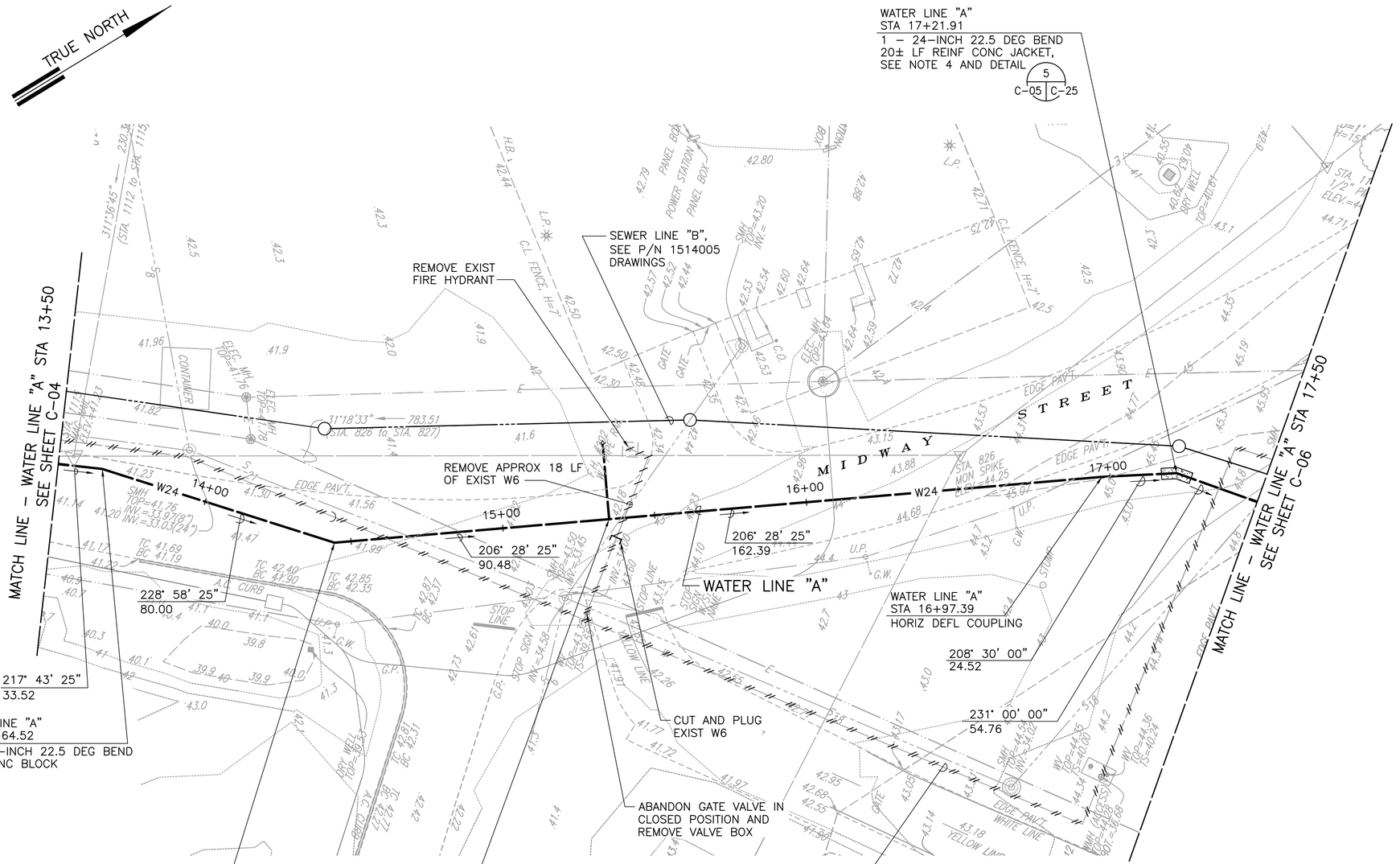
PLAN – WATER LINE "A" STA 9+50 TO STA 13+50

SCALE: AS NOTED

STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

C-04

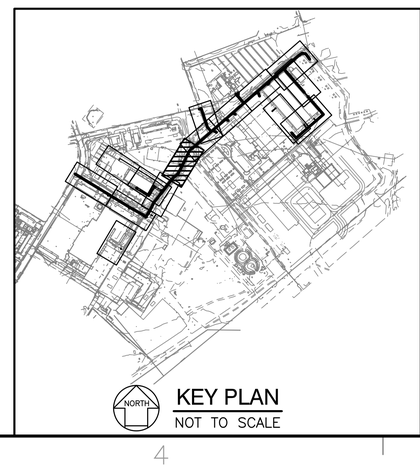


PLAN - WATER LINE "A"

SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C–05 | C–24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 C–05 | C–24
3. FOR GATE VALVE VAULT, SEE DETAIL 5 C–05 | C–24
4. BACKFILL FOR OUTER BEARING SIDE OF REINFORCED CONCRETE JACKET FOR BENDS SHALL BE COMPACTED PIPE BEDDING MATERIAL OR CONCRETE.



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-104
DATE REV.: 01/10/13

HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021–C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" STA 13+50 TO STA 17+50

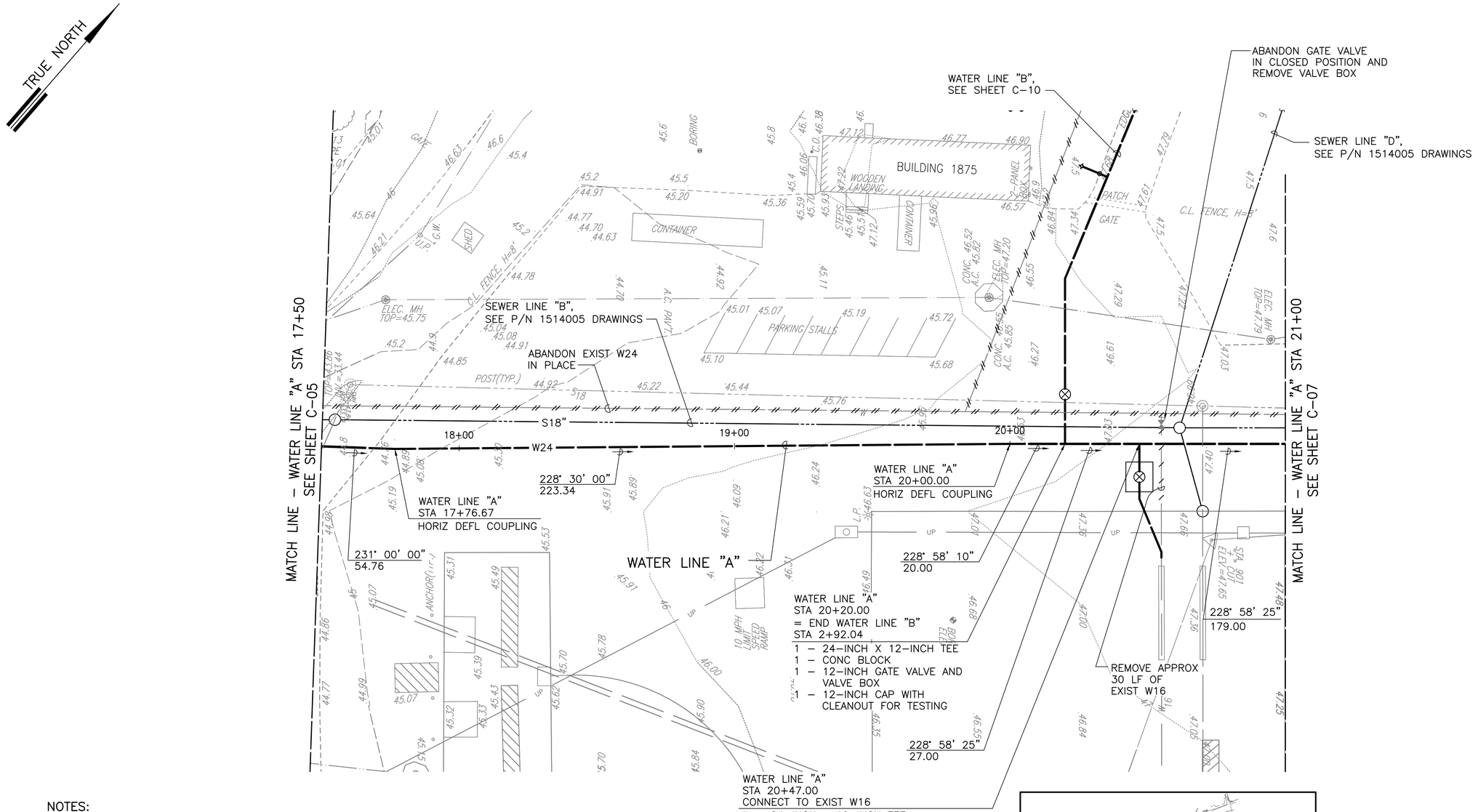
SCALE: AS NOTED

STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

SHEET 26 OF 51

C-05

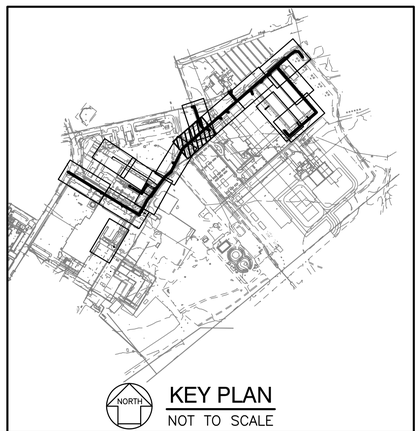


NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C-06 C-24
2. FOR GATE VALVE, SEE DETAIL 5 C-06 C-24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 C-06 C-24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C-06 C-26

PLAN - WATER LINE "A"

SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-105
DATE REV.: 01/10/13

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN - WATER LINE "A" STA 17+50 TO STA 21+00

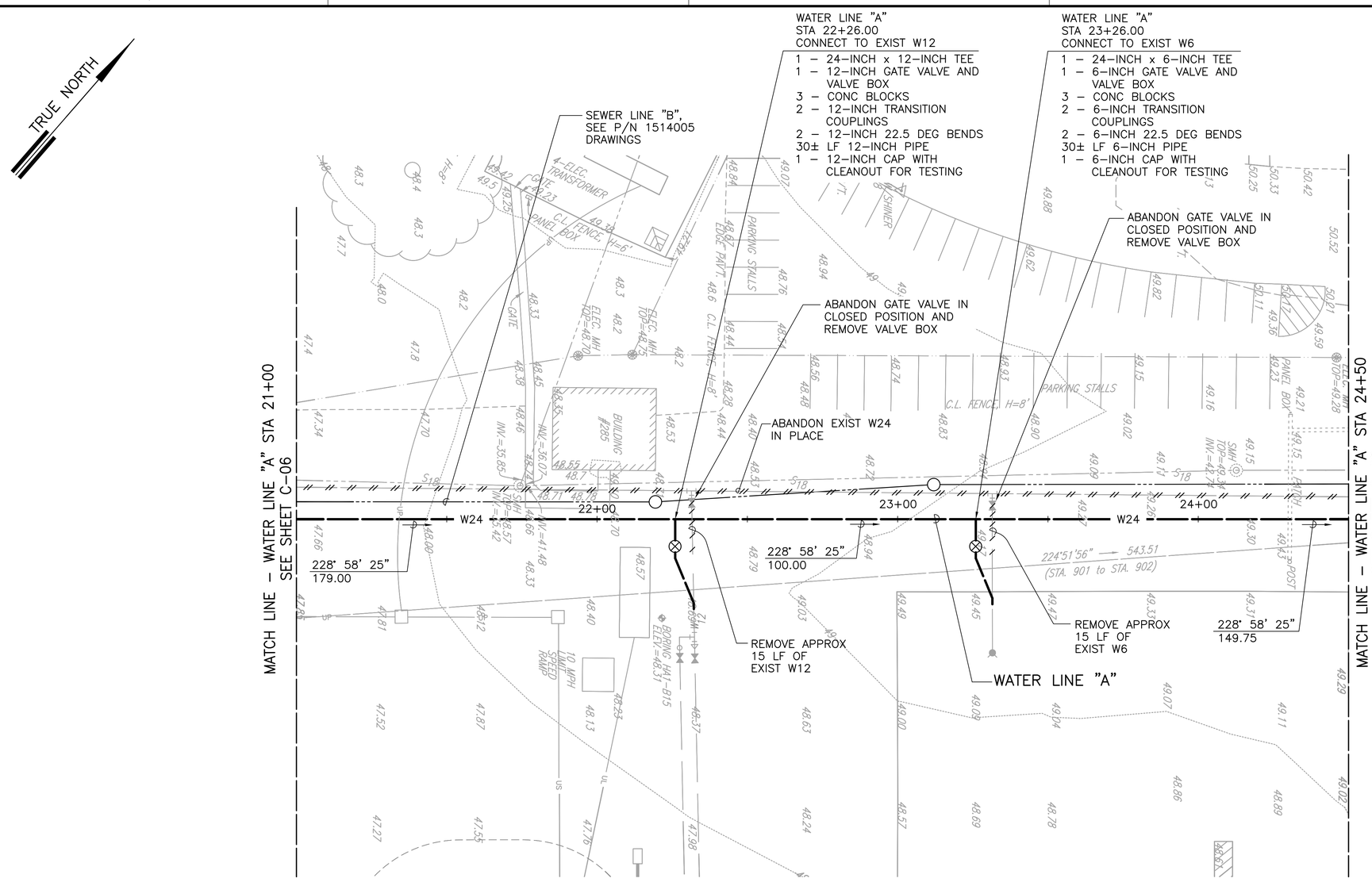
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 27 OF 51

C-06

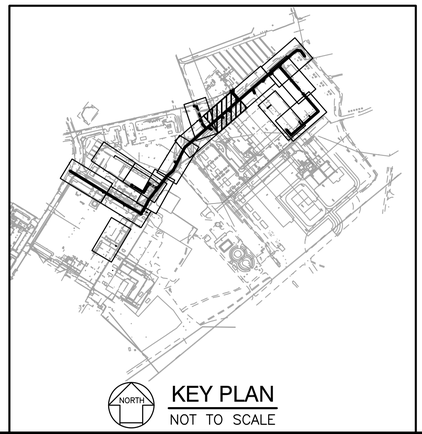


PLAN - WATER LINE "A"

SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C–07 | C–24
2. FOR GATE VALVE, SEE DETAIL 5 / C–07 | C–24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C–07 | C–24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 / C–07 | C–26



KEY PLAN

NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020-106
DATE REV.: 01/10/13

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021–C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" STA 21+00 TO STA 24+50

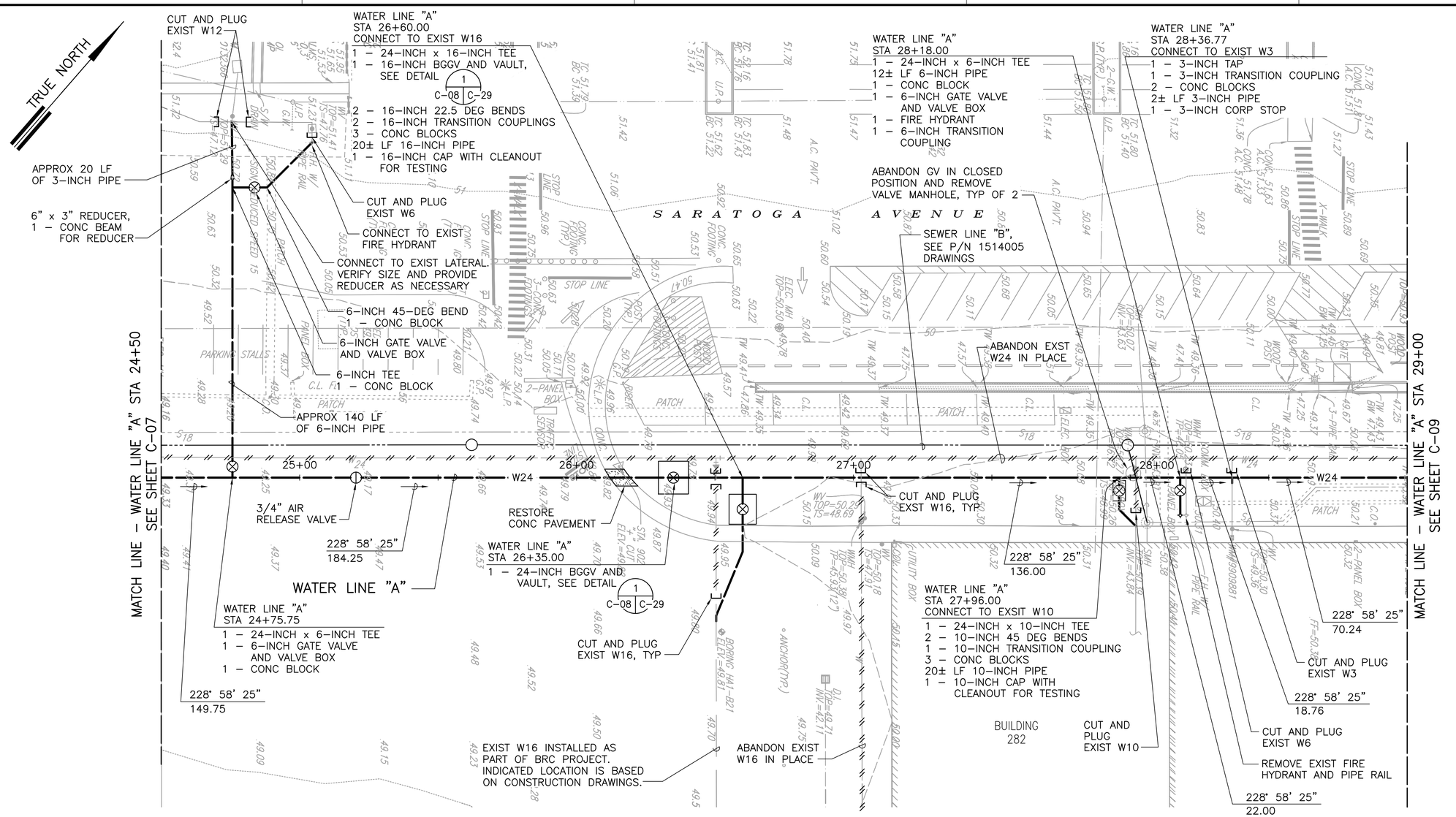
SCALE: AS NOTED

STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

SHEET 28 OF 51

C-07

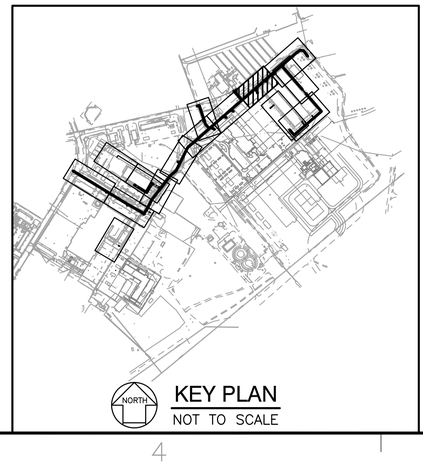


NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C–08 C–24
2. FOR GATE VALVE, SEE DETAIL 5 C–08 C–24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 C–08 C–24
4. FOR CONCRETE CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C–08 C–26
5. FOR FIRE HYDRANT, SEE DETAIL 2 C–08 C–26
6. FOR CONCRETE BEAM FOR REDUCER, SEE DETAIL 2 C–08 C–25

PLAN - WATER LINE "A"

SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE: 2012020–107
DATE REV.: 01/10/13

HAWAII ARMY NATIONAL GUARD
HDR
LICENSED A/E INFO
TONY C.G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021–C HAWAII, U.S.A. SEAL
APPR | DATE | DESCRIPTION | SYM

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" STA 24+50 TO STA 29+00

SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 29 OF 51

C-08

WATER LINE "A"
STA 29+07.00
1 – 24–INCH x 6–INCH TEE
1 – 6–INCH GATE VALVE AND VALVE BOX
12± LF 6–INCH PIPE
1 – 6–INCH TRANSITION COUPLING
1 – CONC BLOCK
1 – FIRE HYDRANT

WATER LINE "A"
STA 29+16.96
CONNECT TO EXIST W1
1 – 1–INCH TAP
1 – 24–INCH PIPE SADDLE
1 – 1–INCH TRANSITION COUPLING
10± LF 1–INCH PIPE
1 – 1–INCH CAP WITH CLEANOUT FOR TESTING

WATER LINE "A"
STA 29+22.50
CONNECT TO EXIST W12
1 – 10–INCH GATE VALVE AND VALVE BOX
1 – 24–INCH x 10–INCH TEE
1 – 10–INCH TRANSITION COUPLING
3 – CONC BLOCKS
20± LF 10–INCH PIPE
1 – 10–INCH CAP WITH CLEANOUT FOR TESTING
2 – 22.5 DEG BENDS

WATER LINE "A"
STA 30+32.39
= BEGIN WATER LINE "D"
STA 0+00
1 – 24–INCH x 12–INCH TEE
1 – 12–INCH GATE VALVE AND VALVE BOX
1 – CONC BLOCK
20± LF 12–INCH PIPE
1 – 12–INCH CAP WITH CLEANOUT FOR TESTING

WATER LINE "A"
STA 32+25.00
HORIZ DEFL COUPLING

WATER LINE "A"
STA 32+45.00
HORIZ DEFL COUPLING

WATER LINE "A"
STA 32+66.66
HORIZ DEFL COUPLING

WATER LINE "A"
STA 32+86.66
1 – 24–INCH 45 DEG BEND
1 – CONC BLOCK

WATER LINE "A"
STA 33+26.66
1 – 24–INCH 45 DEG BEND
1 – CONC BLOCK

CUT AND PLUG EXIST W1

CUT AND PLUG EXIST W2

WATER LINE "A"
STA 30+45.69
CONNECT TO EXIST W2
1 – 24–INCH PIPE SADDLE
1 – 2–INCH TAP
1 – 2–INCH TRANSITION COUPLING
10± LF 2–INCH PIPE
1 – 2–INCH GATE VALVE AND BOX
1 – 2–INCH CAP WITH CLEANOUT FOR TESTING

ABANDON EXIST W24 IN PLACE

ABANDON EXIST GV IN CLOSED POSITION AND REMOVE VALVE BOX, TYP OF 2

MATCH LINE – WATER LINE "A" STA 29+00
SEE SHEET C–08

TRUE NORTH

30+00 31+00 32+00 33+00

RESTORE CONC PAVEMENT

228° 58' 25" 109.89

CUT AND PLUG EXIST W10

228° 58' 25" 70.24

CUT AND PLUG EXIST W6

ABANDON GATE VALVE IN CLOSED POSITION AND REMOVE VALVE BOX

228° 58' 25" 5.55

228° 58' 25" 13.29

228° 58' 25" 9.95

REMOVE EXIST FIRE HYDRANT AND PIPE RAIL

STA 903 "+" CUT ELEV.=49.95

APPROX 15 LF REINFORCED CONC JACKET, SEE DETAIL 5 / C–09 | C–25

WATER LINE "D", SEE SHEETS C–13 AND C–14

ABANDON EXIST W16 IN PLACE

228° 58' 25" 179.31

231° 28' 25" 20.00

233° 35' 23" 21.66

234° 50' 00" 20.00

279° 50' 00" 40.00

324° 50' 00" 69.12

WATER LINE "A"

TIE: 248° 18' 55" 262.54 (STA 903 TO END WATER LINE "A")

END WATER LINE "A"
STA 33+95.77
CONNECT TO EXIST W12
1 – 12–INCH 22.5 DEG BEND
1 – 24–INCH x 12–INCH REDUCER
1 – CONC BEAM FOR REDUCER SEE DETAIL 2 / C–09 | C–25
1 – CONC BLOCK WITH STRUCTURAL STRUT
1 – 12–INCH GATE VALVE AND VALVE BOX
1 – 12–INCH TRANSITION COUPLING
1 – 12–INCH CAP WITH CLEANOUT FOR TESTING
10± LF 12–INCH PIPE

ABANDON EXIST W12 IN PLACE

CUT AND PLUG EXIST W12

BUILDING 282

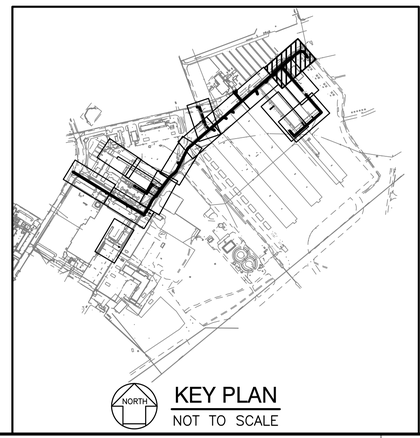
BUILDING 134

BUILDING #134

PLAN - WATER LINE "A"
SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C–09 | C–24
2. FOR GATE VALVE, SEE DETAIL 5 / C–09 | C–24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C–09 | C–24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 / C–09 | C–26
5. FOR FIRE HYDRANT, SEE DETAIL 2 / C–09 | C–26



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE: 2012020-108
DATE REV.: 02/27/14

HAWAII ARMY NATIONAL GUARD
LICENSED
A/E INFO

HDR

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

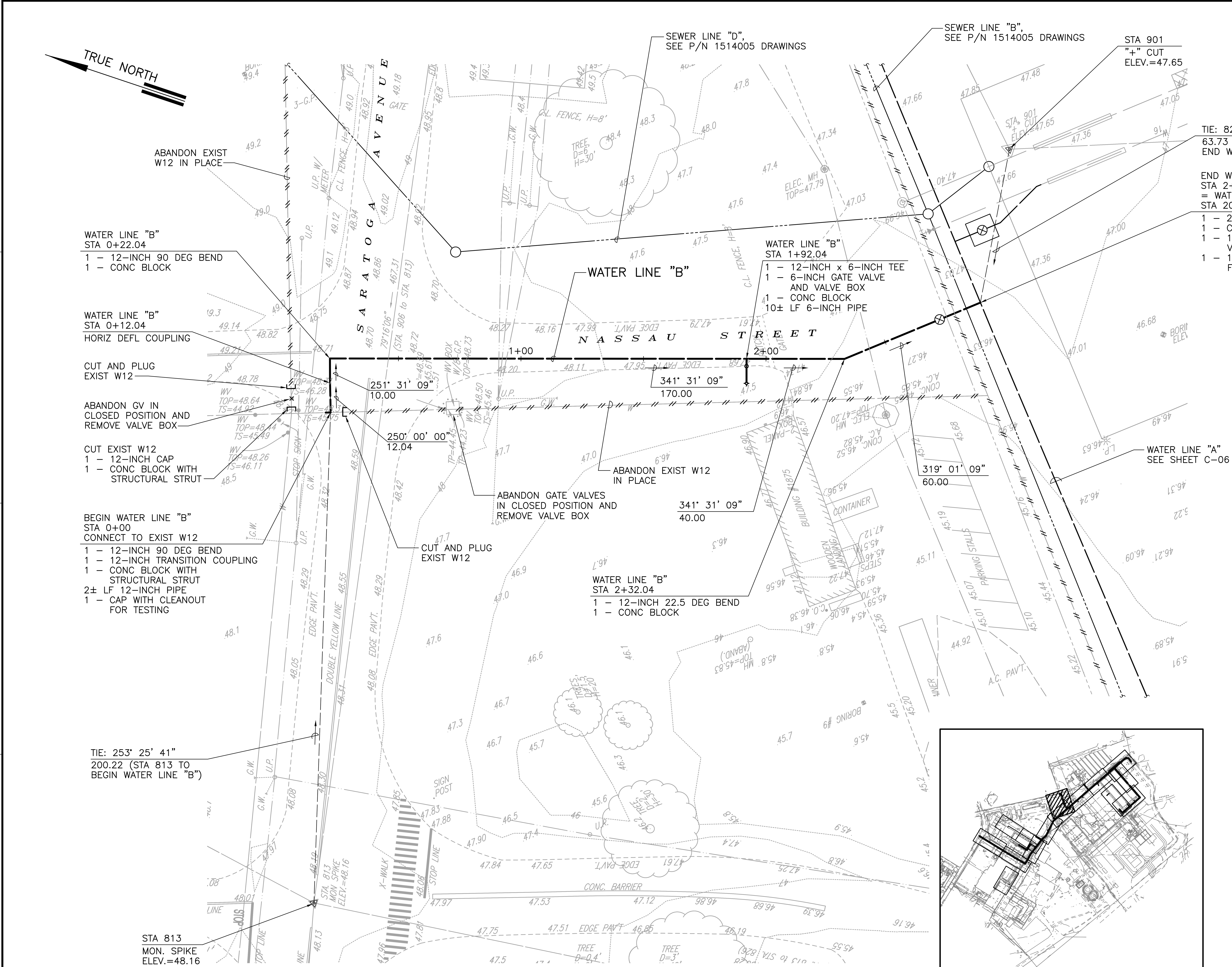
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "A" STA 29+00 TO END

SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 30 OF 51

C-09


TRUE NORTH
SEWER LINE "D", SEE P/N 1514005 DRAWINGS
SEWER LINE "B", SEE P/N 1514005 DRAWINGS
STA 901 "+" CUT ELEV.=47.65
TIE: 82° 11' 03" 63.73 (STA 901 TO END WATER LINE "B")
END WATER LINE "B" STA 2+92.04 = WATER LINE "A" STA 20+20.00
1 – 24-INCH x 12-INCH TEE
1 – CONC BLOCK
1 – 12-INCH GATE VALVE AND VALVE BOX
1 – 12-INCH CAP WITH CLEANOUT FOR TESTING
ABANDON EXIST W12 IN PLACE
WATER LINE "B" STA 0+22.04
1 – 12-INCH 90 DEG BEND
1 – CONC BLOCK
WATER LINE "B"
WATER LINE "B" STA 1+92.04
1 – 12-INCH x 6-INCH TEE
1 – 6-INCH GATE VALVE AND VALVE BOX
1 – CONC BLOCK
10± LF 6-INCH PIPE
WATER LINE "B" STA 0+12.04
HORIZ DEFL COUPLING
SARATOGA AVENUE
NASSAU STREET
1+00
2+00
CUT AND PLUG EXIST W12
251° 31' 09" 10.00
341° 31' 09" 170.00
ABANDON GV IN CLOSED POSITION AND REMOVE VALVE BOX
250° 00' 00" 12.04
CUT EXIST W12
1 – 12-INCH CAP
1 – CONC BLOCK WITH STRUCTURAL STRUT
ABANDON EXIST W12 IN PLACE
319° 01' 09" 60.00
WATER LINE "A" SEE SHEET C-06
341° 31' 09" 40.00
ABANDON GATE VALVES IN CLOSED POSITION AND REMOVE VALVE BOX
BEGIN WATER LINE "B" STA 0+00 CONNECT TO EXIST W12
1 – 12-INCH 90 DEG BEND
1 – 12-INCH TRANSITION COUPLING
1 – CONC BLOCK WITH STRUCTURAL STRUT
2± LF 12-INCH PIPE
1 – CAP WITH CLEANOUT FOR TESTING
CUT AND PLUG EXIST W12
WATER LINE "B" STA 2+32.04
1 – 12-INCH 22.5 DEG BEND
1 – CONC BLOCK
BUILDING #1875
CONTAINER
PARKING STALLS
TIE: 253° 25' 41" 200.22 (STA 813 TO BEGIN WATER LINE "B")
STA 813 MON. SPIKE ELEV.=48.16
CONC. BARRIER
X-WALK
STOP LINE
DOUBLE YELLOW LINE
EDGE PAVT.

PLAN - WATER LINE "B"

SCALE: 1" = 20'

KEY PLAN

NOT TO SCALE

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C-10 | C-24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 C-10 | C-24
3. FOR CONCRETE CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C-10 | C-26

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

HDR

LICENSED A/E INFO

TONY C. G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A.

SEAL

SYM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII – DEPARTMENT OF DEFENSE

FACILITY MANAGEMENT OFFICE – DESIGN AND PROJECT MANAGEMENT BRANCH

HIARNG KALAELOA – KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "B"

SCALE: AS NOTED

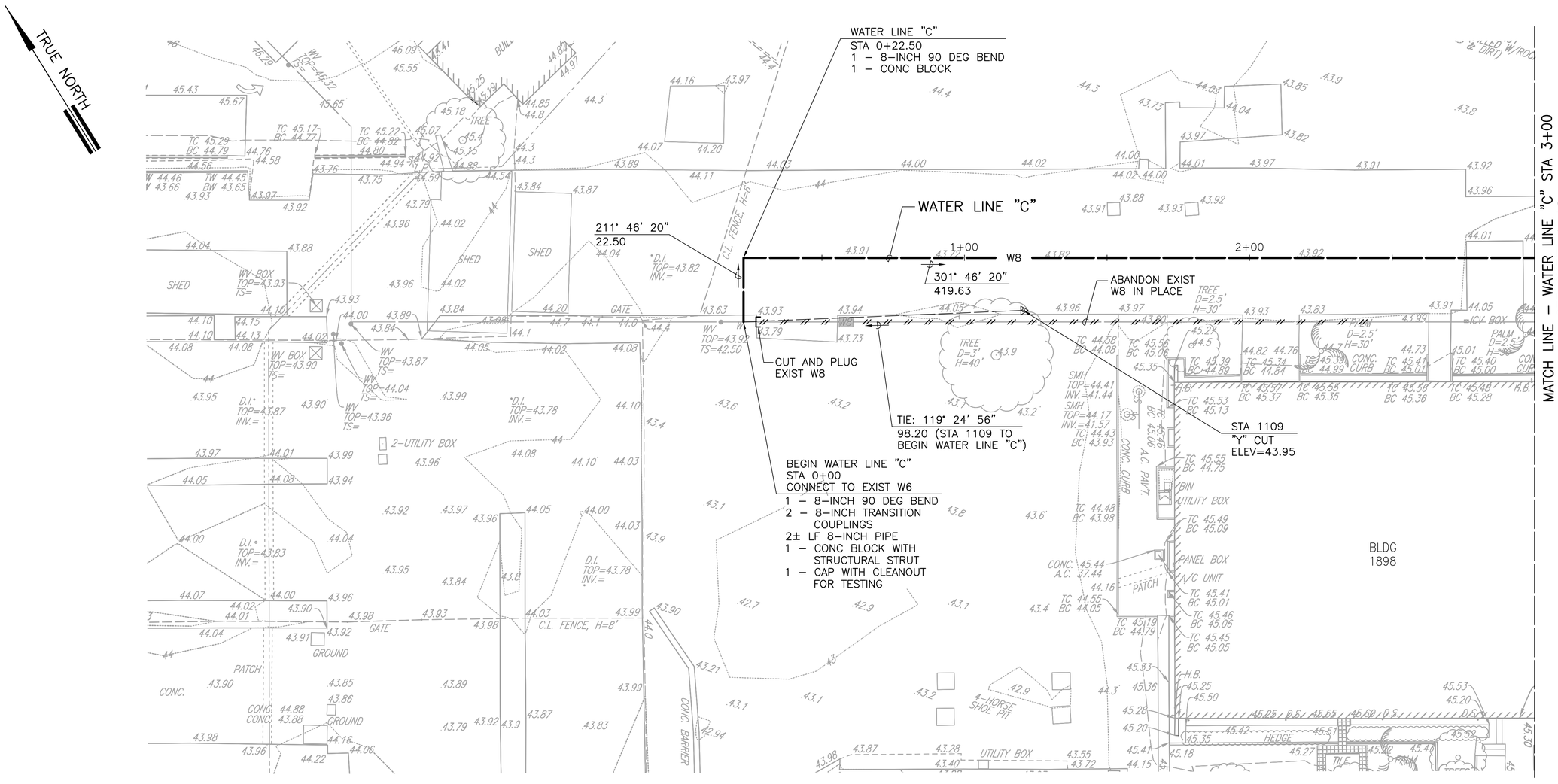
STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 31 OF 51

C-10

FILE: 2012020-109
DATE REV.: 01/10/13

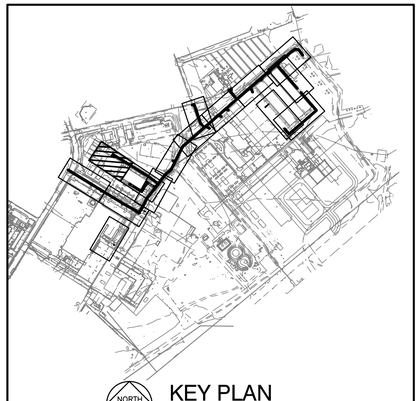


PLAN - WATER LINE "C"

SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C–11 | C–24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C–11 | C–24
3. FOR GATE VALVE, SEE DETAIL 5 / C–11 | C–24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 / C–11 | C–26



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021–C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE – WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "C" BEGIN TO STA 3+00

SCALE: AS NOTED

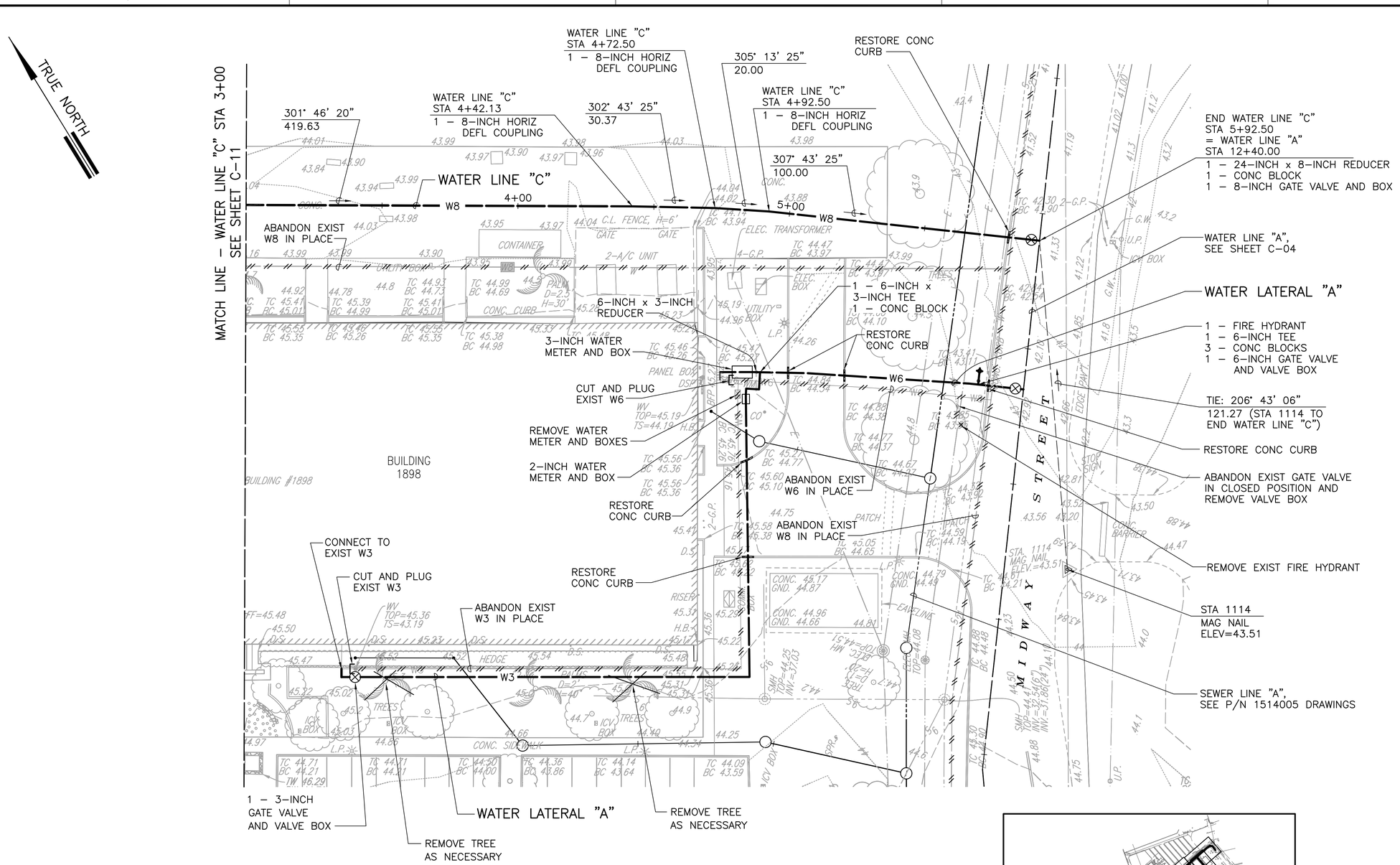
STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

SHEET 32 OF 51

C-11

FILE: 2012020–134
DATE REV.: 12/31/13

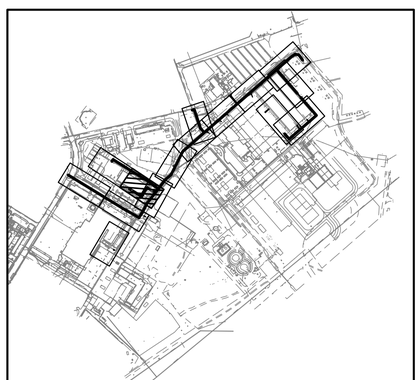


PLAN - WATER LINE "C"

SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C–12 | C–24
2. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C–12 | C–24
3. FOR GATE VALVE, SEE DETAIL 5 / C–12 | C–24
4. FOR 2–INCH WATER METER, SEE DETAIL 1 / C–12 | C–30
5. FOR 3–INCH WATER METER, SEE DETAIL 1 / C–12 | C–26
6. FOR CONCRETE BLOCK WITH STRUCTURAL STRUT, SEE DETAIL 3 / C–12 | C–28



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE: 2012020–135
DATE REV.: 12/31/13

HDR

LICENSED PROFESSIONAL ENGINEER
TONY C. G. LAU
No. 9021–C
HAWAII, U.S.A.

	APPR	DATE	DESCRIPTION	STM

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

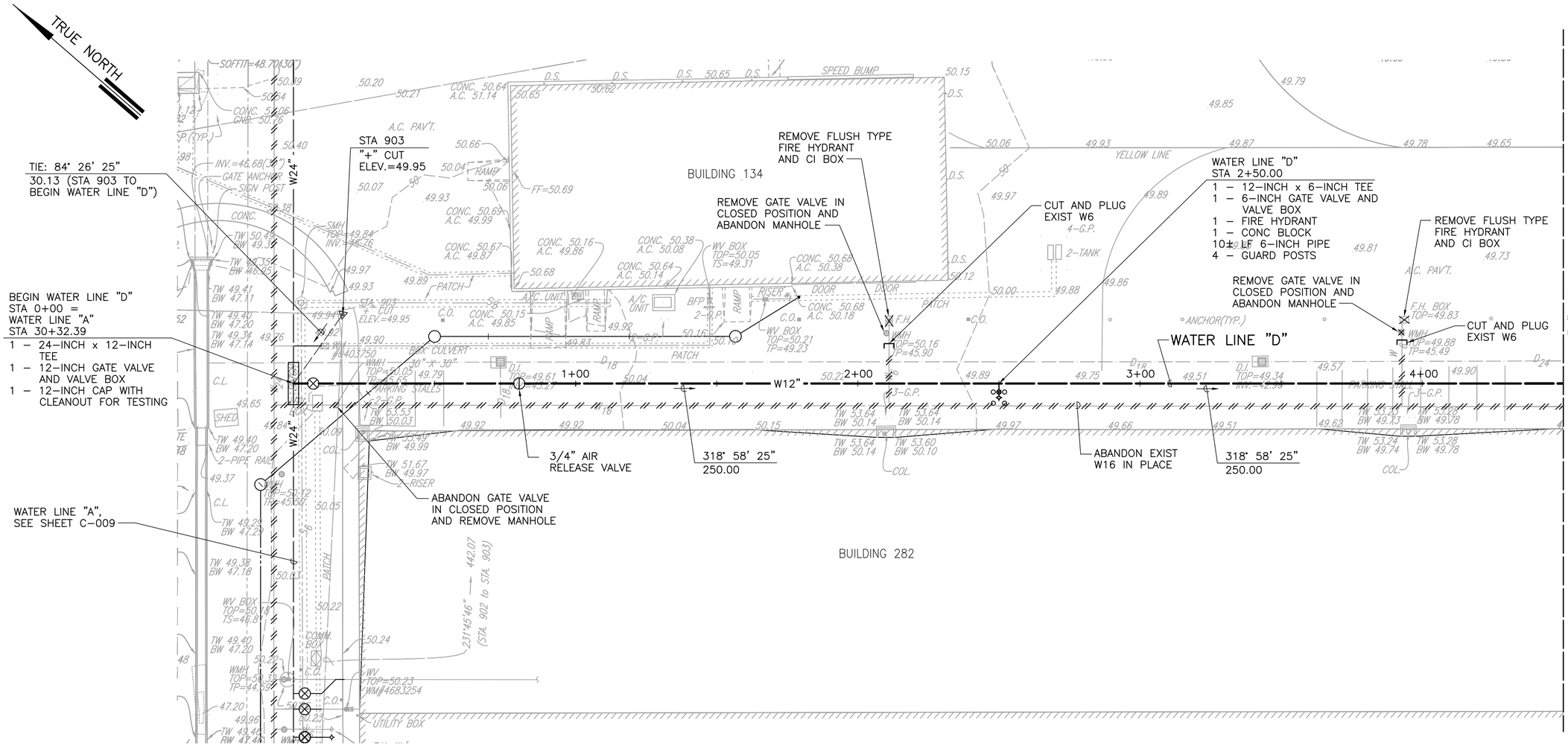
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE – WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "C" STA 3+00 TO END

SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 33 OF 51

C-12

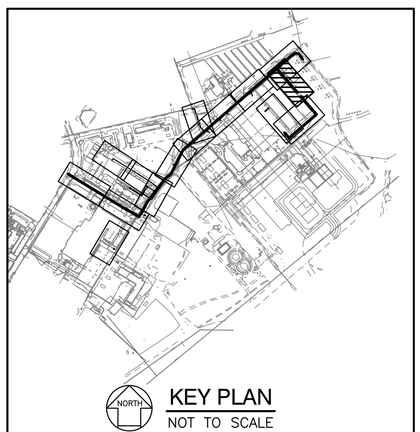


PLAN - WATER LINE "D"

SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C-13 | C-24
2. FOR GATE VALVE, SEE DETAIL 5 / C-13 | C-24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C-13 | C-24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 / C-13 | C-26
5. FOR FIRE HYDRANT, SEE DETAIL 2 / C-13 | C-26



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:

20' 10' 0 20' 40'

SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-146 01/10/13

LICENSED PROFESSIONAL ENGINEER
TONY C. G. LAU
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR | DATE | DESCRIPTION | SYM

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "D" BEGIN TO STA 4+50

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 34 OF 51

C-13

TRUE NORTH

MATCH LINE – WATER LINE "D" STA 4+50
SEE SHEET C-13

BUILDING 282

ABANDON EXIST W16 IN PLACE

REMOVE EXIST PLUG AND CONC BLOCK. VERIFY LINE SIZE

END WATER LINE "D" STA 10+94.51
CONNECT TO EXIST W12
1 – 12–INCH TRANSITION COUPLING
1 – CAP WITH CLEANOUT FOR TESTING

138° 54' 08"
73.29

REMOVE 16–INCH GATE VALVE AND MANHOLE

CUT AND PLUG EXIST W4

ABANDON 4–INCH GATE VALVE IN OPEN POSITION AND ABANDON MANHOLE

WATER LINE "D"
STA 10+21.22
1 – 12–INCH TEE
1 – 12–INCH PLUG
2 – CONC BLOCKS
1 – 12–INCH GATE VALVE AND VALVE BOX

TIE: 318° 58' 14"
139.36 (END WATER LINE "D" TO STA 899)

STA 899
"+" CUT
ELEV.=47.08

48° 54' 08"
10.00

WATER LINE "D"
STA 10+11.22
HORIZ DEFL COUPLING

WATER LINE "D"
STA 8+70.10
1 – 12–INCH x 10–INCH TEE
1 – 10–INCH TRANSITION COUPLING
1 – 10–INCH GATE VALVE AND VALVE BOX
30± LF 10–INCH PIPE
1 – CONC BLOCK

48° 58' 25"
141.12

CUT AND PLUG EXIST W4

EXIST W10 TO REMAIN

ABANDON 6–INCH GATE VALVE IN CLOSED POSITION AND REMOVE VALVE BOX

CONNECT TO EXIST W10
ABANDON 10–INCH GATE VALVE IN OPEN POSITION AND ABANDON MANHOLE

ABANDON 6–INCH GATE VALVE IN CLOSED POSITION AND REMOVE VALVE BOX

REMOVE FLUSH TYPE FIRE HYDRANT AND CI BOX

CONNECT TO EXIST W12

48° 58' 25"
4.76

48° 58' 25"
21.84

3/4" AIR RELEASE VALVE

WATER LINE "D"
STA 8+65.34
1 – 12–INCH x 6–INCH TEE
1 – 6–INCH GATE VALVE
1 – FIRE HYDRANT
2 – CONC BLOCKS
50± LF 6–INCH PIPE
4 – GUARD POSTS

48° 58' 25"
100.16

WATER LINE "D"

WATER LINE "D"
STA 8+43.50
1 – 2–INCH TAP
1 – 2–INCH COUPLING
30± LF 2–INCH PIPE

REMOVE FLUSH TYPE FIRE HYDRANT AND CI BOX

EXIST W10 TO REMAIN

CONNECT TO EXIST W10
ABANDON 10–INCH GATE VALVE IN OPEN POSITION AND ABANDON MANHOLE

WATER LINE "D"
STA 7+43.34
1 – 12–INCH x 10–INCH TEE
1 – 10–INCH TRANSITION COUPLING
1 – 10–INCH GATE VALVE AND VALVE BOX
30± LF 10–INCH PIPE
1 – CONC BLOCK

48° 58' 25"
103.34

318° 58' 25"
250.00

WATER LINE "D"
STA 5+00.00
1 – 12–INCH x 6–INCH TEE
1 – 6–INCH GATE VALVE
1 – FIRE HYDRANT
3 – CONC BLOCKS
10± LF 6–INCH PIPE
4 – GUARD POSTS

WATER LINE "D"

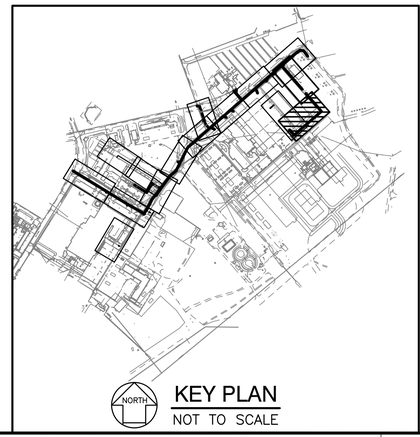
318° 58' 25"
140.00

WATER LINE "D"
STA 6+40.00
1 – 12–INCH 90–DEG BEND
1 – CONC BLOCK

PLAN - WATER LINE "D"
SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C–14 | C–24
2. FOR GATE VALVE, SEE DETAIL 5 C–14 | C–24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 C–14 | C–24
4. FOR CAP WITH CLEANOUT FOR TESTING, SEE DETAIL 3 C–14 | C–26
5. FOR FIRE HYDRANT, SEE DETAIL 2 C–14 | C–26
6. VERIFY SIZES OF EXISTING LINES BEING CONNECTED TO.
7. FOR GUARD POSTS, SEE DETAIL 4 C–14 | C–28
8. FOR NEW W12" ACROSS CONC PAVEMENT STA 8+70± TO STA 10+80±, SAWCUT CONC PAVEMENT AND RESTORE PAVEMENT WITH AC.



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE: 2012020-149
DATE REV.: 2/24/14

HDR
LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL
SUBMITTAL DATE 03/12/14
DES RM | DRW FAI | CHK RA

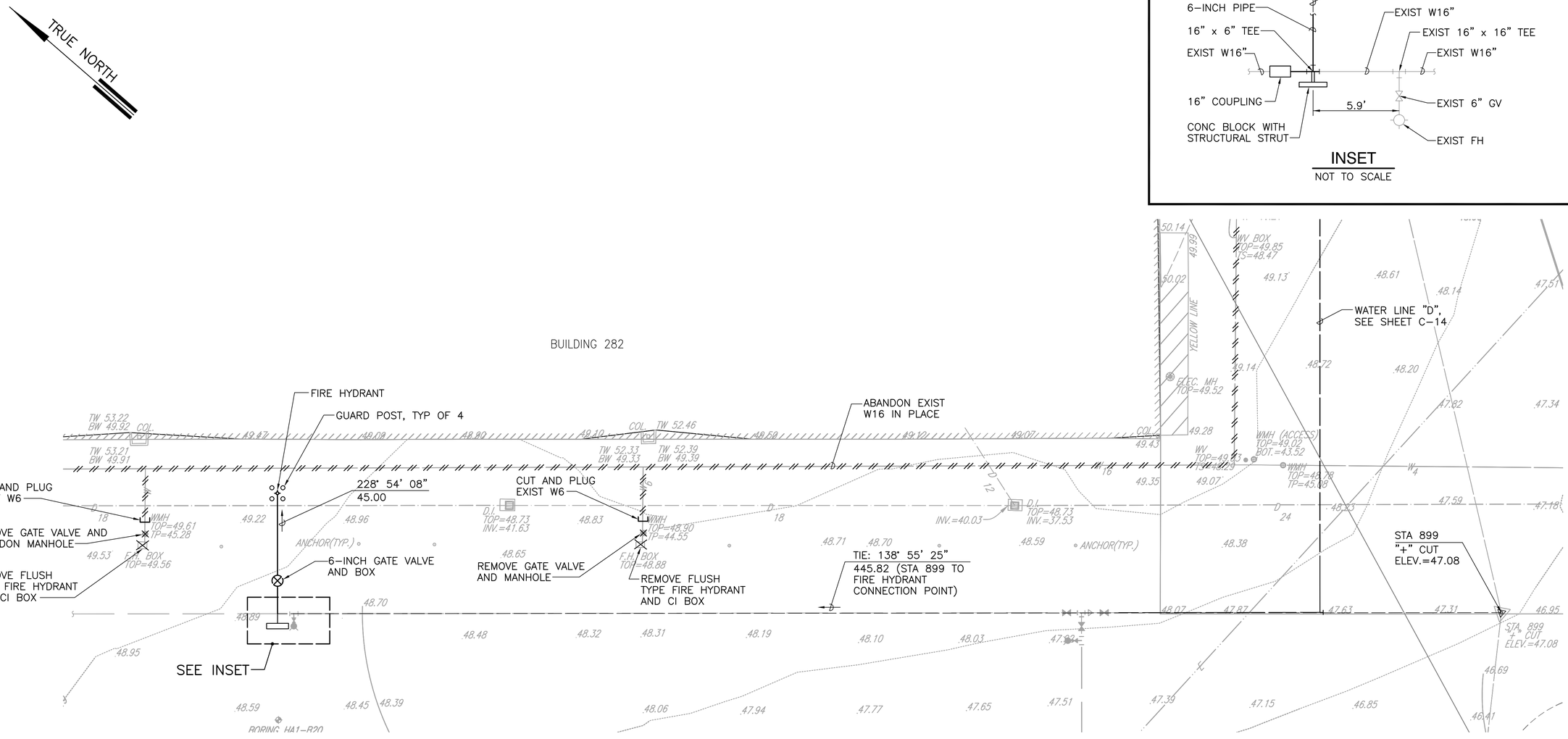
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – WATER LINE "D" STA 4+50 TO END

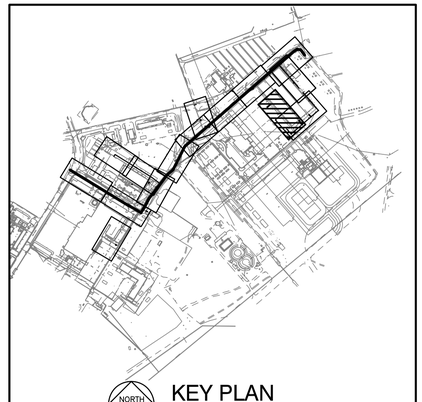
SCALE: AS NOTED
STATE JOB NO. CA–1220–C
FEDERAL PROJECT NO. 15140004
SHEET 35 OF 51

C-14



INSET
NOT TO SCALE

PLAN - ADDITIONAL FIRE HYDRANT
SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

NOTES:

1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 / C-15 | C-24
2. FOR GATE VALVE, SEE DETAIL 5 / C-15 | C-24
3. FOR CONCRETE BLOCKS, SEE DETAIL 2 / C-15 | C-24
4. FOR FIRE HYDRANT, SEE DETAIL 2 / C-15 | C-26
5. FOR GUARD POSTS, SEE DETAIL 4 / C-15 | C-28

FILE: 2012020-150
DATE REV.: 02/26/14

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR	DATE	DESCRIPTION
		STM

SUBMITAL PHASE: BID FINAL
SUBMITAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

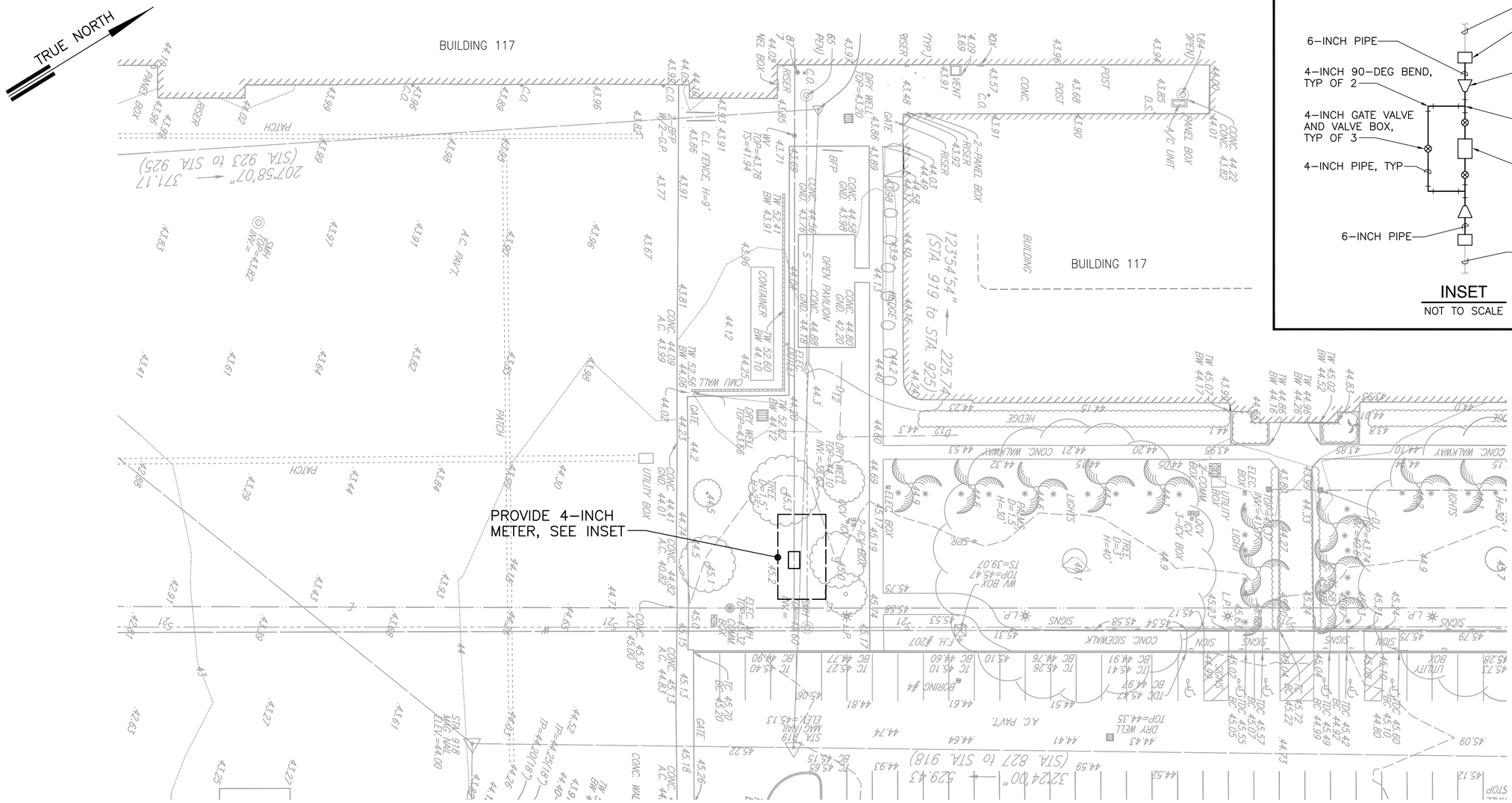
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – ADDITIONAL FIRE HYDRANT, BUILDING 282

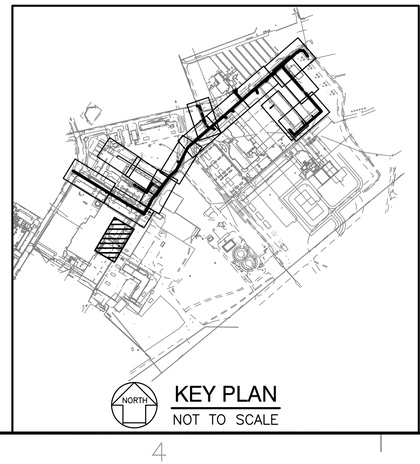
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 36 OF 51

C-15



INSET
NOT TO SCALE

PLAN - ADDITIONAL WATER METER
SCALE: 1" = 20'



KEY PLAN
NOT TO SCALE

GRAPHIC SCALE:
20' 10' 0 20' 40'
SCALE: 1" = 20'

NOTES:
1. FOR TYPICAL WATER LINE TRENCH, SEE DETAIL 1 C-16 C-24
2. FOR GATE VALVE, SEE DETAIL 5 C-16 C-24

FILE: 2012020-151
DATE REV.: 02/26/14

HAWAII ARMY NATIONAL GUARD
LICENSED
A/E INFO
TONY C. G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

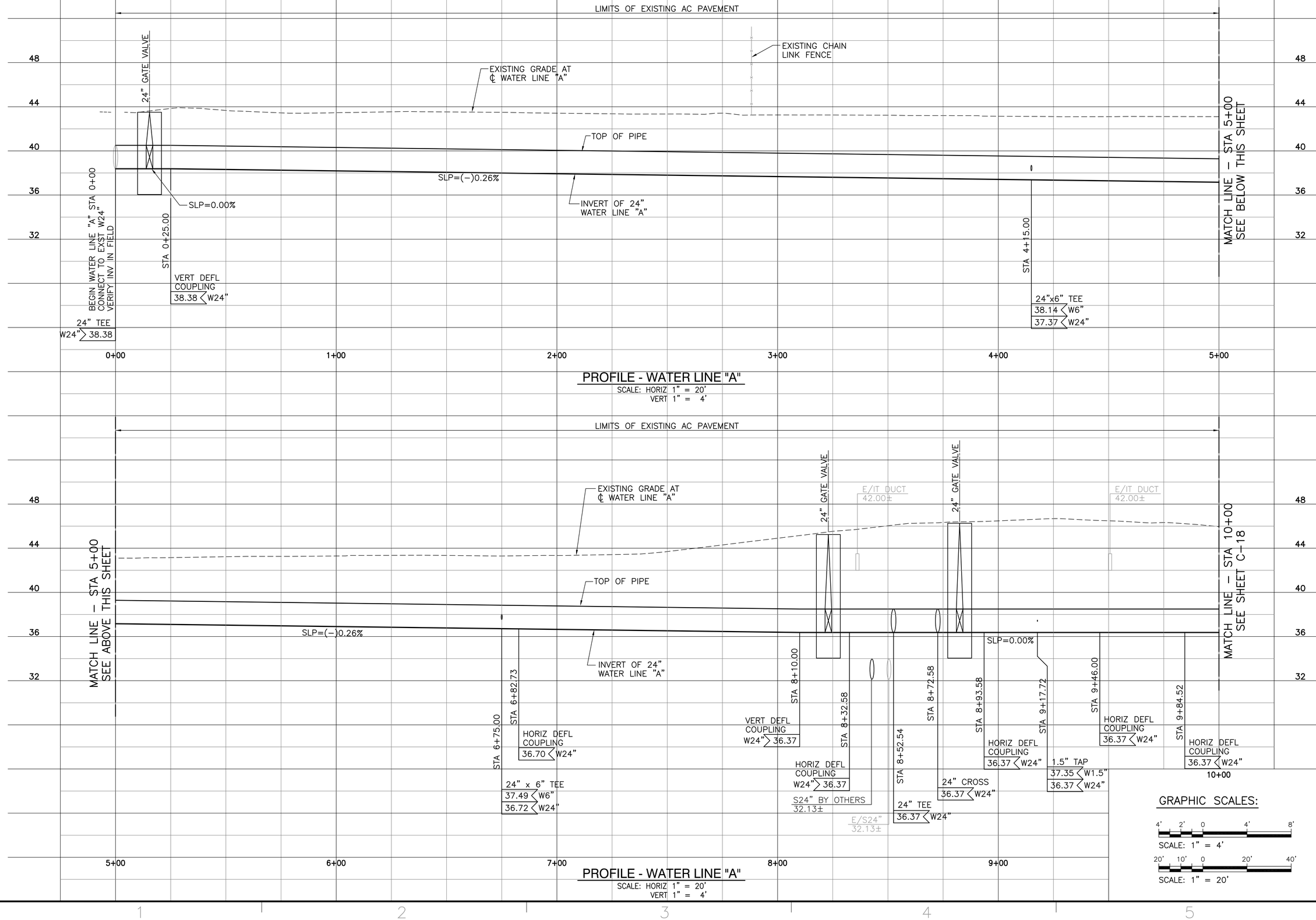
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PLAN – ADDITIONAL WATER METER, BUILDING 117

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 37 OF 51

C-16



PROFILE - WATER LINE "A"

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

PROFILE - WATER LINE "A"

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

GRAPHIC SCALES:

4' 2' 0 4' 8'
SCALE: 1" = 4'

20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE: 2012020-122
DATE REV.: 11/01/13

HDR

LICENSED A/E INFO

TONY C. G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

STM	DESCRIPTION	DATE	APPR

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES: RM | DRW: FAI | CHK: RA

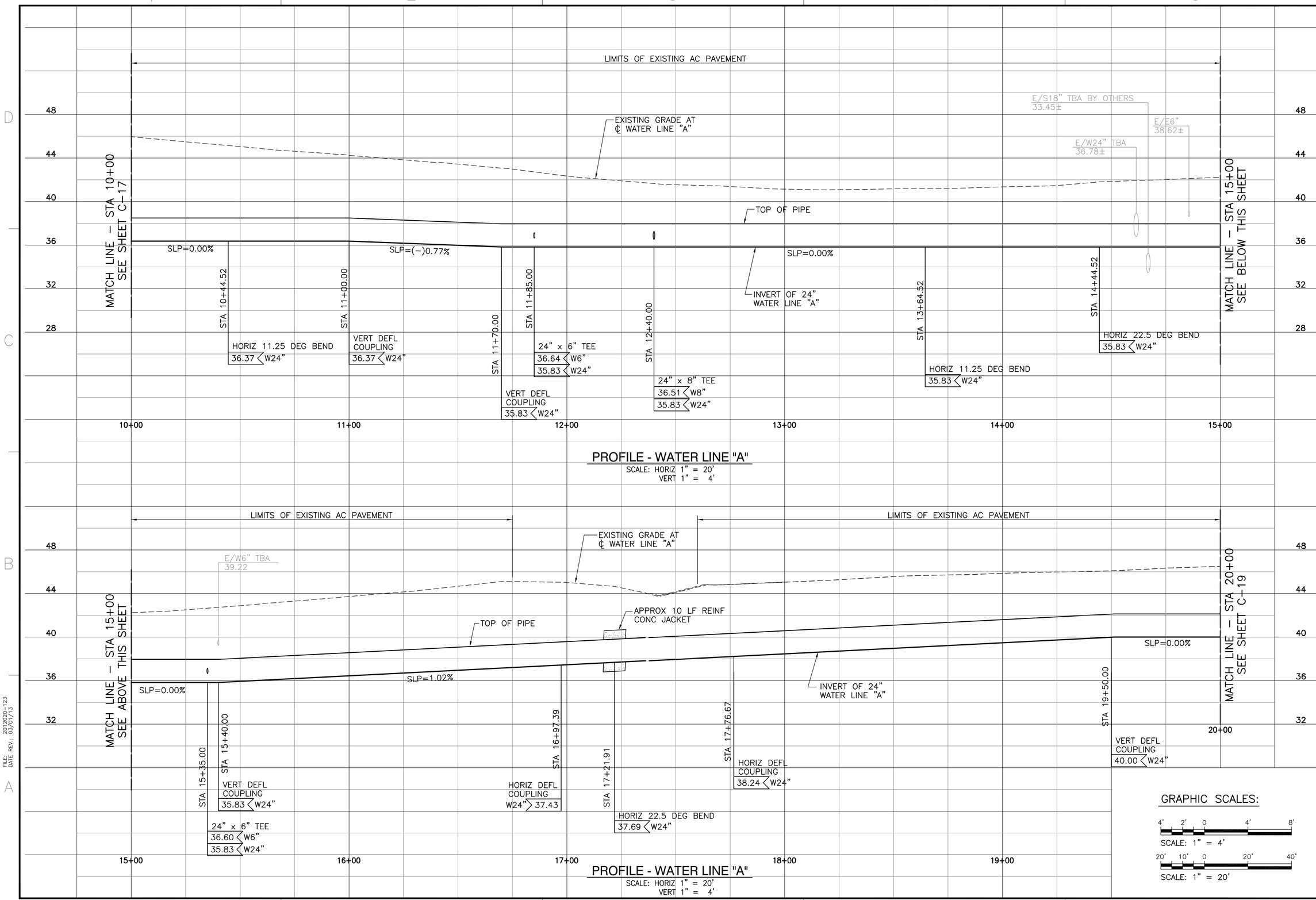
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "A" BEGIN TO STA 10+00

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 38 OF 51

C-17



PROFILE - WATER LINE "A"

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

PROFILE - WATER LINE "A"

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

GRAPHIC SCALES:

SCALE: 1" = 4'

SCALE: 1" = 20'

FILE: 2012020-123
DATE REV.: 03/01/13

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.

SEAL

	APPR	DATE	DESCRIPTION
STM			

SUBMITAL PHASE
BID FINAL

SUBMITAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "A" STA 10+00 TO STA 20+00

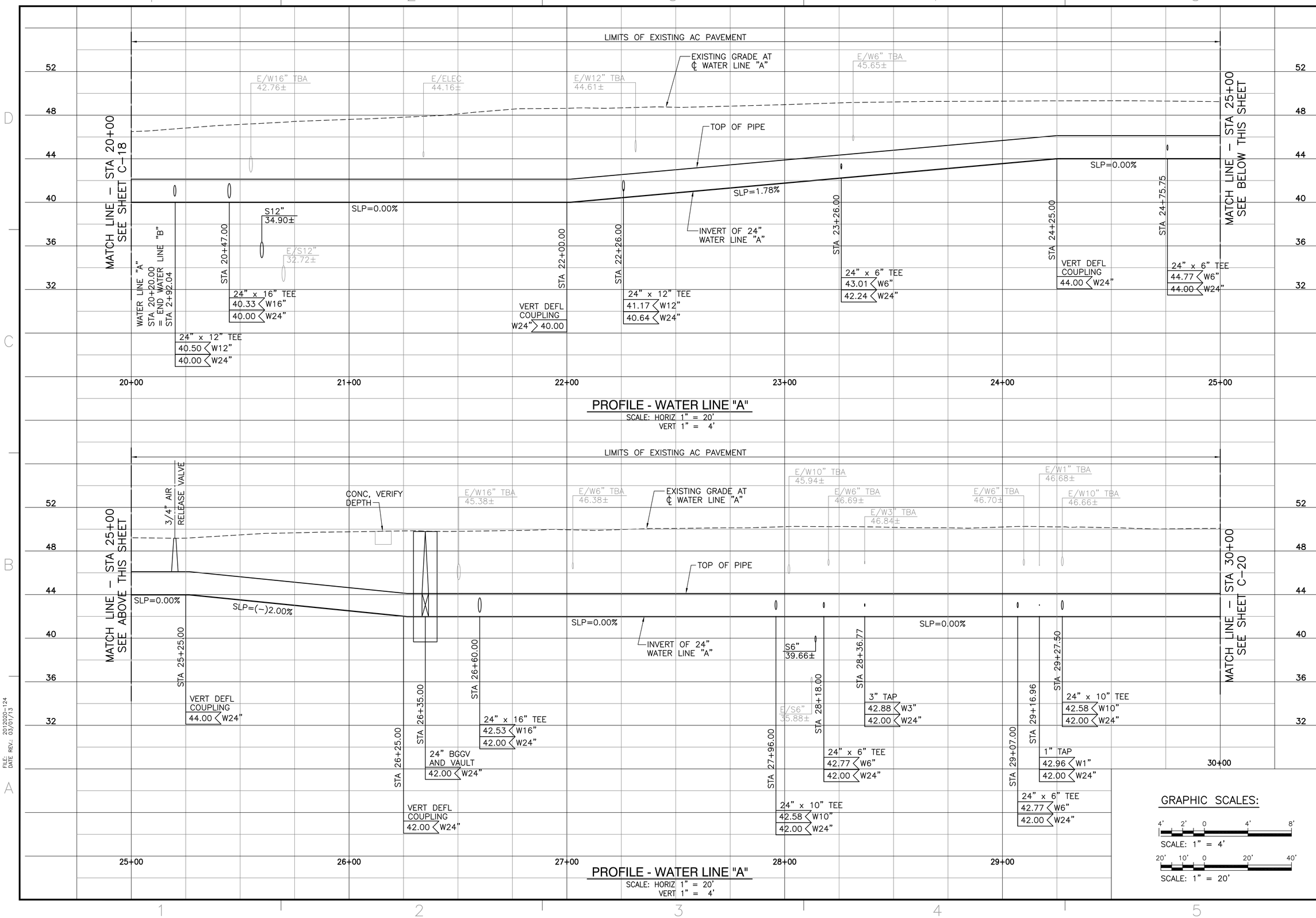
SCALE: AS NOTED

STATE JOB NO.
CA–1220–C

FEDERAL PROJECT NO.
15140004

SHEET 39 OF 51

C-18



FILE:
DATE REV.: 2012020-124 03/01/13

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.C. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A.

SEAL

STM	DESCRIPTION	DATE	APPR

SUBMITAL PHASE: BID FINAL

SUBMITAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HILARIO KALAELOA
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "A" STA 20+00 TO STA 30+00

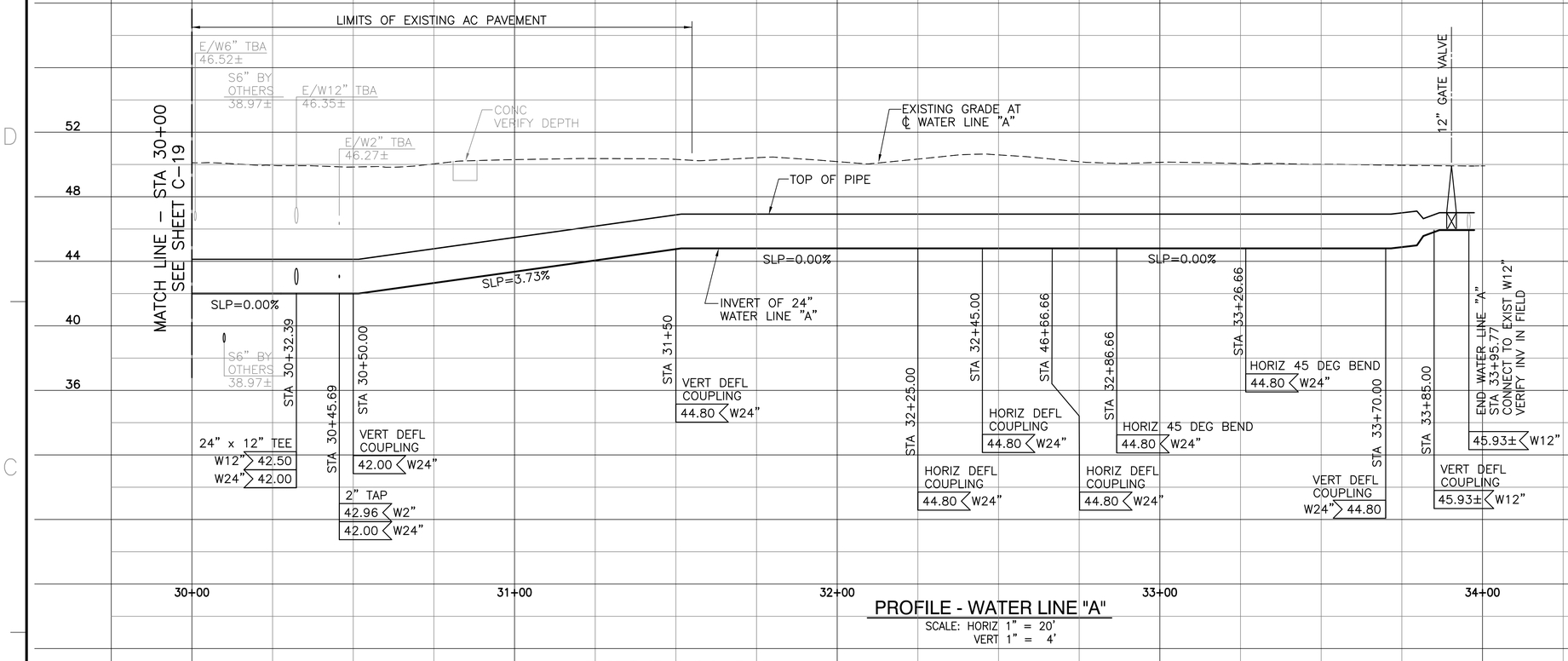
SCALE: AS NOTED

STATE JOB NO. CA–1220–C

FEDERAL PROJECT NO. 15140004

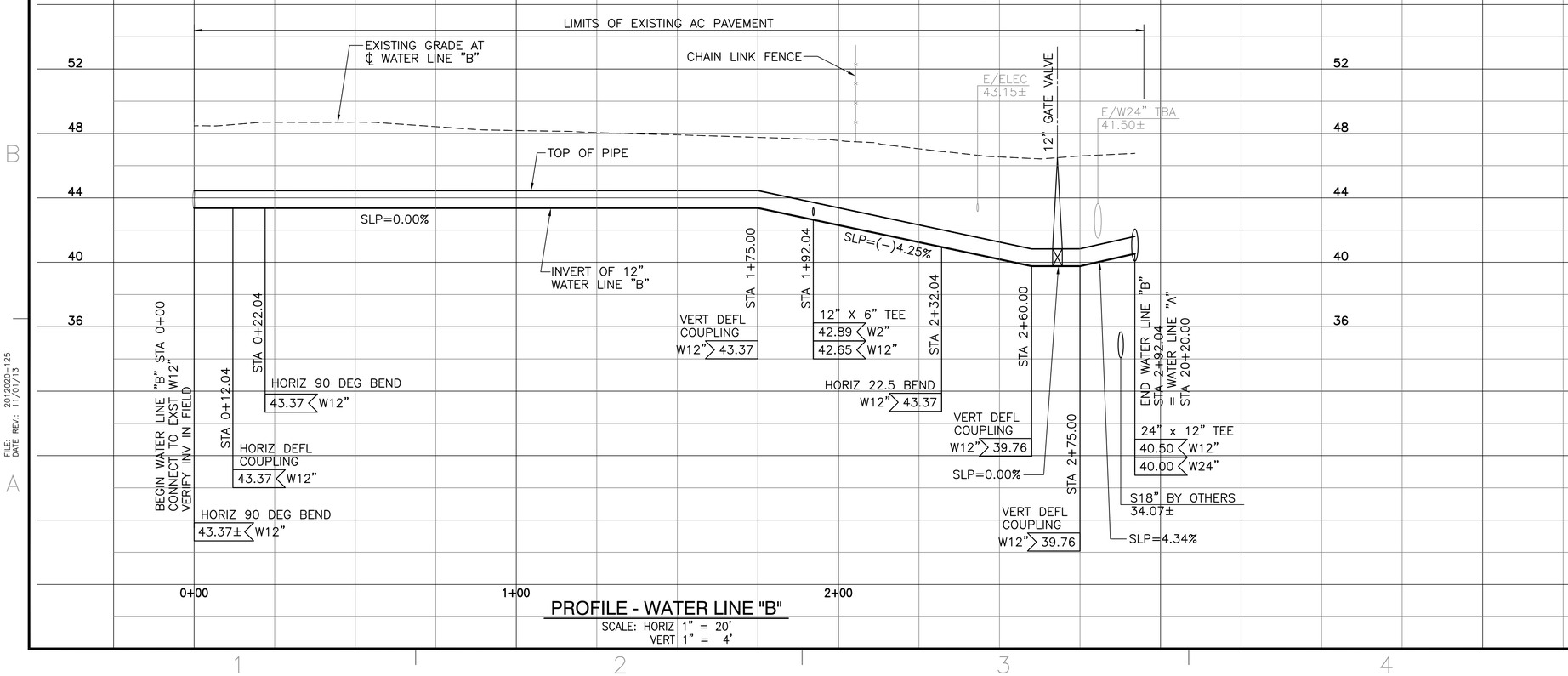
SHEET 40 OF 51

C-19



PROFILE - WATER LINE "A"

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



PROFILE - WATER LINE "B"

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

GRAPHIC SCALES:

4' 2' 0 4' 8'
SCALE: 1" = 4'

20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE:
DATE REV.: 2012020-125 11/01/13

HDR

LICENSED A/E INFO

TONY C.C. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

DTM	DESCRIPTION	DATE	APPR

SUBMITAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

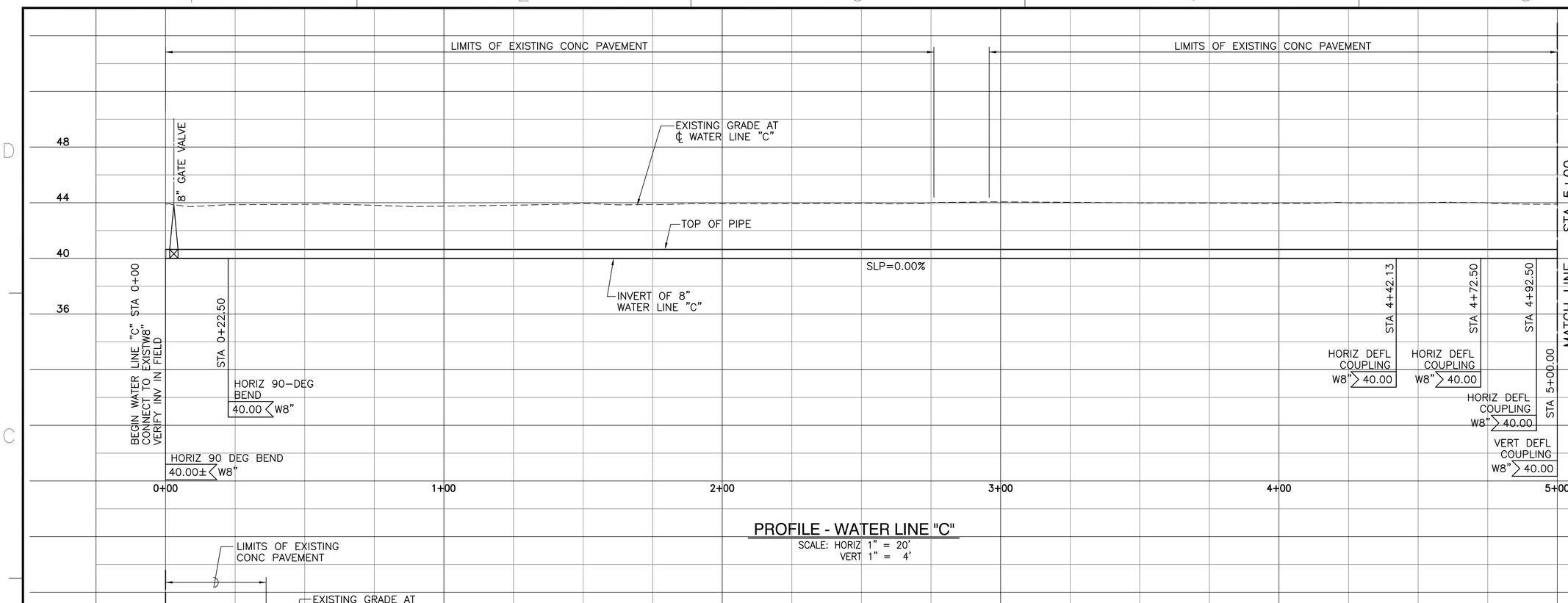
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "A" STA 30+00 TO END, WATER LINE "B"

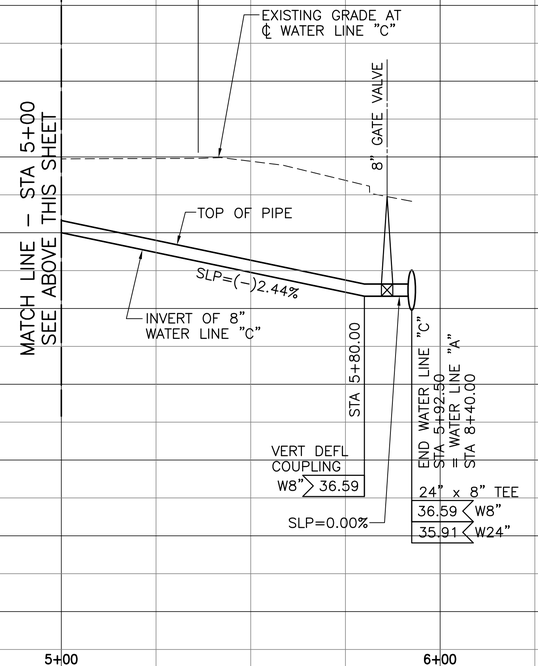
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 41 OF 51

C-20



PROFILE - WATER LINE "C"

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



PROFILE - WATER LINE "C"

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

FILE:
DATE REV.: 2012020-137 02/26/14

GRAPHIC SCALES:

4' 2' 0 4' 8'
SCALE: 1" = 4'

20' 10' 0 20' 40'
SCALE: 1" = 20'

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.C. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

DSN	DESCRIPTION	DATE	APPR

SUBMITAL PHASE
BID FINAL

SUBMITAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

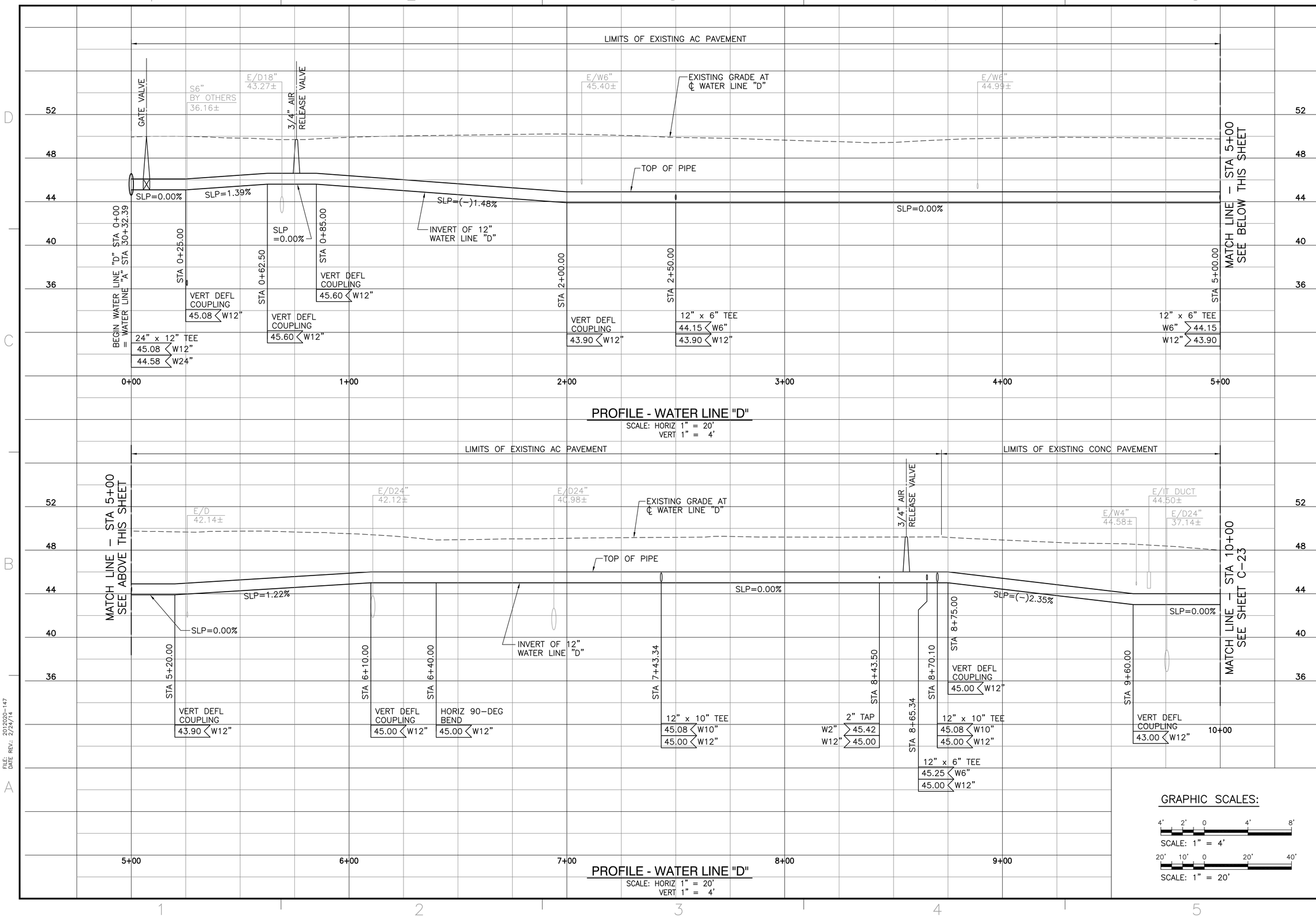
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DEPARTMENT OF DEFENSE
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "C"

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 42 OF 51

C-21



FILE: 2012020-147
DATE REV.: 2/24/14

HDR

LICENSED A/E INFO

TONY C.C. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A.

SEAL

APPR	DATE	DESCRIPTION	STM

SUBMITAL PHASE
BID FINAL

SUBMITTAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE WATER LINE "D" BEGIN TO STA 10+00

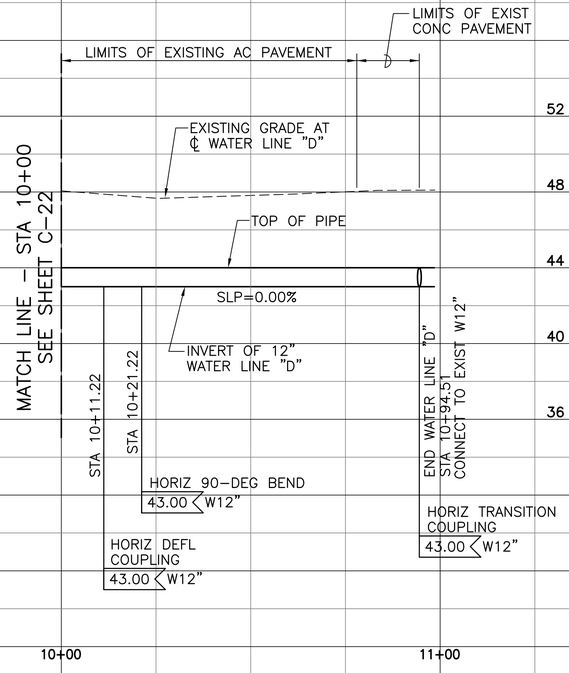
SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 43 OF 51

C-22



PROFILE - WATER LINE "D"

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

GRAPHIC SCALES:

4' 2' 0 4' 8'
SCALE: 1" = 4'

20' 10' 0 20' 40'
SCALE: 1" = 20'

FILE: 2012020-148
DATE REV.: 2/24/14

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

STM	DESCRIPTION	DATE	APPR

SUBMITAL PHASE
BID FINAL

SUBMITAL DATE 03/12/14

DES	RM	DRW	FAI	CHK	RA

STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

DEPARTMENT OF DEFENSE
DESIGN AND PROJECT MANAGEMENT BRANCH
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

PROFILE – WATER LINE "D" STA 10_00 TO END

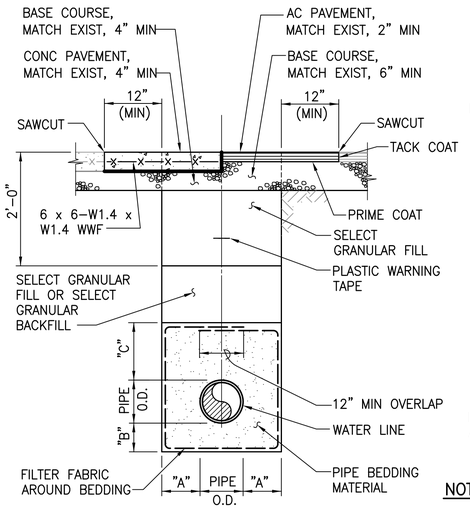
SCALE: AS NOTED

STATE JOB NO.
CA-1220-C

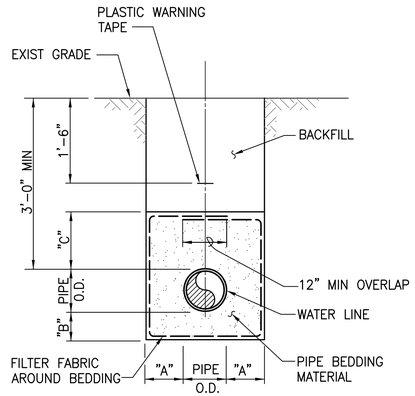
FEDERAL PROJECT NO.
15140004

SHEET 44 OF 51

C-23



PAVED AREAS



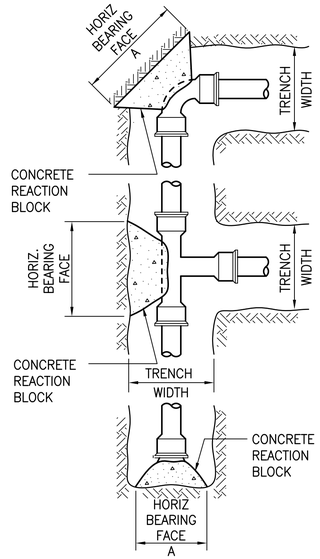
UNPAVED AREAS

TABLE 1			
PIPE DIAMETER	"A"	"B"	"C"
LESS THAN 12"	9"	6"	12"
12" TO 24"	12"	12"	18"

NOTES:

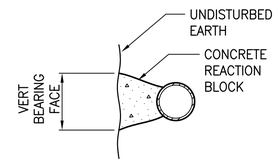
1. MINIMUM COVER OVER TOP OF PIPE = 3 FEET.
2. SAWCUT CONCRETE AND AC PAVEMENT PRIOR TO TRENCHING.
3. PROVIDE STRUCTURAL SUPPORT FOR ALL EXISTING UTILITY LINES UNCOVERED BY TRENCH EXCAVATION.
4. PROVIDE AN ADDITIONAL 12-INCHES OF SUBBEDDING BELOW THE BEDDING FOR WATER LINE "A" BETWEEN STA 8+00 AND STA 16+00 AND WATER LINE "C" BETWEEN STA 3+00 AND STA 6+47.

TYPICAL WATER LINE TRENCH — 1 / VAR | C-24
SCALE: 3/4" = 1'-0"



PLAN

MINIMUM BEARING FACE AREA		
PIPE SIZE	FITTING	BEARING FACE AREA (SQ FT)
24"	90-DEG BEND	64.0
24"	45-DEG BEND	34.6
24"	22.5-DEG BEND	17.7
24"	11.25-DEG BEND	8.9
16"	22.5-DEG BEND	7.8
12"	90-DEG BEND	16.0
12"	22.5-DEG BEND	4.4
8"	90-DEG BEND	7.1
6"	90-DEG BEND	4.0
6"	45-DEG BEND	2.2
6"	22.5-DEG BEND	1.1
24" x 24"	TEE	60.3
24" x 16"	TEE	26.8
24" x 12"	TEE	15.1
24" x 10"	TEE	10.5
24" x 8"	TEE	6.7
24" x 6"	TEE	3.8
16" x 6"	TEE	3.8
6" x 3"	TEE	0.9

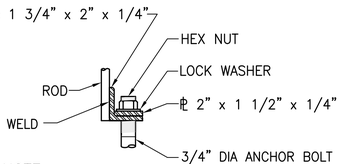


TYPICAL SECTION

NOTES:

1. CONCRETE REACTION BLOCKS SHALL BE INSTALLED AT ALL TEES AND BENDS.
2. CONCRETE SHALL BE 3000 PSI AND SHALL BE POURED AGAINST UNDISTURBED EARTH.
3. ABOVE CALCULATED DIMENSIONS ARE BASED ON A LATERAL BEARING OF 1125 LBS PER SQ FT AND TESTING PRESSURE OF 150 LBS PER SQ INCH.

CONCRETE REACTION BLOCK — 2 / VAR | C-24
NOT TO SCALE

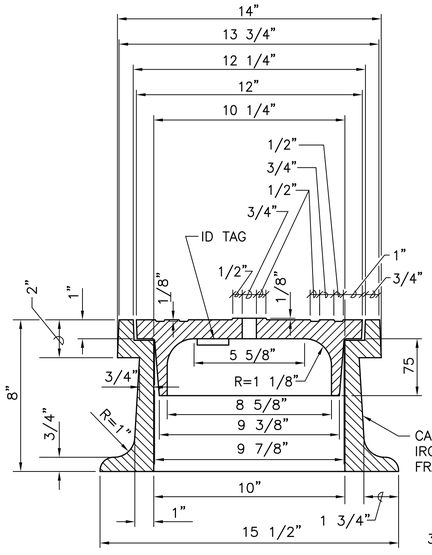


NOTE:

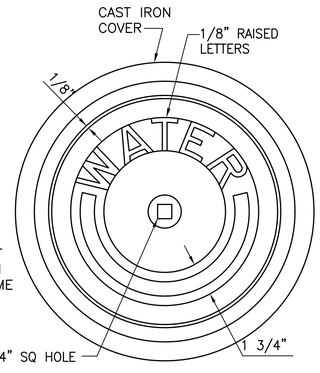
ALL MATERIALS SHOWN SHALL BE STAINLESS STEEL 316 AND COATED WITH ASPHALTIC MATERIAL AFTER INSTALLATION.

DETAIL 3 / C-24 | C-24
SCALE: 3" = 1'-0"

TABLE 1				
PIPE SIZE	"L" (INCHES)	"W" (INCHES)	"H" (INCHES)	ANCHOR BLOCK REINFORCEMENT
3"	24"	24"	12"	#5 AT 12" TOP & BOT ☐EW
6"	26"	26"	12"	#5 AT 12" TOP & BOT ☐EW
8"	28"	28"	15"	#5 AT 12" TOP & BOT ☐EW
12"	32"	32"	15"	#5 AT 12" TOP & BOT ☐EW



ELEVATION

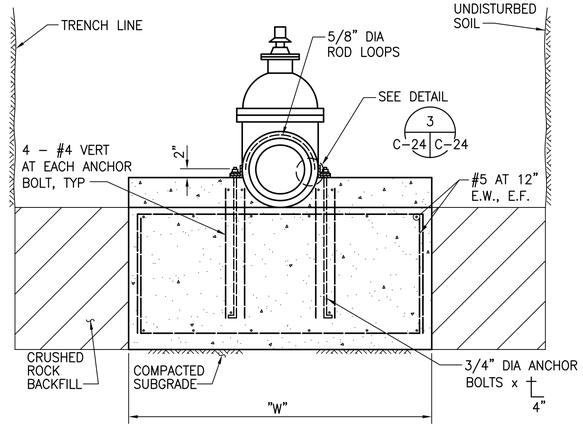


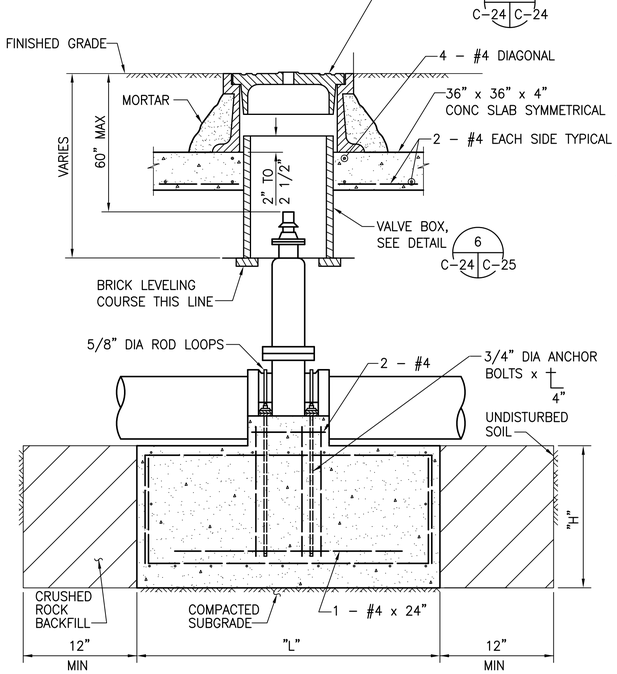
TOP PLAN

NOTE:

ALL CASTINGS SHALL BE MADE ACCURATELY TO THE DIMENSIONS SHOWN. SEAT AND COVER SHALL BE MACHINED, NOT GROUND TO SECURE FLAT AND TRUE SURFACES. THE COVER SHALL NOT RATTLE IN ANY POSITION.

VALVE BOX FRAME AND COVER — 4 / VAR | C-24
SCALE: 3" = 1'-0"





NOTES:

1. PROVIDE BOND BREAKER BETWEEN GATE VALVE AND CONCRETE.
2. ALL ANCHOR MATERIALS SHALL BE STAINLESS STEEL 316 AND COATED WITH ASPHALTIC MATERIAL AFTER INSTALLATION.
3. 3" CLEARANCE FOR ALL REINFORCING STEEL.
4. FOR REINFORCEMENT SIZES AND CONCRETE BLOCK DIMENSIONS, SEE TABLE 1.
5. FOR MANHOLE AND VALVE BOX SETTING SEE 5 / C-24 | C-30

GRAPHIC SCALES:

1' 0 1' 2' 3'
SCALE: 3/4" = 1'-0"

6" 0 6" 1' 1'-6"
SCALE: 1-1/2" = 1'-0"

4" 0 4" 8"
SCALE: 3" = 1'-0"

GATE VALVE ANCHOR BLOCK FOR PVC PIPE — 5 / VAR | C-24
SCALE: 1-1/2" = 1'-0"

FILE: 2012030-120
DATE REV.: 03/10/14

HDR

LICENSED A/E INFO

TONY C.G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A. SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL
SUBMITTAL DATE: 03/12/14
DES: RM DRW: FAI CHK: RA

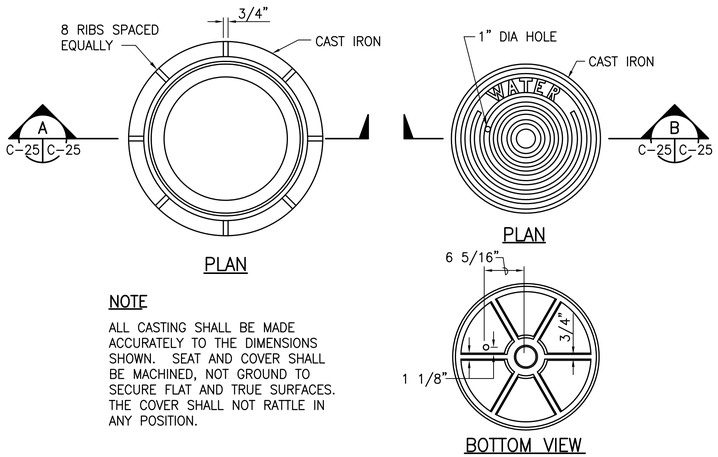
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

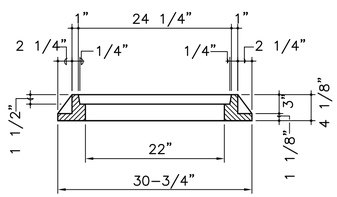
WATER LINE - WRIGHT STREET TO BUILDING 282

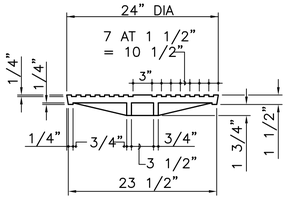
WATER DETAILS, 1

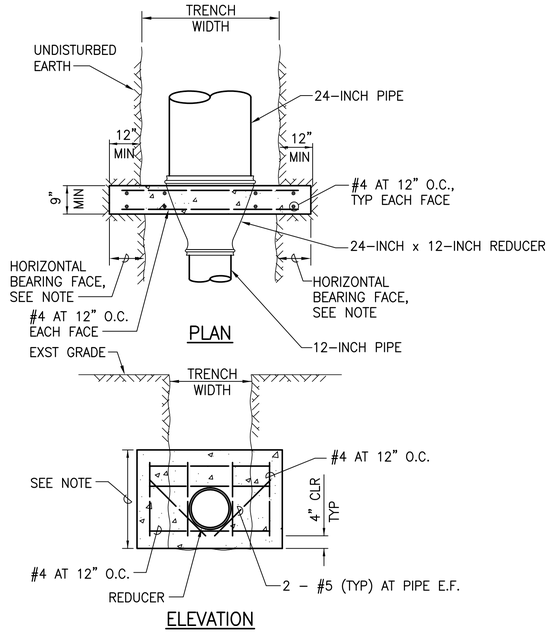
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 45 OF 51

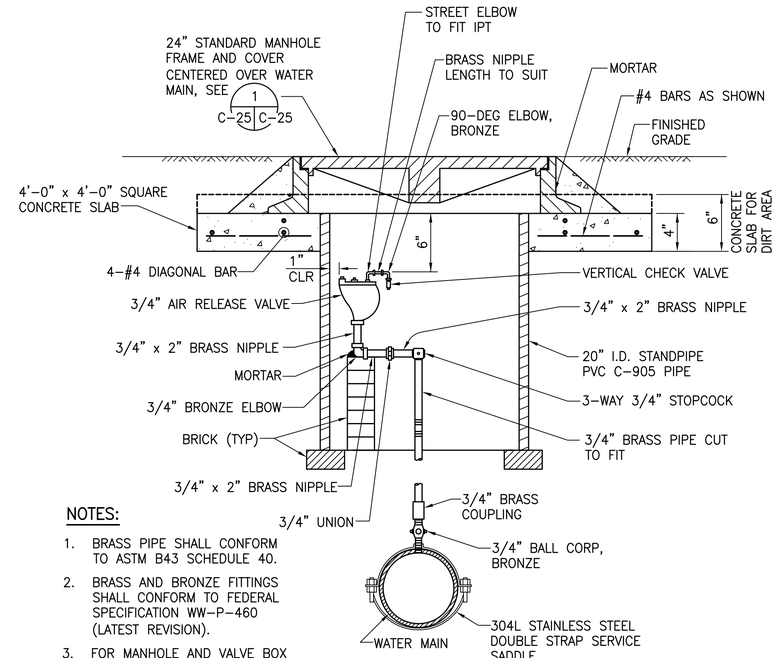
C-24

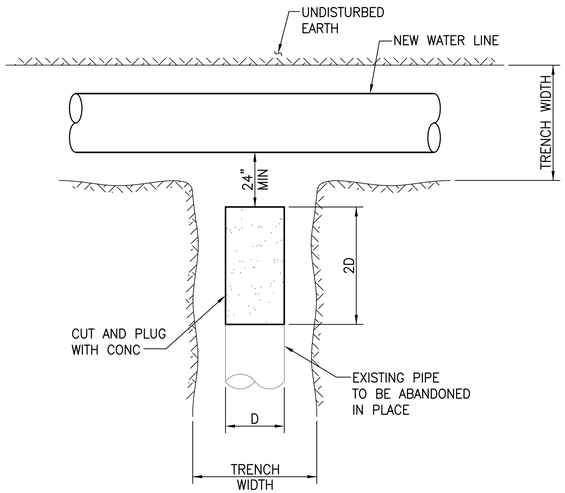


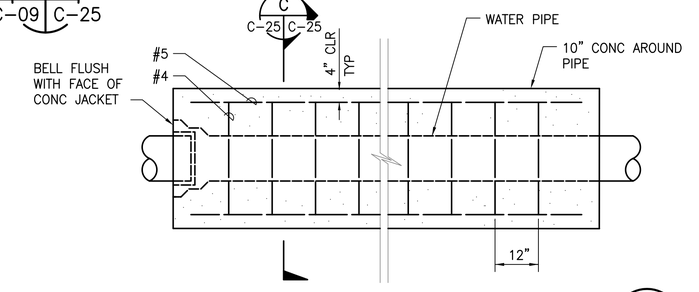


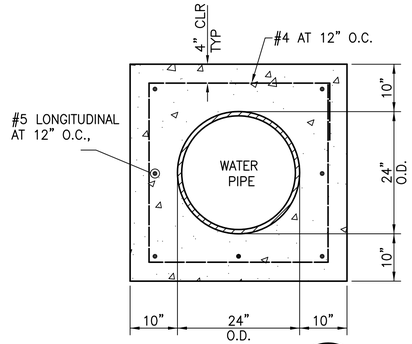


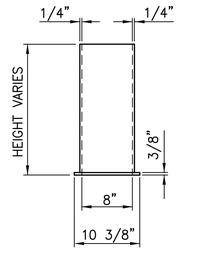




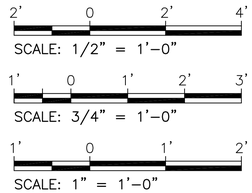








GRAPHIC SCALES:



FILE: 2012020-121
DATE REV.: 03/10/14

LICENSED
A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE
BID FINAL
SUBMITTAL DATE 03/12/14
DES RM DRW FAI CHK RA

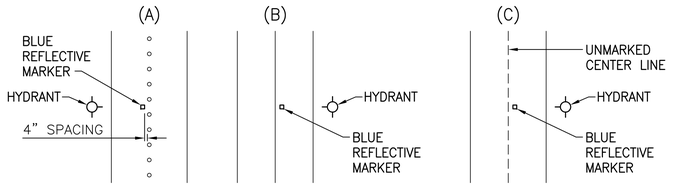
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

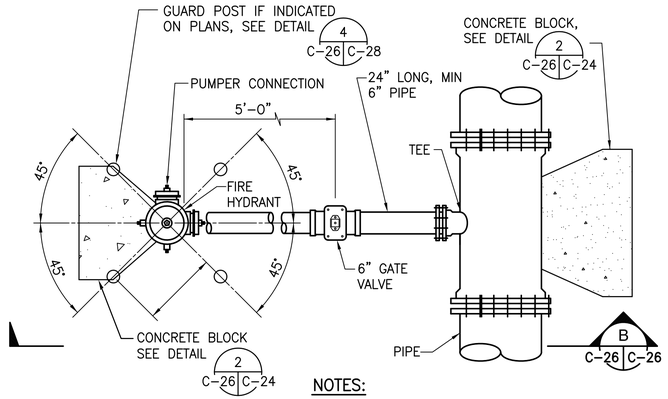
WATER DETAILS, 2

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 46 OF 51

C-25



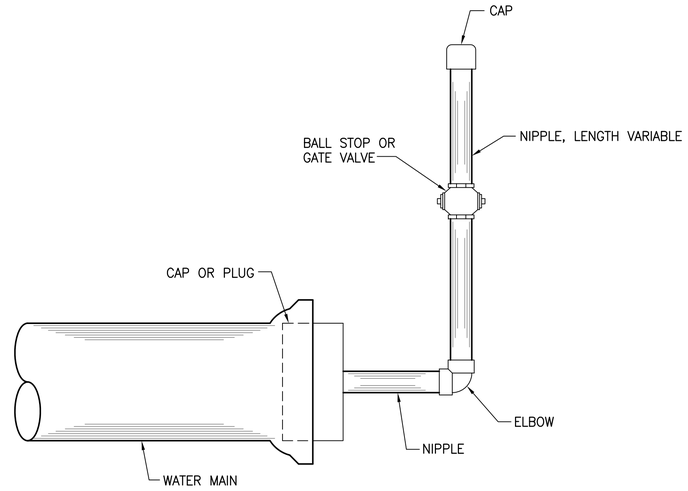
HYDRANT MARKER LOCATION — 1 / C-26 | C-26
NOT TO SCALE



NOTES:

1. PROVIDE BLUE HYDRANT MARKERS ADJACENT TO NEW FIRE HYDRANTS AS INDICATED IN DETAIL 1 / C-26 | C-26
2. FOR FIRE HYDRANTS INDICATED TO BE INSTALLED NEXT TO CURBS, INSTALL HYDRANT 20 INCHES FROM CENTERLINE OF FIRE HYDRANT TO OUTER EDGE OF CURB.

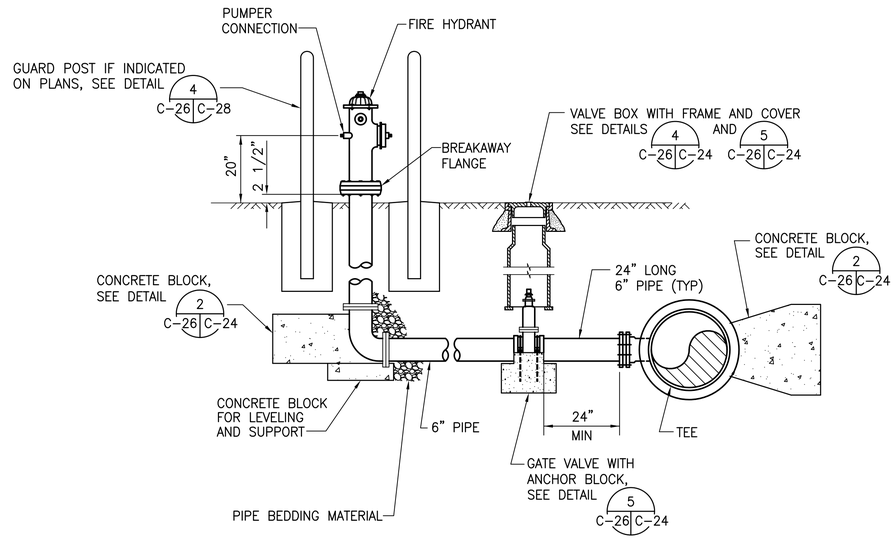
FIRE HYDRANT ASSEMBLY LAYOUT — 2 / VAR | C-26
SCALE: 1/2" = 1'-0"



NOTES:

1. CLEANOUT SHALL INCLUDE THE CAP, PLUG, AND ALL APPURTENANCES AS SHOWN.
2. FLUSHING AND TESTING PIPE AND FITTINGS MATERIAL SHALL BE PVC.

TEMPORARY FLUSHING AND TESTING CLEANOUT — 3 / VAR | C-26
SCALE: 3/4" = 1'-0"



SECTION — B / C-26 | C-26
SCALE" 1/2" = 1'-0"

GRAPHIC SCALES:

2' 0 2' 4'
SCALE: 1/2" = 1'-0"

1' 0 1' 2' 3'
SCALE: 3/4" = 1'-0"

FILE:
DATE: 20120220-131
REV.: 03/11/14

HDR
LICENSED A/E INFO

TONY C.G. LAU
LICENSED PROFESSIONAL ENGINEER
No. 9021-C
HAWAII, U.S.A.
SEAL

DESCRIPTION	DATE	APPR

SUBMITTAL PHASE
BID FINAL
SUBMITTAL DATE 03/12/14
DES RM | DRW FAI | CHK RA

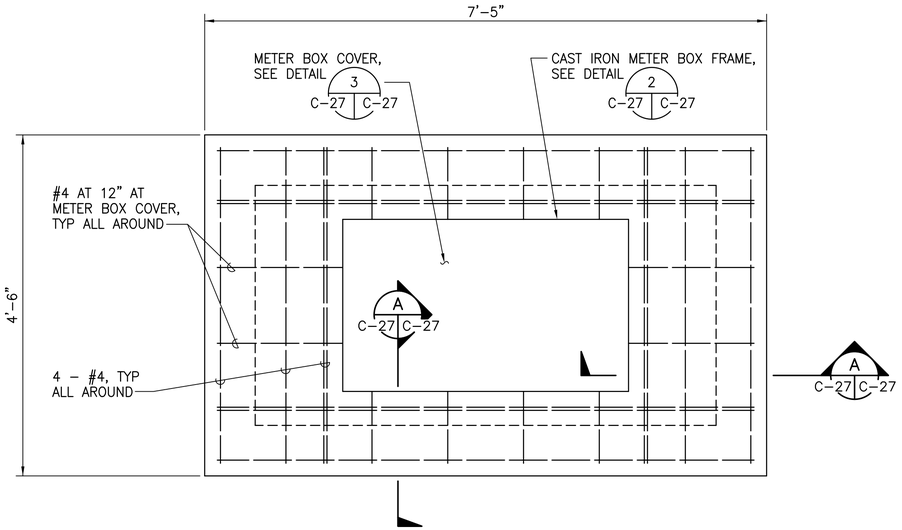
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD,
DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

WATER DETAILS, 3

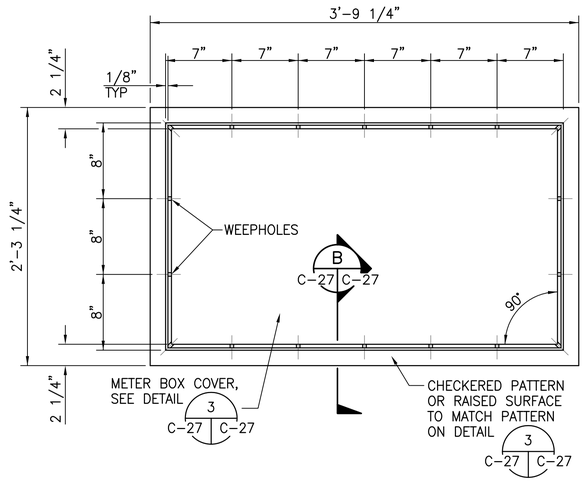
SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 47 OF 51

C-26

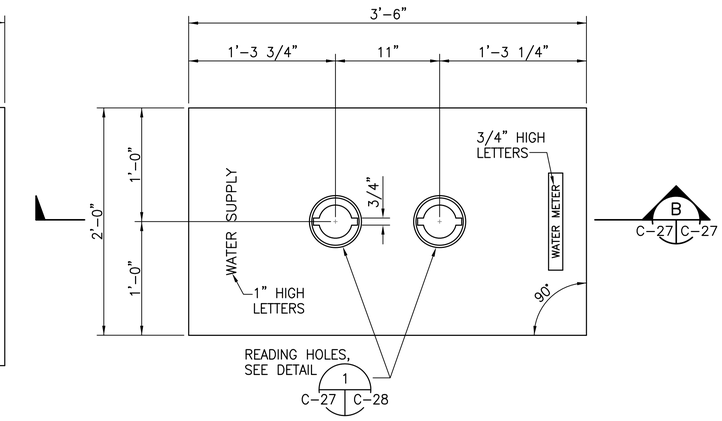


NOTES:

1. REINFORCING STEEL SHALL BE ASTM A615 GRADE 60.
2. DESIGN IS BASED ON 250 PSF LIVE LOAD; 0 SURCHARGE; 60 PCF/FT AT REST PRESSURE; AND WATER TABLE BELOW BOTTOM SLAB, PER AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 1998, NON-TRAFFIC TYPE.

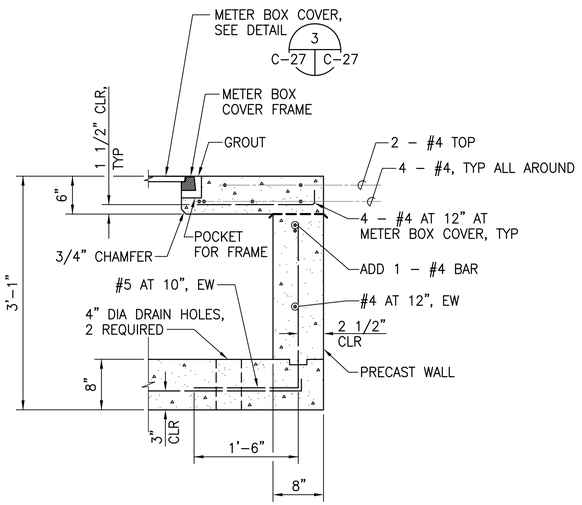


CAST IRON METER BOX FRAME 2 C-27 C-27
SCALE: 1 1/2" = 1'-0"

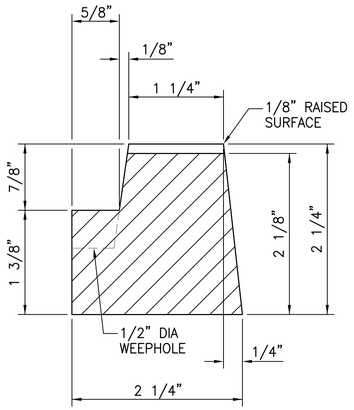


METER BOX COVER, TOP VIEW 3 C-27 C-27
SCALE: 1 1/2" = 1'-0"

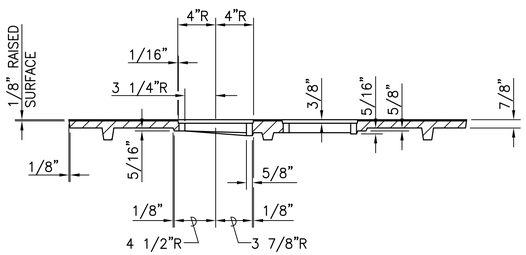
METER BOX 1 C-27 C-27
SCALE: 1" = 1'-0"



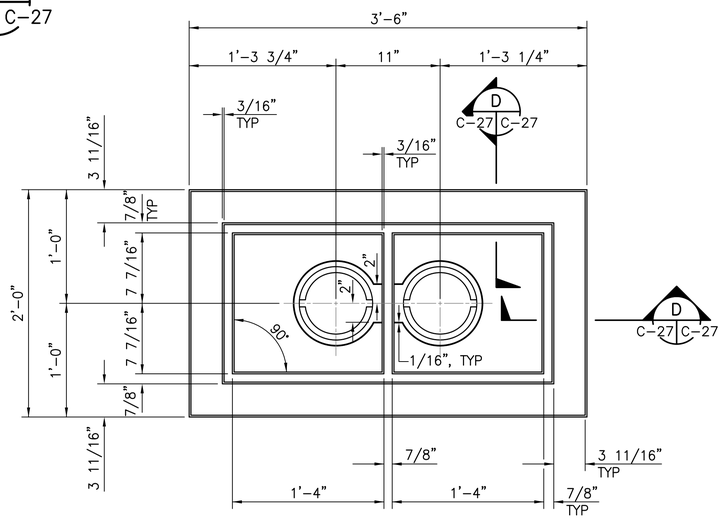
SECTION A
SCALE: 1" = 1'-0" C-27 C-27



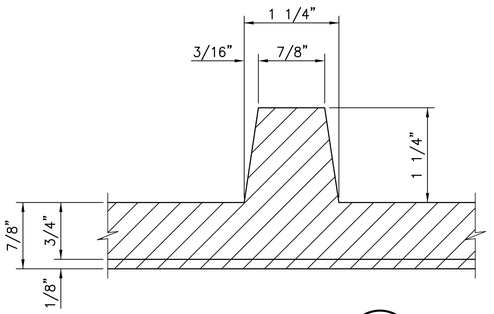
SECTION B
SCALE: 1" = 1" C-27 C-27



SECTION C
SCALE: 1 1/2" = 1'-0" C-27 C-27



METER BOX COVER, BOTTOM VIEW 4 C-27 C-27
SCALE: 1 1/2" = 1'-0"



SECTION D
SCALE: 1"= 1" C-27 C-27

GRAPHIC SCALES:

1" 0 1" 2"
SCALE: 1" = 1"

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

6" 0 6" 1' 1'-6"
SCALE: 1-1/2" = 1'-0"

FILE: 20120200-132
DATE REV.: 03/10/14

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED A/E INFO

TONY C. G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A. SEAL

	APPR	DATE	DESCRIPTION	MAS

SUBMITAL PHASE: BID FINAL
SUBMITAL DATE: 03/12/14
DES RM | DRW FAI | CHK RA

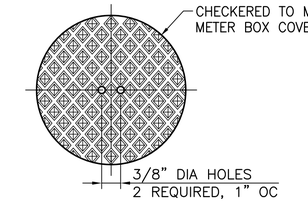
DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

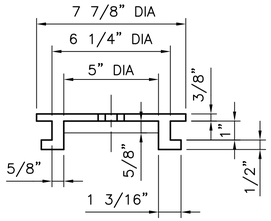
WATER LINE - WRIGHT STREET TO BUILDING 282

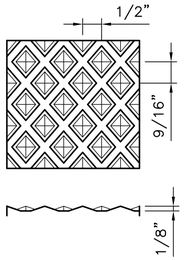
WATER DETAILS, 4

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 48 OF 51

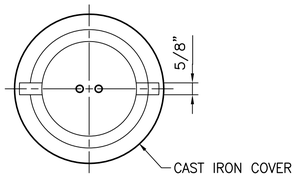
C-27







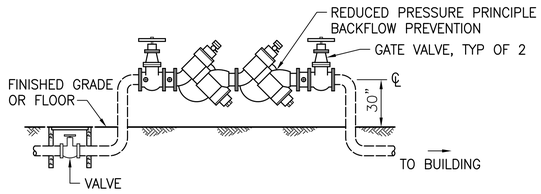
DETAILS OF
RAISED SURFACE
SCALE: 6" = 1'-0"



READING HOLE COVER 1
SCALE: 3" = 1'-0" C-27, C-30 | C-28

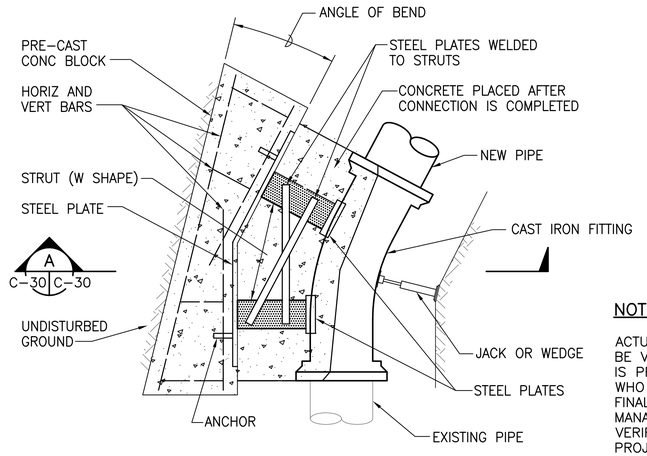
NOTES:

1. AT NO TIME SHALL HE BOTTOM OF THE DEVICE BE LESS THAN 12" ABOVE GROUND, OR FLOOD LEVEL NOR MORE THAN 48" ABOVE AFOREMENTIONED GRADES.



ABOVE GROUND INSTALLATION

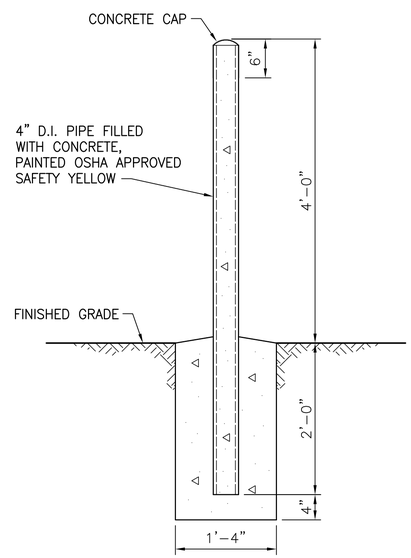
BACKFLOW PREVENTER 2
SCALE: 1/4" = 1'-0" C-03 | C-28



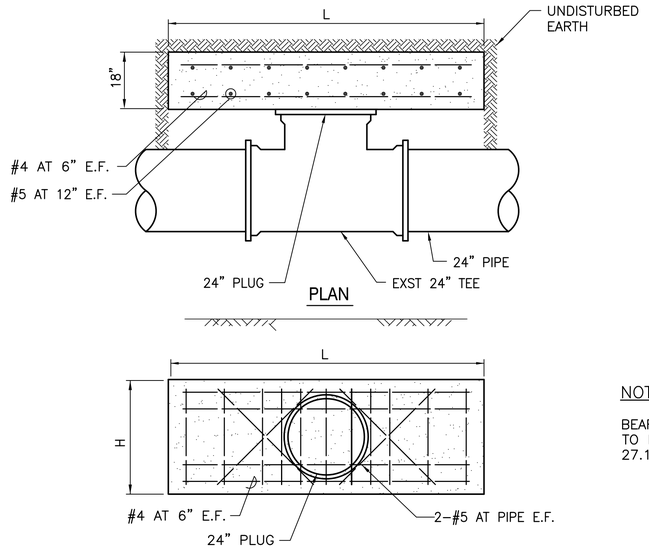
NOTE:

ACTUAL FIELD CONDITIONS AND SOIL TYPE SHALL BE VERIFIED IN THE FIELD. THE DETAIL AS SHOWN IS PROVIDED AS A GUIDE ONLY. THE ENGINEER WHO PREPARED THE PLANS SHALL SUBMIT THE FINAL DESIGN AND DETAILS TO THE PROJECT MANAGER FOR REVIEW AND APPROVAL AFTER FIELD VERIFICATION AND PRIOR TO INSTALLATION. THE PROJECT MANAGER WILL FURNISH THE FINAL DESIGN AND DETAILS TO THE CONTRACTOR.

TYPICAL CONCRETE BLOCK WITH STRUCTURAL STRUT 3
SCALE: 3/4" = 1'-0" VAR | C-28



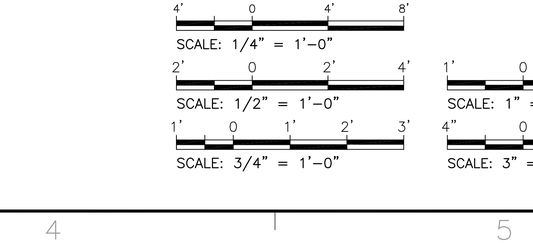
GUARD POST 4
SCALE: 1" = 1'-0" C-14, C-15 | C-28



CONCRETE BEAM FOR PLUG 5
SCALE: 1/2" = 1'-0" C-03, C-04 | C-28

NOTE:

BEARING FACE AREA IS EQUAL TO L X H AND SHALL BE 27.1 SQ FT MINIMUM



SECTION A
SCALE: 3/4" = 1'-0" C-28 | C-28

GRAPHIC SCALES:

FILE: 2012020-133
DATE REV.: 03/10/14

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED PROFESSIONAL ENGINEER
TONY C.G. LAU
No. 9021-C
HAWAII, U.S.A.
SEAL

	APPR	DATE	DESCRIPTION

SUBMITTAL PHASE
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SUBMITTAL DATE 03/12/14
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DEPARTMENT OF DEFENSE
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DESIGN AND PROJECT MANAGEMENT BRANCH
SITE UTILITIES REPLACEMENT
KALAELOA, (KAPOLEI) HAWAII

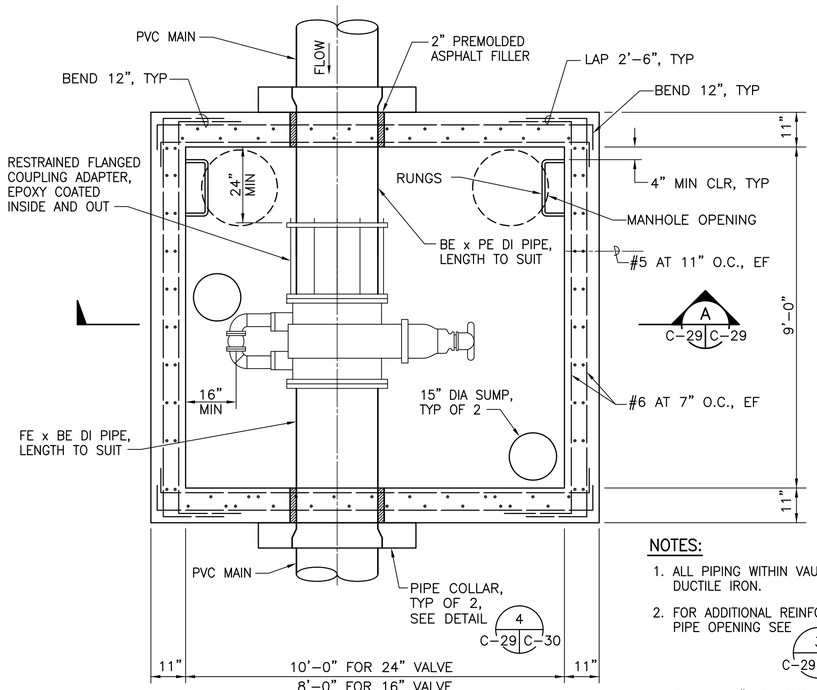
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

WATER DETAILS, 5

SCALE: AS NOTED
STATE JOB NO. CA-1220-C
FEDERAL PROJECT NO. 15140004
SHEET 49 OF 51

C-28



BGGV VAULT

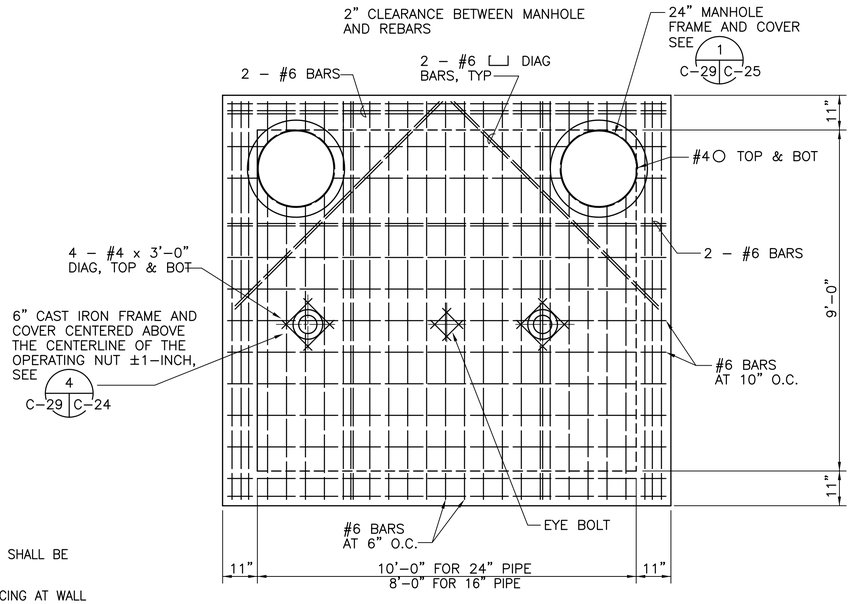
SCALE: 1/2" = 1'-0"

1 C-29

C-02, C-03, C-06, C-08

NOTES:

1. ALL PIPING WITHIN VAULT SHALL BE DUCTILE IRON.
2. FOR ADDITIONAL REINFORCING AT WALL PIPE OPENING SEE 3 C-29 C-29
3. PROVIDE 2" CLEARANCE FOR REBARS IN WALLS.
4. FOR MANHOLE AND VALVE BOX SETTING SEE 5 C-29 C-30



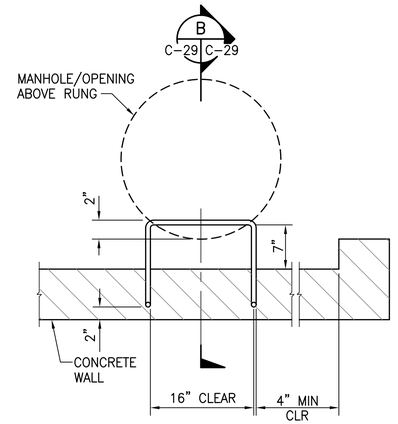
NOTE:

LOCATION OF EYE BOLT TO BE VERIFIED WITH SIZE OF VALVE.

BGGV VAULT TOP SLAB

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

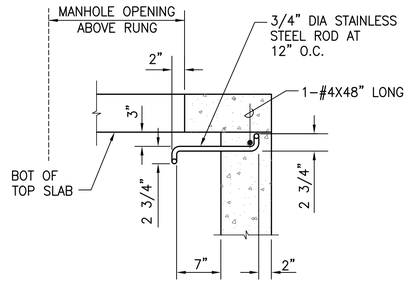
2 C-29 C-29



METAL RUNG

SCALE: 1" = 1'-0"

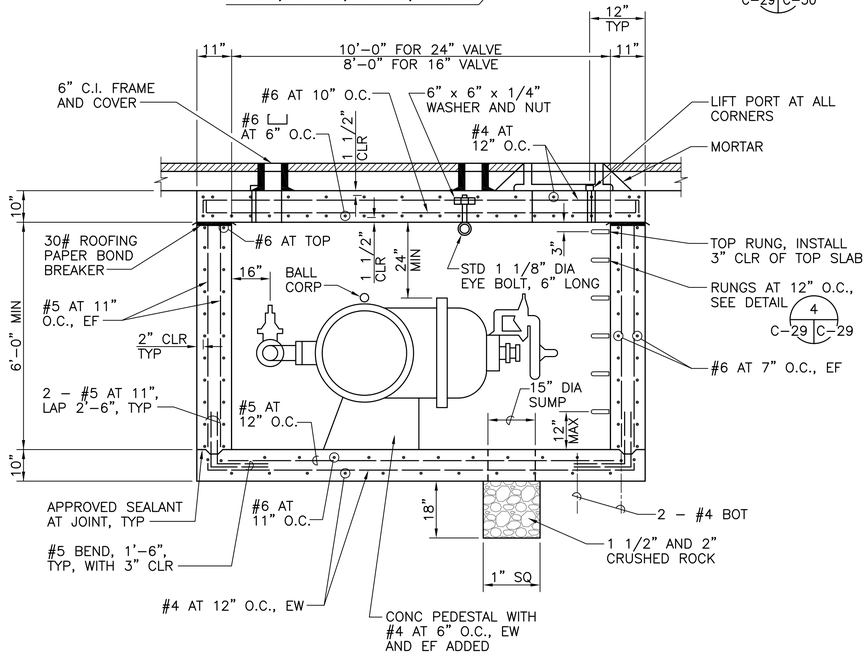
4 C-29 C-29



SECTION B

SCALE: 1" = 1'-0"

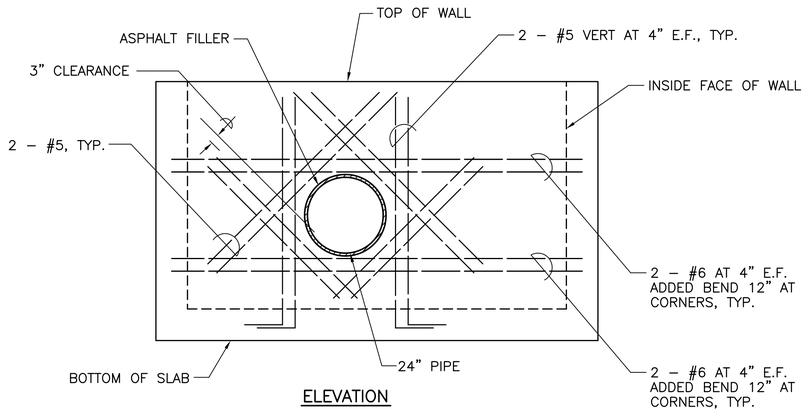
B C-29 C-29



SECTION A

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

A C-29 C-29



ELEVATION

NOTE:

TOP SLAB AND OTHER VAULT REINFORNCING NOT SHOWN FOR CLARITY.

ADDITIONAL REINFORCING AT WALL PIPE OPENING

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

3 C-29 C-29

NOTE:

CONTRACTOR SHALL VERIFY IF EXISTING MAIN CAN BE ISOLATED TO MAKE CONNECTION.

GRAPHIC SCALES:

2' 0 2' 4'

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

1' 0 1' 2'

SCALE: 1" = 1'-0"

HAWAII ARMY NATIONAL GUARD

HDR

LICENSED PROFESSIONAL ENGINEER
TONY C. G. LAU
No. 9021-C
HAWAII, U.S.A.
SEAL

APPR | DATE | DESCRIPTION | SYM

SUBMITTAL PHASE: BID FINAL

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DES RM | DRW FAI | CHK RA

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STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII

WATER LINE - WRIGHT STREET TO BUILDING 282

WATER DETAILS, 6

SCALE: AS NOTED

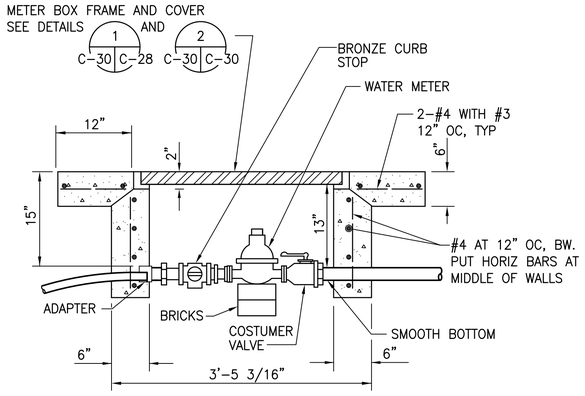
STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

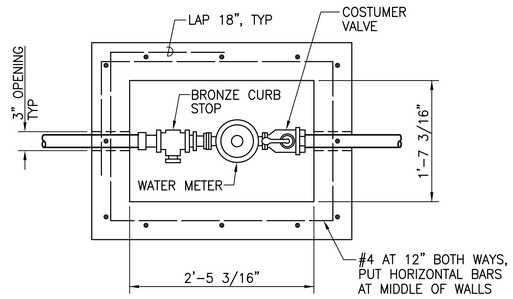
SHEET 50 OF 51

C-29

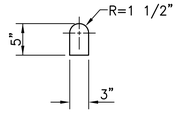
FILE: 2012020-130
DATE REV.: 03/10/14



ELEVATION



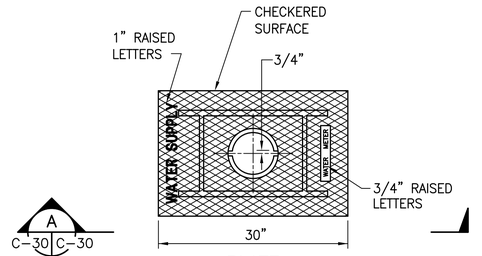
PLAN/SECTION VIEW



OPENING

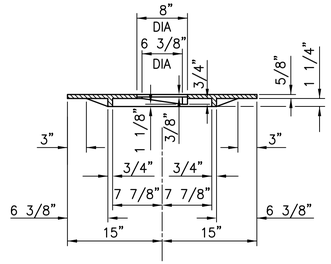
1-1/2" AND 2" WATER METER AND BOX 1 C-03, C-12 C-30

SCALE: 1" = 1'-0"



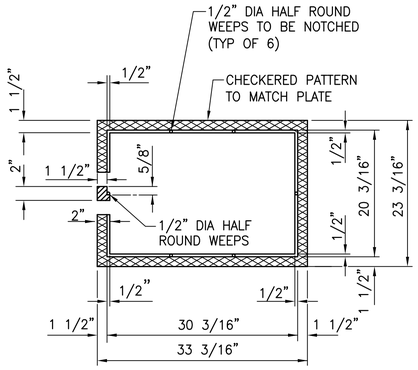
A C-30 C-30

PLATE

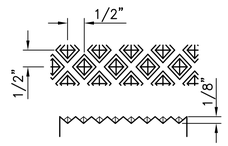


SECTION A C-30 C-30

SCALE: 1"=1'-0"



FRAME



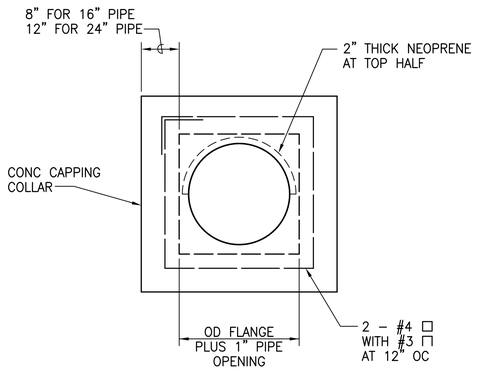
CHECKERED PATTERN

NOT TO SCALE

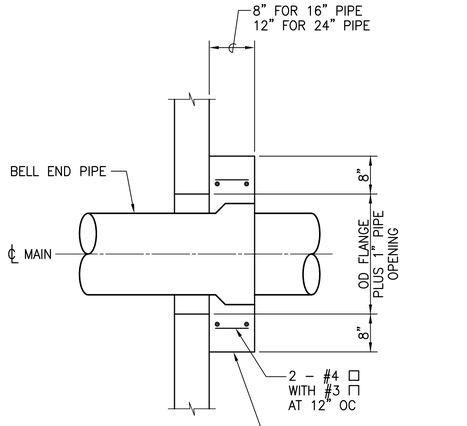
NOTE:
FRAME AND COVER SHALL BE CAST IRON.

WATER METER BOX FRAME AND COVER 2 C-30 C-30

SCALE: 1" = 1'-0"



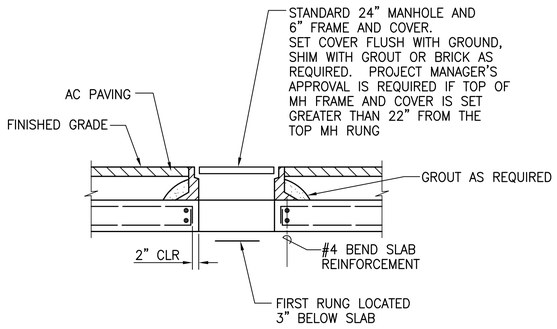
ELEVATION



SECTION

PIPE COLLAR 4 C-29 C-30

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



MANHOLE AND VALVE BOX SETTING 5 C-24, C-25, C-29 C-30

NOT TO SCALE

GRAPHIC SCALES:

2' 0 2' 4'

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

1' 0 1' 2'

SCALE: 1" = 1'-0"

FILE:
DATE REV.: 2012020-136 03/10/14

HDR

LICENSED A/E INFO

TONY C.G. LAU LICENSED PROFESSIONAL ENGINEER No. 9021-C HAWAII, U.S.A. SEAL

APPR	DATE	DESCRIPTION	SYM

SUBMITTAL PHASE: BID FINAL

SUBMITTAL DATE: 03/12/14

DES	RM	DRW	FAI	CHK	RA

DEPARTMENT OF DEFENSE
HAWAII ARMY NATIONAL GUARD, SITE UTILITIES REPLACEMENT
DESIGN AND PROJECT MANAGEMENT BRANCH
KALAELOA, (KAPOLEI) HAWAII
STATE OF HAWAII
FACILITY MANAGEMENT OFFICE
HIARNG KALAELOA

WATER LINE - WRIGHT STREET TO BUILDING 282

WATER DETAILS, 7

SCALE: AS NOTED

STATE JOB NO. CA-1220-C

FEDERAL PROJECT NO. 15140004

SHEET 51 OF 51

C-30