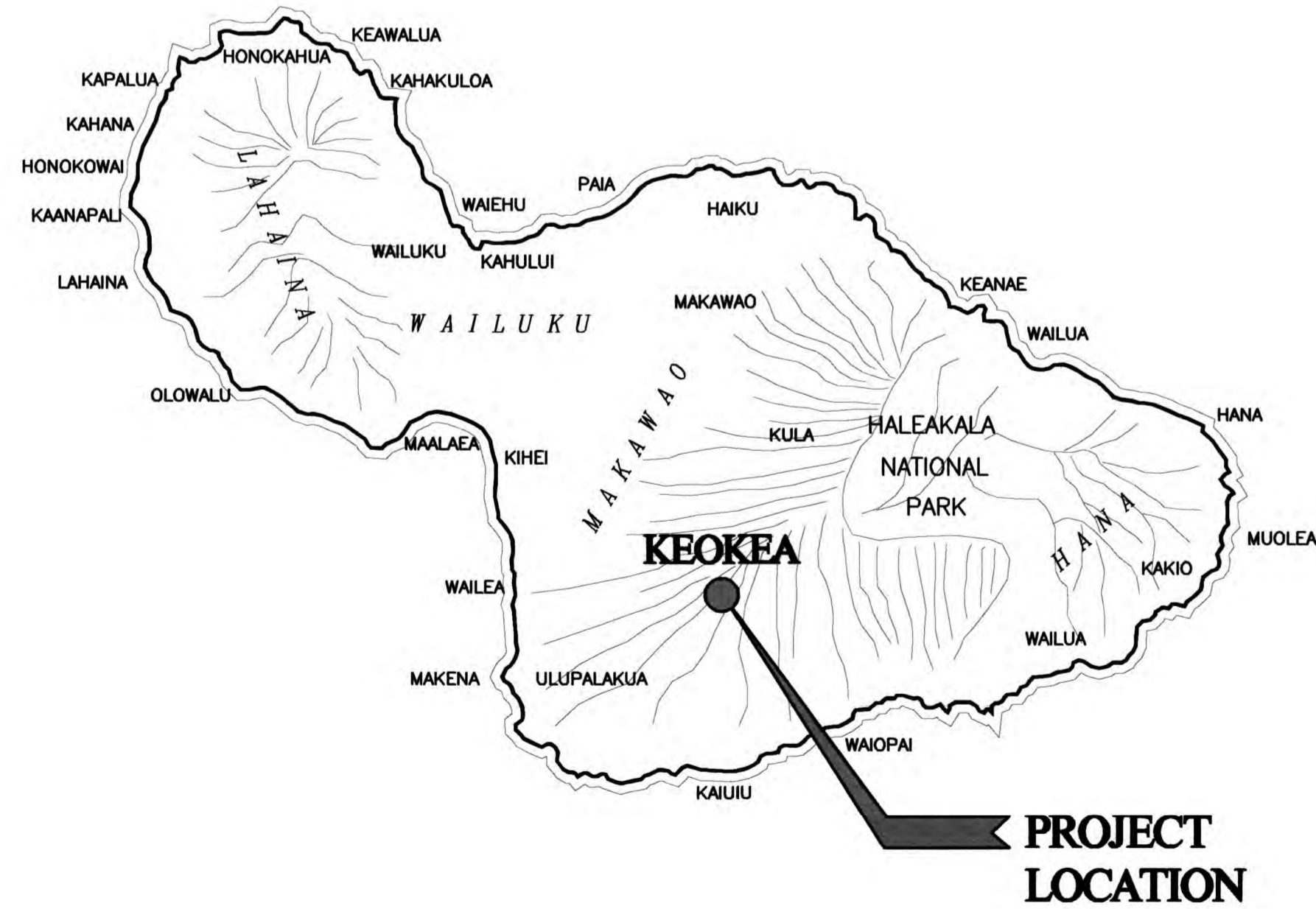


CONSTRUCTION PLANS  
FOR  
**KEOKEA-WAIOHULI DEVELOPMENT**  
**PHASE 2B**

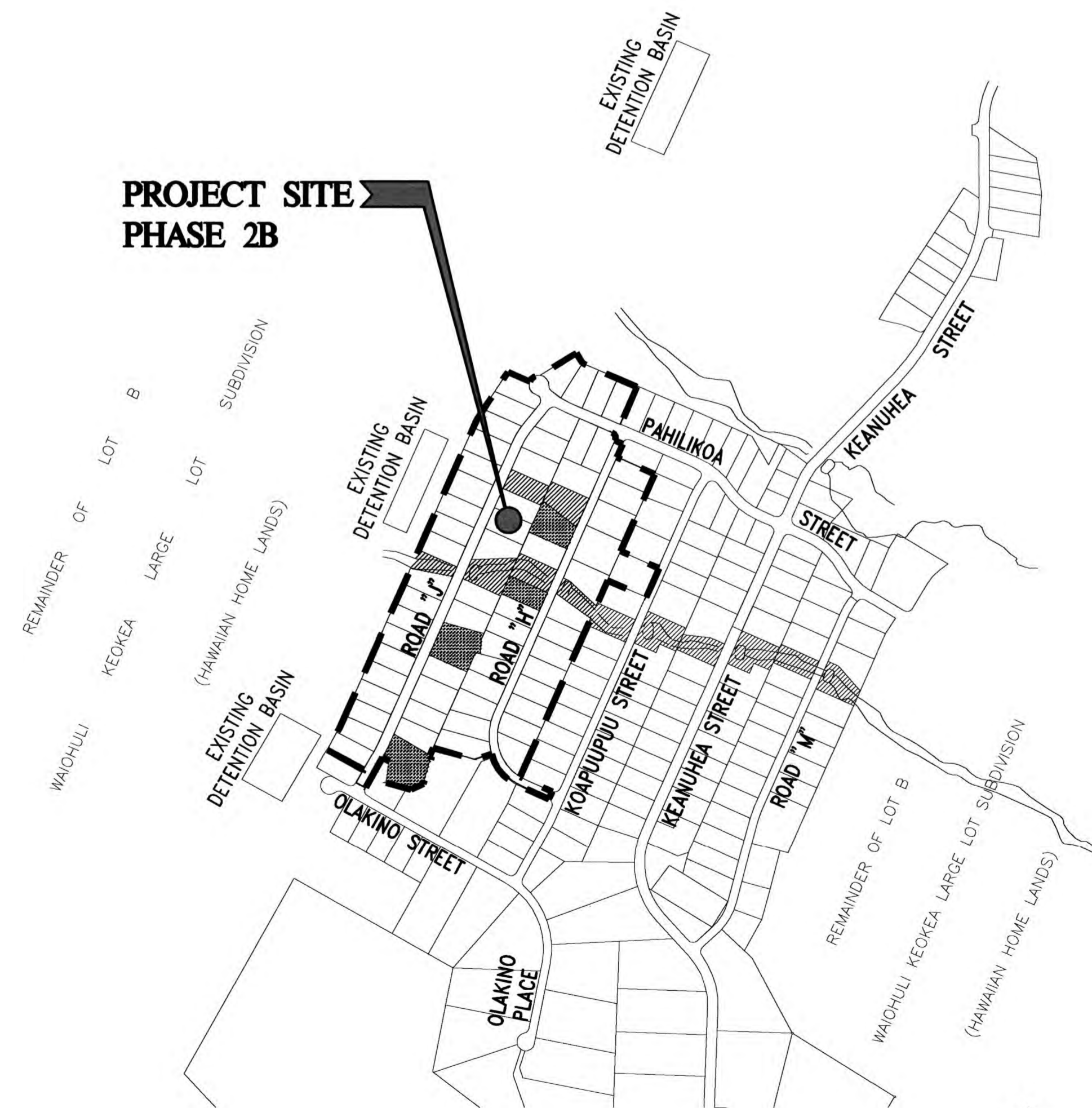
**KEOKEA & WAIOHULI, MAKAWAO, MAUI**

OWNER AND DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023  
DSA SUBDIVISION FILE NO. 2.3392      DWS FILE NO. SD 20-032



VICINITY MAP

SCALE IN MILES  
0 4 8



LOCATION MAP

NOT TO SCALE



**APPROVED**

\_\_\_\_\_  
CHAIRMAN, HAWAIIAN HOMES COMMISSION  
DEPARTMENT OF HAWAIIAN HOME LANDS  
STATE OF HAWAII      DATE


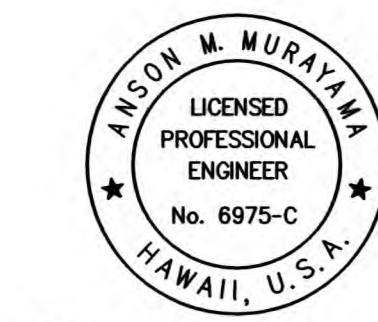

\_\_\_\_\_  
DIRECTOR, DEPARTMENT OF PUBLIC WORKS  
COUNTY OF MAUI      DATE

\_\_\_\_\_  
CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION  
DEPARTMENT OF HEALTH, STATE OF HAWAII      DATE

\_\_\_\_\_  
DIRECTOR, DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI  
(APPROVAL LIMITED TO IMPROVEMENTS WHICH WILL BE  
DEDICATED TO THE DEPARTMENT OF WATER SUPPLY)      DATE

# INDEX OF DRAWINGS

SHEET NO.	DWG. NO.	TITLE	SHEET NO.	DWG. NO.	TITLE
01	T-1	<b>GENERAL</b>			
02	C-1	TITLE SHEET			
03	C-2	INDEX OF DRAWINGS			
04	C-3	GENERAL NOTES - 1			
05	C-4	GENERAL NOTES - 2			
06	C-5	GENERAL NOTES - 3			
07	C-6	GENERAL LAYOUT PLAN			
08	C-7	EROSION CONTROL PLAN			
		EROSION CONTROL DETAIL			
		<b>CIVIL</b>			
09	C-8	GENERAL GRADING PLAN			
10	C-9	GRADING PLAN - 1			
11	C-10	GRADING PLAN - 2			
12	C-11	GRADING PLAN - 3			
13	C-12	GRADING PLAN - 4			
14	C-13	GRADING PLAN - 5			
15	C-14	TYPICAL ROAD SECTIONS			
16	C-15	PLAN AND PROFILE PAHILIKOA ST. STA. 50+00 TO END			
17	C-16	PLAN AND PROFILE ROAD "H" STA. 0+00 TO 11+00			
18	C-17	PLAN AND PROFILE ROAD "H" STA. 11+00 TO END			
19	C-18	PLAN AND PROFILE ROAD "J" STA. 0+00 TO 10+50			
20	C-19	PLAN AND PROFILE ROAD "J" STA. 10+50 TO END			
21	C-20	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H1" (A & B)			
22	C-21	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H2" (A & B)			
23	C-22	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H3" (A & B)			
24	C-23	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H4" (A & B)			
25	C-24	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H5" (A & B)			
26	C-25	PLAN AND PROFILE - ACCESS ROAD CULVERTS "H6" AND "H7"			
27	C-26	PLAN AND PROFILE - ACCESS ROAD CULVERTS "J1" (A & B)			
28	C-27	PLAN AND PROFILE - ACCESS ROAD CULVERTS "J2" (A & B)			
29	C-28	PLAN AND PROFILE - ACCESS ROAD CULVERTS "J3" (A & B)			
30	C-29	PLAN AND PROFILE - ACCESS ROAD CULVERTS "J4" (A & B)			
31	C-30	PLAN AND PROFILE - ACCESS ROAD CULVERTS "J5" (A & B)			
32	C-31	PLAN AND PROFILE DRAIN CULVERTS "H1" AND "H2"			
33	C-32	PLAN AND PROFILE DRAIN CULVERTS "H3" AND "H4"			
34	C-33	PLAN AND PROFILE DRAIN CULVERTS "H5" AND "H6"			
35	C-34	PLAN AND PROFILE DRAIN CULVERTS "H7" AND "J1"			
36	C-35	PLAN AND PROFILE DRAIN CULVERTS "J2" AND "J3"			
37	C-36	PLAN AND PROFILE DRAIN CULVERTS "J4" AND "J5"			
38	C-37	PLAN AND PROFILE SWALE NO. 202 & 203C			
39	C-38	PLAN AND PROFILE SWALE NO. 206 & 207			
40	C-39	PLAN SWALE NO. 208, 209, 211, 212, 214 & 215			
41	C-40	PLAN AND PROFILE SWALE NO. 210 & 226			
42	C-41	PLAN SWALE NO. 222C, 223C, 224 & 227			
43	C-42	PLAN AND PROFILE SWALE NO. 228			
44	C-43	PLAN SWALE NO. 230, 231, & 235			
45	C-44	PLAN AND PROFILE SWALE NO. 236			
46	C-45	PLAN AND PROFILE SWALE NO. 238			
47	C-46	PLAN AND PROFILE SWALE NO. 242			
48	C-47	PLAN AND PROFILE SWALE NO. 243B & 252			
49	C-48	PLAN SWALE NO. 246, 247 & 248			
50	C-49	PLAN SWALE NO. 250, 251, 253 & 258			
51	C-50	PLAN AND PROFILE SWALE NO. 255 & 257			
52	C-51	PLAN AND PROFILE SWALE NO. 260 & 264			
53	C-52	PLAN SWALE NO. 261, 263A & 263B			
54	C-53	PLAN AND PROFILE SWALE NO. 266A, 266B, 267, 268 & 269			
55	C-54	PLAN AND PROFILE SWALE NO. 203			
56	C-55	TRAFFIC SIGNS AND PAVEMENT MARKING PLAN ROAD "E"			
57	C-56	TRAFFIC SIGNS AND PAVEMENT MARKING PLAN ROAD "H"			
58	C-57	TRAFFIC SIGNS AND PAVEMENT MARKING PLAN ROAD "J"			
59	C-58	TRAFFIC SIGNS AND PAVEMENT MARKING DETAILS			
60	C-59	SWALE DETAILS - 1			
61	C-60	SWALE DETAILS - 2			
62	C-61	SWALE DETAILS - 3			
63	C-62	SWALE DETAILS - 4			
64	C-63	DRAINAGE DETAILS			
65	C-64	WATER DETAILS			
66	C-65	BORING LOGS			
		<b>STRUCTURAL</b>			
67	S-1	STRUCTURAL GENERAL NOTES AND TYPICAL DETAILS			
68	S-2	WEIR STRUCTURE SECTIONS AND DETAILS			
69	S-3	PRECAST DRAIN MANHOLE PLANS AND SECTIONS			
		<b>ELECTRICAL</b>			
70	E-1	ELECTRICAL SYMBOLS, LOCATION MAP, VICINITY MAP, EQUIPMENT SCHEDULE AND NOTES			
71	E-2	ELECTRICAL SITE PLAN			
72	E-3	MECO NOTES			
73	E-4	SANDWICH ISLES COMMUNICATIONS NOTES			
74	E-5	ELECTRICAL DISTRIBUTION PARTIAL PLAN I			
75	E-6	ELECTRICAL DISTRIBUTION PARTIAL PLAN II			
76	E-7	ELECTRICAL DISTRIBUTION PARTIAL PLAN III			
77	E-8	TYPICAL DUCT SECTIONS			
78	E-9	TYPICAL LOT SERVICE DETAILS			
79	E-10	MISCELLANEOUS DETAILS			

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor   Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT</b> <b>PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>INDEX OF DRAWINGS</b>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	
  THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26			

**GENERAL NOTES**

- 1. LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE BASED ON AVAILABLE "AS-BUILT" OR RECORD CONSTRUCTION PLANS AND ARE APPROXIMATE ONLY AND THEIR ACCURACY IS NOT GUARANTEED.
- 2. EXISTING CONTOURS AND FEATURES ARE BASED ON TOPOGRAPHIC SURVEY OF KEOKEA PHASE 2" PREPARED BY CONTROL POINT SURVEYING, INC. DATED SEPTEMBER 2019.
- 3. EXISTING GRADES SHALL BE VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH GRADING WORK. SHOULD ANY DISCREPANCIES BE DISCOVERED WITH THE EXISTING GRADES OR DIMENSIONS GIVEN ON THE PLANS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER BEFORE PROCEEDING ANY FURTHER WITH THE WORK, OTHERWISE HE WILL BE HELD RESPONSIBLE FOR ANY COST INVOLVED IN THE CORRECTION OF CONSTRUCTION PLACED DUE TO SUCH DISCREPANCIES.
- 4. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF EXISTING UTILITIES WITHIN PROJECT LIMITS BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR DAMAGES DUE TO THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ALL UNDERGROUND UTILITIES.
- 5. THE CONTRACTOR SHALL REPORT ANY INCONSISTENCIES WITH THE PROPOSED PLAN TO THE OWNER'S REPRESENTATIVE AND SHALL DEMOLISH, REMOVE, OR RELOCATE ALL EXISTING UTILITIES, IMPROVEMENTS, ETC. INCONSISTENT WITH THE PROPOSED PLAN AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND AT THE CONTRACTOR'S EXPENSE.
- 6. THE LATEST REVISIONS OF THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION," SEPTEMBER 1984 AND THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION," 1994 SHALL BE INCLUDED AS PART OF THESE CONSTRUCTION PLANS. THE CONTRACTOR SHALL OBTAIN THE LATEST REVISIONS BEFORE COMMENCING CONSTRUCTION.
- 7. IF HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS AND MOUNDS OR REMAINS SUCH AS ARTIFACTS, BURIALS, CONCENTRATION OF CHARCOAL OR SHELLS ARE ENCOUNTERED DURING CONSTRUCTION WORK, WORK SHALL CEASE IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION (692-8015), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND MITIGATION MEASURES, IF NECESSARY.
- 8. 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:692-8015), THE APPROPRIATE MEDICAL EXAMINER OR CORONER, AND THE POLICE DEPARTMENT (TELEPHONE:244-6400), SHALL BE CONTACTED.
- 9. ALL LESSEES USING EXISTING DIRT ROADS TO ACCESS THEIR PROPERTY SHALL CONTINUE TO BE PROVIDED ACCESS TO THEIR PROPERTY AT ALL TIMES DURING CONSTRUCTION ACTIVITIES BY THE CONTRACTOR.
- 10. PRIOR TO ANY LAND ALTERATION, ALL TASKS OF THE HISTORIC SITES INTERIM PROTECTION PLAN MUST BE IN PLACE FOR THE ISOLATED NON-BURIAL SITES TO BE PRESERVED AND THE HISTORIC PRESERVE. ISOLATED SIGNIFICANT HISTORIC SITES AND THE HISTORIC PRESERVE MUST HAVE PROTECTION MEASURES IN PLACE PRIOR TO ANY LAND ALTERATION. SUCH PROTECTION SHALL INCLUDE PERMANENT FENCING AND TEMPORARY PLASTIC CONSTRUCTION FENCING. THE CONSTRUCTION CREWS MUST BE BRIEFED ON THE IMPORTANCE OF THESE PROTECTIVE MEASURES.

**DEPARTMENT OF WATER SUPPLY NOTES**

- 1. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF WATER SUPPLY (DWS), IN WRITING, ONE (1) WEEK PRIOR TO COMMENCEMENT OF WORK.
- 2. IF CONSTRUCTION OF WATER SYSTEM IMPROVEMENTS WILL AFFECT DWS CONSUMERS, CONTRACTOR SHALL NOTIFY CUSTOMERS BY RADIO/NEWSPAPER TWO (2) DAYS BEFORE AND ON DAY OF CONNECTION. CONTRACTOR SHALL NOTIFY CONSUMERS HOUSE-TO-HOUSE ONE (1) DAY BEFORE CONNECTION WORK.
- 3. ALL MATERIALS USED AND METHODS OF CONSTRUCTION OF WATER SYSTEM FACILITIES SHALL BE IN ACCORDANCE WITH THE LATEST REVISIONS OF DWS STANDARDS. CONTRACTOR SHALL OBTAIN THE LATEST REVISIONS OF THE DWS WATER SYSTEM STANDARDS BEFORE COMMENCING CONSTRUCTION.
- 4. ALL WATER SYSTEM WORK SHALL BE PERFORMED BY CONTRACTORS POSSESSING VALID STATE OF HAWAII CONTRACTOR'S LICENSES, REGARDLESS OF THE VALUE OF THE WORK.
- 5. CONTRACTOR SHALL FOLLOW ALL LOCAL, STATE, FEDERAL LAWS, RULES AND REGULATIONS REGARDING THE HANDLING, REMOVAL AND DISPOSAL OF ASBESTOS PIPE.
- 6. CONTRACTOR SHALL PROTECT EXISTING WATERLINE DURING COURSE OF CONSTRUCTION AND SUPPORT EXPOSED WATERLINE TO PREVENT ANY MOVEMENT.
- 7. THE EXACT DEPTH AND LOCATION OF EXISTING WATERLINES, SERVICE LATERALS AND OTHER UTILITIES ARE NOT KNOWN. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE SAME PRIOR TO TRENCHING FOR THE NEW WATERLINE. THE COST OF LOWERING, RELOCATING OR ADJUSTING EXISTING WATERLINES, SERVICE LATERALS AND APPURTENANCES, WHETHER SHOWN OR NOT SHOWN ON THE CONSTRUCTION PLANS AT THE CONTRACTOR'S EXPENSE.
- 8. PAVEMENT RESURFACING/RESTORATION:
  - A. CONTRACTOR SHALL VERIFY LOCATION OF EXISTING DWS VALVES AND MANHOLES, WHEN AFFECTED BY THE WORK, PRIOR TO START OF CONSTRUCTION.
  - B. ALL WATER VALVE AND WATER MANHOLE CONCRETE COLLARS WITHIN THE PROJECT LIMITS SHALL BE DEMOLISHED AND RECONSTRUCTED PER DWS STANDARD V12 AND V23, RESPECTIVELY, AT THE CONTRACTOR'S EXPENSE.
  - C. THE VALVE BOX RISER AND COVER OF ALL WATER VALVES WITHIN THE PROJECTS LIMITS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
  - D. CONTRACTOR SHALL ADJUST DWS SLIDING VALVE BOX ASSEMBLY AND MANHOLE FRAME AND COVER TO FINISHED GRADE.

**DEPARTMENT OF WATER SUPPLY NOTES (CONT.)**

- E. PRIOR TO PAVEMENT RESURFACING/RESTORATION WORK, THE CONTRACTOR SHALL SCHEDULE INSPECTION WITH DWS.
- 9. ANY SLIDING VALVE BOX ASSEMBLY, MANHOLE COVER, OR CONCRETE COLLAR, WHETHER DISCOVERED DAMAGED OR NOT SPECIFIED ON THE PLANS TO BE ADJUSTED OR REPLACED, SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
- 10. CONTRACTOR SHALL ADJUST TO FINISHED GRADES, ALL UTILITIES (I.E., WATER SEWER, DRAIN, ETC.) AFFECTED BY THE WORK WHETHER SHOWN OR NOT ON THE CONSTRUCTION PLANS AT THE CONTRACTOR'S EXPENSE.
- 11. CONTRACTOR SHALL RESTORE ALL ROAD IMPROVEMENTS DISTURBED OR DAMAGED DURING CONSTRUCTION IN ACCORDANCE WITH THE 2005 "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" AS AMENDED, TO THE SATISFACTION OF THE DEPARTMENT OF PUBLIC WORKS AT THE CONTRACTOR'S EXPENSE. ROAD IMPROVEMENTS INCLUDE, BUT AT NOT LIMITED TO, PAVEMENT, PAVEMENT MARKERS, SHOULDER DRESSING, STRIPING, AND SPEED BUMPS.
- 12. CONCRETE FOR REACTION LOCKS AND ANCHOR BLOCKS SHALL BE DWS CLASS 2500.
- 13. THE MAXIMUM DISTANCE BETWEEN VALVE NUT AND TOP OF MANHOLE COVER SHALL BE THREE (3) FEET.
- 14. CONTRACTOR SHALL SUBMIT A MATERIALS LIST TO DWS FOR APPROVAL PRIOR TO CONSTRUCTION.
- 15. CONNECTION TO DWS SYSTEM:
  - A. CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY FITTINGS AND OTHER MATERIALS AND EQUIPMENT REQUIRED FOR THE HOOK-UP. CONTRACTOR SHALL VERIFY THE EXACT LOCATION, DEPTH, TYPE, AND CONDITION OF THE EXISTING LINE BEFORE ORDERING MATERIALS FOR THE HOOK-UP. CONTRACTOR SHALL, HOWEVER, CHECK WITH DWS BEFORE EXCAVATING FOR VERIFICATION PURPOSES.
  - B. WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED FOR BURIED APPLICATIONS AND FLANGED JOINT FITTINGS SHALL BE USED FOR EXPOSED APPLICATIONS.
  - C. DWS PERSONNEL MAY BE REQUIRED TO BE PRESENT OR ASSIST WITH CONNECTIONS TO THE EXISTING WATER SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY DWS FOR SAID WORK.
  - D. 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 HOOK-UP, AS DIRECTED BY AND TO THE SATISFACTION OF DWS.
- 16. MINIMUM COVER OVER WATER MAIN, 6" DIAMETER OR LARGER, SHALL BE 3'-0". MINIMUM COVER FOR 4" DIAMETER SHALL BE 2'-6". MINIMUM COVER FOR DIAMETERS LESS THAN 4" SHALL BE 1'-6".
- 17. CONTRACTOR SHALL ENSURE INSTALLATION OF WATERLINES, SERVICE LATERALS AND APPURTENANCES HAVE PROPER CLEARANCES FROM EXISTING TREES, WALLS, FENCES, ETC. IN ACCORDANCE WITH CURRENT DWS WATER SYSTEM STANDARDS
- 18. CONTRACTOR SHALL VERIFY AND MAINTAIN 18" MINIMUM CLEARANCE WITH WATERLINE OR SERVICE LATERAL CROSSING OVER EXISTING SEWERLINE OR SEWER LATERAL. INSTALL REINFORCED CONCRETE JACKET AROUND SEWERLINE WHERE SEWER IS ABOVE WATERLINE OR LESS THAN 18" BELOW WATERLINE. THE LENGTH OF JACKET REQUIRED SHALL BE AS SPECIFIED IN TABLE 100-5 OF THE DWS STANDARDS. PROVIDE 6" MINIMUM CLEARANCE FROM OUTSIDE JACKET TO WATERLINE OR SERVICE LATERAL. STANDARD CONCRETE JACKET DETAILS FOR SEWERLINE AS SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS STANDARDS SHALL BE FOLLOWED.
- 19. CONTRACTOR SHALL HAVE LICENSED SURVEYOR STAKE OUT WATERLINE BASELINE STATIONING, RIGHT-OF-WAY LIMITS, PROPERTY LINES, AND EASEMENTS LINES TO ENSURE PROPER LOCATION OF WATER SYSTEM IMPROVEMENTS.
- 20. BOLTS FOR EXPOSED FLANGED DUCTILE IRON PIPE JOINTS SHALL BE EITHER SILICON BRONZE BOLTS AND NUTS OR 316 STAINLESS STEEL BOLTING WITH THE HEAVY DUTY STAINLESS STEEL NUTS (ONLY) FURNISHED WITH TRIPAC 2000 BLUE COATING SYSTEM. ANTI-SEIZE SHALL NOT BE USED. T-BOLTS FOR DUCTILE IRON MECHANICAL JOINT (MJ) PIPE AND FITTING CONNECTIONS IN UNDERGROUND SITUATIONS SHALL BE ONE OF THE FOLLOWING SYSTEMS:
  - A. 316 STAINLESS STEEL T-BOLTS WITH THE HEAVY DUTY STAINLESS STEEL NUTS (ONLY) FURNISHED WITH TRIPAC 2000 BLUE COATING SYSTEM. ANTI-SEIZE SHALL NOT BE USED.
  - B. COR-TEN T-BOLTS AND NUTS WITH HIGH GRADE ZINC SACRIFICIAL ANODES, EQUIVALENT TO "DURATRON" SACRIFICIAL "SAC-NUT" MODULES, INSTALLED ON THE NUTS FOR ALL STANDARD COR-TEN T-BOLTS.
  - C. COR-TEN T-BOLTS AND NUTS BOTH FACTORY COATED WITH TRIPAC 2000 BLUE COATING SYSTEM BY "TRIPAC FASTENERS".ALL HOT FORGED STAINLESS STEEL BOLTS ARE REQUIRED TO BE PASSIVATED PER ASTM A380. MANUFACTURER CERTIFICATES ARE REQUIRED FOR PROOF WITH EACH SHIPMENT.
- 21. CONTRACTOR SHALL FURNISH AND INSTALL DUCTILE IRON NIPPLES FOR COMPLETE INSTALLATION OF THE WATERLINE, WHETHER SHOWN OR NOT SHOWN ON THE CONSTRUCTION PLANS, AND THE CONTRACTOR'S EXPENSE.
- 22. CONTRACTOR SHALL FURNISH TEMPORARY CLEANOUTS WHEN NECESSARY TO TEST, FLUSH, AND CHLORINATE THE WATERLINE AT THE CONTRACTOR'S EXPENSE.
- 23. CONTRACTOR SHALL REMOVE AND DISPOSE OF ALL PORTIONS OF ABANDONED WATERLINES THAT ARE EXPOSED OR WITHIN 12-INCHES BELOW THE GROUND SURFACE AT THE CONTRACTOR'S EXPENSE.
- 24. ALL BURIED METALS, INCLUDING COPPER PIPES, SHALL BE WRAPPED WITH POLY-WRAP. FOR ALL BURIED INSTALLATIONS OF DUCTILE IRON PIPE AND FITTINGS, POLY-WRAP IS REQUIRED EXCEPT WITHIN CONCRETE JACKETS.
- 25. LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
- 26. CONTRACTOR SHALL PAINT AND NUMBER FIRE HYDRANT(S). NUMBERING TO BE FURNISHED BY DWS.

**DEPARTMENT OF WATER SUPPLY NOTES (CONT.)**

- 27. 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 AT LEAST 1.5 TIMES THE WORKING PRESSURE. UNLESS OTHERWISE STATED IN THE CONSTRUCTION DOCUMENTS OR LIMITED BY THE PRESSURE RATING OF EQUIPMENT, THE PRESSURE TEST AND LEAKAGE TEST SHALL BE PERFORMED AT 225 POUNDS PER SQUARE INCH PRESSURE.
- 28. DEVELOPER SHALL SUBMIT A COST LIST ALONG WITH AN AFFIDAVIT FOR THE WATER SYSTEM PRIOR TO ACCEPTANCE.
- 29. THE CONTRACTOR SHALL SUBMIT ONE (1) SET OF RECORD DRAWINGS VIA A CONSULTANT PRIOR TO ACCEPTANCE OF THE WATER SYSTEM. AN ELECTRONIC IMAGE FILE IN PDF FORMAT AT FULL PAGE SIZE (24"x36") SHALL BE PROVIDED TO THE DWS FOR ALL PROJECTS.
- CHLORINATION OF WATER SYSTEMS**
  - 1. WATER MAINS AND APPURTENANCES SHALL BE DISINFECTED IN ACCORDANCE WITH AWWA C651. ALL PROCEDURES AND MATERIALS (LIQUID CHLORINE OR CALCIUM HYPOCHLORITE) USED FOR THE CHLORINATION OF THE PROJECT SHALL CONFORM TO AWWA REQUIREMENTS.
  - 2. PRIOR TO CHLORINATION, THE PROJECT PIPELINES SHALL BE THOROUGHLY CLEANED. CLEANING OF LINES 8" AND LARGER SHALL BE BY PIGGING USING FOAM PIGS. SMALLER LINES CAN BE FLUSHED IN ACCORDANCE WITH AWWA REQUIREMENTS IF ADEQUATE WATER SUPPLY IS PROVIDED, OTHERWISE BY PIGGING. THE CONTRACTOR SHALL SUBMIT HIS PLAN OF PIPELINE CLEANING, INCLUDING FITTING REQUIREMENTS FOR PIGGING, FOR APPROVAL PRIOR TO PROCEEDING.
  - 3. THE INTERIOR SURFACES OF THE PROJECT SHALL BE EXPOSED TO THE CHLORINATING SOLUTION FOR A MINIMUM OF 24 HOURS AND THE CHLORINE RESIDUAL SHALL NOT BE LESS THAN 10 PPM AFTER SUCH TIME.
  - 4. SHOULD CALCIUM HYPOCHLORITE BE USED, NO SOLID AND/OR UNDISSOLVED PORTION OF THE COMPOUND SHALL BE INTRODUCED INTO ANY SECTION OF THE PROJECT TO BE CHLORINATED.
  - 5. AT THE END OF THE 24-HOUR DISINFECTION PERIOD, REPRESENTATIVE SAMPLES SHALL BE TAKEN AND ANALYZED TO ASSURE A CHLORINE RESIDUAL OF AT LEAST 10 PPM. MEASUREMENTS FOR CHLORINE RESIDUAL TESTS SHALL BE BY A TRAINED, QUALIFIED TESTER APPROVED BY THE DIRECTOR.
  - 6. SHOULD THE RESULTS INDICATE ADEQUATE CHLORINATION, THE PROJECT SHALL BE THOROUGHLY FLUSHED AND FILLED WITH POTABLE WATER FROM THE EXISTING POTABLE SYSTEM AND AGAIN TESTED FOR CHLORINE RESIDUAL. THE FLUSHING SHALL BE CONSIDERED ADEQUATE IF THE TEST RESULTS INDICATE THAT THE WATER IN THE PROJECT HAS A COMPARABLE CHLORINE RESIDUAL AS THE WATER IN THE EXISTING SYSTEM.
  - 7. FOLLOWING THE ACCEPTABLE FLUSHING OF THE HIGH CONCENTRATION CHLORINE SOLUTION, TWO CONSECUTIVE SETS OF ACCEPTABLE SAMPLES SHALL BE TAKEN AT LEAST 24 HOURS APART FROM REPRESENTATIVE POINTS IN THE PROJECT AND SUBJECTED TO MICROBIOLOGICAL TESTS PERFORMED BY A CERTIFIED LABORATORY APPROVED BY THE DEPARTMENT OF HEALTH. AT LEAST ONE SET OF SAMPLES SHALL BE COLLECTED AND TESTED FROM EVERY 1,200 FEET OF THE NEW WATER MAIN, PLUS ONE FROM THE END OF THE LINE AND AT LEAST ONE SET FROM EACH BRANCH. POSITIVE RESULTS WILL NOT BE ACCEPTABLE AND THE PROCESS WILL BE REPEATED.
  - 8. ANALYSIS FOR RESIDUAL CHLORINE SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER," AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
  - 9. MICROBIOLOGICAL TESTS SHALL BE MADE IN ACCORDANCE WITH "STANDARD METHODS FOR THE EXAMINATION OF WATER AND WASTEWATER," AMERICAN PUBLIC HEALTH ASSOCIATION, CURRENT EDITION.
  - 10. THE DEVELOPER/CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH ALL OF THE FOREGOING.

**NOTES FOR CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY**

- 1. CONTRACTOR SHALL OBTAIN A ROADWAY PERMIT TO PERFORM WORK WITHIN THE COUNTY RIGHT-OF-WAY FROM THE DEVELOPMENT SERVICES ADMINISTRATION TWO WEEKS PRIOR TO THE COMMENCEMENT OF WORK.
- 2. STANDARD DETAIL DRAWINGS AND STANDARD SPECIFICATIONS OF THE DEPARTMENT OF PUBLIC WORKS SHALL BE INCLUDED AS PART OF THE CONSTRUCTION PLANS.
- 3. ALL CONSTRUCTION WORK SHALL STRICTLY CONFORM TO THE LATEST VERSION OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE PUBLIC WORKS CONSTRUCTION, AND THE SEPTEMBER 1984 "STANDARD DETAILS" FOR PUBLIC WORKS CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS, AS AMENDED.
- 4. IF EXISTING UTILITIES, WHETHER OR NOT SHOWN ON PLANS, ARE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL AT HIS OWN EXPENSE BE REQUIRED TO REPAIR SUCH UTILITIES.
- 5. CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, AND OTHER PROTECTIVE DEVICES FOR THE PROTECTION, SAFETY AND CONVENIENCE OF THE PUBLIC, ACCORDING TO THE LATEST VERSION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", AND TO THE RULES AND REGULATIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORKSITES AND/OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS ADOPTED BY THE HIGHWAY SAFETY COORDINATOR AND THE U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS".
- 6. THE DIRECTOR OF PUBLIC WORKS AND/OR THE DIRECTOR OF THE DEPARTMENT OF WATER SUPPLY HAS THE RIGHT TO STOP CONSTRUCTION SHOULD ANY WORK BE FOUND CONTRARY TO THE APPROVED CONSTRUCTION PLAN OR DETRIMENTAL TO THE PUBLIC'S INTEREST.
- 7. THE CONTRACTOR SHALL SCHEDULE A PRE-CONSTRUCTION MEETING WITH THE DEVELOPMENT SERVICES ADMINISTRATION FIVE (5) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- 8. THE CONTRACTOR SHALL, AT HIS OWN EXPENSE, KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH AND COUNTY GRADING ORDINANCE.
- 9. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COST INCURRED FOR ANY NECESSARY REMEDIAL ACTION ORDERED BY THE DIRECTOR OF PUBLIC WORKS SHALL BE PAID BY THE CONTRACTOR.

**NOTES FOR CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY (CONT.)**

- 10. CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE WORK SITE. THE CONTRACTOR SHALL INFORM THE DIRECTOR OF PUBLIC WORKS OF THE LOCATION OF THE DISPOSAL SITES. THE DISPOSAL SITE MUST FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
- 11. THE CONTRACTOR SHALL SUBMIT A PDF OF THE "AS-BUILT" DRAWINGS PRIOR TO THE FINAL APPROVAL OF THE IMPROVEMENTS.
- 12. IF THE CLEARANCE BETWEEN A WASTEWATER LINE AND A NEW OR EXISTING WATERLINE IS EIGHTEEN INCHES (18") OR LESS, THE WASTEWATER LINE SHALL BE CONCRETE-JACKETED IN ACCORDANCE WITH THE STANDARD DETAILS OF PUBLIC WORKS CONSTRUCTION DATED SEPTEMBER 1984, AS AMENDED.
- 13. SHOULD HISTORIC SITES SUCH AS WALLS, PLATFORMS, PAVEMENTS, OR MOUNDS, OR REMAINS SUCH AS ARTIFACTS BURIALS, CONCENTRATION OF SHELL OR CHARCOAL BE ENCOUNTERED DURING CONSTRUCTION ACTIVITIES, WORK SHALL CEASE IMMEDIATELY IN THE IMMEDIATE VICINITY OF THE FIND AND THE FIND SHALL BE PROTECTED FROM FURTHER DAMAGE. THE CONTRACTOR AND/OR LANDOWNER SHALL IMMEDIATELY CONTACT THE STATE HISTORIC PRESERVATION DIVISION (692-8015), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY.
- 14. THE COUNTY OF MAUI IS NOT RESPONSIBLE FOR ANY PARK, ROADWAY, EASEMENT (INCLUDING BUT NOT LIMITED TO DRAINAGE, SEWER, ACCESS, RECLAIMED WATER, OR AVIGATION EASEMENT), OR ANY OTHER INTEREST IN REAL PROPERTY SHOWN ON THIS MAP OR SHOWN ON THESE PLANS, UNLESS THE MAUI COUNTY COUNCIL HAS ACCEPTED ITS DEDICATION BY A RESOLUTION APPROVED BY A MAJORITY OF COUNCIL MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL OR THE COUNTY OF MAUI HAS SIGNED ITS ACCEPTANCE VIA A CONVEYANCE DOCUMENT RECORDED IN THE BUREAU OF CONVEYANCES OF THE STATE OF HAWAII IN COMPLIANCE WITH MAUI COUNTY CODE SECTION 3.44.015.
- 15. STEEL PLATE WARNING SIGNS ARE REQUIRED FOR ALL STEEL PLATES IN THE RIGHT-OF-WAY.
- 16. WHEELCHAIR RAMP INSPECTION/CERTIFICATION FORMS SHALL BE REQUIRED FOR ALL NEWLY CONSTRUCTED RAMPS.
- 17. ALL STRIPING AND PAVEMENT MARKINGS SHALL BE OF THERMOPLASTIC MATERIAL.
- 18. COMPACTION REQUIREMENTS
  - a. TESTING OF MATERIALS SHALL BE CONDUCTED BY AN APPROVED INDEPENDENT TESTING AGENCY IN ACCORDANCE WITH ASTM STANDARD METHODS OR AS SPECIFIED BY THE DEPARTMENT OF PUBLIC WORKS, ENGINEERING DIVISION, AS FOLLOWS:
    - i. EMBANKMENT/SELECT BORROW AND SUBGRADE MATERIALS: ONE (1) COMPACTION TEST PER 600 SQUARE YARDS PER LIFT;
    - ii. AGGREGATE SUBBASE COURSE: ONE (1) COMPACTION TEST PER 400 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER LIFT PER PROJECT;
    - iii. AGGREGATE BASE COURSE: ONE (1) COMPACTION TEST PER 300 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER LIFT PER PROJECT;
    - iv. ASPHALT CONCRETE PAVEMENT OR ASPHALT TREATED BASE COURSE: THREE (3) A.C. CORES FOR THICKNESS AND DENSITY TESTS PER PROJECT;
    - v. TRENCH BACKFILL MATERIAL: ONE (1) TEST FOR EACH 300 LINEAL FEET OF TRENCH PER LIFT OF MATERIAL.
  - b. CONTRACTOR SHALL SUBMIT ALL TESTING REPORTS INCLUDING RESULTS TO THE COUNTY'S INSPECTION AGENCY FOR REVIEW AND APPROVAL PRIOR TO COUNTY'S ACCEPTANCE OF WORK.
  - c. THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY THE COUNTY OF ANY TESTING FAILURES AND CORRECT EACH FAILURE PRIOR TO PROCEEDING TO THE NEXT PHASE OF CONSTRUCTION.

**GRADING NOTES**

- 1. FINISH SPOT ELEVATIONS AND FINISH CONTOURS, AS SHOWN ON PLAN REPRESENTS FINISH GRADING. THE SITEWORK CONTRACTOR SHALL COORDINATE WITH THE LANDSCAPE CONTRACTOR THE LOCATION AND DEPTH OF TOPSOIL. THE FINISH SUBGRADE SHALL REFLECT THE FINISH GRADE LESS SPECIFIED TOPSOIL DEPTH.
- 2. THE CONTRACTOR SHALL IMPLEMENT AND MAINTAIN THE MEASURES OF THE BEST MANAGEMENT PRACTICE (BMP) PLAN. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS CONTAINED IN THE PUBLIC HEALTH REGULATIONS, STATE DEPARTMENT OF HEALTH, ON WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS.
- 3. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS, AND OTHER AREAS. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE STATE DEPARTMENT OF HEALTH SHALL BE PAYABLE BY THE CONTRACTOR.
- 4. THE CONTRACTOR, AT HIS EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE OF DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- 5. CONSTRUCTION DEBRIS, ASH MATERIAL, AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE SITE. THE CONTRACTOR SHALL INFORM THE ENGINEER OF THE LOCATION OF DISPOSAL SITES. THE DISPOSAL SITE MUST ALSO FULFILL REQUIREMENTS OF THE GRADING ORDINANCES.
- 6. THE CONTRACTOR SHALL NOT DEMOLISH OR CLEAR ANY STRUCTURE, SITE OR VACANT LOT WITHOUT FIRST ASCERTAINING THE PRESENCE OR ABSENCE OF RODENTS WHICH MAY ENDANGER THE PUBLIC HEALTH BY DISPERSAL FROM SUCH PREMISES. SHOULD SUCH INSPECTION REVEAL THE PRESENCE OF SUCH RODENTS, THE CONTRACTOR SHALL ERADICATE SUCH RODENTS BEFORE DEMOLISHING OR CLEARING SAID STRUCTURE, SITE OR VACANT LOT.
- 7. THE FOLLOWING MEASURES SHALL BE TAKEN TO CONTROL DUST AND EROSION DURING THE SITE DEVELOPMENT PERIOD:
  - A. MINIMIZE TIME OF CONSTRUCTION.
  - B. RETAIN EXISTING GROUND COVER UNTIL THE LATEST DATE TO COMPLETE CONSTRUCTION.
  - C. CONSTRUCT REMAINING PERMANENT EROSION AND DRAINAGE CONTROL FEATURES AS EARLY AS POSSIBLE.

**GRADING NOTES (CONT.)**

- D. USE TEMPORARY AREA SPRINKLERS IN NON-ACTIVE CONSTRUCTION AREAS WHEN GROUND COVER IS REMOVED.
- E. STATION WATER TRUCK ON-SITE DURING CONSTRUCTION PERIOD TO PROVIDE FOR IMMEDIATE SPRINKLING, AS NEEDED, IN ACTIVE CONSTRUCTION AREAS (WEEKENDS AND HOLIDAYS INCLUDED).
- F. USE TEMPORARY BERMS AND CUT-OFF DITCHES, WHERE NEEDED, FOR CONTROL OF EROSION. IMPLEMENT AND MAINTAIN THE MEASURES OF THE BMP PLAN.
- G. GRADED AREAS SHALL BE THOROUGHLY WATERED AFTER CONSTRUCTION ACTIVITY HAS CEASED FOR THE DAY AND ON WEEKENDS.
- H. ALL CUT AND FILL SLOPES SHALL BE SODDED OR PLANTED IMMEDIATELY AFTER GRADING WORK HAS BEEN COMPLETED.

**DEPARTMENT OF HEALTH NOTES**

- 1. THE CONTRACTOR SHALL REMOVE ALL SILT AND DEBRIS RESULTING FROM HIS WORK AND DEPOSITED IN DRAINAGE FACILITIES, ROADWAYS AND OTHER AREAS. THE COSTS INCURRED FOR ANY NECESSARY REMEDIAL ACTION BY THE STATE DEPARTMENT OF HEALTH SHALL BE PAYABLE BY THE CONTRACTOR.
- 2. THE CONTRACTOR, AT HIS EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE OF DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
- 3. THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL BE RESPONSIBLE FOR CONFORMANCE WITH APPLICABLE PROVISIONS OF THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS," AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL."

THE GENERAL CONTRACTOR/DEVELOPER/OWNER OF THE PROJECT SHALL OBTAIN NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT COVERAGE(S) FOR THE FOLLOWING:

- 1. STORM WATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES THAT DISTURB ONE (1) ACRE OR MORE, AND
- 2. DISCHARGES OF HYDROTESTING EFFLUENT, DEWATERING EFFLUENT, AND WELL DRILLING EFFLUENT TO STATE WATERS.

IN ACCORDANCE WITH STATE LAW, ALL DISCHARGES RELATED TO PROJECT CONSTRUCTION OR OPERATIONS ARE REQUIRED TO COMPLY WITH STATE WATER QUALITY STANDARDS (HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54). BEST MANAGEMENT PRACTICES SHALL BE USED TO MINIMIZE OR PREVENT THE DISCHARGE OF SEDIMENT, DEBRIS, AND OTHER POLLUTANTS TO STATE WATERS. PERMIT COVERAGE IS AVAILABLE FROM THE DEPARTMENT OF HEALTH, CLEAN WATER BRANCH AT [HTTP://HEALTH.HAWAII.GOV/CWB](http://health.hawaii.gov/cwb). THE OWNER/DEVELOPER/CONTRACTOR IS RESPONSIBLE FOR OBTAINING OTHER FEDERAL, STATE, OR LOCAL AUTHORIZATIONS REQUIRED BY LAW.

ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.

CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE SITE. THE CONTRACTOR SHALL INFORM THE ENGINEER OF THE LOCATION OF DISPOSAL SITES. THE DISPOSAL SITE MUST ALSO FULFILL REQUIREMENTS OF THE GRADING ORDINANCES.

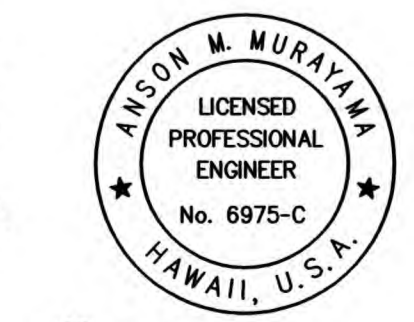
THE CONTRACTOR SHALL COMPLY WITH THE CONDITIONS OF THE BEST MANAGEMENT PRACTICE PLAN AND GENERAL PERMIT COVERING DISCHARGE OF STORM WATER ASSOCIATED WITH CONSTRUCTION ACTIVITIES AND HYDROTESTING WATER.

**DEPARTMENT OF PUBLIC WORKS NOTES**

- 1. THE CONTRACTOR SHALL ALLOW FOUR WEEKS TO OBTAIN A GRADING PERMIT FROM THE DSA PRIOR TO COMMENCEMENT OF ANY CLEARING AND GRUBBING. A SATISFACTORY DRAINAGE AND EROSION CONTROL PLAN SHALL BE SUBMITTED IN THE EVENT THE GRUBBING AREA EXCEEDS ONE ACRE OR THE PROPOSED CUT OR FILL IS GREATER THAN 15 FEET IN HEIGHT. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL BEST MANAGEMENT PRACTICE MEASURES.
- 2. THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, AND OTHER PROTECTIVE DEVICES FOR THE PROTECTION, SAFETY AND CONVENIENCE OF THE PUBLIC AND IN ACCORDANCE WITH THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, 2009." THE CONTRACTOR SHALL PREPARE AND OBTAIN NECESSARY APPROVALS OF TRAFFIC CONTROL PLANS IF REQUIRED BY THE DSA.

**DISABILITY AND COMMUNICATION ACCESS BOARD (DCAB) REQUIREMENTS**

- 1. WHERE 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. TEMPORARY PEDESTRIAN PASSAGES SHALL BE ACCESSIBLE PER ADAAG 201.3 AND SHALL COMPLY W/ADAAG 206.1.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

Community Planning and Engineering, Inc. Engineering Design | Construction Management | Infrastructure Planning 1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**

KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**GENERAL NOTES - 1**

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM
---------------	--------------------	-----------------

FILE	PROJECT	FOLDER	NO.
------	---------	--------	-----

**STOCKPILING**

1. ALL STOCKPILING WORK SHALL BE DONE IN ACCORDANCE WITH THE SOILS REPORT BY PSC DATED MARCH 2005 AND APRIL 2013.
2. NO CONTRACTOR SHALL PERFORM ANY STOCKPILING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 60.1, "AIR POLLUTION CONTROL."
4. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
5. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OF THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
6. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED AS SOON AS THE FINAL GRADES HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL STOCKPILING WORK HAS BEEN COMPLETE. STOCKPILING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED SHALL BE PLANTED.
7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
8. THE COUNTY SHALL BE INFORMED OF THE LOCATION OF THE BORROW SITE FOR THE PROJECT WHEN THE APPLICATION FOR A STOCKPILING PERMIT IS MADE. THE BORROW SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
9. NO STOCKPILING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, DPHL, PROVIDED SUCH STOCKPILING WORK IS ALSO IN CONFORMANCE WITH COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 46, "COMMUNITY NOISE CONTROL."
10. THE LIMITS OF THE AREA TO BE STOCKPILED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE STOCKPILING WORK.
11. ALL STOCKPILING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, TITLE 11, CHAPTER 54, "WATER QUALITY STANDARDS" AND TITLE 11, CHAPTER 55, "WATER POLLUTION CONTROL", AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY STOCKPILING WORK IS INITIATED.
13. TEMPORARY EROSION CONTROL SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR STOCKPILING PERMIT.
15. IF THE STOCKPILING WORK INVOLVES CONTAMINATED SOIL, THEN ALL STOCKPILING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
16. THE CONTRACTOR SHALL NOTIFY THE DEVELOPMENT SERVICES ADMINISTRATION, DEPT. OF PUBLIC WORKS TO ARRANGE FOR INSPECTORIAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
17. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

**BEST MANAGEMENT PRACTICES NOTES**

1. ALL GRADED AREAS SHALL BE PROTECTED FROM EROSION BY HYDOMULCHING EXPOSED AREAS AS SOON AS GRADES ARE ATTAINED.
2. ALL TEMPORARY EROSION CONTROL MEASURES, SUCH AS SILT FENCES, STABILIZED CONSTRUCTION ENTRANCE, AND HYDOMULCHING SHALL BE INSTALLED AND MAINTAINED UNTIL SUCH TIME PERMANENT EROSION CONTROL MEASURES ARE ESTABLISHED.
3. HYDOMULCHING AREAS SHALL BE MAINTAINED UNTIL GRASS HAS BEEN ESTABLISHED.

**GRUBBING**

1. ALL GRUBBING WORK SHALL BE DONE IN ACCORDANCE WITH THE SOILS REPORTS BY PSC DATED MARCH 2005 AND APRIL 2013.
2. NO CONTRACTOR SHALL PERFORM ANY GRUBBING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES. SHOULD SUCH VIOLATIONS OCCUR, THE CONTRACTOR MAY BE CITED AND THE CONTRACTOR SHALL IMMEDIATELY MAKE ALL REMEDIAL ACTIONS NECESSARY.
3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, CHAPTER 11-60, "AIR POLLUTION CONTROL."
4. ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
5. ALL GRUBBED AREAS SHALL BE SODDED OR PLANTED IMMEDIATELY AFTER THE GRUBBING WORK HAS BEEN COMPLETED.
6. THE COUNTY SHALL BE INFORMED OF THE LOCATION OF THE DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRUBBING PERMIT IS MADE. THE DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE GRADING ORDINANCE.
7. NO GRUBBING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS AND HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE DIRECTOR, DPHL, PROVIDED SUCH GRUBBING WORK IS ALSO IN CONFORMANCE WITH THE COMMUNITY NOISE CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES, CHAPTER 11-43, "COMMUNITY NOISE CONTROL FOR OAHU."
8. THE LIMITS OF THE AREA TO BE GRUBBED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE GRUBBING WORK.
9. ALL GRUBBING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY AND WATER POLLUTION CONTROL STANDARDS CONTAINED IN HAWAII ADMINISTRATIVE RULES, CHAPTER 11-54, "WATER QUALITY STANDARDS" AND CHAPTER 11-55, "WATER POLLUTION CONTROL", AND IF APPLICABLE, THE NPDES PERMIT FOR THE PROJECT.
10. WHERE APPLICABLE AND FEASIBLE, THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY GRUBBING WORK IS INITIATED.
11. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
12. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRUBBING PERMIT.
13. IF THE GRUBBING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRUBBING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
14. THE CONTRACTOR SHALL NOTIFY THE DEVELOPMENT SERVICES ADMINISTRATION DEPT. OF PUBLIC WORKS TO ARRANGE FOR INSPECTORIAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
15. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHALL COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE VIOLATOR. FURTHERMORE, VIOLATORS SHALL BE SUBJECT TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

**DUST CONTROL**

1. THE COUNTY INSPECTOR AND/OR THE OWNERS ENGINEER SHALL DIRECT THE CONTRACTOR ON WHERE DUST SCREENS SHALL BE INSTALLED. THE COUNTY INSPECTOR SHALL BE INFORMED OF THESE LOCATIONS.
2. IN ACCORDANCE WITH CHAPTER 11-60.1, AIR POLLUTION CONTROL, TITLE 11, HAWAII ADMINISTRATIVE RULES, THE PROPERTY OWNER/DEVELOPER SHALL BE RESPONSIBLE FOR ENSURING THAT EFFECTIVE CONTROL MEASURES ARE PROVIDED TO MINIMIZE OR PREVENT ANY VISIBLE DUST EMISSION CAUSED BY THE CONSTRUCTION WORK FROM IMPACTING THE SURROUNDING AREAS INCLUDING THE OFF-SITE ROADWAYS USED TO ENTER/EXIT THE PROJECT. THESE MEASURES INCLUDE BUT ARE NOT LIMITED TO THE USE OF WATER WAGONS, SPRINKLER SYSTEMS, DUST FENCES, ETC.
3. ALL AREAS DISTURBED BY CONSTRUCTION ACTIVITIES SHALL CONTROL DUST EMISSIONS TO THE MAXIMUM EXTENT PRACTICAL THROUGH THE APPLICATION OF BMPs THAT MAY INCLUDE WATERING WITH TRUCKS OR SPRINKLERS, ERECTION OF DUST FENCES LIMITING THE AREA OF DISTURBANCE AND TIMELY GRASSING OF FINISHED AREAS.

**CONSTRUCTION BMPs**

1. THE FOLLOWING SPECIAL CONDITIONS APPLY TO ALL LAND DISTURBANCE WORK CONDUCTED UNDER THE GENERAL PERMIT:
  - A. CONSTRUCTION MANAGEMENT TECHNIQUES INCLUDE:
    1. CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION.
    2. EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IN PLACE AND FUNCTIONAL BEFORE EARTH MOVING OPERATIONS BEGIN AND SHALL BE CONSTRUCTED AND MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD. TEMPORARY MEASURES MAY BE REMOVED AT THE BEGINNING OF THE WORK DAY, BUT SHALL BE REPLACED AT THE END OF THE WORK DAY.
    3. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED, AS NECESSARY, WEEKLY IN DRY PERIODS AND WITHIN 24-HOUR PERIOD DURING PROLONGED RAINFALL. DAILY CHECKING IS NECESSARY. THE CONTRACTOR SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.

**CONSTRUCTION BMPs (CONT.)**

4. A SPECIAL INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.
5. THE CONTRACTOR SHALL HAVE PERSONNEL INSPECT, REPAIR AND MAINTAIN THE INGRESS/EGRESS FILTER BERM FOR THE DURATION OF THE PROJECT. THIS SHALL INCLUDE BUT NOT BE LIMITED TO ANY SWEEPING OF GRAVEL, SAND AND DUST THAT MAY DISPERSE FROM THE BERM WITH AN INSPECTION AT BEGINNING OF THE DAY AND A FINAL INSPECTION AT THE END OF THE DAY.
- B. VEGETATION CONTROLS INCLUDE:
  1. PRE-CONSTRUCTION VEGETATIVE GROUND COVER SHALL NOT BE DESTROYED, REMOVED OR DISTURBED MORE THAN 20 CALENDAR DAYS PRIOR TO SITE DISTURBANCE.
  2. TEMPORARY SOIL STABILIZATION WITH APPROPRIATE VEGETATION SHALL BE APPLIED ON AREAS THAT WILL REMAIN UNFINISHED FOR MORE THAN 30 CALENDAR DAYS.
  3. PERMANENT SOIL STABILIZATION WITH PERENNIAL VEGETATION SHALL BE APPLIED AS SOON AS PRACTICABLE AFTER FINAL GRADING.
- C. STRUCTURAL CONTROLS INCLUDE:
  1. STORM WATER FLOWING TOWARD THE CONSTRUCTION AREA SHALL BE DIVERTED BY USING BERMS, CHANNELS, SEDIMENT TRAPS, AND OTHER APPROPRIATE CONTROL MEASURES, AS PRACTICAL.
  2. EROSION CONTROL MEASURES SHALL BE DESIGNED ACCORDING TO THE SIZE OF DISTURBED OR DRAINAGE AREAS, TO DETAIN RUNOFF AND TRAP SEDIMENT.
  3. WATER MUST BE DISCHARGED THROUGH A PIPE OR LINED CHANNEL SO THAT THE DISCHARGE DOES NOT CAUSE EROSION.
  4. MUDDY WATER TO BE PUMPED FROM EXCAVATION AND WORK AREAS MUST BE HELD IN SETTLING BASINS OR TREATED BY FILTRATION OR OTHER APPROPRIATE MEASURES PRIOR TO ITS DISCHARGE INTO STATE WATERS. WATER MUST BE DISCHARGED THROUGH A PIPE OR LINED CHANNEL SO THAT THE DISCHARGE DOES NOT CAUSE EROSION AND SEDIMENTATION.
  5. STORM DRAIN INLET PROTECTION.
    1. REMOVAL OF TEMPORARY SILT FENCE OR FILTER BERM SHALL BE DONE AFTER PERMANENT VEGETATIVE GROUND COVER HAS BEEN ACCEPTED BY THE GOVERNING AGENCY.
- D. REMOVAL OF TEMPORARY SILT FENCE OR FILTER BERM:

**GENERAL NOTES FOR TRAFFIC CONTROL PLAN**

1. THE PERMITTEE SHALL MAKE MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
2. CONES OR DELINEATORS SHALL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO APPROACHING TRAFFIC.
3. TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST FROM THE WORK AREA SHALL BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED PROGRESSIVELY TOWARD THE WORK AREA.
4. REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
5. FLAGGERS AND/OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL.
7. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
8. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
9. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PRECLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (I.E., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
10. AT THE END OF EACH DAY'S WORK OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTEE SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION. EXISTING FADED OR OBLITERATED PAVEMENT MARKINGS THAT ARE NECESSARY FOR SAFE TRAFFIC FLOW IN THE CONSTRUCTION AREA SHALL BE REPLACED WITH TEMPORARY OR PERMANENT MARKINGS BEFORE OPENING THE ROADWAY TO PUBLIC TRAFFIC EACH DAY.
11. PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS SHALL BE REPLACED UPON COMPLETION OF EACH PHASE OF WORK.
12. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THE RIGHT-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY. FURTHER, THE PERMITTEE SHALL CONTROL TRAFFIC GOING IN AND OUT OF DRIVEWAYS.

**GENERAL NOTES FOR TRAFFIC CONTROL PLAN (CONT.)**

13. ONE LANE ROAD (CW20-4) AND FLAGGER AHEAD (CW20-7) SIGNS SHALL BE REMOVED AND COVERED WHEN NO WORK IS BEING PERFORMED AND LANE IS NOT CLOSED.
14. SHOULDER TAPER: WHEN PAVED SHOULDERS HAVING A WIDTH OF 8-FT. OR MORE ARE CLOSED, CHANNELIZING DEVICES SHOULD BE USED TO CLOSE THE SHOULDER IN ADVANCE OF THE MERGING TAPER TO DIRECT VEHICULAR TRAFFIC TO REMAIN WITHIN THE TRAVELED WAY.
15. IF THE TANGENT DISTANCE ALONG THE TEMPORARY DIVERSION IS MORE THAN 600 FT. A REVERSE CURVE (CW1-4(L)) SIGN AND A REVERSE CURVE (CW1-4(R)) SIGN SHALL BE USED INSTEAD OF THE DOUBLE REVERSE CURVE (CW2-1A(L)) SIGN.
16. BUFFER ZONE REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
17. ALL CONES SPACED @ 10' O.C.

**STANDARD TRAFFIC AND SIGNAGE NOTES**

1. ALL TRAFFIC SIGNS AND PAVEMENT MARKINGS SHALL CONFORM TO THE LATEST EDITION OF THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS", AS AMENDED, AND APPLICABLE SECTIONS OF PART V OF THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION" DATED SEPTEMBER 1984, AND THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (2005 EDITION), UNLESS OTHERWISE SPECIFIED ON THE PLANS, SPECIFICATIONS, OR THE STANDARD TRAFFIC NOTES.
2. THE CONTRACTOR SHALL INSTALL PERMANENT OR TEMPORARY PAVEMENT MARKERS, STRIPING AND MARKINGS AS REQUIRED BY SECTION 629 OF THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (2005 EDITION). THE TEMPORARY STRIPING MUST BE INSTALLED AS CLOSE AS POSSIBLE TO THE FINAL LOCATION TO ENSURE PROPER LANE WIDTHS AND SAFE FLOW OF TRAFFIC, BUT NOT IN THE WAY OF PAVEMENT MARKING LAYOUT OPERATIONS.

THE CONTRACTOR SHALL COORDINATE AND HIRE SPECIAL DUTY POLICE OFFICER(S) AS NEEDED TO PROVIDE TRAFFIC CONTROL WHILE WORKING WITHIN THE COUNTY RIGHT OF WAY.

3. THE CONTRACTOR SHALL INFORM THE TRAFFIC DIVISION AT LEAST SIX (6) WORKING DAYS PRIOR TO ANY WORK ON PAVEMENT MARKING OPERATIONS AND/OR SIGN INSTALLATIONS TO SCHEDULE A REVIEW AND APPROVAL OF THE STRIPING AND/OR SIGNING PLANS.
4. THE APPROVED STRIPING PLAN SHALL BE LAID OUT USING THINNED-OUT PAINT OR OTHER APPROVED METHODS. FIELD ADJUSTMENTS SHALL BE MADE AS DIRECTED BY THE ENGINEER BEFORE THE FINAL MARKINGS ARE APPLIED.
5. ALL PAVEMENT MARKINGS THAT BECOME INAPPLICABLE SHALL BE REMOVED BY THE CONTRACTOR AT HIS OWN EXPENSE. REMOVAL SHALL BE BY ERADICATION OR BY OTHER METHODS APPROVED BY THE ENGINEER BEFORE THE NEW PAVEMENT MARKINGS ARE APPLIED. EXCESSIVE GOING OF THE PAVEMENT IS NOT ACCEPTABLE AND SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.

6. ALL PAVEMENT STRIPING SHALL BE WITH REFLECTIVE THERMOPLASTIC COMPOUND PAVEMENT MARKING AS SPECIFIED IN SECTIONS 629 OF THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION" (2005 EDITION) ON ALL ROADWAYS. THE CONTRACTOR SHALL SUBMIT CERTIFICATE OF COMPLIANCE CERTIFYING THAT THE THERMOPLASTIC MATERIAL TO BE USED MEETS THE CURRENT STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
7. HEAT APPLIED PRE-FORMED THERMOPLASTIC PAVEMENT MARKING TAPE WITH VISIBLE TEMPERATURE INDICATORS, OR AN EQUAL PAVEMENT MARKING TAPE THAT IS APPROVED BY THE TRAFFIC DIVISION MAY BE USED FOR CROSSWALKS, STOPLINES, PAVEMENT ARROWS, ALPHABETS, & SYMBOLS IN LIEU OF THERMOPLASTIC COMPOUND.
8. REFLECTORIZED RAISED PAVEMENT MARKERS SHALL BE THE REGULAR SIZED MARKERS WITH APPROXIMATE DIMENSIONS OF 4" BY 4" BY 0.7". THE CONTRACTOR SHALL SUBMIT CERTIFICATE OF COMPLIANCE CERTIFYING THAT THE RAISED PAVEMENT MARKERS TO BE USED MEETS AND OR EXCEEDS THE CURRENT STATE OF HAWAII, DEPARTMENT OF TRANSPORTATION SPECIFICATIONS.
9. UPON COMPLETION OF THE CONSTRUCTION WORK, THE CONTRACTOR SHALL RESTRIPE ALL PAVEMENT MARKINGS WITHIN THE CONSTRUCTION WORK AREA AND ADJACENT ROADWAY PAVEMENTS UP TO 300 FEET BEYOND THE CONSTRUCTION AREA IN ACCORDANCE WITH ITEM 6 OF THE CURRENT STANDARD TRAFFIC NOTES. ALL TRAFFIC SIGNS AND POSTS WITHIN THE CONSTRUCTION AREA AND ADJACENT AREAS THAT HAVE BEEN DAMAGED, REMOVED, OR ADVERSELY AFFECTED BY THE CONSTRUCTION WORK SHALL BE REPLACED BY THE CONTRACTOR.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1285 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>GENERAL NOTES - 2</b>			
DRAWN BY: HW1	ENGINEER: HW1, FJC	CHECKED BY: AMM	
FILE      POCKET      FOLDER      NO.			

**WATER POLLUTION AND EROSION CONTROL NOTES**

1. GENERAL:

- A. SEE SPECIAL PROVISION SECTION 209 – WATER POLLUTION AND EROSION CONTROL. SECTION 209 DESCRIBES BUT IS NOT LIMITED TO: SUBMITTAL REQUIREMENTS; SCHEDULING OF A WATER POLLUTION AND EROSION CONTROL CONFERENCE WITH THE ENGINEER; CONSTRUCTION REQUIREMENTS; METHOD OF MEASUREMENT; AND BASIS OF PAYMENT. IN ADDITION, APPENDIX A LISTS POTENTIAL POLLUTANT SOURCES AND CORRESPONDING BMPs USED TO MITIGATE THE POLLUTANTS.
- B. FOLLOW THE GUIDELINES IN THE CURRENT HDOT CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL IN DEVELOPING, INSTALLING AND MAINTAINING THE BEST MANAGEMENT PRACTICES (BMP) FOR THE PROJECT. FOR ANY CONFLICTING REQUIREMENTS BETWEEN THE MANUAL AND APPLICABLE BID DOCUMENTS, THE APPLICABLE BID DOCUMENTS WILL GOVERN. SHOULD A REQUIREMENT NOT BE CLEARLY DESCRIBED WITHIN THE APPLICABLE BID DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY FOR INTERPRETATION. FOR THE PURPOSES OF CLARIFICATION UNDER NOTE A.2, "APPLICABLE BID DOCUMENTS" INCLUDE THE CONSTRUCTION PLANS, STANDARD SPECIFICATIONS, SPECIAL PROVISIONS, PERMITS, AND THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) WHEN APPLICABLE.
- C. FOLLOW THE GUIDELINES IN THE HONOLULU'S CITY & COUNTY "RULES RELATING TO SOIL EROSION STANDARDS AND GUIDELINES" ALONG WITH APPLICABLE SOIL EROSION GUIDELINES FOR PROJECTS ON MAUI, MOLOKAI, KAUAI, AND HAWAII.
- D. THE ENGINEER MAY ASSESS LIQUIDATED DAMAGES OF UP TO \$27,500 FOR NON-COMPLIANCE OF EACH BMP REQUIREMENT AND EACH REQUIREMENT STATED IN SECTION 209 AND SPECIAL PROVISIONS, FOR EVERY DAY OF NON-COMPLIANCE. THERE IS NO MAXIMUM LIMIT ON THE AMOUNT OF ASSESSED PER DAY.
- E. THE ENGINEER WILL DEDUCT THE COST FROM THE PROGRESS PAYMENT FOR ALL CITATIONS RECEIVED BY THE DEPARTMENT FOR NON-COMPLIANCE, OR THE CONTRACTOR SHALL REIMBURSE THE STATE FOR THE FULL AMOUNT OF THE OUTSTANDING COST INCURRED BY THE STATE.
- F. IF NECESSARY, INSTALL A RAIN GAGE PRIOR TO ANY FIELD WORK INCLUDING THE INSTALLATION OF ANY SITE-SPECIFIC BEST MANAGEMENT PRACTICES. THE RAIN GAGE SHALL HAVE A TOLERANCE OF AT LEAST 0.05 INCHES OF RAINFALL. INSTALL THE RAIN GAGE ON THE PROJECT SITE IN AN AREA THAT WILL NOT DETER RAINFALL FROM ENTERING THE GAGE OPENING. DO NOT INSTALL IN A LOCATION WHERE RAIN WATER MAY SPLASH INTO RAIN GAGE. THE RAIN GAGE INSTALLATION SHALL BE STABLE AND PLUMBED. DO NOT BEGIN FIELD WORK UNTIL THE RAIN GAGE IS INSTALLED AND SITE-SPECIFIC BEST MANAGEMENT PRACTICES ARE IN-PLACE.
- G. SUBMIT SITE-SPECIFIC BMP PLAN TO THE ENGINEER ALONG WITH A COMPLETED SITE-SPECIFIC BMP REVIEW CHECKLIST WITHIN 30 CALENDAR DAYS OF CONTRACT EXECUTION. THE SITE-SPECIFIC BMP REVIEW CHECKLIST MAY BE OBTAINED FROM [HTTP://WWW.STORMWATERHAWAII.COM](http://www.stormwaterhawaii.com).

2. WASTE DISPOSAL:

A. WASTE MATERIALS:

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

B. HAZARDOUS WASTE:

DISPOSE ALL HAZARDOUS WASTE MATERIALS IN THE MANNER SPECIFIED BY LOCAL OR STATE REGULATIONS AND BY THE MANUFACTURER. THE CONTRACTOR'S SITE PERSONNEL SHALL BE INSTRUCTED IN THESE PRACTICES AND SHALL BE RESPONSIBLE FOR SEEING THAT THESE PRACTICES ARE FOLLOWED.

C. SANITARY WASTE:

COLLECT ALL SANITARY WASTE FROM THE PORTABLE UNITS A MINIMUM OF ONCE PER WEEK, OR AS REQUIRED. POSITION SANITARY FACILITIES WHERE THEY ARE SECURE AND WILL NOT BE TIPPED OVER OR KNOCKED DOWN.

3. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:

- A. FOR PROJECTS WITH AN NPDES PERMIT FOR CONSTRUCTION ACTIVITIES, INSPECT AT THE FOLLOWING INTERVALS. FOR CONSTRUCTION AREAS DISCHARGING TO NUTRIENT OR SEDIMENT IMPAIRED WATERS, INSPECT ALL CONTROL MEASURES AT LEAST ONCE EACH WEEK AND WITHIN 24 HOURS OF ANY RAINFALL EVENT OF 0.25 INCHES OR GREATER WITHIN A 24 HOUR PERIOD. FOR CONSTRUCTION AREAS DISCHARGING TO WATERS NOT IMPAIRED FOR NUTRIENT OR SEDIMENTS, INSPECT ALL CONTROL MEASURES WEEKLY. INSPECTIONS ARE ONLY REQUIRED DURING THE PROJECT'S NORMAL WORKING HOURS. THE DISCHARGE POINT WATER CLASSIFICATION MAY BE FOUND IN THE SWPPP.
- B. MAINTAIN ALL EROSION AND SEDIMENT CONTROL MEASURES PER SPECIFICATION SECTIONS 3.02 FIELD QUALITY CONTROL AND 3.03 INSPECTIONS. IF REPAIR IS NECESSARY, INITIATE REPAIR IMMEDIATELY AND COMPLETE BY THE CLOSE OF THE NEXT WORK DAY IF THE PROBLEM DOES NOT REQUIRE SIGNIFICANT REPAIR OR REPLACEMENT, OR IF THE PROBLEM CAN BE CORRECTED THROUGH ROUTINE MAINTENANCE. WHEN INSTALLATION OF A NEW EROSION OR SEDIMENT CONTROL OR A SIGNIFICANT REPAIR IS NEEDED, INSTALL THE NEW OR MODIFIED CONTROL OR COMPLETE THE REPAIR NO LATER THAN 7 CALENDAR DAYS FROM THE TIME OF DISCOVERY. "IMMEDIATELY" MEANS THE CONTRACTOR SHALL TAKE ALL REASONABLE MEASURES TO MINIMIZE OR PREVENT DISCHARGE OF POLLUTANTS UNTIL A PERMANENT SOLUTION IS INSTALLED AND MADE OPERATIONAL. IF A PROBLEM IS IDENTIFIED AT A TIME IN THE DAY IN WHICH IT IS TOO LATE TO INITIATE REPAIR, INITIATION OF REPAIR SHALL BEGIN ON THE FOLLOWING WORK DAY.
- C. REMOVE BUILT-UP SEDIMENT FROM THE SILT FENCE WHEN IT HAS REACHED ONE-THIRD THE HEIGHT OF THE FENCE. REMOVE SEDIMENT FROM THE OTHER PERIMETER SEDIMENT CONTROL DEVICES WHEN IT HAS REACHED ONE-HALF THE HEIGHT OF THE DEVICE.
- D. INSPECT SILT SCREEN OR FENCE FOR DEPTH OF SEDIMENT, TEARS, TO VERIFY THAT THE FABRIC IS SECURELY ATTACHED TO THE FENCE POSTS OR CONCRETE SLAB AND TO VERIFY THAT THE FENCE POSTS ARE FIRMLY IN THE GROUND. INSPECT AND VERIFY THE BOTTOM OF THE SILT SCREEN IS BURIED A MINIMUM OF 6 INCHES BELOW THE EXISTING GROUND.
- E. INSPECT TEMPORARY AND PERMANENT SEEDING AND PLANTING FOR BARE SPOTS, WASHOUTS AND HEALTHY GROWTH.
- F. COMPLETE AND SUBMIT TO THE ENGINEER A MAINTENANCE INSPECTION REPORT WITHIN 24 HOURS AFTER EACH INSPECTION.
- G. PROVIDE A STABILIZED CONSTRUCTION ENTRANCE AT ALL POINTS OF EXIT ONTO PAVED ROADS TO REDUCE VEHICLE TRACKING OF SEDIMENTS. INCLUDE STABILIZED CONSTRUCTION ENTRANCE IN THE WATER POLLUTION, DUST, AND EROSION CONTROL SUBMITTALS. MINIMUM LENGTH SHOULD BE 50 FEET. MINIMUM WIDTH SHOULD BE 30 FEET. MINIMUM DEPTH SHOULD BE 12 INCHES OR AS RECOMMENDED BY THE SOILS ENGINEER AND UNDERLAIN WITH GEO-TEXTILE FABRIC. IF MINIMUM DIMENSIONS CANNOT BE MET, PROVIDE OTHER STABILIZATION TECHNIQUES THAT REMOVE SEDIMENT PRIOR TO EXIT. CLEAN THE PAVED STREET ADJACENT TO THE SITE ENTRANCE DAILY OR AS REQUIRED TO REMOVE ANY EXCESS MUD, COLD-PLAINED MATERIALS, DIRT OR ROCK TRACKED FROM THE SITE. DO NOT HOSE DOWN THE STREET WITHOUT CONTAINING OR VACUUMING WASH WATER. COVER DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WITH A TARPULIN. REMOVE SEDIMENT TRACKED ONTO THE STREET, SIDEWALK, OR OTHER PAVED AREA BY THE END OF THE DAY IN WHICH THE TRACK-OUT OCCURS.
- H. INCLUDE DESIGNATED CONCRETE WASHOUT AREA(S) IN THE WATER POLLUTION, DUST, AND EROSION CONTROL SUBMITTALS.
- I. SUBMIT THE NAME OF A SPECIFIC INDIVIDUAL DESIGNATED RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.
- J. PERSONNEL SELECTED FOR THE INSPECTION AND MAINTENANCE RESPONSIBILITIES SHALL RECEIVE TRAINING FROM THE CONTRACTOR. THEY SHALL BE TRAINED IN ALL THE INSPECTION AND MAINTENANCE PRACTICES NECESSARY FOR KEEPING THE EROSION AND SEDIMENT CONTROLS USED ONSITE IN GOOD WORKING ORDER.
- K. CONTAIN, REMOVE, AND DISPOSE SLURRY GENERATED FROM SAW CUTTING OF PAVEMENT IN ACCORDANCE WITH APPROVED BMP PRACTICES. DO NOT ALLOW DISCHARGE INTO THE DRAINAGE SYSTEM OR STATE WATERS.
- L. FOR PROJECTS WITH AN NPDES PERMIT FOR CONSTRUCTION ACTIVITIES, IMMEDIATELY INITIATE STABILIZING EXPOSED SOIL AREAS UPON COMPLETION OF EARTH-DISTURBING ACTIVITIES FOR AREAS WHERE EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED. EARTH-DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED WHEN CLEARING AND EXCAVATION WITHIN ANY AREA OF THE CONSTRUCTION SITE THAT WILL NOT INCLUDE PERMANENT STRUCTURES HAS BEEN COMPLETED. EARTH-DISTURBING ACTIVITIES HAVE TEMPORARILY CEASED WHEN CLEARING, GRADING, AND EXCAVATION WITHIN ANY AREA OF THE SITE THAT WILL NOT INCLUDE PERMANENT STRUCTURES WILL NOT RESUME (I.E., THE LAND WILL BE IDLE) FOR A PERIOD OF 14 OR MORE CALENDAR DAYS, BUT SUCH ACTIVITIES WILL RESUME IN THE FUTURE. FOR CONSTRUCTION AREAS DISCHARGING INTO WATERS NOT IMPAIRED FOR NUTRIENTS SEDIMENTS, COMPLETE INITIAL STABILIZATION WITHIN 14 CALENDAR DAYS AFTER THE TEMPORARY OR PERMANENT CESSATION OF EARTH-DISTURBING ACTIVITIES. FOR CONSTRUCTION AREAS DISCHARGING INTO NUTRIENT OR SEDIMENT IMPAIRED WATERS, COMPLETE INITIAL STABILIZATION WITHIN 7 CALENDAR DAYS AFTER THE TEMPORARY OR PERMANENT CESSATION OF EARTH-DISTURBING ACTIVITIES. CLASSIFICATION OF WATER AT THE DISCHARGE POINT MAY BE FOUND IN THE SWPPP.
- M. FOR PROJECTS WITHOUT AN NPDES PERMIT FOR CONSTRUCTION ACTIVITIES, COMPLETE INITIAL STABILIZATION WITHIN 14 CALENDAR DAYS AFTER THE TEMPORARY OR PERMANENT CESSATION OF EARTH-DISTURBING ACTIVITIES.

4. GOOD HOUSEKEEPING, BEST MANAGEMENT PRACTICES:

A. MATERIALS POLLUTION PREVENTION PLAN

- I. APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY.
 

CONCRETE	CLEANING SOLVENTS
DETERGENTS	WOOD
PAINTS (ENAMEL AND LATEX)	MASONRY BLOCK
METAL STUDS	HERBICIDES AND PESTICIDES
FERTILIZERS	CURING COMPOUNDS
PETROLEUM BASED PRODUCTS	ADHESIVES
- II. USE MATERIAL MANAGEMENT PRACTICES TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. MAKE AN EFFORT TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
- III. STORE ALL MATERIALS STORED ONSITE IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
- IV. KEEP PRODUCTS IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- V. DO NOT MIX SUBSTANCES WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- VI. WHENEVER POSSIBLE, USE A PRODUCT UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
- VII. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL.
- VIII. CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

B. HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN

- I. KEEP PRODUCTS IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
- II. RETAIN ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS (SDS) FORMERLY MATERIAL SAFETY DATA SHEETS (MSDS).
- III. DISPOSE OF SURPLUS PRODUCTS ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND LOCAL AND STATE REGULATIONS.

C. ONSITE AND OFFSITE PRODUCT SPECIFIC PLAN

THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ONSITE:

- I. PETROLEUM BASED PRODUCTS: MONITOR ALL ONSITE VEHICLES FOR LEAKS AND PERFORM REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. STORE PETROLEUM PRODUCTS IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. APPLY ASPHALT SUBSTANCES USED ONSITE ACCORDING TO THE MANUFACTURER'S RECOMMENDATION.
- II. FERTILIZERS: APPLY FERTILIZERS USED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER AND FEDERAL, STATE, AND LOCAL REQUIREMENTS. AVOID APPLYING JUST BEFORE A HEAVY RAIN EVENT. APPLY AT THE APPROPRIATE TIME OF YEAR FOR THE LOCATION, AND PREFERABLY TIME TO COINCIDE AS CLOSELY AS POSSIBLE TO THE PERIOD OF MAXIMUM VEGETATION UPTAKE AND GROWTH. ONCE APPLIED, WORK FERTILIZER INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. DO NOT APPLY TO STORM CONVEYANCE CHANNELS WITH FLOWING WATER. STORAGE SHALL BE IN A COVERED SHED OR IN AND AREA WHERE FERTILIZER WILL NOT COME INTO CONTACT WITH PRECIPITATION OR STORMWATER. TRANSFER THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.
- III. PAINTS: SEAL AND STORE ALL CONTAINERS WHEN NOT REQUIRED FOR USE. DO NOT DISCHARGE EXCESS PAINT TO THE DRAINAGE SYSTEM, SANITARY SEWER SYSTEM, OR STATE WATERS. DISPOSE PROPERLY ACCORDING TO MANUFACTURERS' INSTRUCTIONS AND STATE AND LOCAL REGULATIONS.
- IV. CONCRETE TRUCKS: WASHOUT OR DISCHARGE CONCRETE TRUCK DRUM WASH WATER ONLY AT A DESIGNATED SITE AS FAR AS PRACTICABLE FROM STORM DRAIN INLETS OR STATE WATERS. DO NOT DISCHARGE WATER IN THE DRAINAGE SYSTEM OR STATE WATERS. CLEAN DISPOSAL SITE AS REQUIRED OR AS REQUESTED BY THE ENGINEER.
- D. SPILL CONTROL PLAN
  - I. POST A SPILL PREVENTION PLAN TO INCLUDE MEASURES TO PREVENT AND CLEAN UP EACH SPILL.
  - II. THE CONTRACTOR SHALL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR. DESIGNATE AT LEAST THREE SITE PERSONNEL WHO SHALL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS SHALL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. POST THE NAMES OF RESPONSIBLE SPILL PERSONNEL IN THE MATERIAL STORAGE AREA ON A WEATHERPROOF BULLETIN BOARD OR OTHER ACCESSIBLE LOCATION ACCEPTABLE TO THE ENGINEER AND IN THE OFFICE TRAILER ONSITE.
  - III. CLEARLY POST MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP. MAKE SITE PERSONNEL AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

4. GOOD HOUSEKEEPING, BEST MANAGEMENT PRACTICES (CONT.):

- IV. KEEP AMPLE MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP IN THE MATERIAL STORAGE AREA ONSITE.
- V. CLEAN UP ALL SPILLS IMMEDIATELY AFTER DISCOVERY.
- VI. KEEP THE SPILL AREA WELL VENTILATED. PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.
- VII. REPORT SPILLS OF TOXIC HAZARDOUS MATERIAL TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE. WHERE A LEAK, SPILL, OR OTHER RELEASE CONTAINING A HAZARDOUS SUBSTANCE OR OIL IN AN AMOUNT EQUAL TO OR IN EXCESS OF A REPORTABLE QUANTITY ESTABLISHED UNDER EITHER 40 CFR PART 110, 40 CFR PART 117, OR 40 CFR PART 302 OCCURS DURING A 24-HOUR PERIOD, THE CONTRACTOR SHALL NOTIFY THE ENGINEER AS SOON AS THE CONTRACTOR HAS KNOWLEDGE OF THE DISCHARGE. THE ENGINEER SHALL NOTIFY THE NATIONAL RESPONSE CENTER (NRC) AT (800) 424-8802, THE CLEAN WATER BRANCH DURING REGULAR BUSINESS HOURS AT 586-4309, AND THE HAWAII STATE HOSPITAL OPERATOR AT 247-2191 AND THE CLEAN WATER BRANCH (DOH-CWB) VIA EMAIL AT [CleanWaterBranch@doh.hawaii.gov](mailto:CleanWaterBranch@doh.hawaii.gov) DURING NON-BUSINESS HOURS IMMEDIATELY. THE CONTRACTOR SHALL ALSO PROVIDE TO THE ENGINEER, WITHIN 7 CALENDAR DAYS OF KNOWLEDGE OF THE RELEASE, A DESCRIPTION OF THE RELEASE, THE CIRCUMSTANCES LEADING TO THE RELEASE, AND DATE OF THE RELEASE. THE ENGINEER WILL PROVIDE THIS INFORMATION TO THE DOH-CWB. THE ENGINEER WILL PROVIDE INFORMATION TO THE NRC IF REQUESTED.

5. PERMIT REQUIREMENTS:

- A. A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FOR CONSTRUCTION ACTIVITIES OF ONE ACRE OR MORE OF DISTURBED AREA IS REQUIRED FOR THIS PROJECT. IF THE CONTRACTOR REQUIRES EXTRA LAND DISTURBANCE, INCLUDING STAGING AND STORAGE AREAS, THAT IS NOT COVERED BY THE NPDES PERMIT OBTAINED BY THE STATE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING THE REQUIRED NPDES CONSTRUCTION ACTIVITIES PERMIT TO COVER THIS ADDITIONAL DISTURBED AREA. SEE HAWAII ADMINISTRATIVE RULES CHAPTER 11-55, APPENDIX C FOR DEFINITION OF LAND DISTURBANCE. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE APPLICABLE NPDES PERMIT DOCUMENTS ON THE BID PACKAGE COMPACT DISC.
- B. COMPLY WITH ALL APPLICABLE STATE AND FEDERAL PERMIT CONDITIONS. PERMITS MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
  - I. NPDES PERMIT FOR CONSTRUCTION ACTIVITIES
  - II. NPDES PERMIT FOR CONSTRUCTION DEMATERING
  - III. NPDES PERMIT FOR HYDROTESTING WATERS
  - IV. WATER QUALITY CERTIFICATION
  - V. STREAM CHANNEL ALTERATION PERMIT
  - VI. SECTION 404 ARMY CORPS OF ENGINEER PERMIT

6. SITE-SPECIFIC BMP REQUIREMENTS:

EACH BMP BELOW IS REFERENCED TO THE CORRESPONDING SECTION OF THE CURRENT HDOT CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL AND APPROPRIATE SUPPLEMENTAL SHEETS. THE MANUAL MAY BE OBTAINED FROM THE HDOT STATEWIDE STORMWATER MANAGEMENT PROGRAM WEBSITE AT <http://www.stormwaterhawaii.com/resources> UNDER CONSTRUCTION BEST MANAGEMENT PRACTICES FIELD MANUAL. SUPPLEMENTAL BMP SHEETS ARE LOCATED AT [http://stormwaterhawaii.com/resources/contractors/contractors\\_BMPmanual.aspx](http://stormwaterhawaii.com/resources/contractors/contractors_BMPmanual.aspx) UNDER CONCRETE CURING AND IRRIGATION WATER.

THE REQUIREMENTS FOR WATER POLLUTION, DUST, AND EROSION CONTROL SUBMITTALS ARE INCLUDED IN SECTION 209 OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION DATED 2005 AND APPLICABLE SPECIAL PROVISIONS. A LIST OF POLLUTANT SOURCES AND CORRESPONDING BMP USED TO MITIGATE THE POLLUTANTS ARE INCLUDED IN SECTION 209 OF THE SPECIAL PROVISIONS UNDER APPENDIX A.

FOLLOW THE REQUIREMENTS BELOW:

- A. PROTECT ALL DRAINAGE INLETS RECEIVING RUNOFF FROM DISTURBED AREAS (SC-2).
- B. CONTAIN ON-SITE RUNOFF USING PERIMETER SEDIMENT CONTROLS
  - I. SC-1 SILT FENCE
  - II. SC-5 VEGETATED FILTER STRIPS AND BUFFERS
  - III. SC-8 COMPOST FILTER BERM
  - IV. SC-13 SANDBAG BARRIER
  - V. SC-14 BRUSH OR ROCK FILTER
- C. CONTROL OFFSITE RUNOFF FROM ENTERING CONSTRUCTION AREA
  - I. EC-8 RUN-ON DIVERSION
  - II. SC-6 EARTH DIKE
  - III. SC-7 TEMPORARY DRAINS AND SWALES
- D. INCORPORATE APPLICABLE SITE MANAGEMENT BMP
  - I. SM-1 EMPLOYEE TRAINING
  - II. SM-2 MATERIAL DELIVERY AND STORAGE
  - III. SM-3 MATERIAL USE
  - IV. SM-4 PROTECTION OF STOCKPILES
  - V. SM-6 SOLID WASTE MANAGEMENT
  - VI. SM-7 SANITARY/SEPTIC WASTE MANAGEMENT
  - VII. SM-9 HAZARDOUS WASTE MANAGEMENT
  - VIII. SM-10 SPILL PREVENTION AND CONTROL
  - IX. SM-11 VEHICLE AND EQUIPMENT CLEANING
  - X. SM-12 VEHICLE AND EQUIPMENT MAINTENANCE
  - XI. SM-13 VEHICLE AND EQUIPMENT REFUELING
  - XII. SM-14 SCHEDULING
  - XIII. SM-15 LOCATION OF POTENTIAL SOURCES OF SEDIMENT
  - XIV. SM-16 PRESERVATION OF EXISTING VEGETATION
  - XV. SM-18 DUST CONTROL

6. SITE-SPECIFIC BMP REQUIREMENTS (CONT.):

- E. CONTAIN POLLUTANTS WITHIN THE CONSTRUCTION STAGING/STORAGE AREA BMP WITH APPLICABLE PERIMETER SEDIMENT CONTROLS AND SITE MANAGEMENT BMP. INCLUDE A STABILIZED CONSTRUCTION ENTRANCE/EXIT (EC-2) FOR ALL AREAS WHICH EXTEND ONTO A PAVED STREET. RESTRICT VEHICLE ACCESS TO THESE POINTS.
- F. MANAGE CONCRETE WASTE INCLUDING INSTALLING A CONCRETE WASHOUT AREA (SM-5) AND PROPERLY DISPOSING OF CONCRETE CURING WATER (CALIFORNIA STORMWATER BMP HANDBOOK NS-12 CONCRETE CURING.)
- G. REMOVE SAW CUT SLURRY AND HYDRODEMOLITION WATER FROM THE SITE BY VACUUMING. PROVIDE STORM DRAIN PROTECTION AND/OR PERIMETER SEDIMENT CONTROLS DURING SAW CUTTING AND HYDRODEMOLITION WORK.

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<b>KEOKEA-WAIOHULI DEVELOPMENT</b> <b>PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023			
<b>GENERAL NOTES - 3</b>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26			
FILE	POCKET	FOLDER	NO.

BENCHMARK  
STREET SURVEY MON.  
ELEV. = 2444.72

BENCHMARK  
STREET SURVEY MON.  
PI STA. 1419.17 O/S B/P  
ELEV. = 2442.82

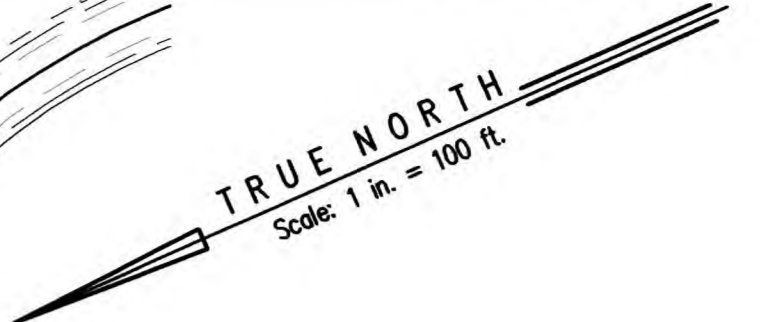
BENCHMARK  
STREET SURVEY MON.  
ELEV. = 2386.09

BENCHMARK  
STREET SURVEY MON.  
PI STA. 18459.13 O/S 0.40  
ELEV. = 2376.50

BENCHMARK  
STREET SURVEY MON.  
ELEV. = 2354.13

BENCHMARK  
STREET SURVEY MON.  
ELEV. = 2352.16

BENCHMARK  
STREET SURVEY MON.  
ELEV. = 2278.75

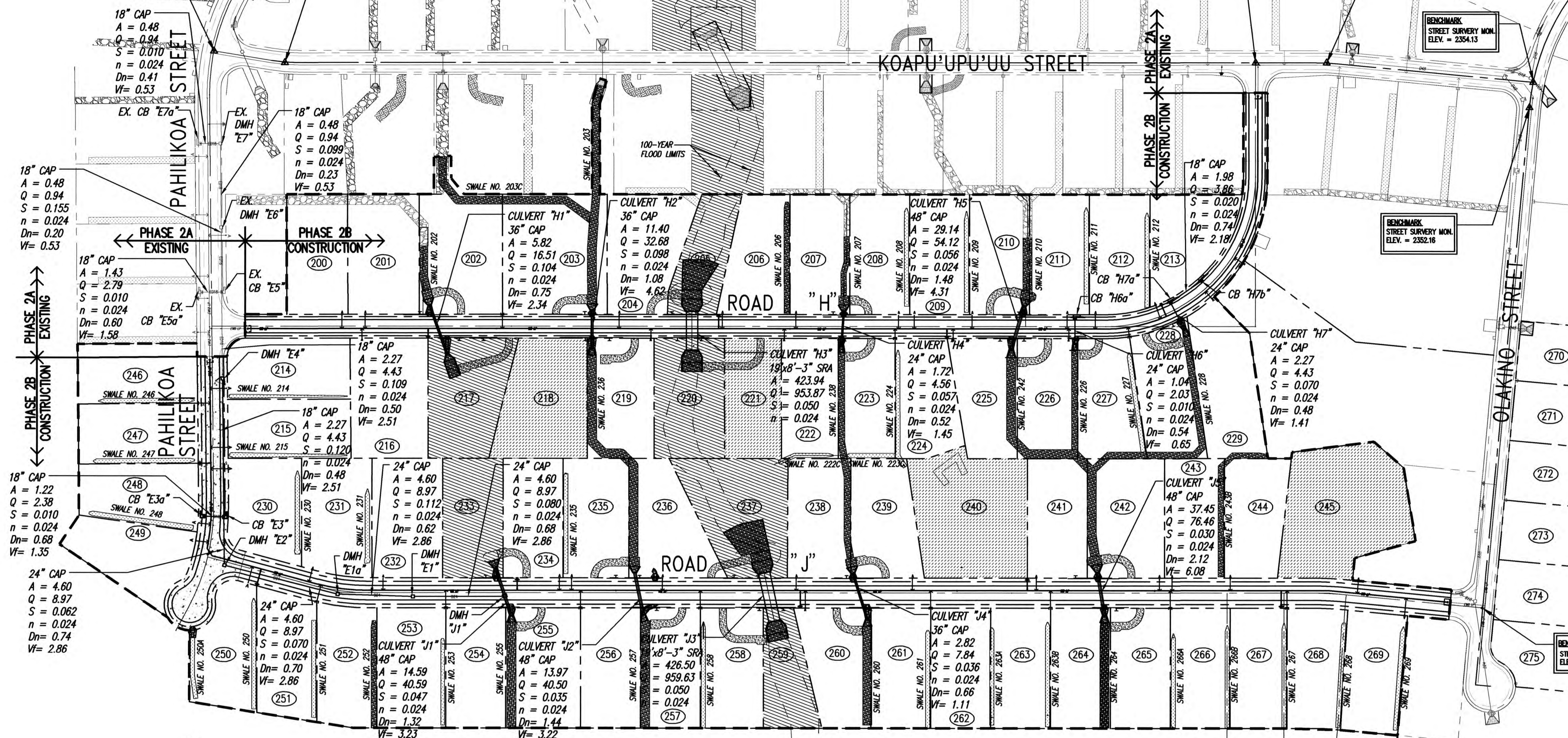


### HYDROLOGIC DESIGN DATA

$Q = C I A$   
 $i =$  RAINFALL INTENSITY FOR 1 HR. (IN./HR.)  
 $Q =$  DISCHARGE QUANTITY (CFS)  
 $C =$  RUNOFF COEFFICIENT  
 $I =$  RAINFALL INTENSITY FOR  $T_c$  DURATION (IN./HR.)  
 $A =$  AREA IN ACRES (AC)

EXISTING OR PREDEVELOPMENT CONDITIONS      WAIHOULI RESIDENTIAL LOTS (20,000 MIN.)  
 $T_m = 50$  YRS       $T_m = 50$  YRS  
 $i = 2.9$  IN./HR       $i = 2.9$  IN./HR  
 $T_c = 35$  MINS.       $T_c = 9$  MINS.  
 $I(50) = 3.75$  IN./HR.       $I(50) = 6.8$  IN./HR.  
 $C = 0.28$        $C = 0.39$   
 $C(50) = 1.05$  CFS/AC.       $C(50) = 2.65$  CFS/AC.

NOTE:  
1. LOTS 218, 221, 240 AND 245 ARE DESIGNATED AS ARCHAEOLOGICAL PRESERVATION LOTS. THESE LOTS WILL NOT BE DEVELOPED AND WATER SERVICE LATERALS WILL NOT BE INSTALLED FOR THE LOTS.

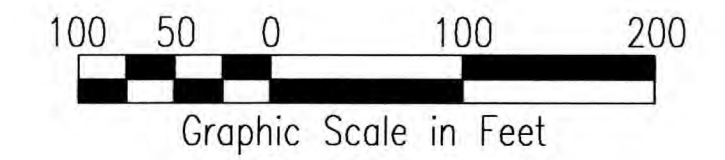


### LEGEND

- EXD48 — EXISTING DRAIN PIPE
- EXWB LP — EXISTING WATER LINE (LOW PRESSURE)
- D48 — NEW DRAIN PIPE
- WB LP — NEW WATER LINE (LOW PRESSURE)
- - - - - LIMITS OF 100-YR STORM
- - - - - PROPERTY LINE
- CAP CORrugATED ALUMINUM PIPE
- HDPE HIGH DENSITY POLYETHYLENE PIPE
- SRA SINGLE RADIUS ARCH CULVERT
- CB DRAIN CATCH BASIN
- DMH DRAIN MANHOLE
- A AREA, ACS
- Q DRAIN RUNOFF, CFS
- S SLOPE OF PIPE, FT/FT
- Dn NORMAL DEPTH OF FLOW, FT
- Vf FULL FLOW VELOCITY, FPS
- (180) LOT NUMBER
- [Hatched Box] DRAINAGE LOTS
- [Dotted Box] ARCHAEOLOGICAL PRESERVATION LOTS
- [Stippled Box] CONCRETE PAVEMENT
- [Cross-hatched Box] CULVERT ACCESS ROAD
- [Gravel Box] GRP SWALE
- [Grass Box] GRASS SWALE

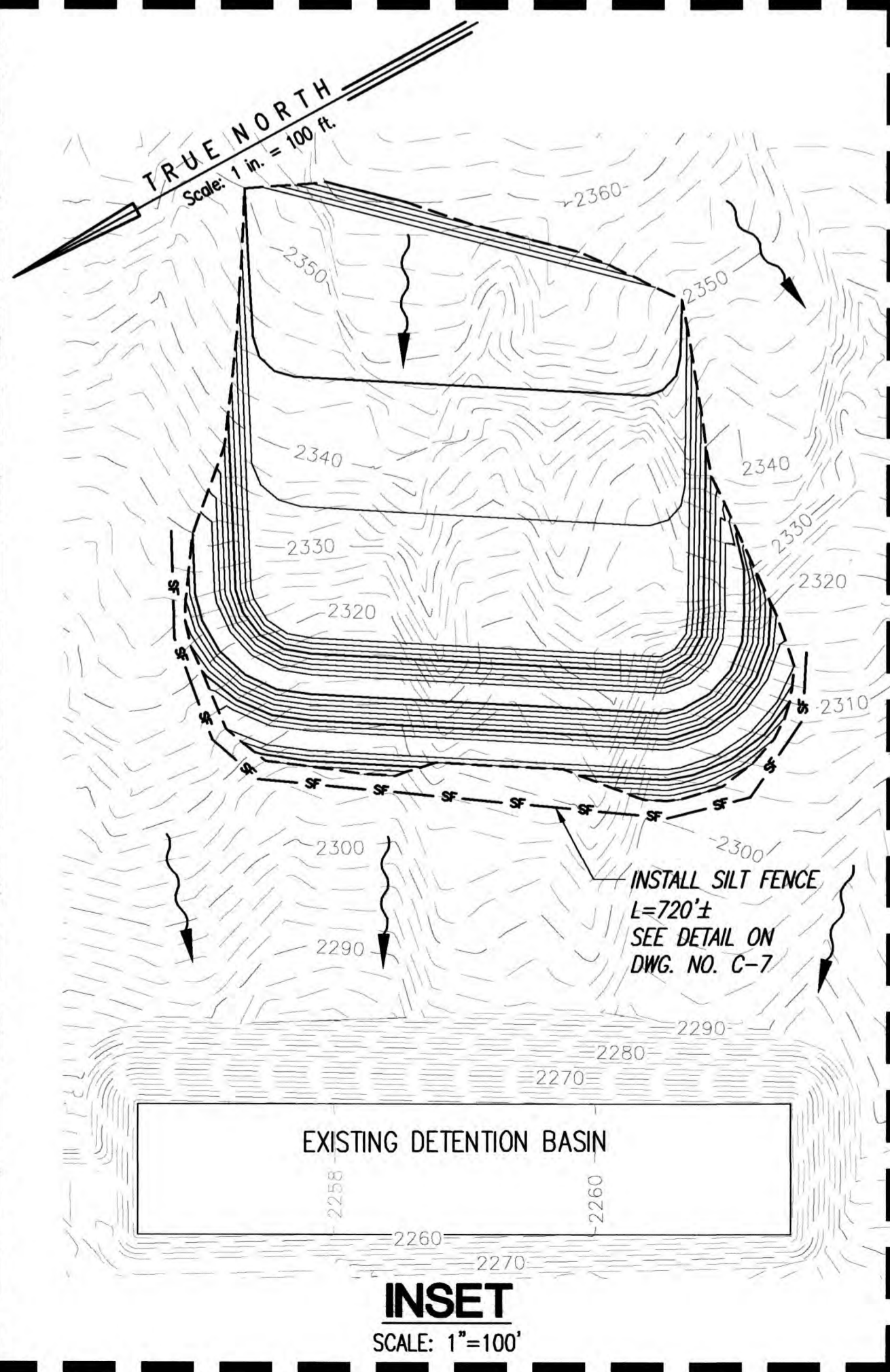
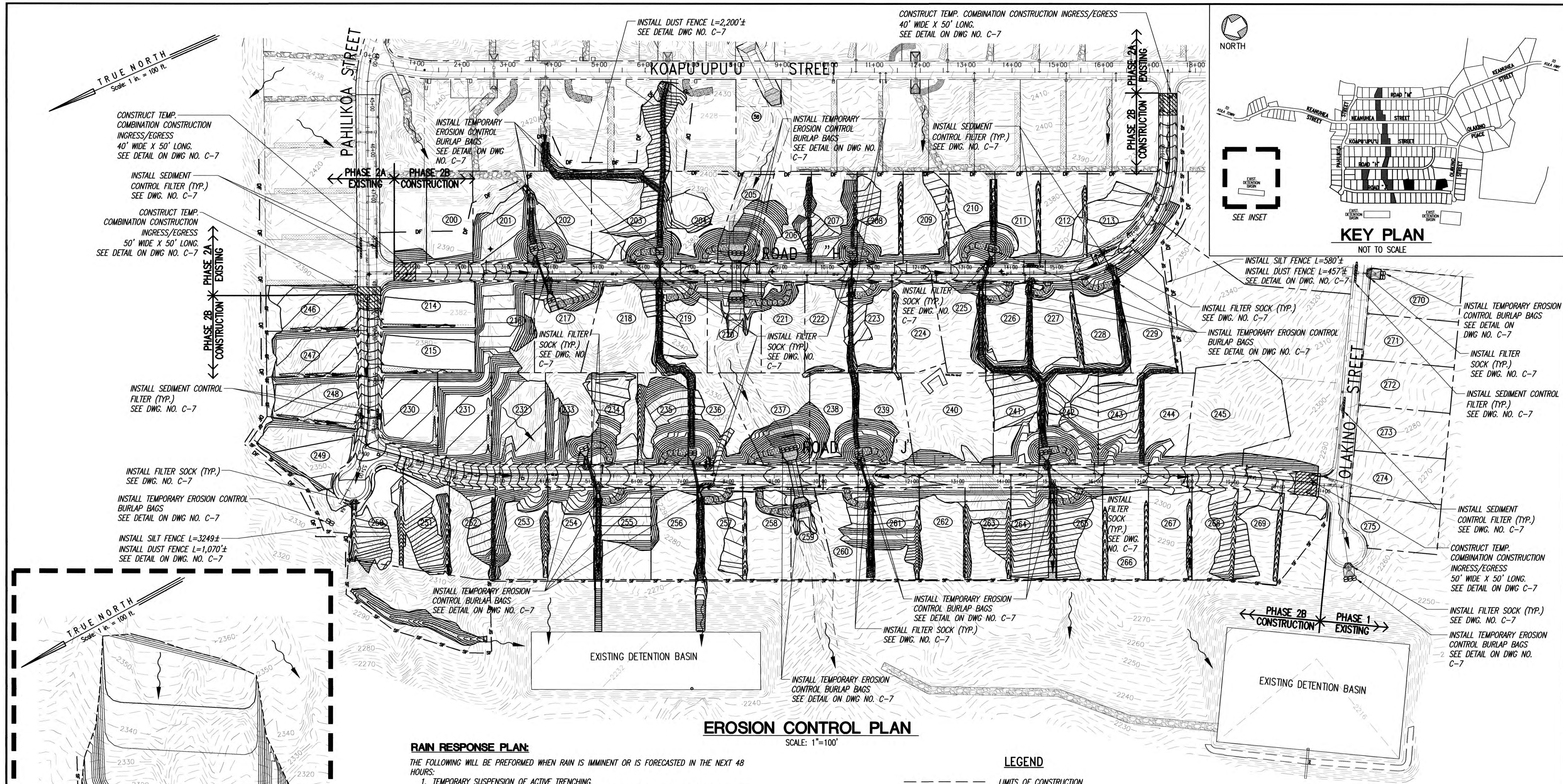
### GENERAL LAYOUT PLAN

SCALE: 1"=100'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1285 Queen Emma Street, Third Floor   Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT</b> <b>PHASE 2B</b> KEOKEA & WAIHOULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>GENERAL LAYOUT PLAN</b>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	



**RAIN RESPONSE PLAN:**

- THE FOLLOWING WILL BE PERFORMED WHEN RAIN IS IMMINENT OR IS FORECASTED IN THE NEXT 48 HOURS:
1. TEMPORARY SUSPENSION OF ACTIVE TRENCHING.
  2. INSPECT ALL PERIMETER CONTROLS AND INLET PROTECTION DEVICES, AND MAINTAIN AS NEEDED. REINSTALL ANY PERIMETER CONTROLS THAT WERE REMOVED DUE TO ACTIVE WORK IN THE AREA. IF A SEVERE STORM IS EXPECTED, REMOVE INLET PROTECTION DEVICES TO PREVENT FLOODING ON SURROUNDING STREETS.
  3. COVER OR RELOCATE MATERIAL STOCKPILES AND LIQUID MATERIAL CONTAINERS TO AVOID CONTACT WITH RAINWATER.
  4. PLACE SPILL PADS OR OIL-ONLY SPILL PADS UNDER CONSTRUCTION VEHICLES TO PREVENT RUNOFF FROM CONTACTING ANY SPILLED PETROLEUM PRODUCTS. PROPERLY DISPOSE OR ANY ACCUMULATED OILY WATER AFTER THE RAIN EVENT.
  5. RE-INSPECT AFTER THE RAIN EVENT AND REPLACE OR MAINTAIN BMPs AS NEEDED.

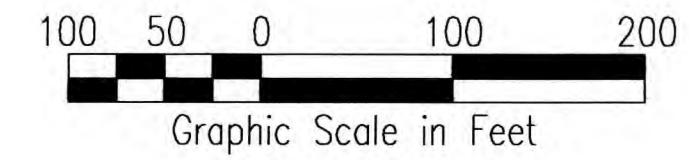
**DUST CONTROL:**

1. DUST FROM THE PROJECT SITE SHALL NOT BE TRANSPORTED OR DISCHARGED TO OFF-SITE AREAS. THE WORK MUST BE IN CONFORMANCE WITH AIR POLLUTION CONTROL STANDARDS CONTAINED IN THE HAWAII ADMINISTRATIVE RULES: TITLE 11 CHAPTER 60.1, "AIR POLLUTION CONTROL." PROVIDE CONTROL OF DUST BY ONE OR MORE OF THE FOLLOWING:
  - A. MULCHING TO A DEPTH OF NO LESS THAN 1 INCH
  - B. SPRINKLING EXPOSED SOILS WITH WATER TO MAINTAIN MOISTNESS AT A DEPTH OF 2-3 INCHES DURING WORKING HOURS AND NOT TO GENERATE ANY RUNOFF.
  - C. VERTICAL DUST BARRIERS NO LESS THAN 6 FEET IN HEIGHT, CONSTRUCTED OF MATERIALS CAPABLE OF EFFECTIVELY PREVENTING THE SPREAD OF DUST PARTICLES
  - D. SPRAY-ON CHEMICAL SOIL TREATMENTS (PALLIATIVES) SUCH AS ANIONIC ASPHALT EMULSION, LATEX EMULSION, RESIN-WATER EMULSIONS, OR CALCIUM CHLORIDE.
2. ALL POLLUTANTS DISCHARGED FROM CONSTRUCTION SITE TO OFF-SITE AREAS MUST BE SWEEPED OR VACUUMED EACH DAY BEFORE LEAVING THE JOB SITE.

**EROSION CONTROL PLAN**

SCALE: 1"=100'

- LEGEND**
- LIMITS OF CONSTRUCTION
  - - - - - EXISTING CONTOUR
  - EX-D48 EXISTING DRAIN PIPE
  - EXISTING LOT LINE
  - ▩ BURLAP BAGS OR APPROVED EQUAL
  - ⊙ CULVERT INLET/OUTLET
  - ▨ COMBINATION CONSTRUCTION INGRESS/EGRESS
  - ▨ FILTER SOCK
  - DIRECTION OF STORM SURFACE RUNOFF FLOW
  - SF / DF SILT FENCE / DUST FENCE
  - (180) LOT NUMBER



Community Planning and Engineering, Inc.  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

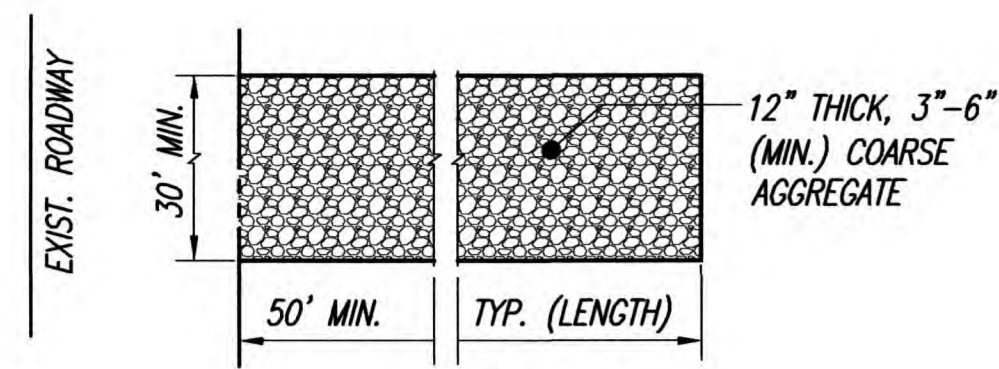
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**EROSION CONTROL PLAN**

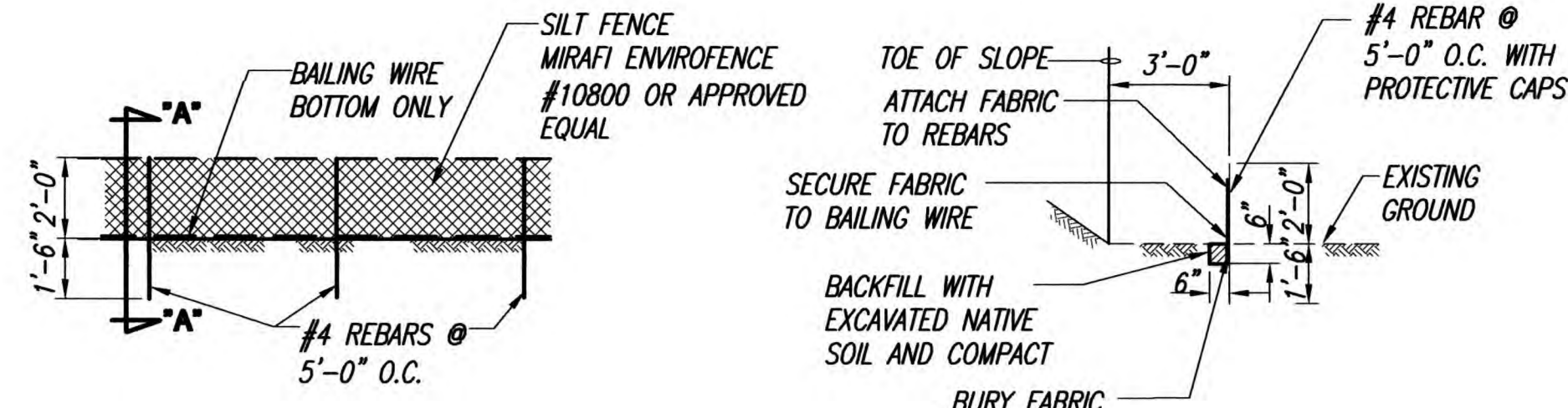
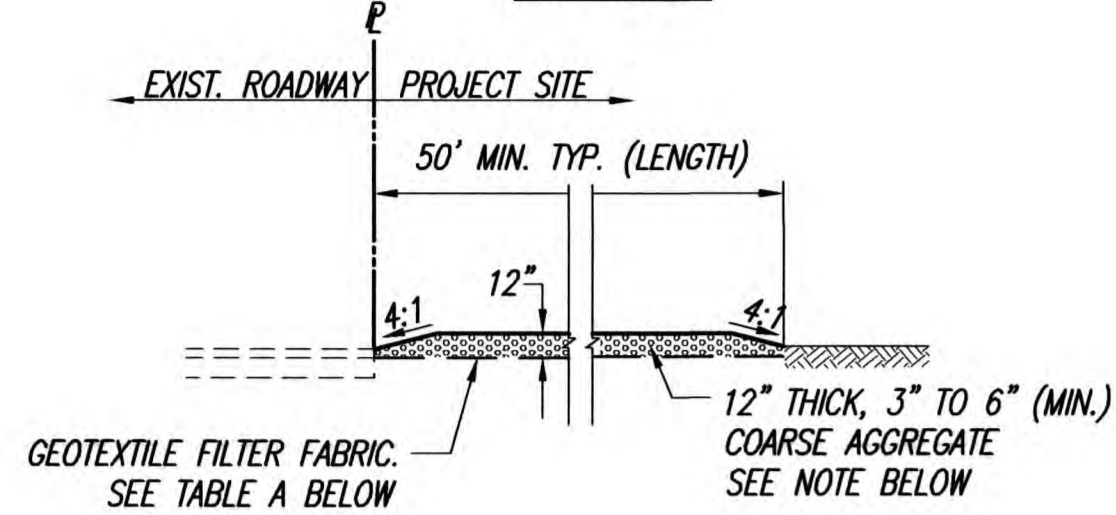
DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: ANM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/28



**PLAN**

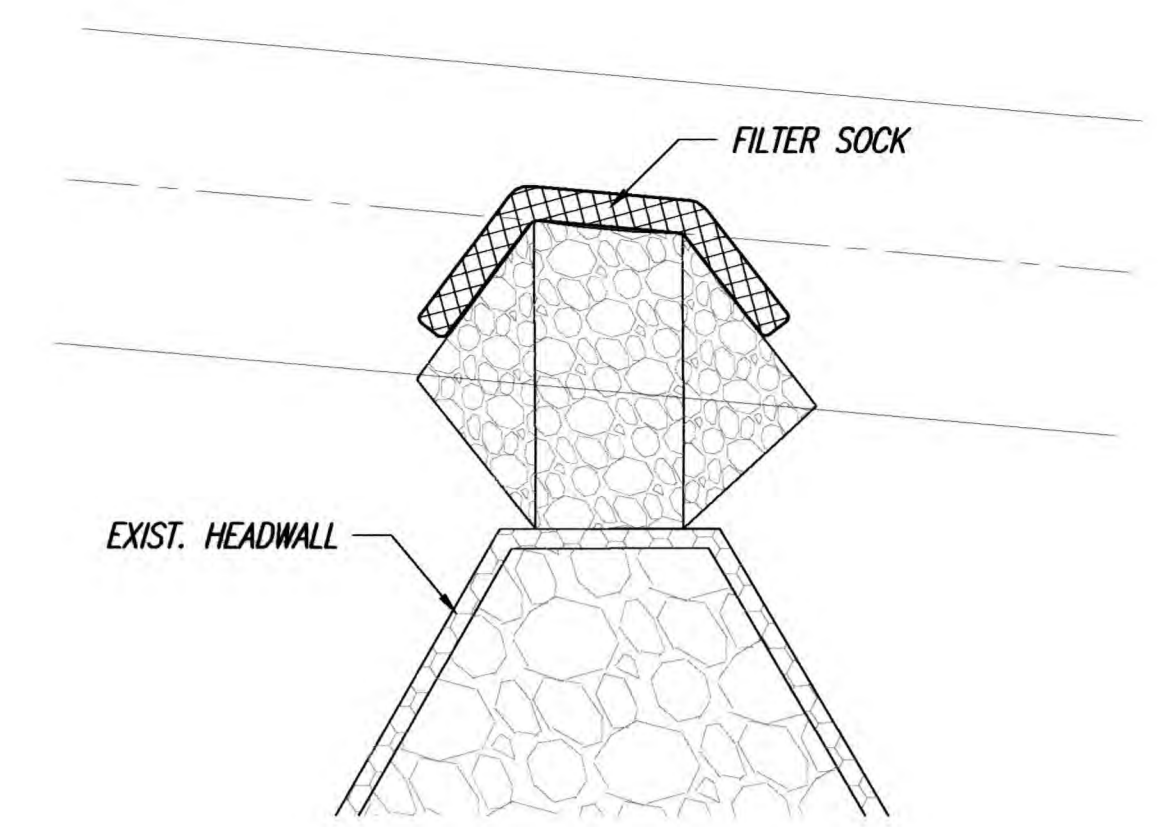


**ELEVATION**

**SECTION "A-A"**

**TYPICAL SILT FENCE**

SCALE : 3 IN. = 1 FT.



**TEMPORARY EROSION CONTROL @ GRP SWALE CUTOUT**

SCALE : 3 IN. = 1 FT.

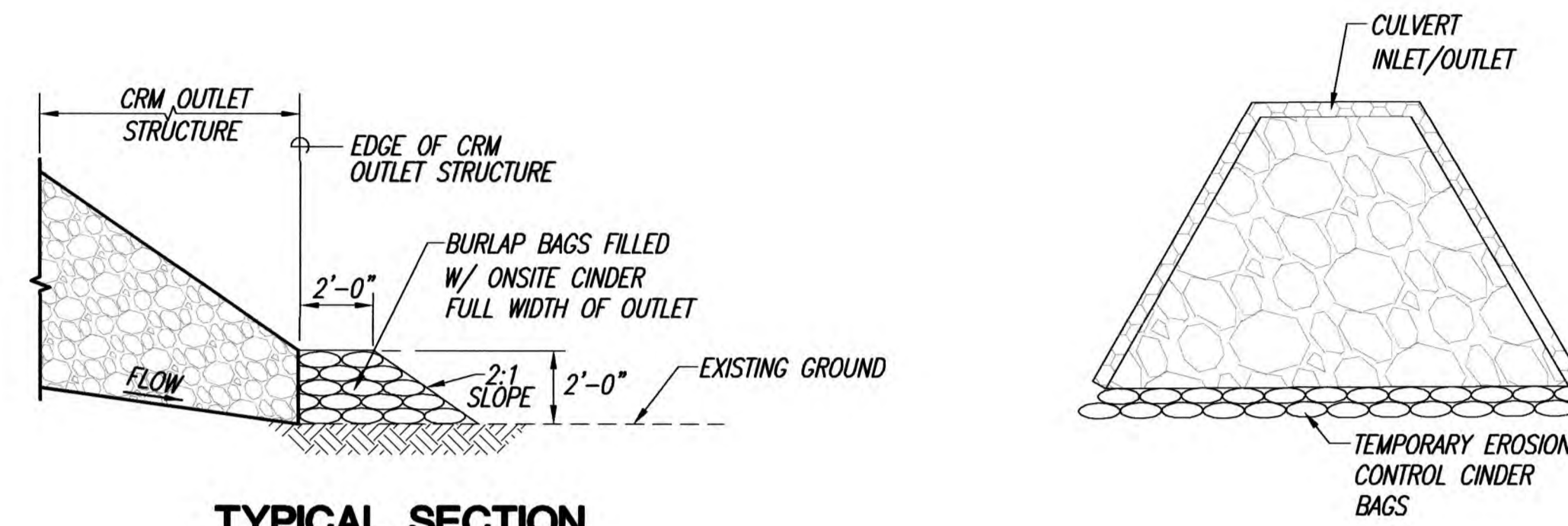
**SECTION - COMBINATION INGRESS/EGRESS**

**NOTE:**  
12" COARSE AGGREGATE LAYER SHALL BE REMOVED IMMEDIATELY PRIOR TO INSTALLATION OF ROADWAY BASE COARSE

TABLE A GEOTEXTILE REQUIREMENTS	
PHYSICAL PROPERTY	REQUIREMENTS
GRAB TENSILE STRENGTH	220 LB (ASTM D1682)
ELONGATION FAILURE	60% (ASTM D1682)
MULLEN BURST STRENGTH	430 LB (ASTM D3768)
PUNCTURE STRENGTH	125 LB (ASTM D751, MODIFIED)
EQUIVALENT OPENING	SIZE 40-80 (U.S. STD SIEVE, CW-02215)

**CONSTRUCTION INGRESS/EGRESS DETAILS**

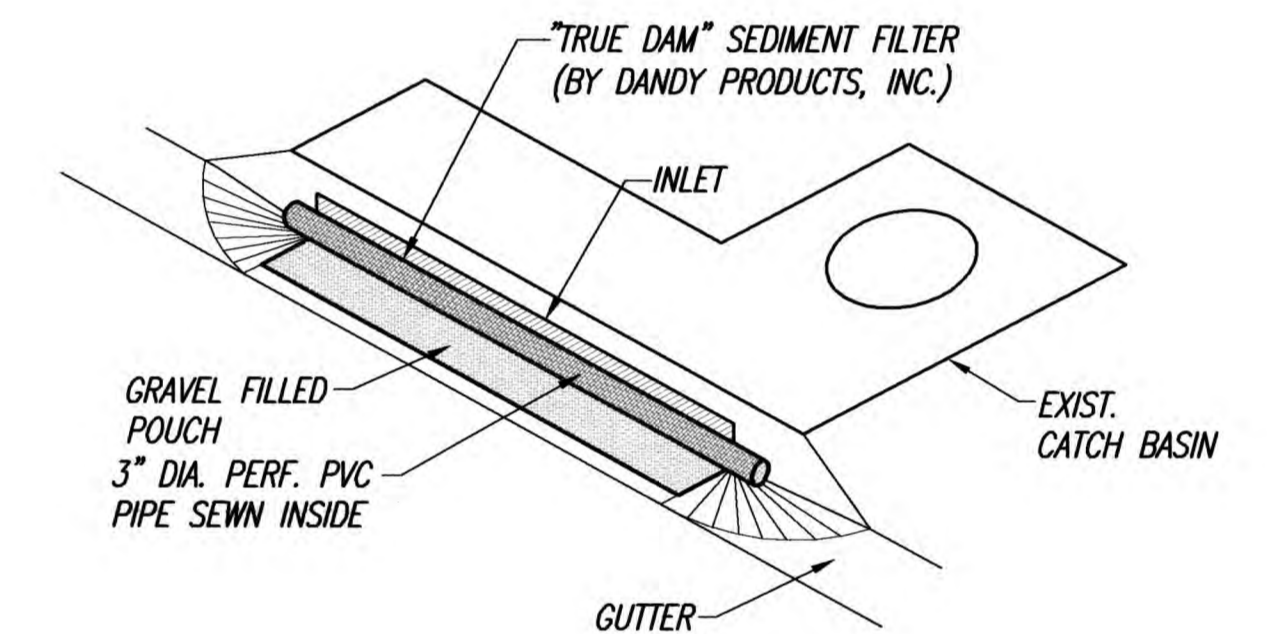
SCALE : 1 1/2 IN. = 1 FT.



**TYPICAL SECTION**

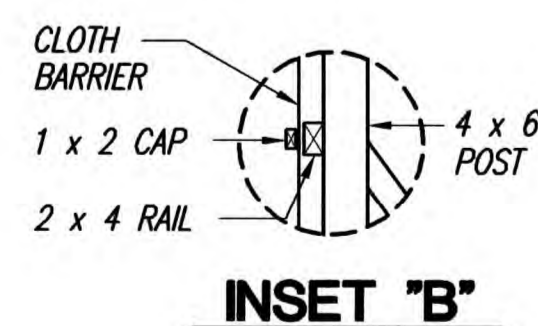
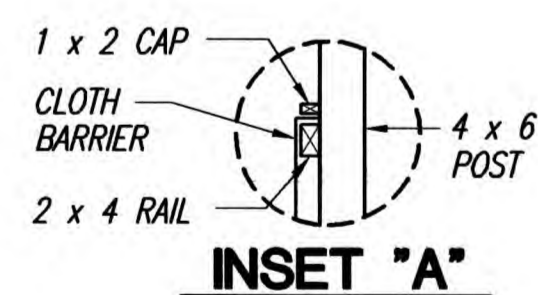
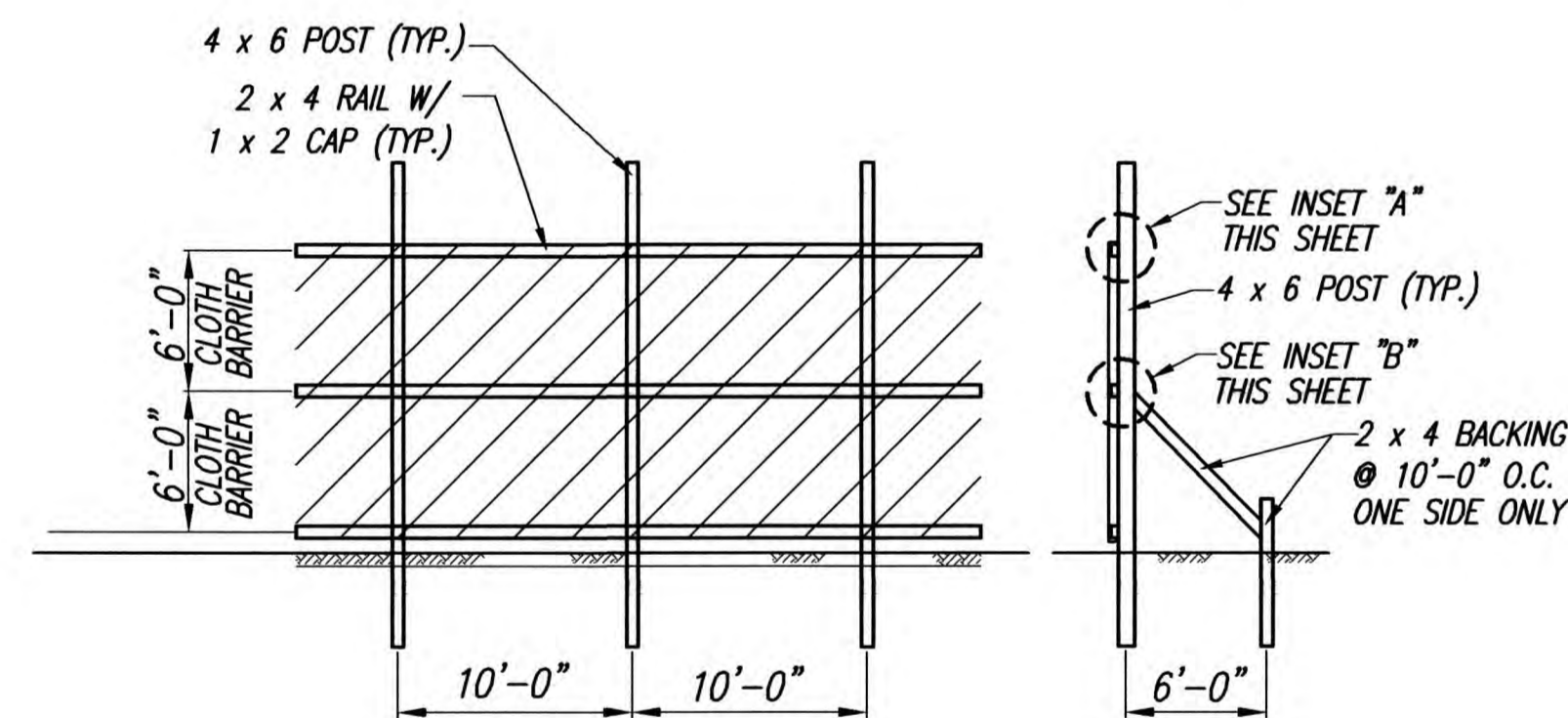
**TEMPORARY EROSION CONTROL @ CULVERT OUTLETS**

SCALE : 3 IN. = 1 FT.



**TYPICAL SEDIMENT CONTROL FILTER AT CATCH BASIN**

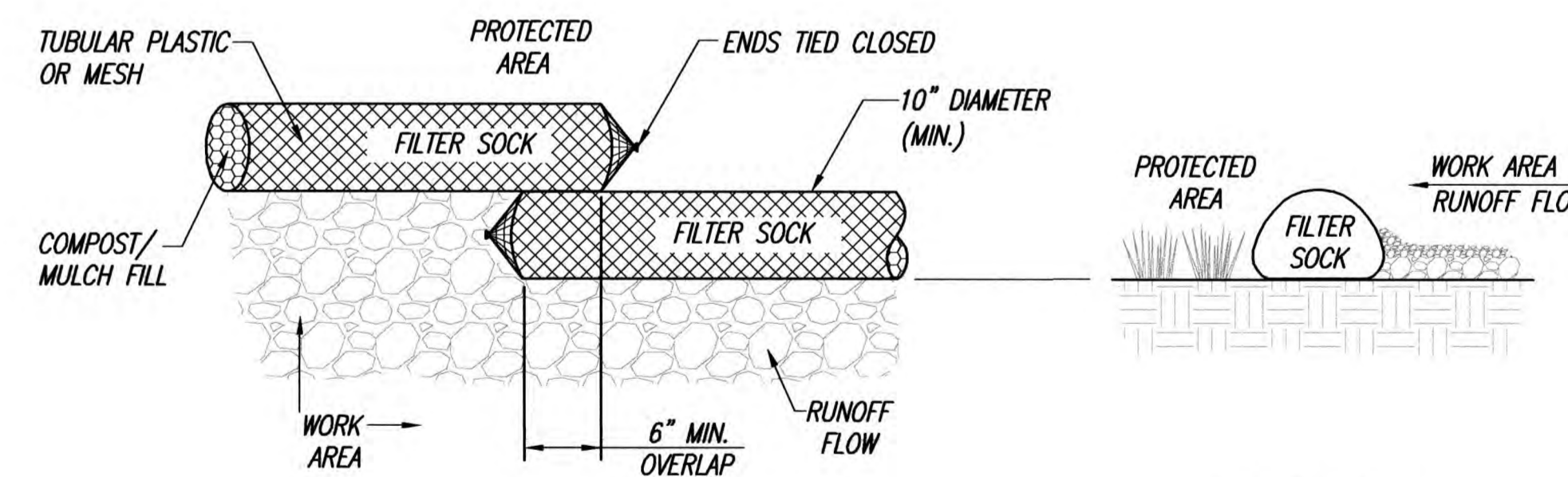
SCALE : 3 IN. = 1 FT.



**TYPICAL DUST FENCE**

SCALE : 1 1/2 IN. = 1 FT.

- NOTES:**
- CLOTH BARRIER TO BE MIRAFI 140N OR APPROVED EQUAL.
  - LUMBER SIZES ARE NOMINAL INCHES.
  - 1 x 2 CLOTH BARRIER CAPS TO BE NAILED 12" O.C.
  - BURLAP IS NOT ACCEPTABLE AS THE CLOTH BARRIER.
  - CLOTH TO HAVE NO HORIZONTAL SEAMS.
  - VERTICAL SEAMS TO BE MADE OVER UPRIGHTS ONLY.
  - ALL SEAMS TO BE CAPPED WITH MINIMUM 1 x 2.
  - ALL JOINTS TO BE SECURELY FASTENED BY MECHANICAL MEANS.



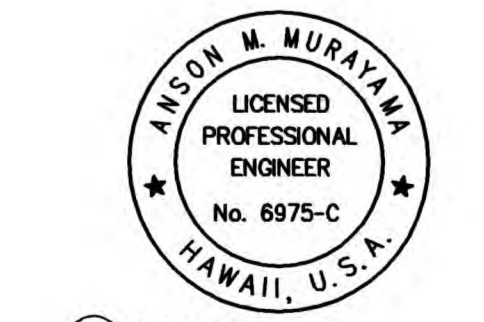
**PLAN**

**SECTION**

**TYPICAL FILTER BARRIER DETAIL**

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

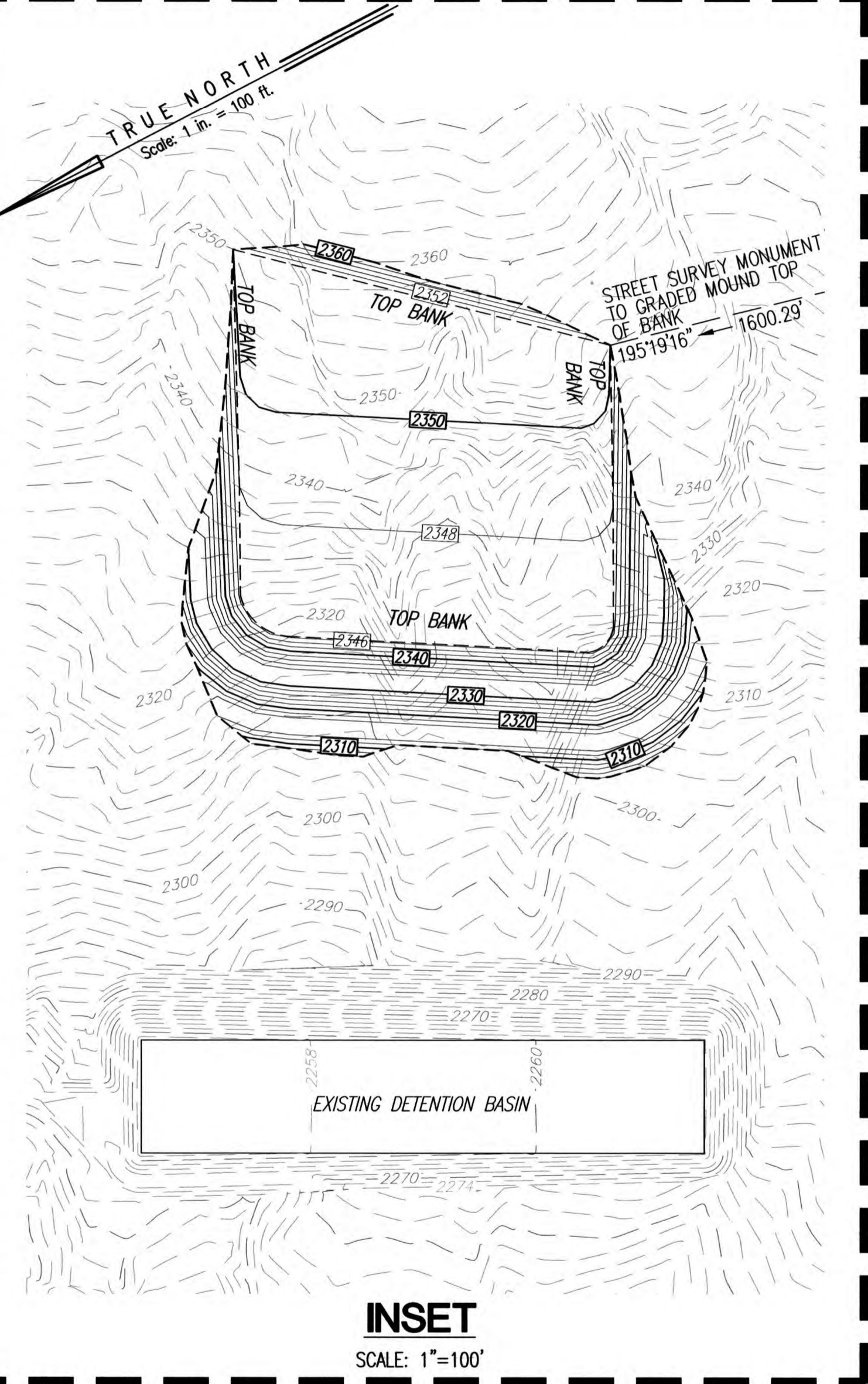
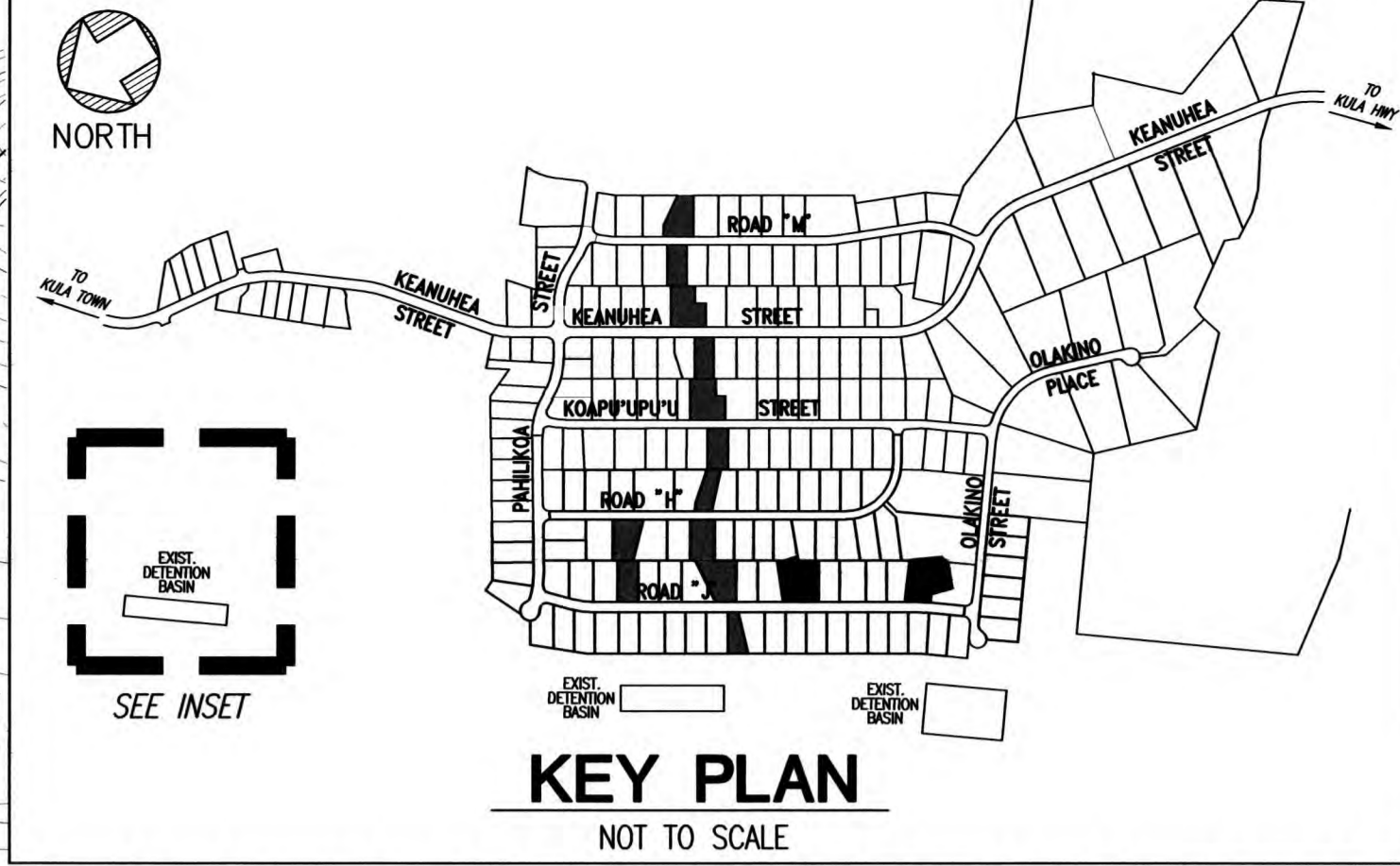
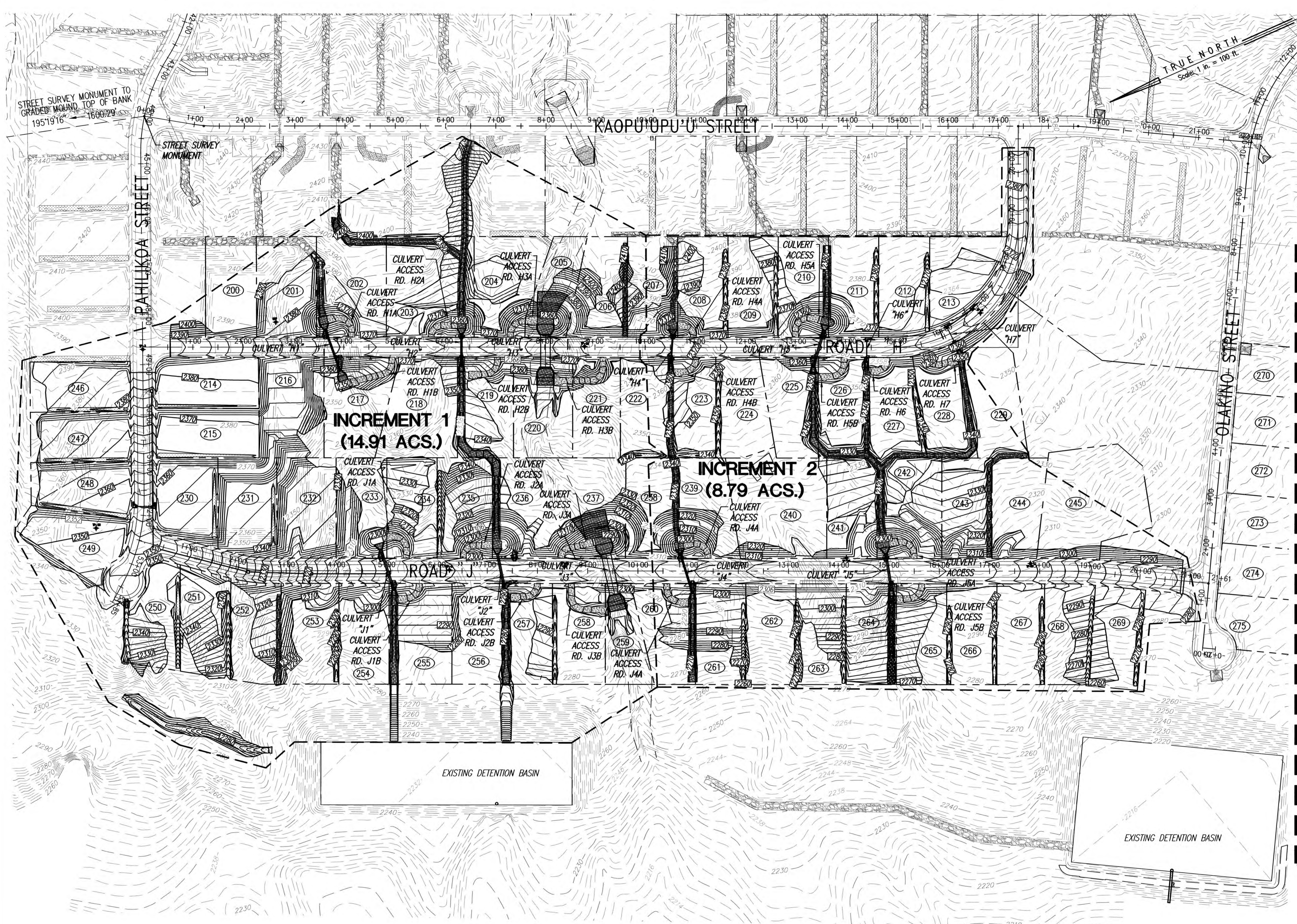
- NOTES:**
- SEDIMENT AND DEBRIS AT THE SEDIMENT CONTROL FILTER AT CATCH BASINS SHALL BE CLEANED AND REMOVED WEEKLY IN DRY PERIODS AND WITHIN 24 HR PERIOD DURING RAINFALL. DAILY CHECKING IS NECESSARY. THE PERMITTEE SHALL MAINTAIN RECORDS OF CHECKS AND REMOVAL OF SEDIMENT AND DEBRIS.
  - DURING AN EVENT OF ABOVE NORMAL RAINFALL, THE CONTRACTOR SHALL REMOVE SEDIMENT FILTER AND REPLACE AFTER EVENT HAS PASSED.
  - SEDIMENT CONTROL FILTERS AT EXISTING CATCH BASINS SHALL BE IN PLACE AND FUNCTIONAL BEFORE CONSTRUCTION OPERATIONS BEGIN AND SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
  - SEDIMENT CONTROL FILTERS AT NEW CATCH BASINS SHALL BE INSTALLED IMMEDIATELY AFTER THE CONSTRUCTION OF THE CATCH BASIN AND SHALL BE MAINTAINED THROUGHOUT THE REMAINING DURATION OF CONSTRUCTION.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1298 Queen Emma Street, Third Floor   Honolulu, Hawaii</p> <p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p> <p><b>EROSION CONTROL DETAILS</b></p>			
DRAWN BY:	HW1	ENGINEER:	HW1, FJC
CHECKED BY:	AMM		





**LEGEND**

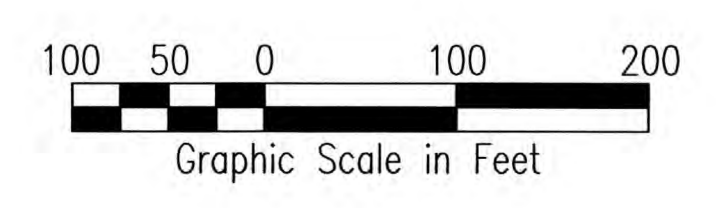
- 2360 — EXISTING CONTOUR
- EX D48 — EXISTING DRAIN PIPE
- D48 — DRAIN PIPE
- — — EXISTING LOT LINE
- (180) LOT NUMBER
- — — LIMITS OF GRADING
- TP-3 BORING LOG

**GENERAL GRADING PLAN**

SCALE: 1"=100'

**EARTHWORK QUANTITIES**  
(FOR PERMIT PURPOSES ONLY)

AREA TO BE GRADED	27.50	ACS.
EXCAVATION	118,400	CY
EMBANKMENT	118,400	CY



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

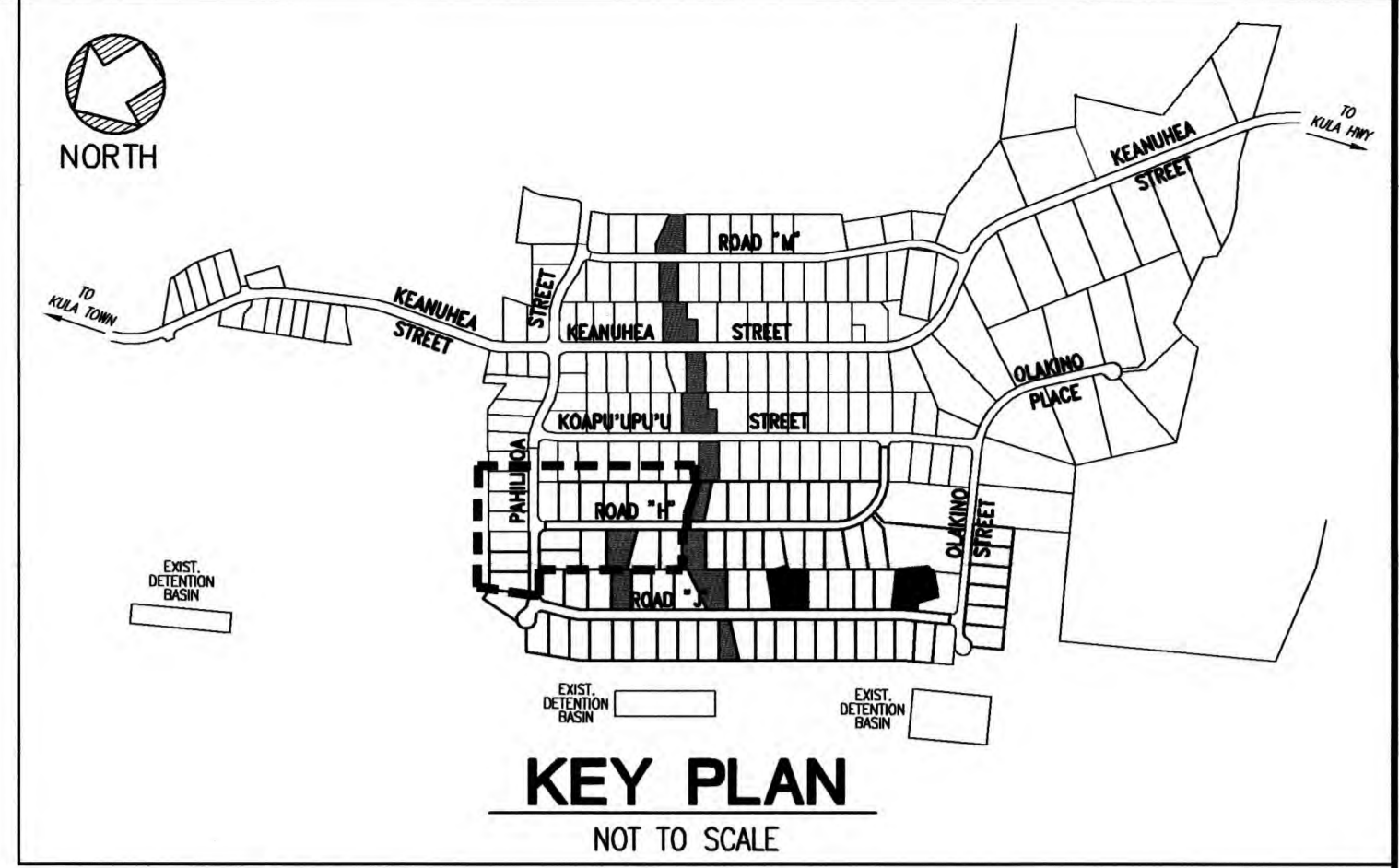
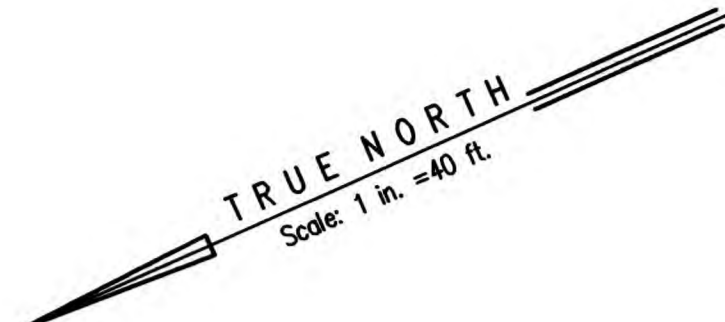
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1288 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**GENERAL GRADING PLAN**

DRAWN BY: HWH | ENGINEER: HWH, FJC | CHECKED BY: AMM

6+00 7+C  
**KOAPU'UPU'U ST.**



SWALE NO. 203  
 STA. 0+52 TO 1+75  
 (TRAPEZOIDAL GRP SWALE, 4 FT  
 BOTTOM WIDTH, 4 FT DEEP)  
 STA. 1+75 TO END  
 (TRAPEZOIDAL GRP SWALE, 3 FT  
 BOTTOM WIDTH, 3.5 FT DEEP)  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-54

SWALE NO. 203C  
 (TRAPEZOIDAL  
 GRP SWALE  
 3 FT BOTTOM WIDTH,  
 3.5 FT DEEP)  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-37

SWALE NO. 202  
 (TRAPEZOIDAL  
 GRP SWALE  
 4 FT BOTTOM WIDTH,  
 4 FT DEEP)  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-37

CULVERT ACCESS RD. H1A  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-20

CULVERT ACCESS RD. H2A  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-21

CULVERT ACCESS RD. H3A  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-22

SEE DWG. NO. C-10

MATCHLINE

CULVERT ACCESS RD. H2B  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-21

CULVERT ACCESS RD. H1B  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-20

217  
 DRAINAGE LOT

218  
 ARCHAEOLOGICAL  
 PRESERVATION  
 LOT

SWALE NO. 236  
 (TRAPEZOIDAL GRP SWALE  
 3 FT BOTTOM WIDTH, 3 FT DEEP)  
 FOR PLAN AND PROFILE  
 SEE DWG. NO. C-44

MATCHLINE SEE DWG. NO. C-11

**GRADING PLAN - 1**  
 SCALE: 1"=40'

SWALE NO. 246  
 (TRAPEZOIDAL  
 GRASS SWALE  
 1 FT BOTTOM WIDTH,  
 1.5 FT MIN. DEEP)  
 FOR PLAN  
 SEE DWG. NO. C-48

SWALE NO. 247  
 (TRAPEZOIDAL  
 GRASS SWALE  
 1 FT BOTTOM WIDTH,  
 1.5 FT MIN. DEEP)  
 FOR PLAN  
 SEE DWG. NO. C-48

SWALE NO. 214  
 FOR PLAN  
 SEE DWG. NO. C-39

SWALE NO. 215  
 FOR PLAN  
 SEE DWG. NO. C-39

**LEGEND**

- 2360 --- EXISTING CONTOUR
- EX D48 --- EXISTING DRAIN PIPE
- D48 --- DRAIN PIPE
- --- EXISTING LOT LINE
- (180) LOT NUMBER
- - - - - LIMITS OF GRADING
- TP-3 BORING LOG

SWALE NO. 248  
 (TRAPEZOIDAL  
 GRASS SWALE  
 1 FT BOTTOM WIDTH,  
 1.5 FT MIN. DEEP)  
 FOR PLAN  
 SEE DWG. NO. C-48

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1226 Queen Emma Street, Third Floor  
 Honolulu, Hawaii

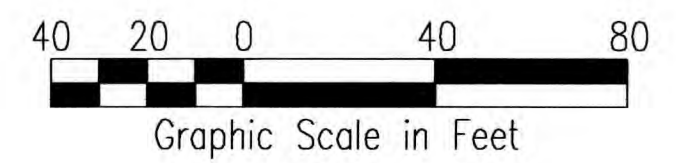
**KEOKEA-WAIOHULI DEVELOPMENT  
 PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

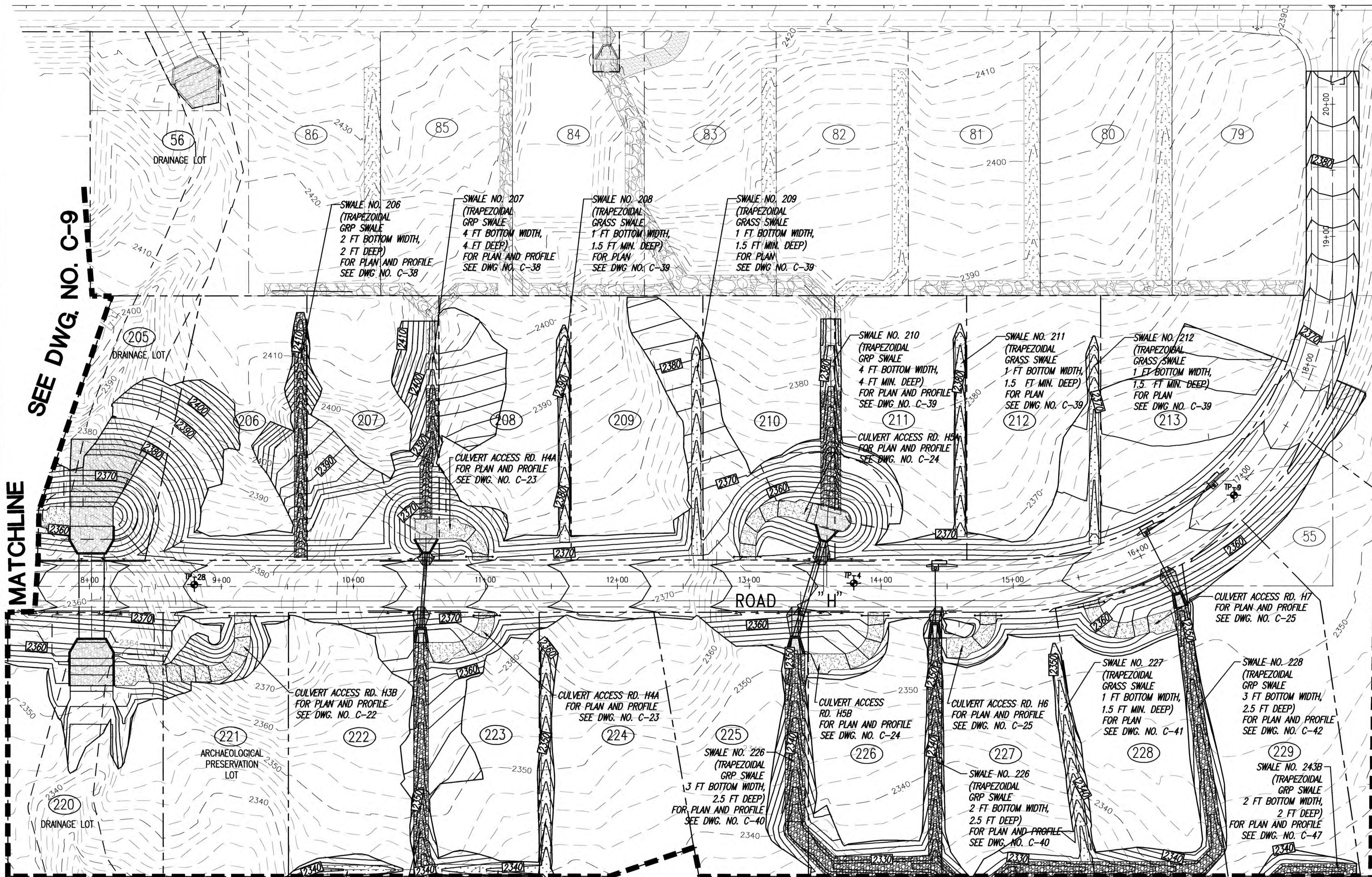
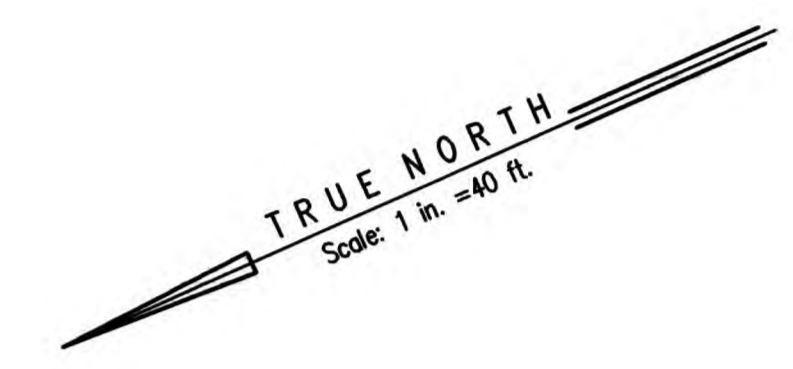
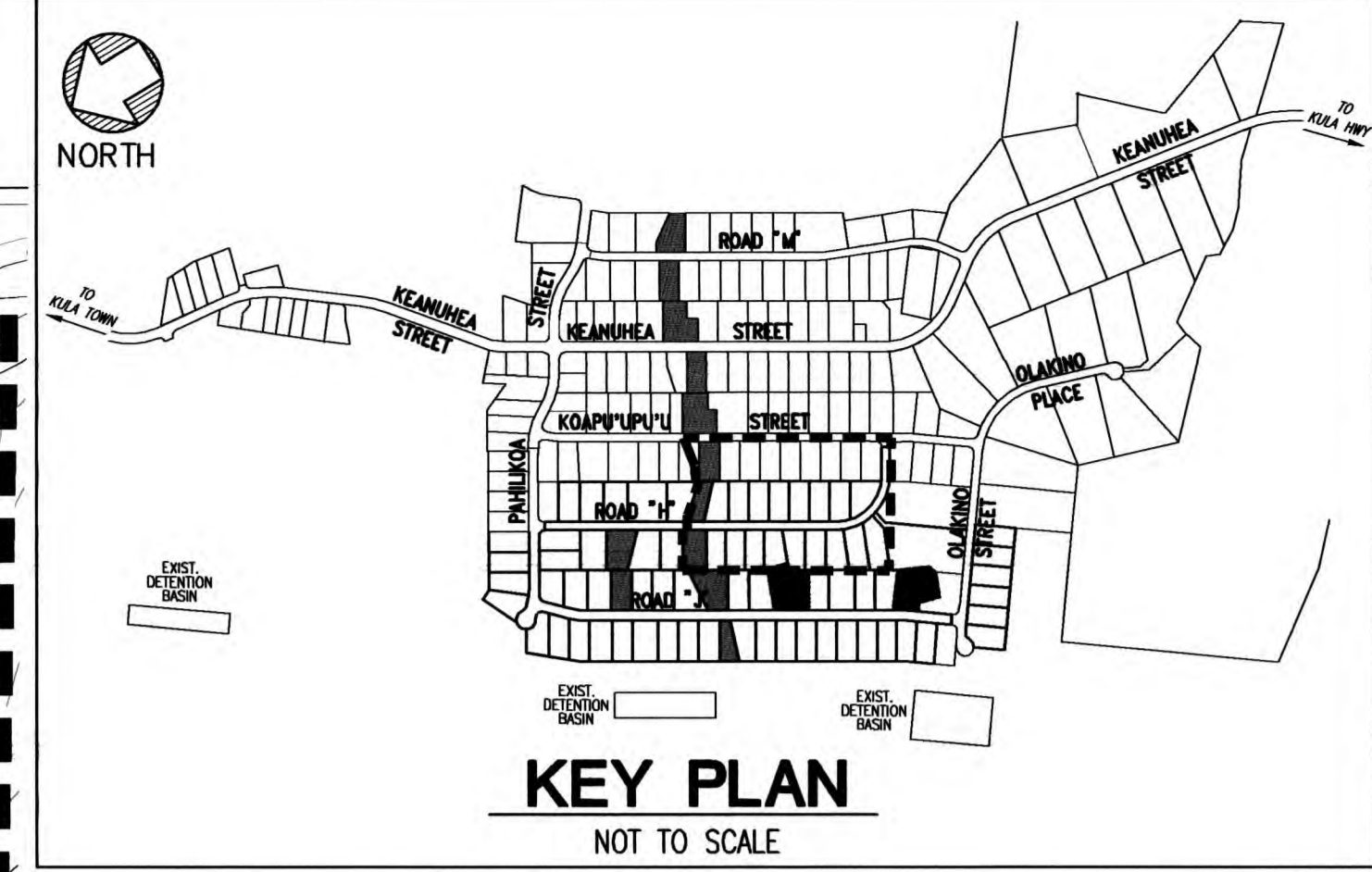
**GRADING PLAN - 1**

DRAWN BY: HW1 ENGINEER: HW1, FJC CHECKED BY: AMM



THIS WORK WAS PREPARED BY  
 ME OR UNDER MY SUPERVISION.  
 CONSTRUCTION OF THIS PROJECT  
 WILL BE UNDER MY OBSERVATION.  
 LICENSE EXPIRATION DATE: 04/30/26





SEE DWG. NO. C-9

MATCHLINE

MATCHLINE

SEE DWG. NO. C-12

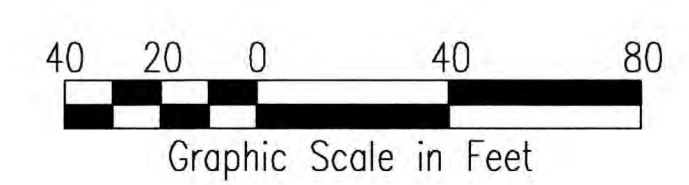
**LEGEND**

- 2360 --- EXISTING CONTOUR
- EX D48 --- EXISTING DRAIN PIPE
- D48 --- DRAIN PIPE
- --- EXISTING LOT LINE
- (180) LOT NUMBER
- --- LIMITS OF GRADING
- TP-3 BORING LOG

- SWALE NO. 222C (TRAPEZOIDAL GRP SWALE, 2 FT BOTTOM WIDTH, 2 FT DEEP) FOR PLAN AND PROFILE SEE DWG. NO. C-41
- SWALE NO. 223C (TRAPEZOIDAL GRP SWALE, 2 FT BOTTOM WIDTH, 2 FT DEEP) FOR PLAN AND PROFILE SEE DWG. NO. C-41
- SWALE NO. 238 (TRAPEZOIDAL GRP SWALE, 3 FT BOTTOM WIDTH, 2.5 FT DEEP) FOR PLAN AND PROFILE SEE DWG. NO. C-45
- SWALE NO. 224 (TRAPEZOIDAL GRASS SWALE, 1 FT BOTTOM WIDTH, 1.5 FT DEEP) FOR PLAN SEE DWG. NO. C-41

**GRADING PLAN-2**

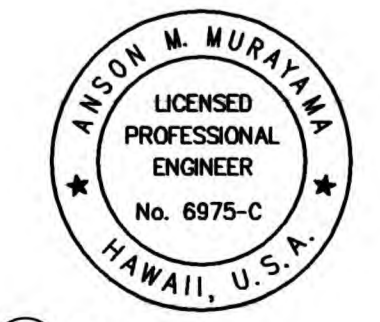
SCALE: 1"=40'



REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

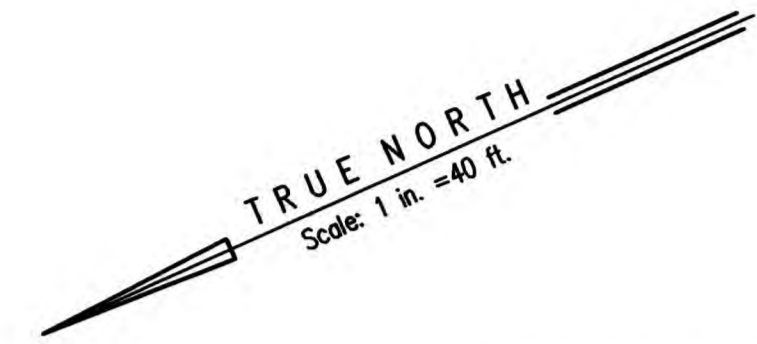
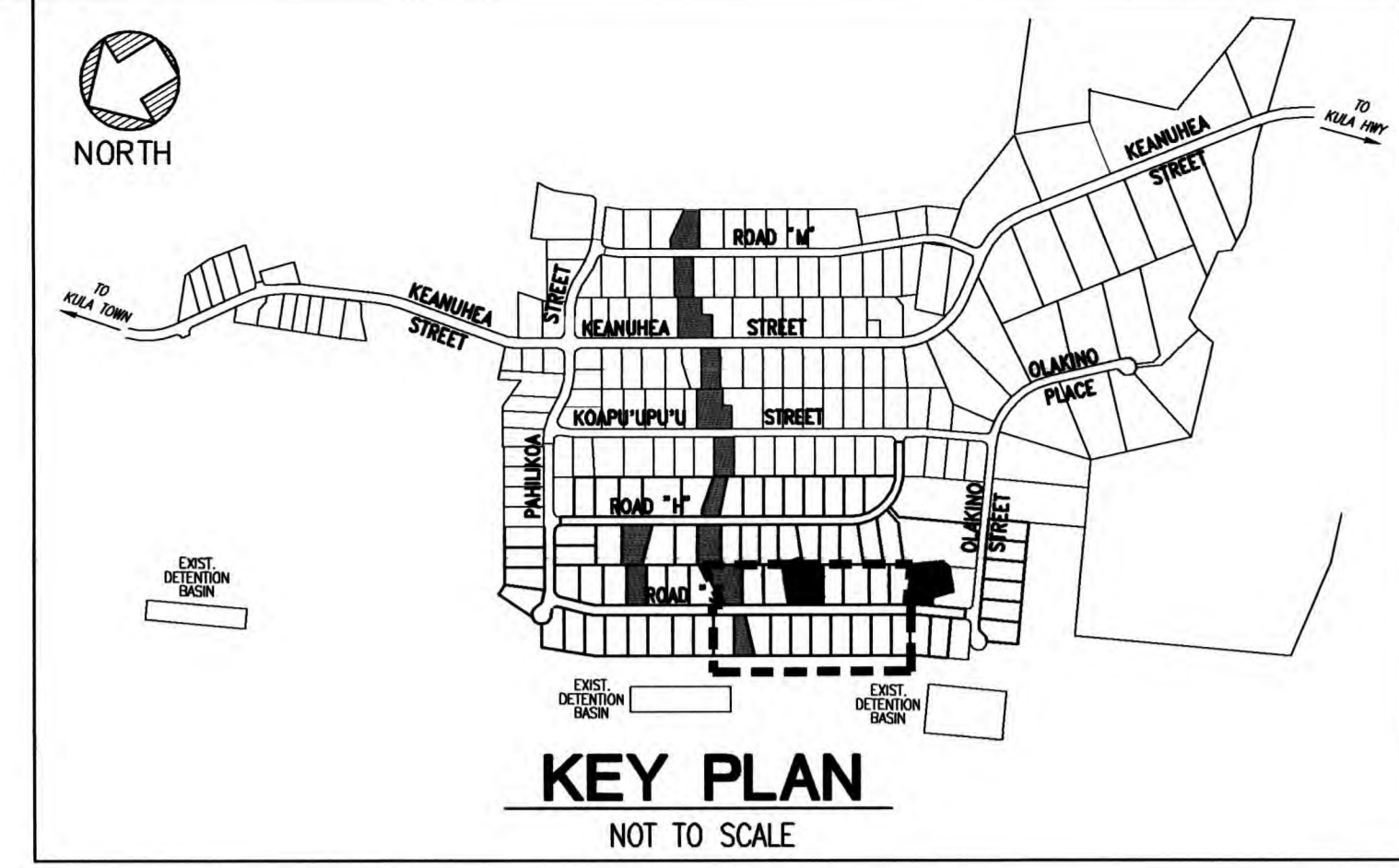
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023



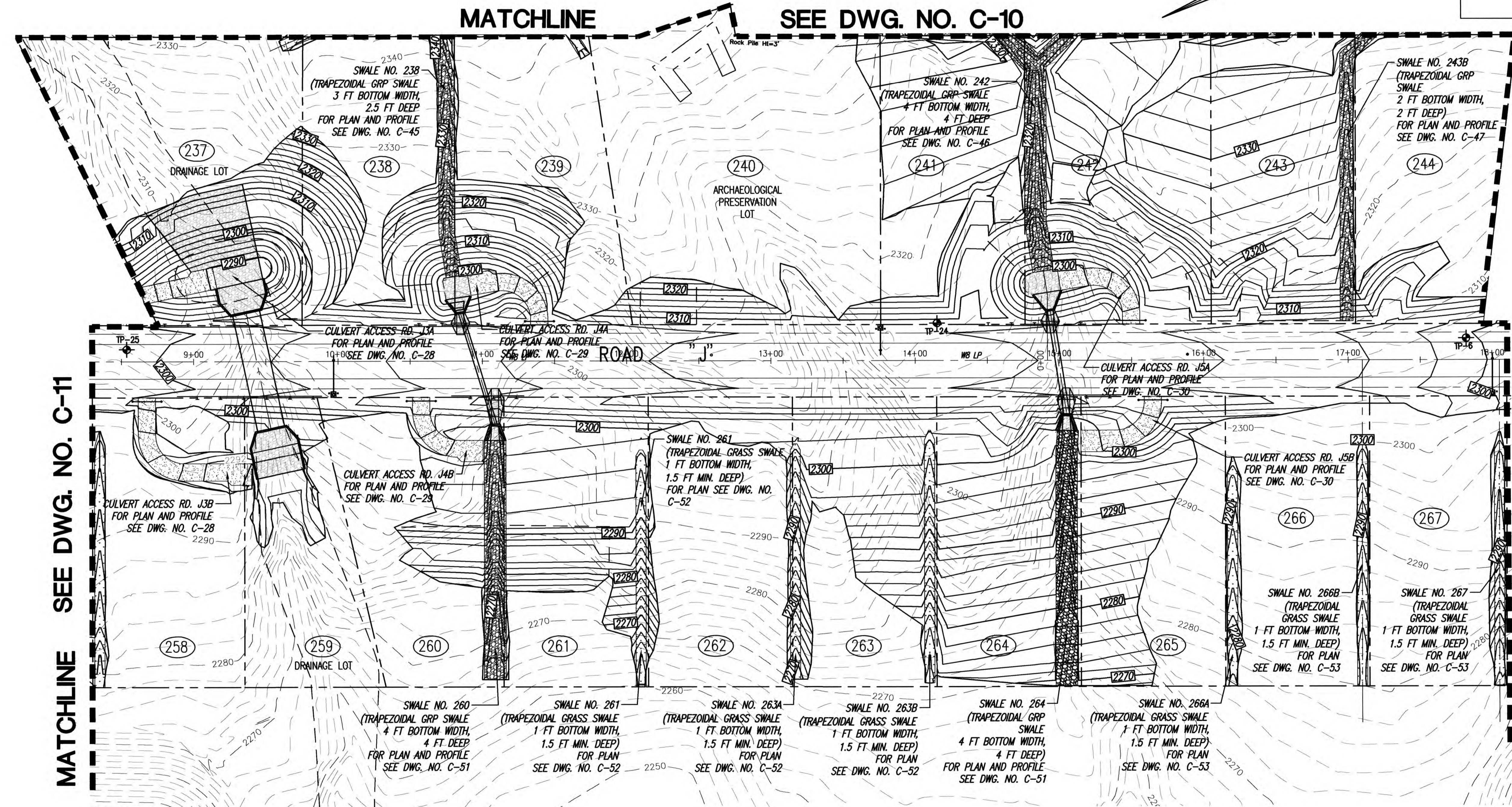
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

<b>GRADING PLAN-2</b>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.





MATCHLINE SEE DWG. NO. C-10



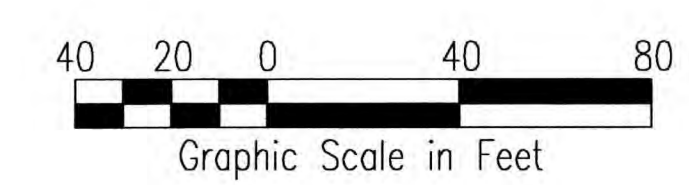
MATCHLINE SEE DWG. NO. C-11

MATCHLINE SEE DWG. NO. C-13

**GRADING PLAN - 4**  
SCALE: 1"=40'

**LEGEND**

- 2360--- EXISTING CONTOUR
- EX D48--- EXISTING DRAIN PIPE
- D48--- DRAIN PIPE
- --- EXISTING LOT LINE
- (180) LOT NUMBER
- --- LIMITS OF GRADING
- TP-3 BORING LOG



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

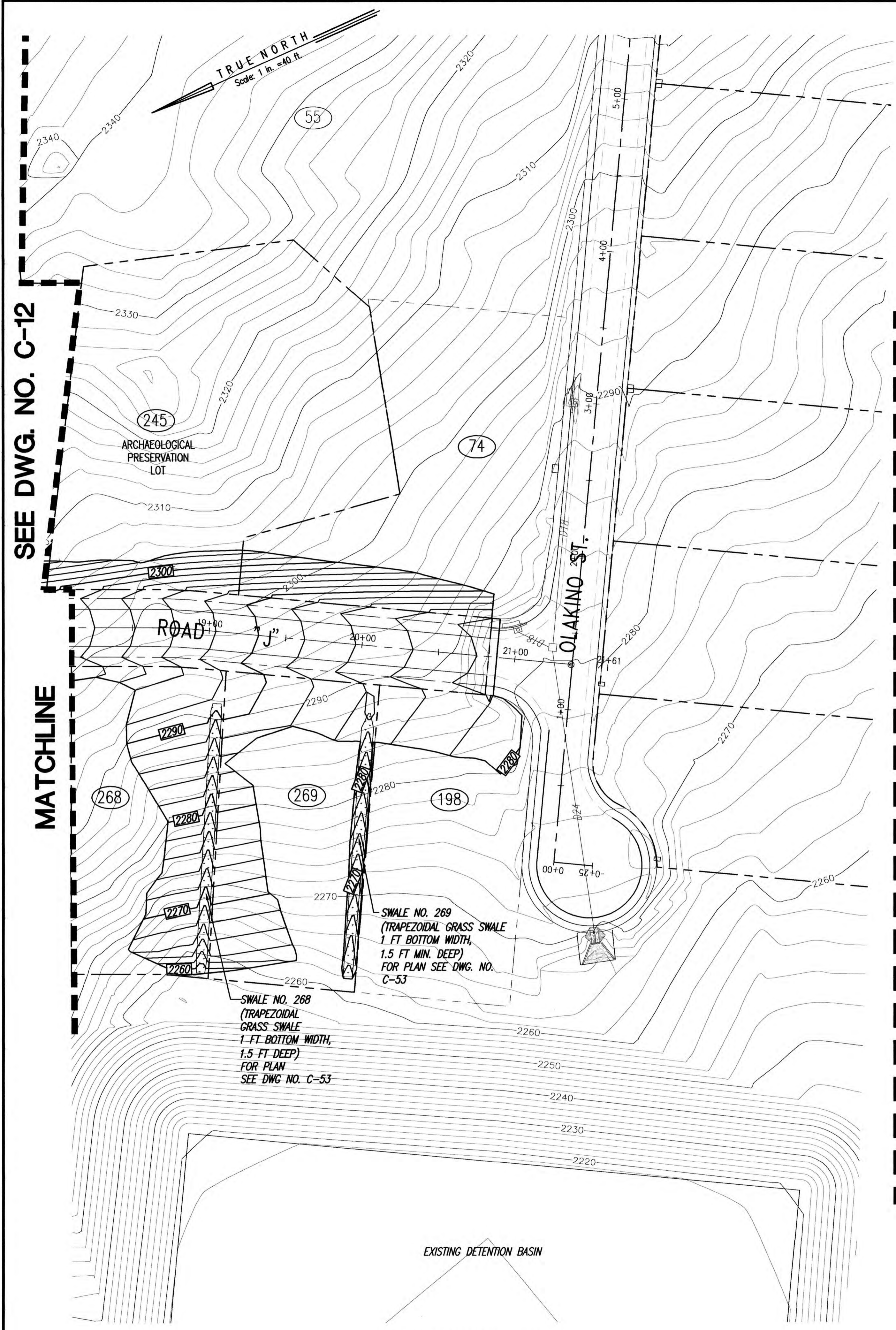
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

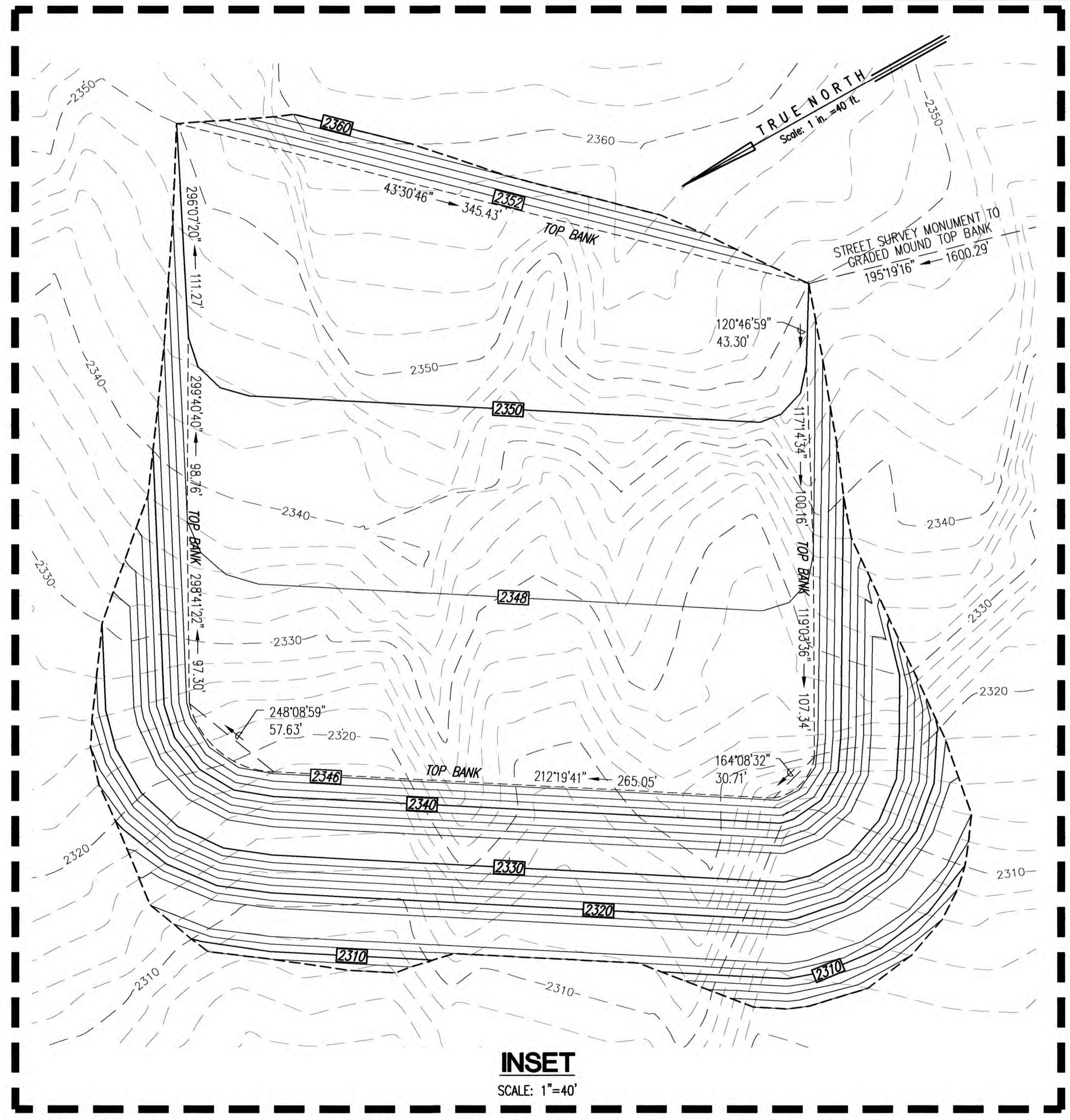
**GRADING PLAN - 4**

DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM
---------------	--------------------	-----------------

FILE	PROJECT	FOLDER	NO.
------	---------	--------	-----

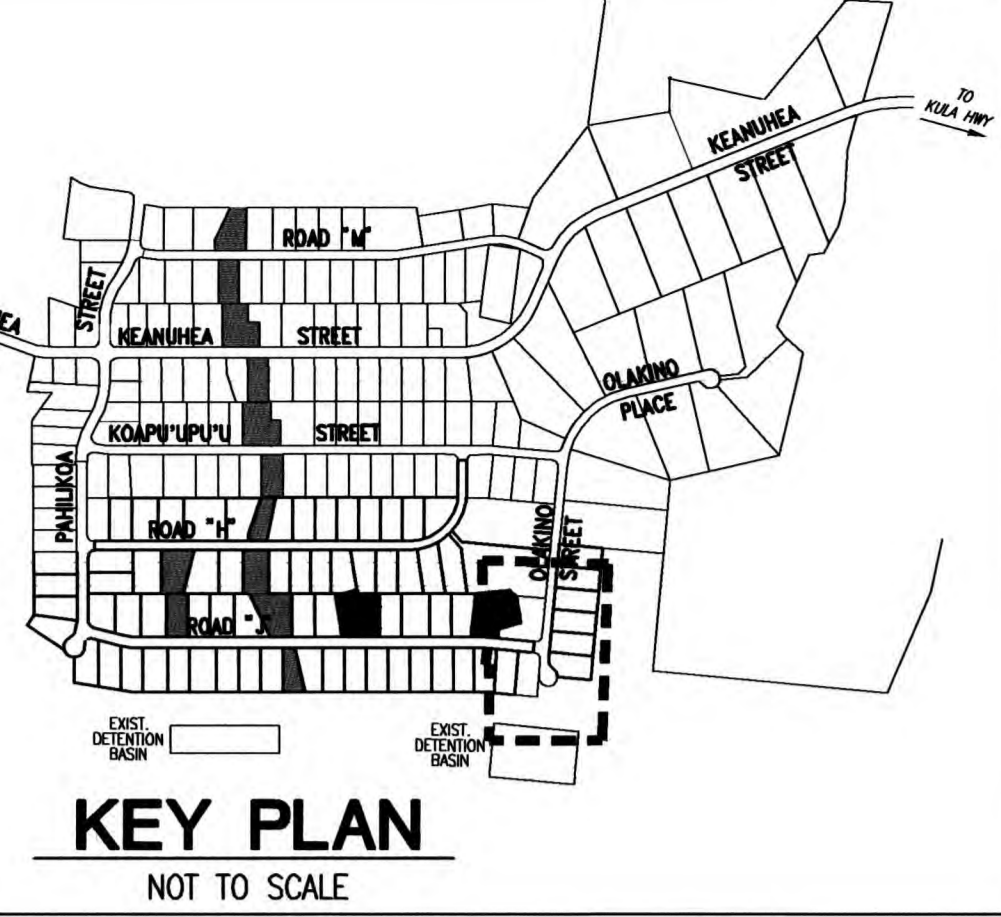
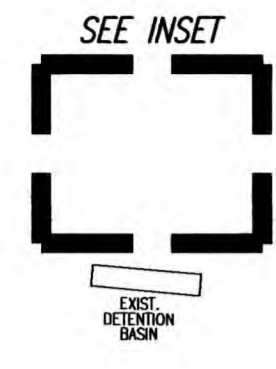
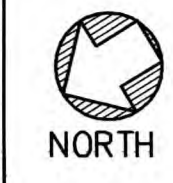
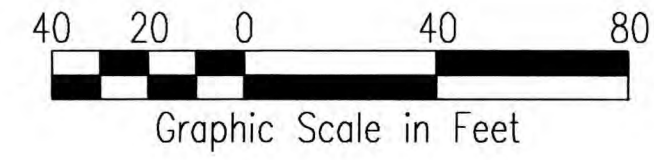


**GRADING PLAN-5**  
SCALE: 1"=40'



**INSET**  
SCALE: 1"=40'

**NOTE:**  
TIE TO CORNER OF GRADED MOUND TOP BANK IS FROM STREET SURVEY MONUMENT AT THE INTERSECTION OF PAHILIKOA STREET AND KOAPU'UPU'U STREET, SEE DWG. NO. C-8



**KEY PLAN**  
NOT TO SCALE

**LEGEND**

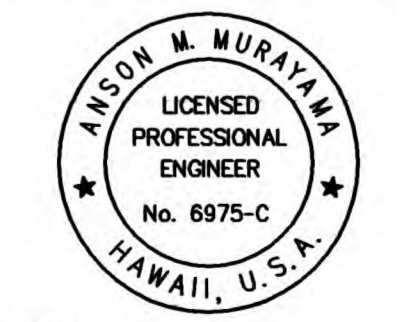
- 2360 — EXISTING CONTOUR
- EX D48 — EXISTING DRAIN PIPE
- D48 — DRAIN PIPE
- — EXISTING LOT LINE
- (180) LOT NUMBER
- - - LIMITS OF GRADING
- TP-3 BORING LOG

Community Planning and Engineering, Inc.  
Engineering Design | Construction Management | Infrastructure Planning  
1208 Queen Emma Street, Third Floor Honolulu, Hawaii

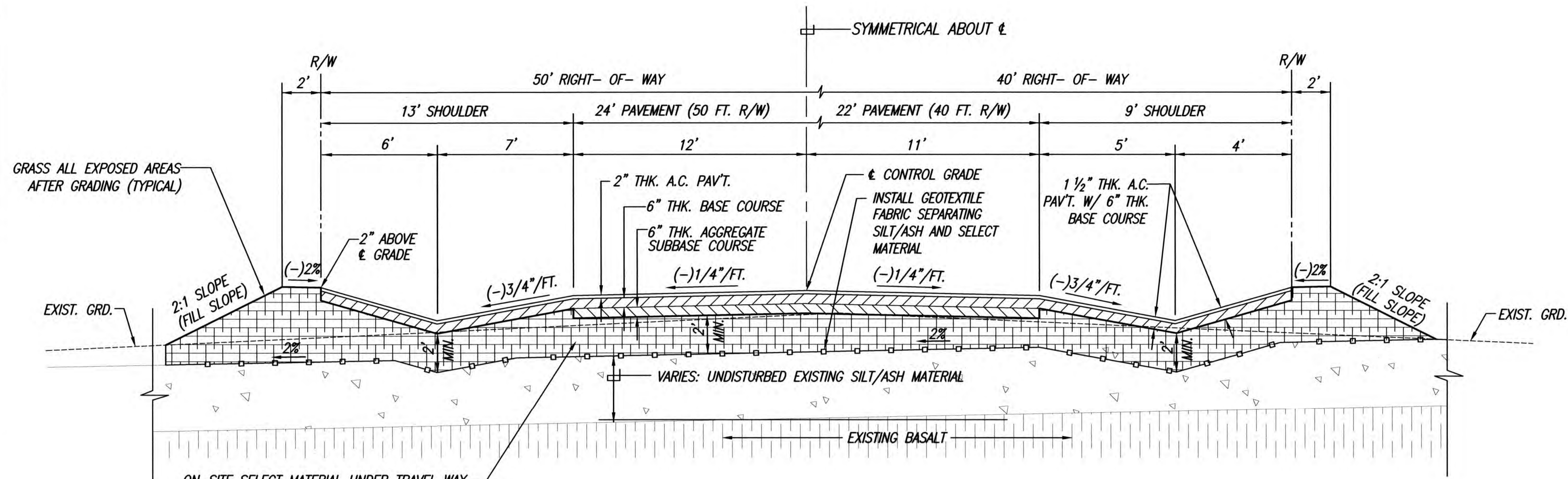
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**GRADING PLAN-5**

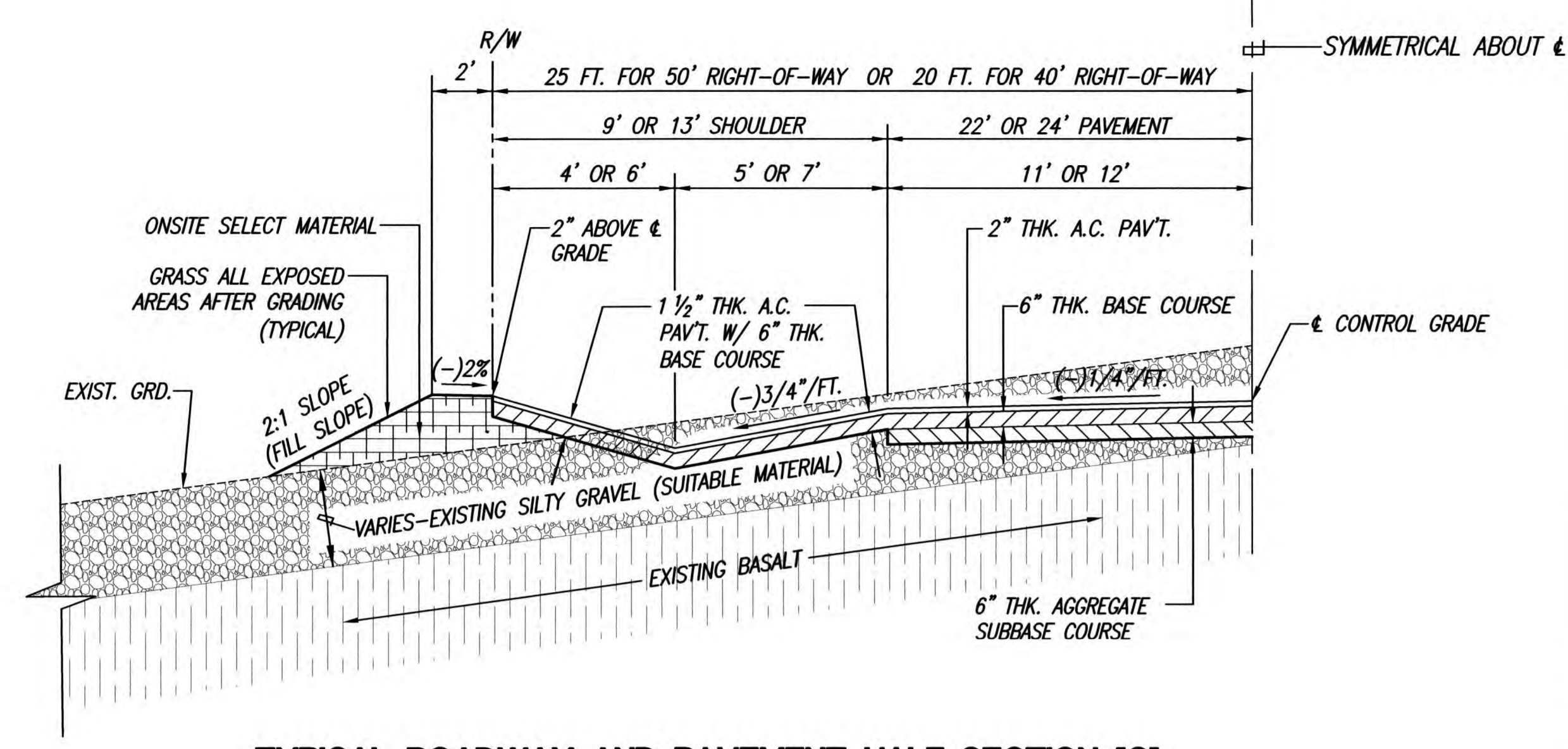
DRAWN BY: HW1 ENGINEER: HW1, FJC CHECKED BY: AMM



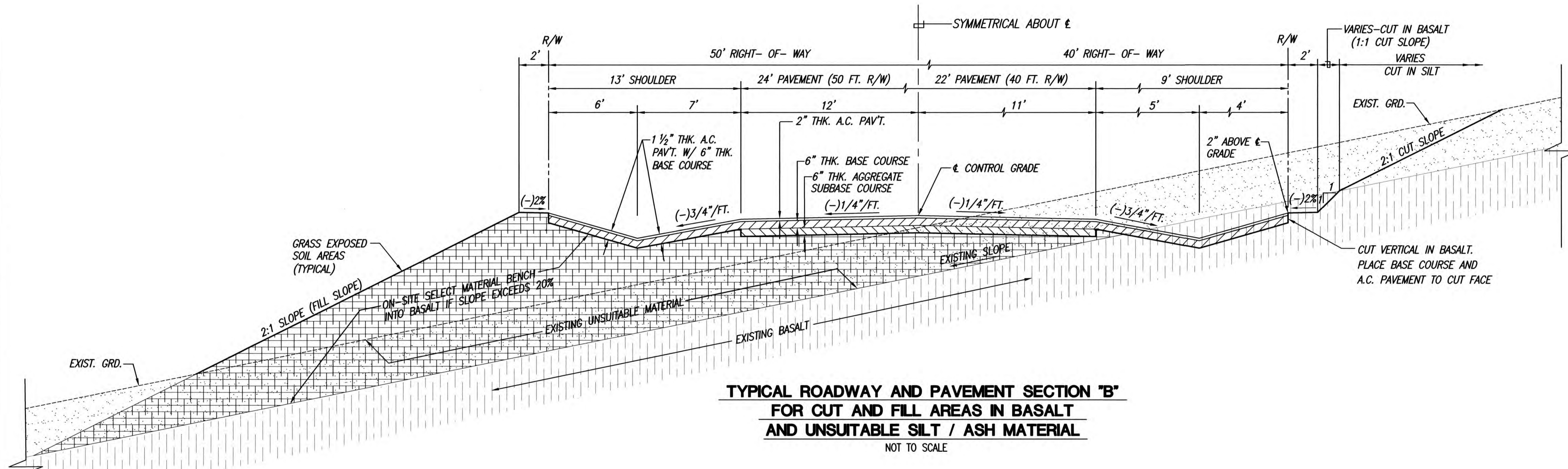
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26



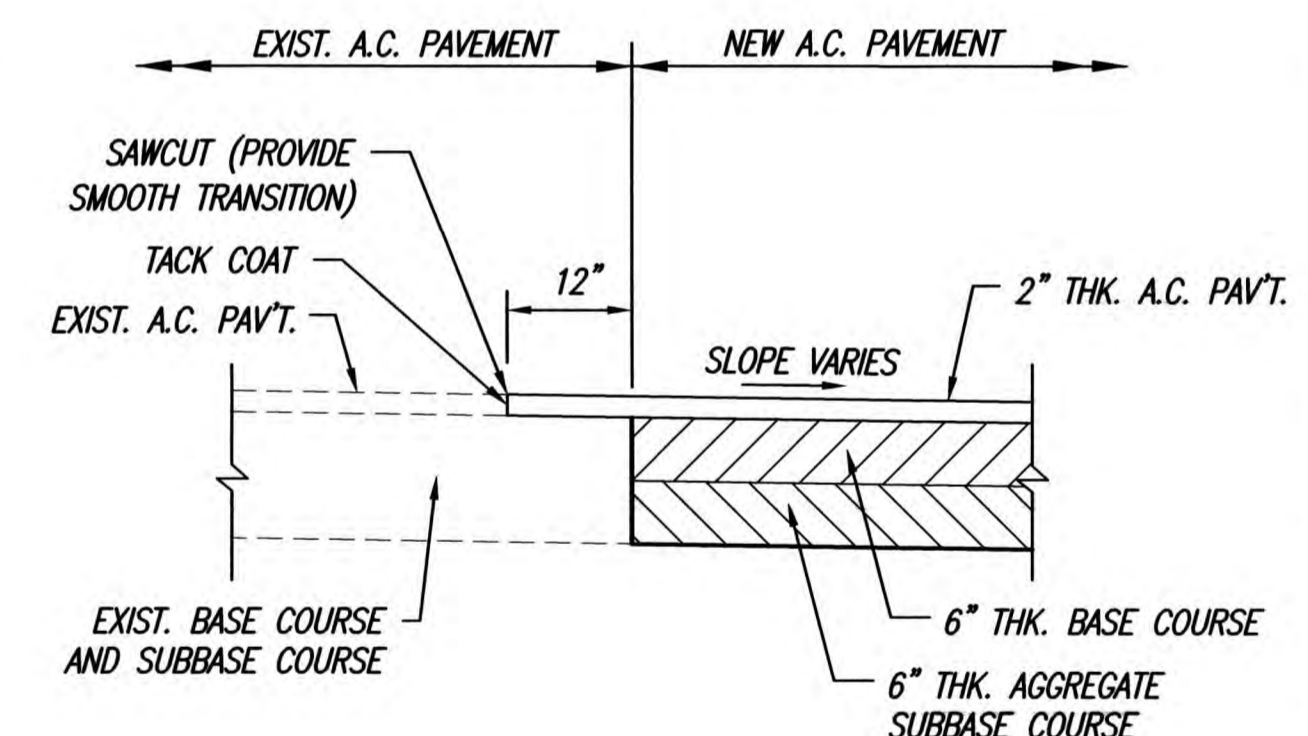
**TYPICAL ROADWAY AND PAVEMENT SECTION "A"**  
**FOR CUT AND FILL AREAS**  
**IN EXISTING UNSUITABLE SILT SOILS**  
 NOT TO SCALE



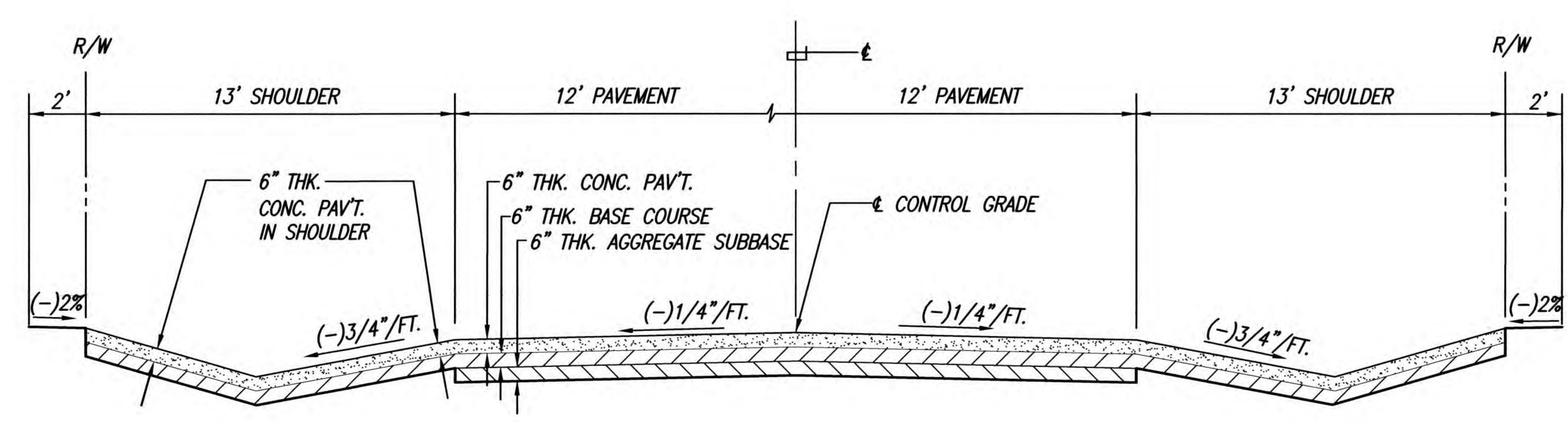
**TYPICAL ROADWAY AND PAVEMENT HALF-SECTION "C"**  
**FOR CUT AND FILL AREAS IN**  
**EXISTING SUITABLE SILTY GRAVEL SOILS**  
 NOT TO SCALE



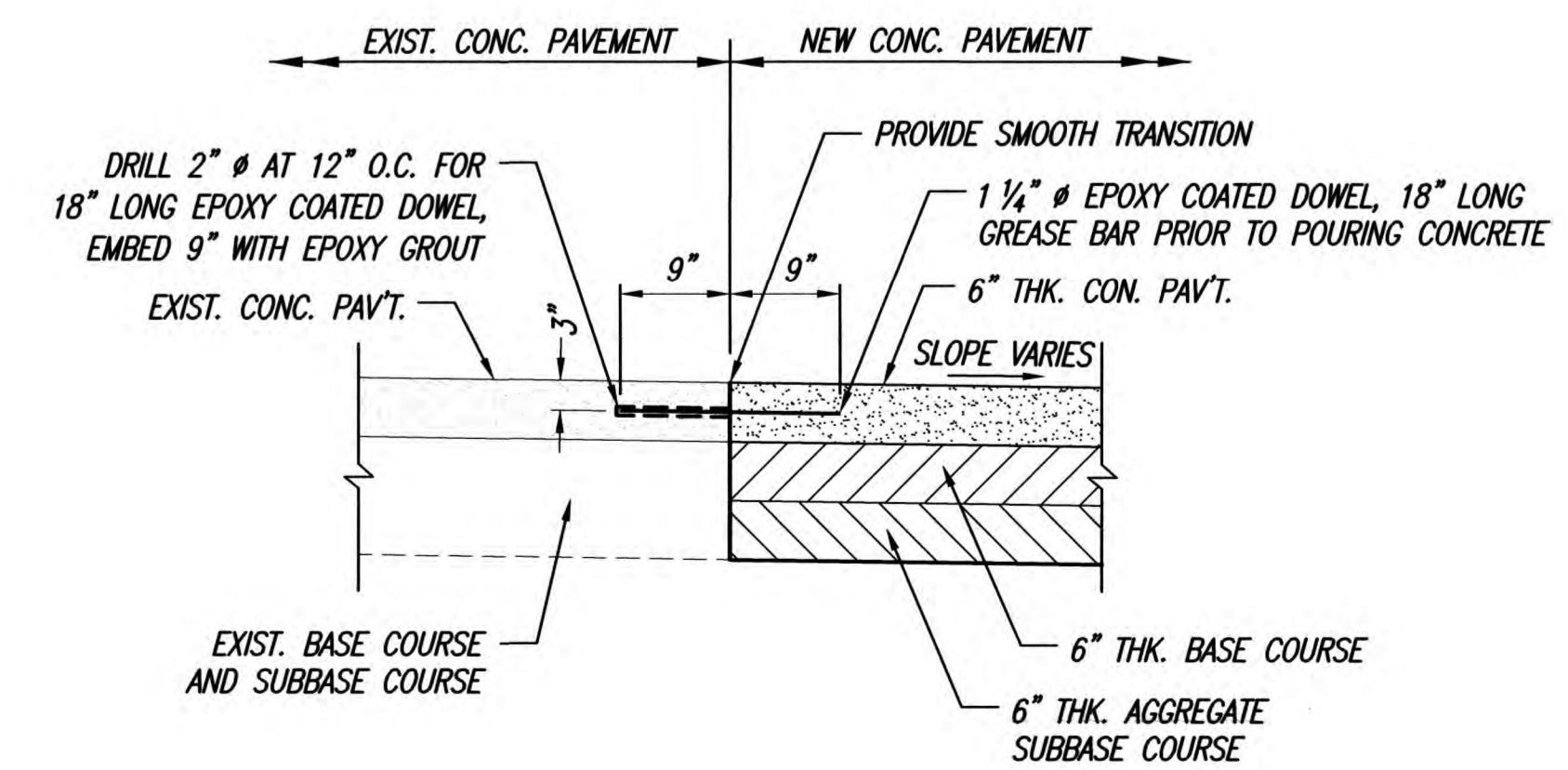
**TYPICAL ROADWAY AND PAVEMENT SECTION "B"**  
**FOR CUT AND FILL AREAS IN BASALT**  
**AND UNSUITABLE SILT / ASH MATERIAL**  
 NOT TO SCALE



**A.C. PAVEMENT TRANSITION DETAIL**  
 NOT TO SCALE



**TYPICAL CONCRETE ROADWAY PAVEMENT SECTION**  
**FOR PAHIKO STREET EXTENSION**  
 NOT TO SCALE



**CONCRETE PAVEMENT TRANSITION DETAIL**  
 NOT TO SCALE



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

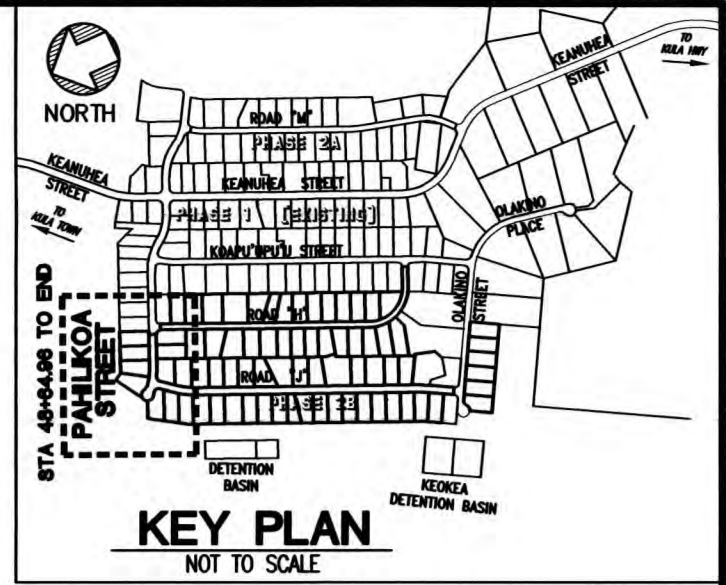
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

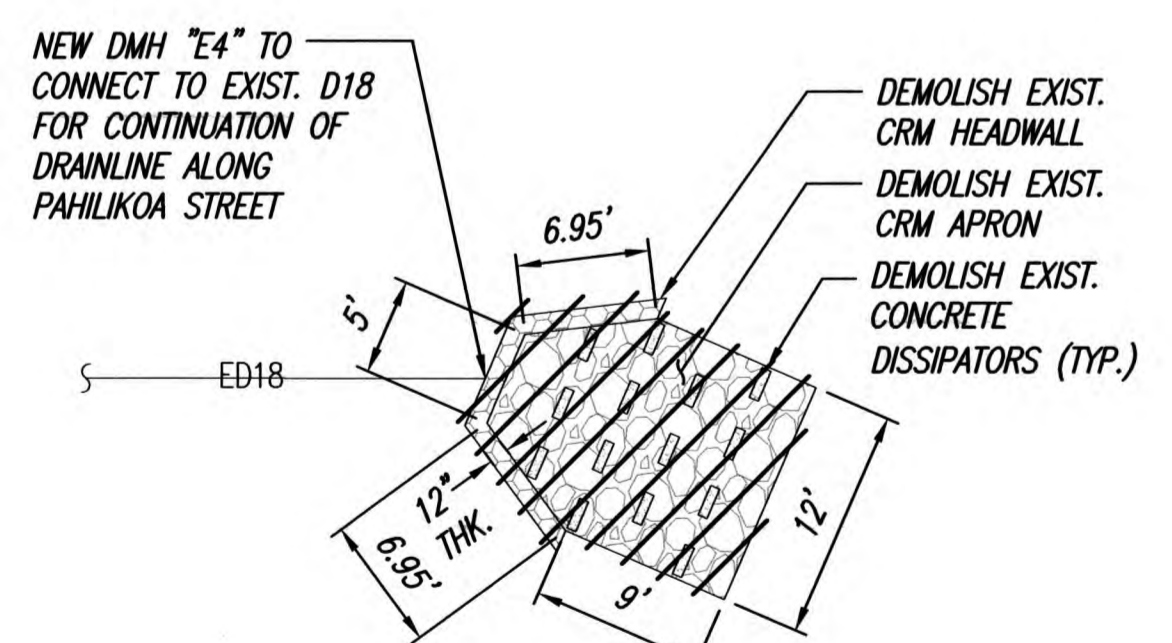
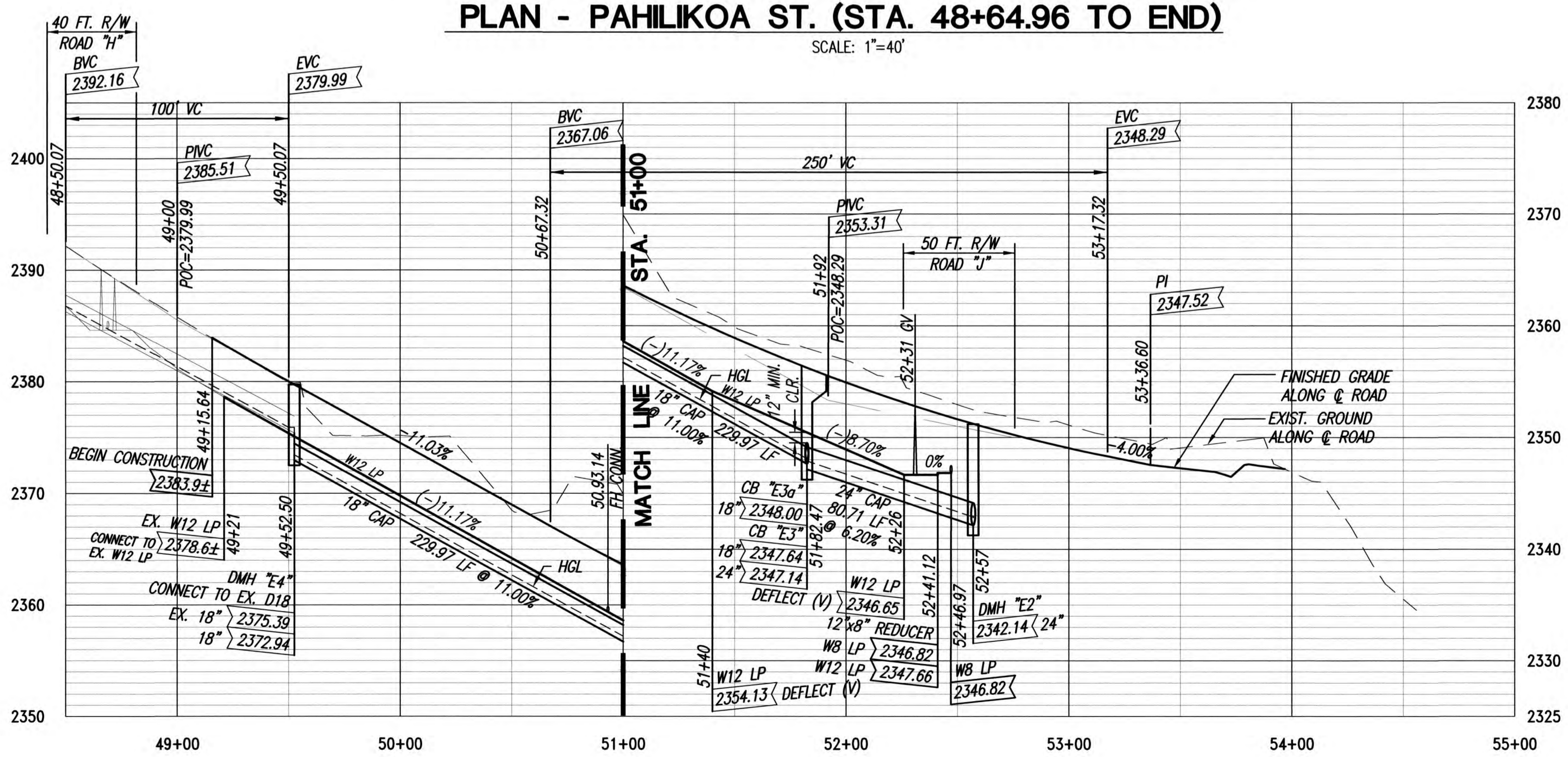
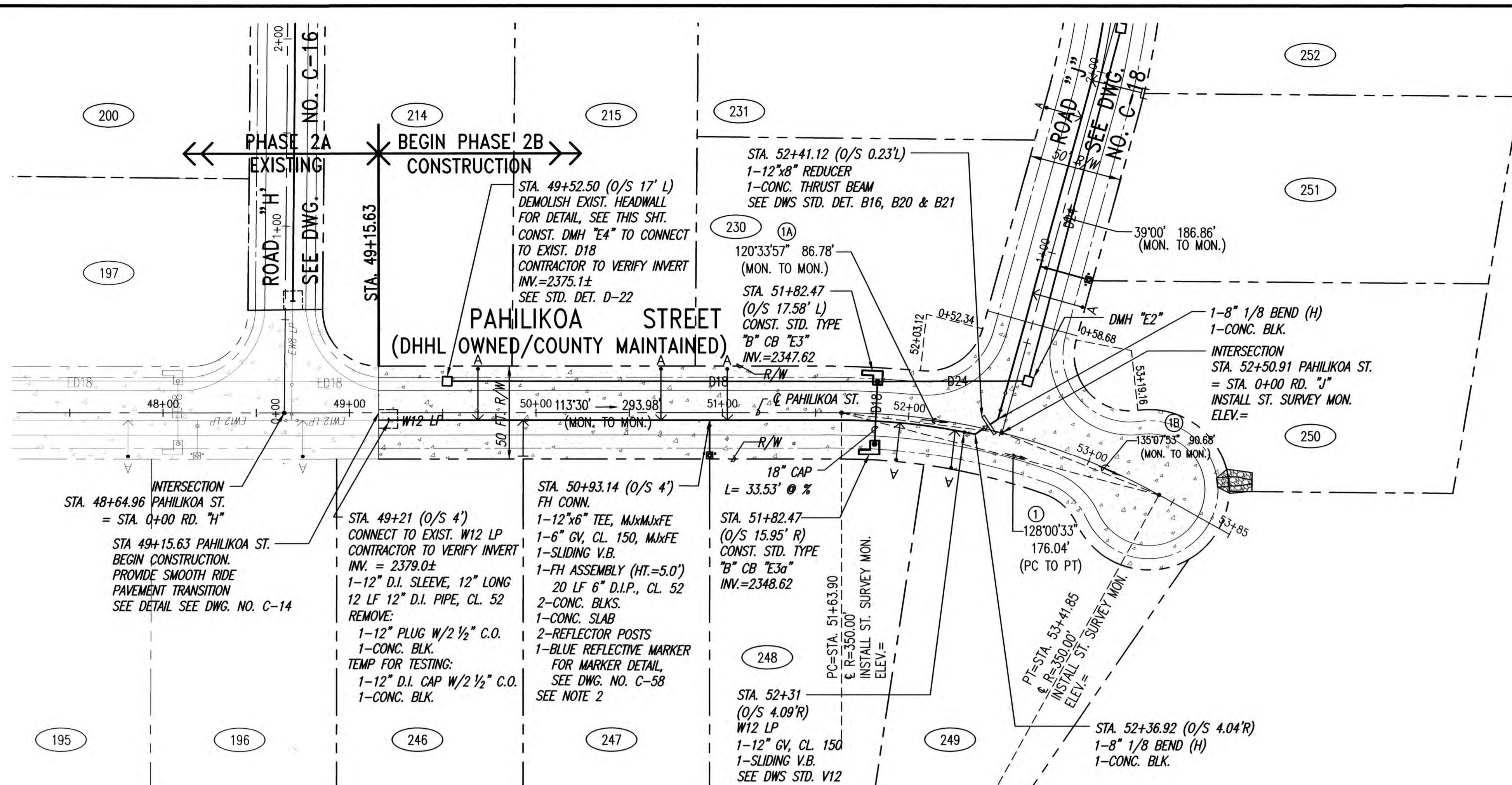
**TYPICAL ROAD SECTIONS**

DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: AMM



CURVE	(1)	(1A)	(1B)
Δ	29°07'49"	14°14'41"	14°53'13"
Δ/2	14°33'54.7"	7°07'20.3"	7°26'36.4"
R	350.00'	350.00'	350.00'
T	90.94'	43.73'	45.72'
C	176.04'	86.78'	90.68'
L	177.95'	87.01'	90.93'

CURVE	(A)	(B)	(C)	(D)	CURVE
Δ	80° 41' 39"	113° 33' 18"	253° 04' 26"	45° 34' 30"	Δ
Δ/2	40° 20' 50"	56° 46' 39"	126° 32' 13"	22° 47' 15"	Δ/2
R	44.00'	43.00'	30.00'	43.00'	R
T	37.38'	65.65'	40.49'	18.06'	T
C	56.97'	71.94'	48.21'	33.31'	C
L	61.97'	85.22'	132.51'	34.20'	L



**LEGEND**

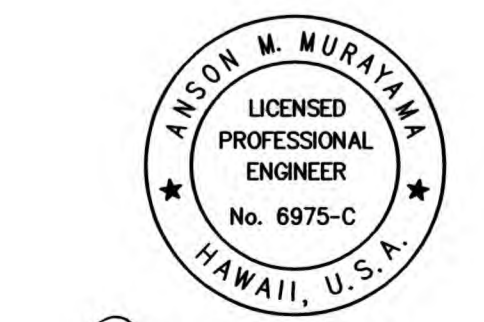
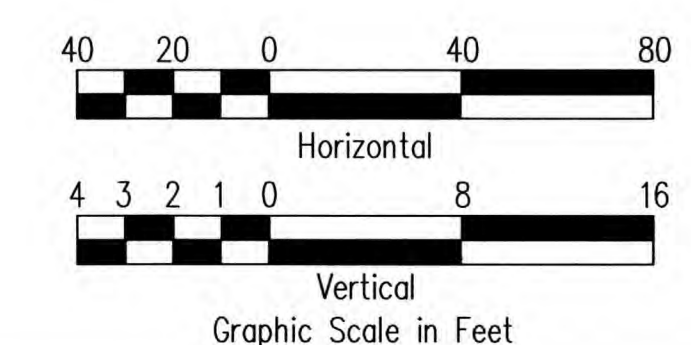
- PROPERTY LINE
- (260) LOT NUMBER
- GUARD RAIL
- EX D18 EXISTING DRAINLINE
- D18 NEW DRAINLINE
- EX W8 EXISTING WATERLINE
- W8 LP NEW WATERLINE (LOW PRESSURE)
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- CAP CORRUGATED ALUMINUM PIPE
- V.B. VALVE BOX
- SRA SINGLE RADIUS ARCH
- 199 BORING TEST PIT LOCATION

**PROFILE - PAHILIKOA ST. (STA. 48+64.96 TO END)**

SCALES: HORIZ. 1"=40'  
VERT. 1"= 8'

**NOTES:**

1. FOR TYPE "A" AND "A-1" WATER SERVICE LATERAL, SEE DWG. NO. C-64 AND DWS STD. DET. L24, L25 & L26 FOR TYPE "A" AND L24, L27 & L28 FOR TYPE "A-1".
2. FOR FH CONN. SEE DWS STD. DET. FH6, FH8 & FH9.
3. MAINTAIN 3 FT MINIMUM CLEARANCE BETWEEN WATER SERVICE LATERAL TAPS INTO NEW WATER MAIN.
4. WATER EASEMENTS REQUIRED FOR WATER METER BOXES WITHIN THE LOTS.
5. DWS TO INSTALL NEW 3/8" METER IN NEW METER BOXES WHEN APPLICABLE.
6. FINISH GRADES SHOWN ARE ALONG THE CENTER OF ROAD PAVEMENT.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

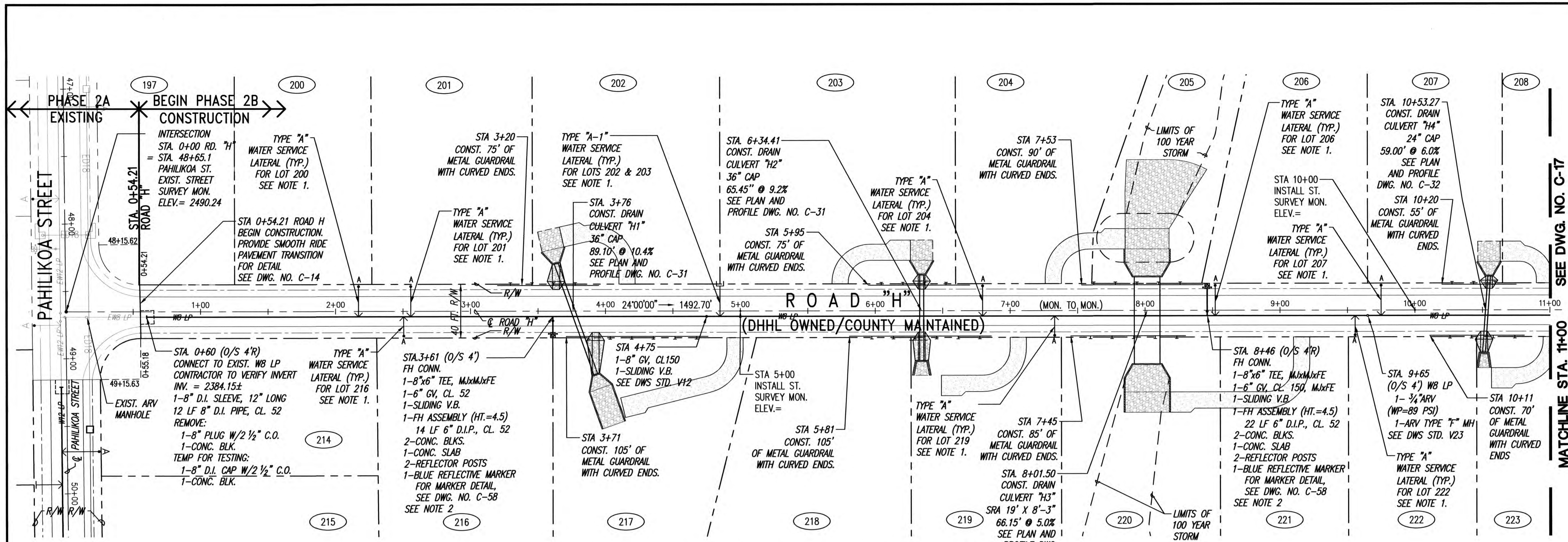
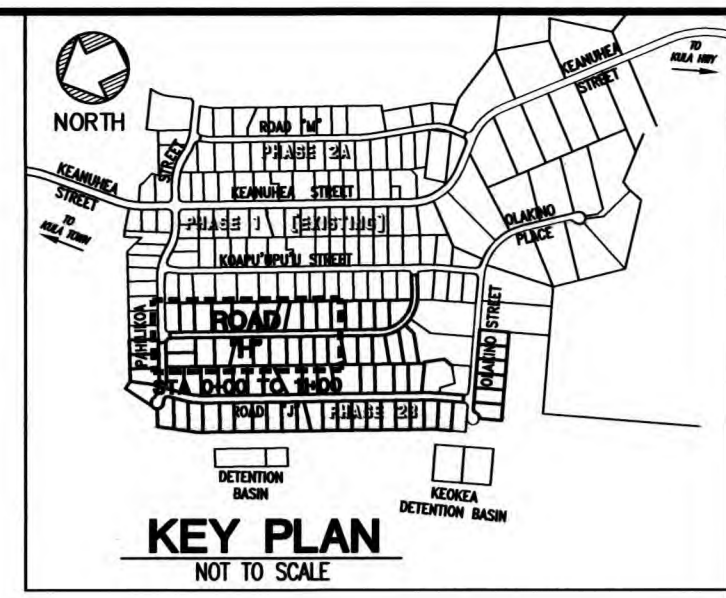
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE PAHILIKOA ST. STA. 50+00 TO END**

DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: AMM

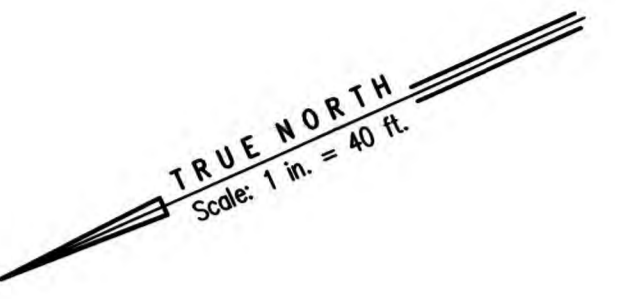




**PLAN - ROAD "H" (STA. 0+00 TO 11+00)**

SCALE: 1"=40'

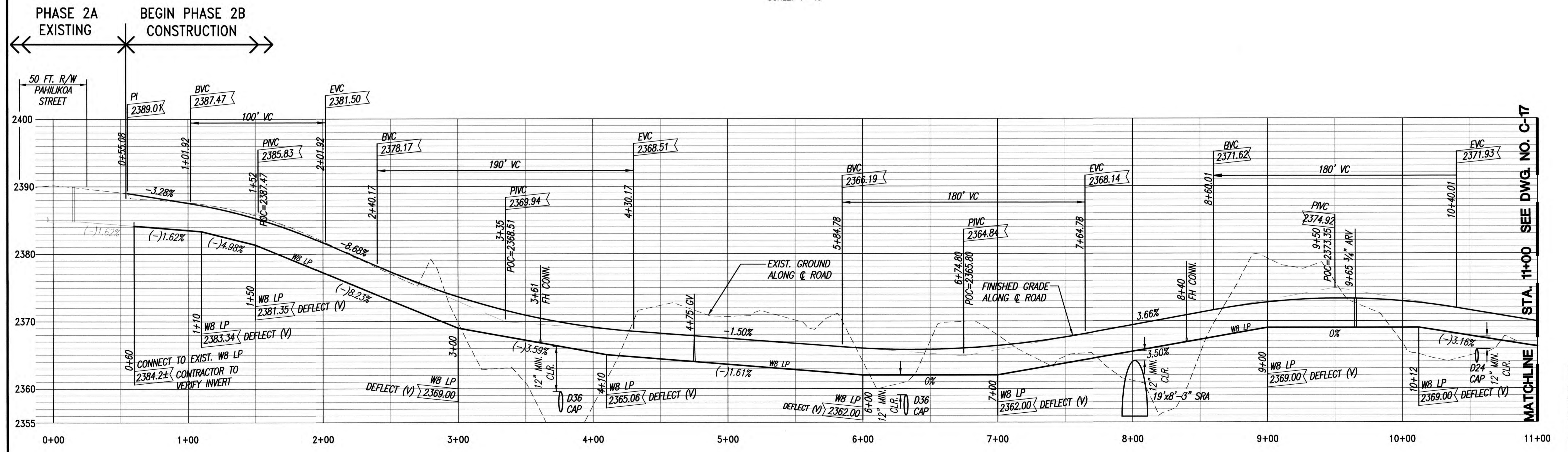
SEE DWG. NO. C-17  
MATCHLINE STA. 11+00



**LEGEND**

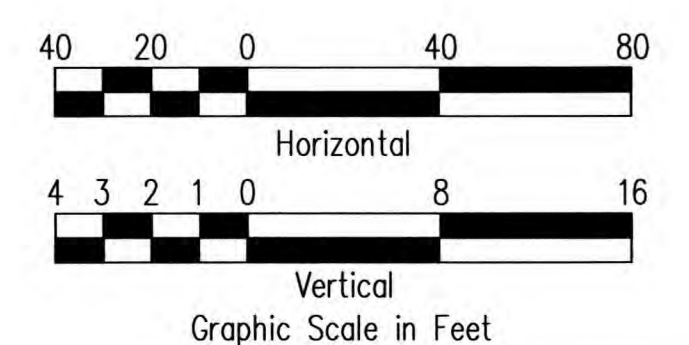
- PROPERTY LINE
- (260) LOT NUMBER
- GUARD RAIL
- EX D18 — EXISTING DRAINLINE
- D18 — NEW DRAINLINE
- EX WB — EXISTING WATERLINE
- WB LP — NEW WATERLINE (LOW PRESSURE)
- ← TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- CAP CORRUGATED ALUMINUM PIPE
- V.B. VALVE BOX
- SRA SINGLE RADIUS ARCH

- NOTES:**
1. FOR TYPE "A" AND "A-1" WATER SERVICE LATERAL, SEE DWG. NO. C-64 AND DWS STD. DET. L24, L25 & L26 FOR TYPE "A" AND L24, L27 & L28 FOR TYPE "A-1".
  2. FOR FH CONN. SEE DWS STD. DET. FH6, FH8 & FH9.
  3. MAINTAIN 3 FT MINIMUM CLEARANCE BETWEEN WATER SERVICE LATERAL TAPS INTO NEW WATER MAIN.
  4. WATER EASEMENTS REQUIRED FOR WATER METER BOXES WITHIN THE LOTS.
  5. DWS TO INSTALL NEW 5/8" METER IN NEW METER BOXES WHEN APPLICABLE.
  6. FOR GUARDRAIL, SEE STD DET. R22, R23 AND R24.
  7. FINISH GRADES SHOWN ARE ALONG THE CENTER OF ROAD PAVEMENT.



**PROFILE - ROAD "H" (STA. 0+00 TO 11+00)**

SCALES: HORIZ. 1"=40'  
VERT. 1"= 8'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

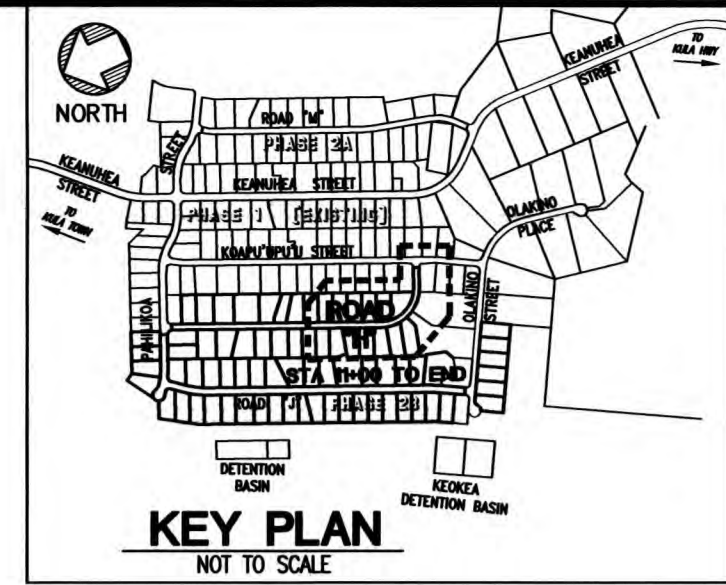
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE ROAD "H" STA. 0+00 TO STA. 11+00**

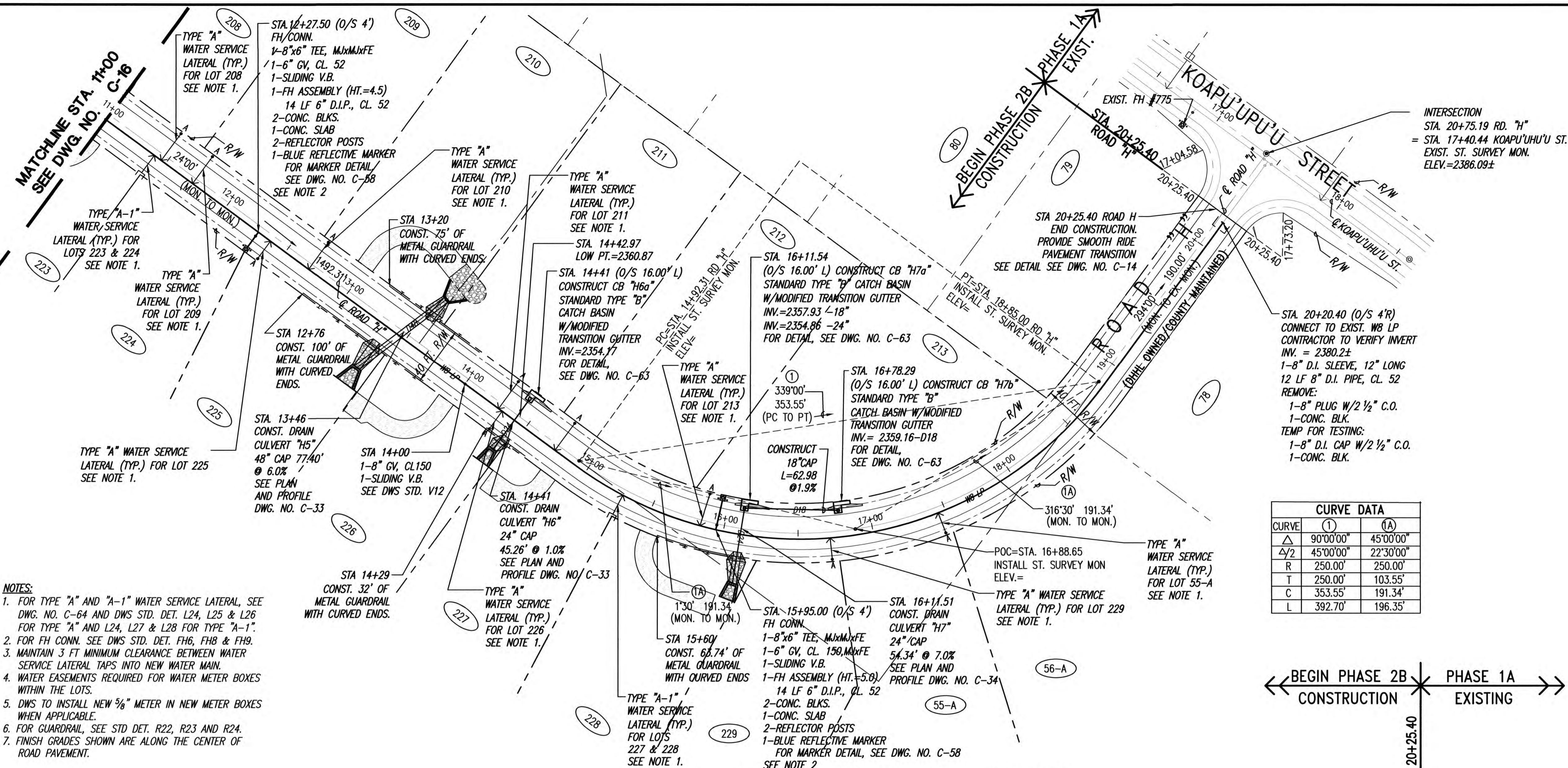
DRAWN BY: HWH    ENGINEER: HWH, FJC    CHECKED BY: AMM



**LEGEND**

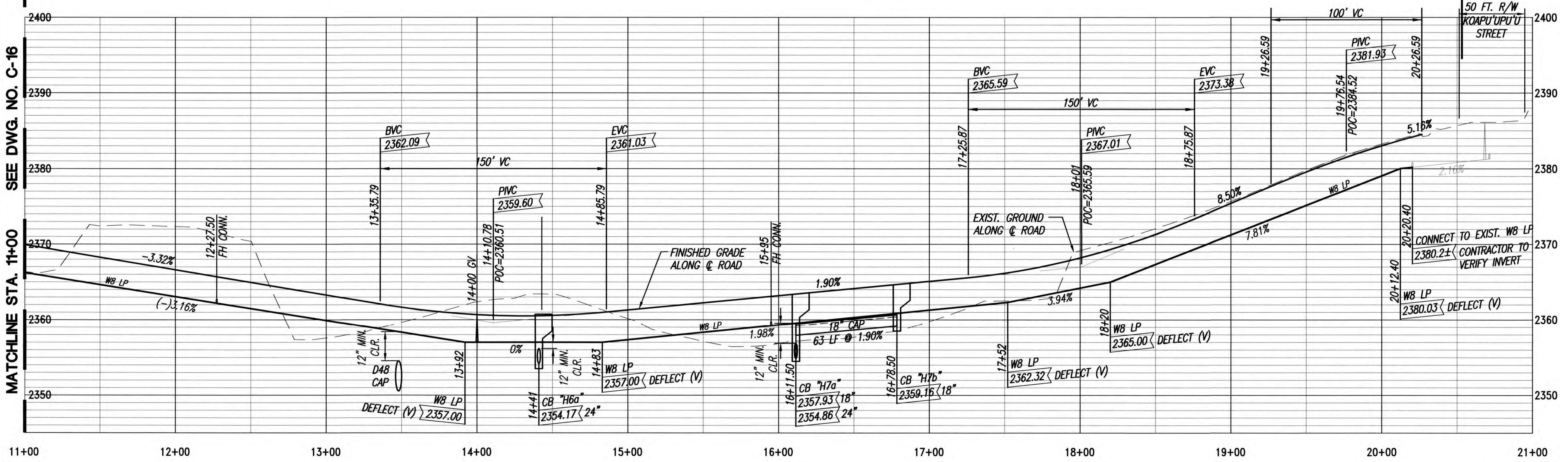
- PROPERTY LINE
- (260) LOT NUMBER
- GUARD RAIL
- EX D18 EXISTING DRAINLINE
- D18 NEW DRAINLINE
- EX WB EXISTING WATERLINE
- WB LP NEW WATERLINE (LOW PRESSURE)
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- CAP CORRUGATED ALUMINUM PIPE
- V.B. VALVE BOX
- SRA SINGLE RADIUS ARCH
- 199 BORING TEST PIT LOCATION

CURVE DATA		
CURVE	(1)	(1A)
Δ	90°00'00"	45°00'00"
Δ/2	45°00'00"	22°30'00"
R	250.00'	250.00'
T	250.00'	103.55'
C	353.55'	191.34'
L	392.70'	196.35'



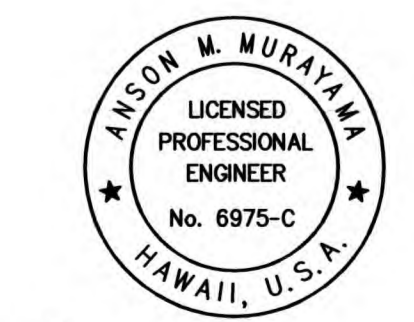
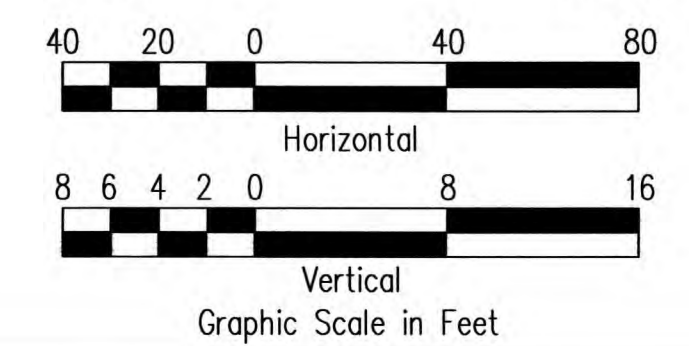
**PLAN - ROAD "H" (STA. 11+00 TO END)**

SCALE: 1"=40'



**PROFILE - ROAD "H" (STA. 11+00 TO END)**

SCALES: HORIZ. 1"=40'  
VERT. 1"= 8'



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

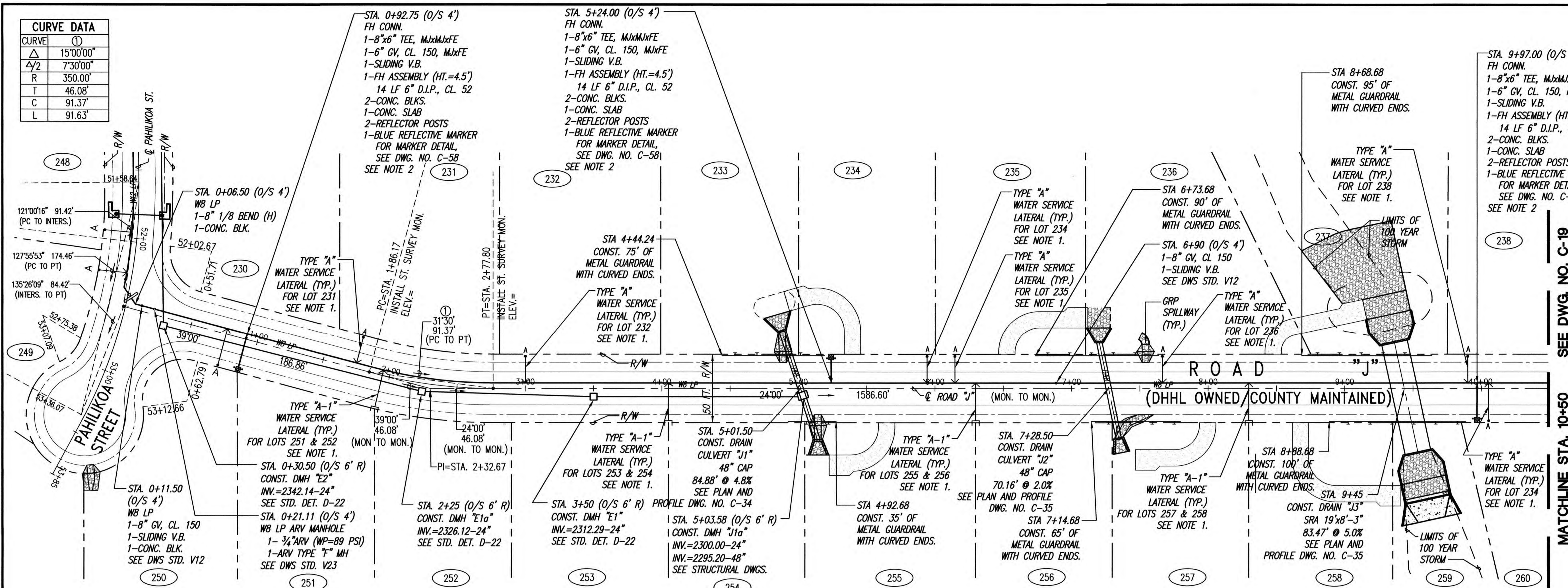
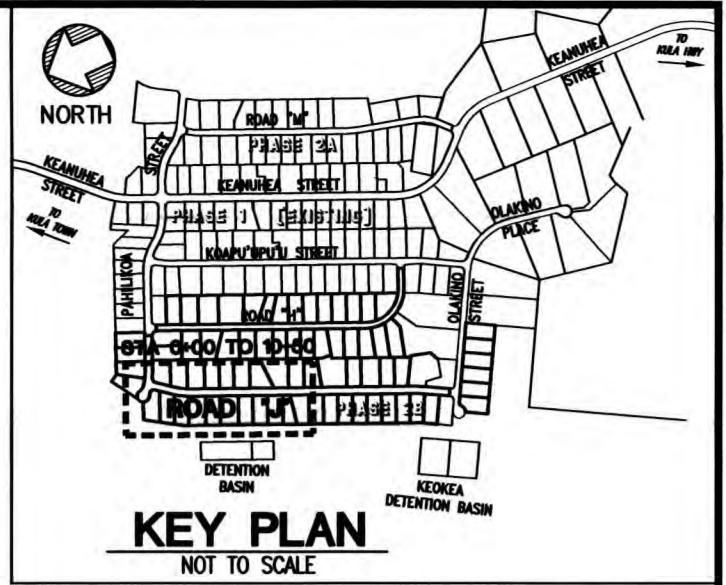
Community Planning and Engineering, Inc.  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

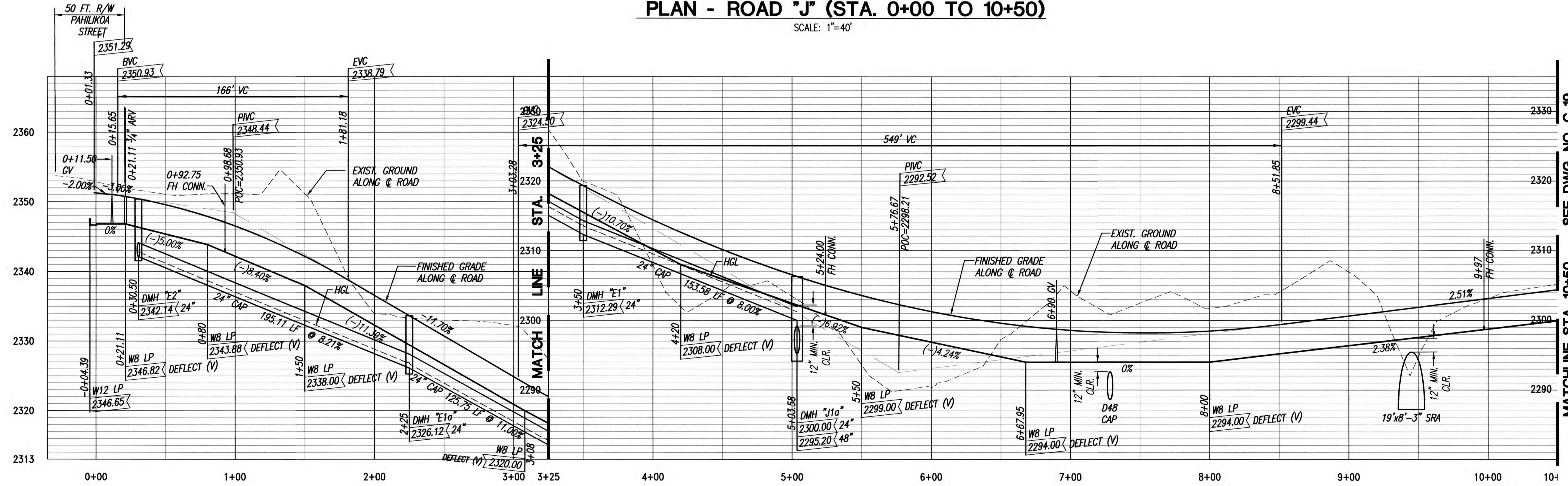
**PLAN AND PROFILE ROAD "H" STA. 11+00 TO END**

DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: AMM

CURVE DATA	
Δ	15°00'00"
Δ/2	7°30'00"
R	350.00'
T	46.08'
C	91.37'
L	91.63'



**PLAN - ROAD "J" (STA. 0+00 TO 10+50)**  
SCALE: 1"=40'



**PROFILE - ROAD "J" (STA. 0+00 TO 10+50)**  
SCALES: HORIZ. 1"=40'  
VERT. 1"= 8'

**LEGEND**

- PROPERTY LINE
- (260) LOT NUMBER
- GUARD RAIL
- EX D18 --- EXISTING DRAINLINE
- D18 --- NEW DRAINLINE
- EX W8 --- EXISTING WATERLINE
- W8 LP --- NEW WATERLINE (LOW PRESSURE)
- ←→ TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- CAP CORRUGATED ALUMINUM PIPE
- V.B. VALVE BOX
- SRA SINGLE RADIUS ARCH
- 199 BORING TEST PIT LOCATION

- NOTES:**
- FOR TYPE "A" AND "A-1" WATER SERVICE LATERAL, SEE DWG. NO. C-64 AND DWS STD. DET. L24, L25 & L26 FOR TYPE "A" AND L24, L27 & L28 FOR TYPE "A-1".
  - FOR FH CONN. SEE DWS STD. DET. FH6, FH8 & FH9.
  - MAINTAIN 3 FT MINIMUM CLEARANCE BETWEEN WATER SERVICE LATERAL TAPS INTO NEW WATER MAIN.
  - WATER EASEMENTS REQUIRED FOR WATER METER BOXES WITHIN THE LOTS.
  - DWS TO INSTALL NEW 5/8" METER IN NEW METER BOXES WHEN APPLICABLE.
  - FOR GUARDRAIL, SEE STD. DET. R22, R23 AND R24.
  - FINISH GRADES SHOWN ARE ALONG THE CENTER OF ROAD PAVEMENT.

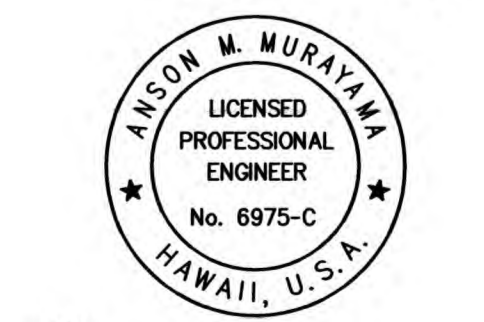
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

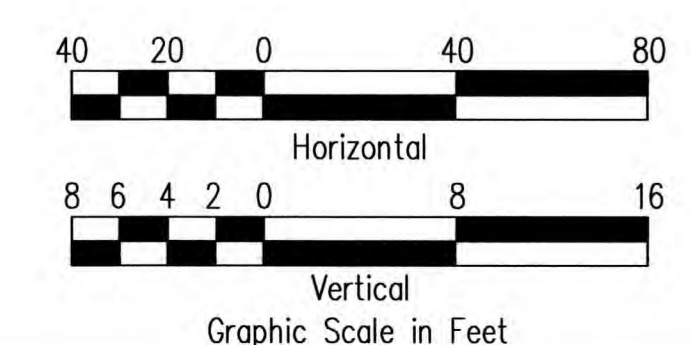
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

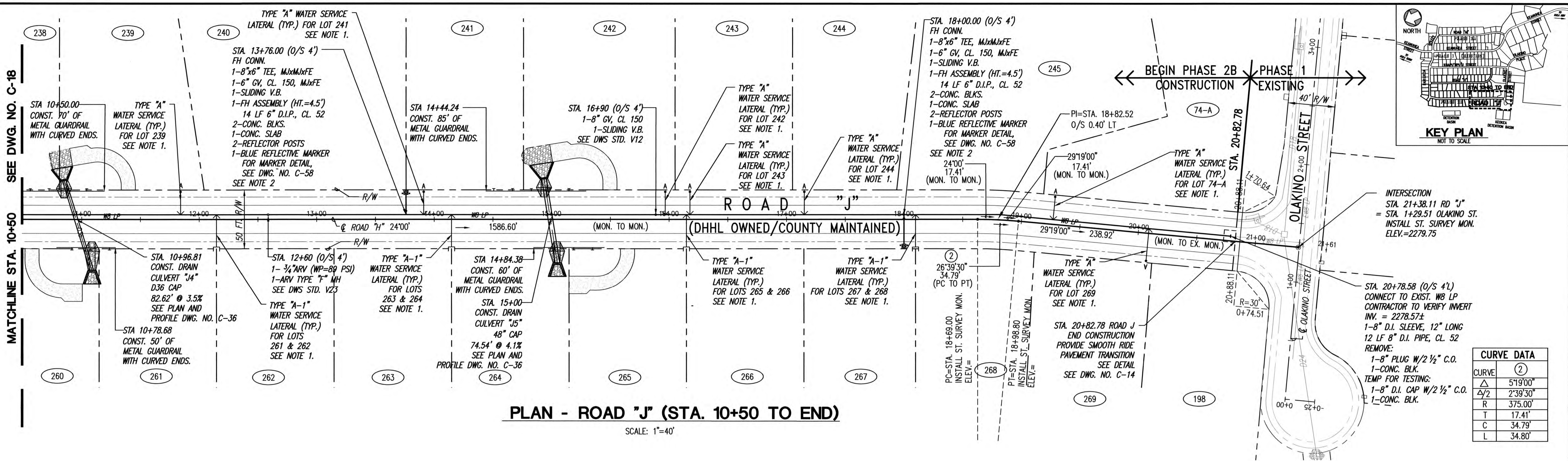
**PLAN AND PROFILE ROAD "J" STA. 0+00 TO STA. 10+50**

DRAWN BY: HW1 ENGINEER: HW1, FJC CHECKED BY: AMM

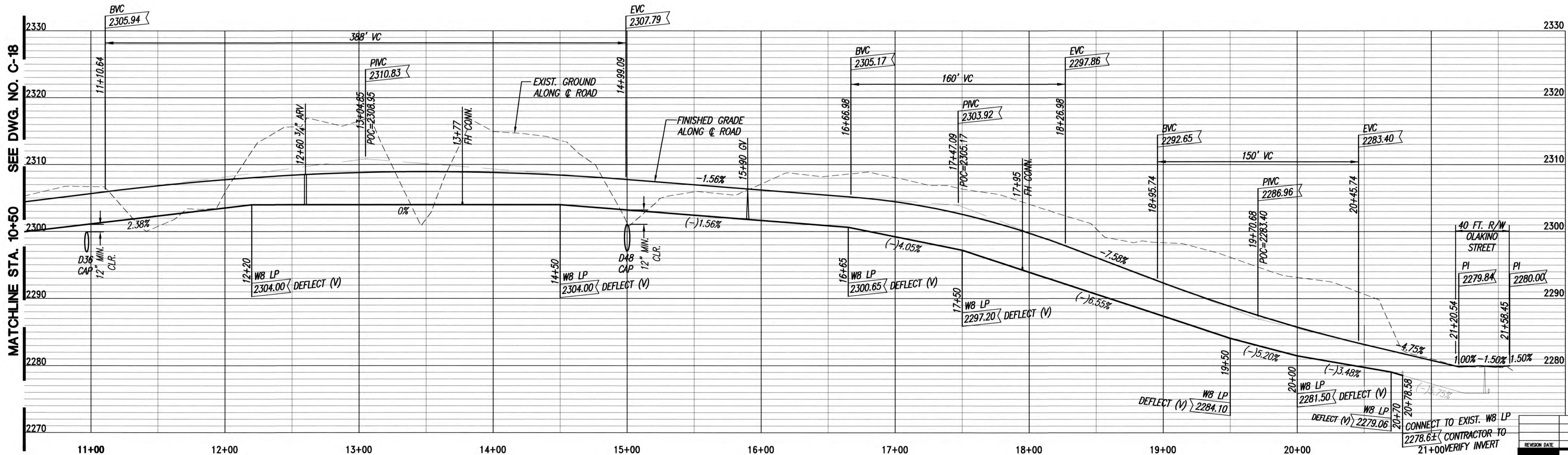


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26





**PLAN - ROAD "J" (STA. 10+50 TO END)**  
SCALE: 1"=40'

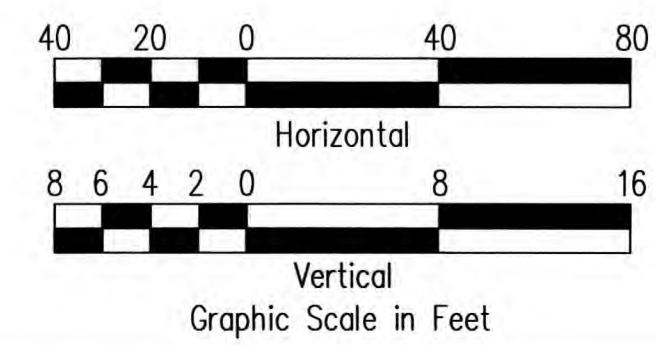


**PROFILE - ROAD "J" (STA. 10+50 TO END)**  
SCALES: HORIZ. 1"=40'  
VERT. 1"= 8'

- NOTES:**
1. FOR TYPE "A" AND "A-1" WATER SERVICE LATERAL, SEE DWG. NO. C-64 AND DWS STD. DET. L24, L25 & L26 FOR TYPE "A" AND L24, L27 & L28 FOR TYPE "A-1".
  2. FOR FH CONN. SEE DWS STD. DET. FH6, FH8 & FH9.
  3. MAINTAIN 3 FT MINIMUM CLEARANCE BETWEEN WATER SERVICE LATERAL TAPS INTO NEW WATER MAIN.
  4. WATER EASEMENTS REQUIRED FOR WATER METER BOXES WITHIN IN LOTS.
  5. DWS TO INSTALL NEW 3/8" METER IN NEW METER BOXES WHEN APPLICABLE.
  6. FOR GUARDRAIL, SEE STD DET. R22, R23 AND R24.
  7. FINISH GRADES SHOWN ARE ALONG THE CENTER OF ROAD PAVEMENT.

**LEGEND**

---	PROPERTY LINE	←→	TYPE "A" SERVICE LATERAL
(260)	LOT NUMBER	→	TYPE "A-1" SERVICE LATERAL
---	GUARD RAIL	CAP	CORRUGATED ALUMINUM PIPE
-EX D18-	EXISTING DRAINLINE	V.B.	VALVE BOX
-D18-	NEW DRAINLINE	SRA	SINGLE RADIUS ARCH
-EX WB-	EXISTING WATERLINE	199	BORING TEST PIT LOCATION
-WB LP-	NEW WATERLINE (LOW PRESSURE)		



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

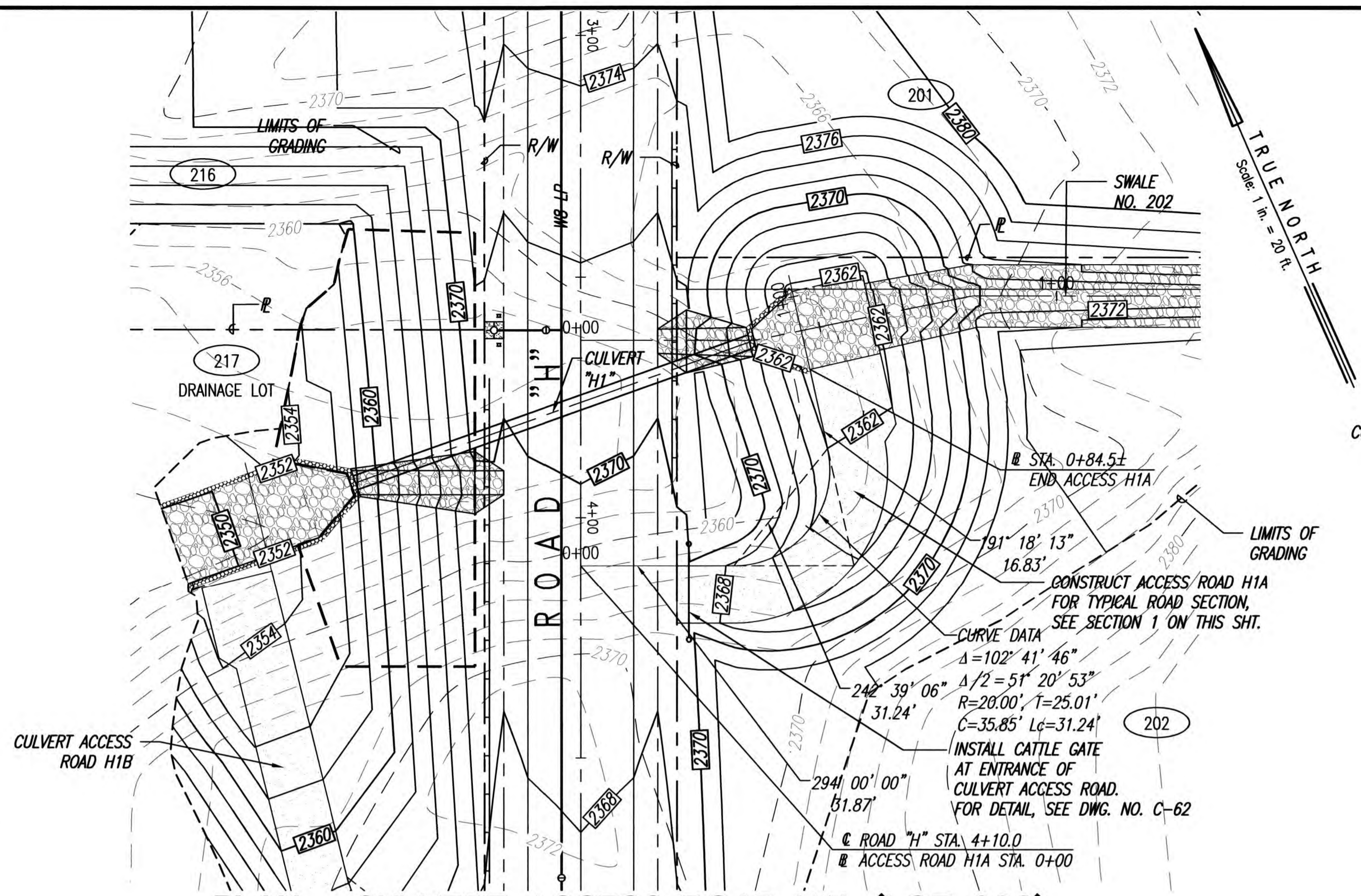
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023

**PLAN AND PROFILE ROAD "J" STA. 10+50 TO END**

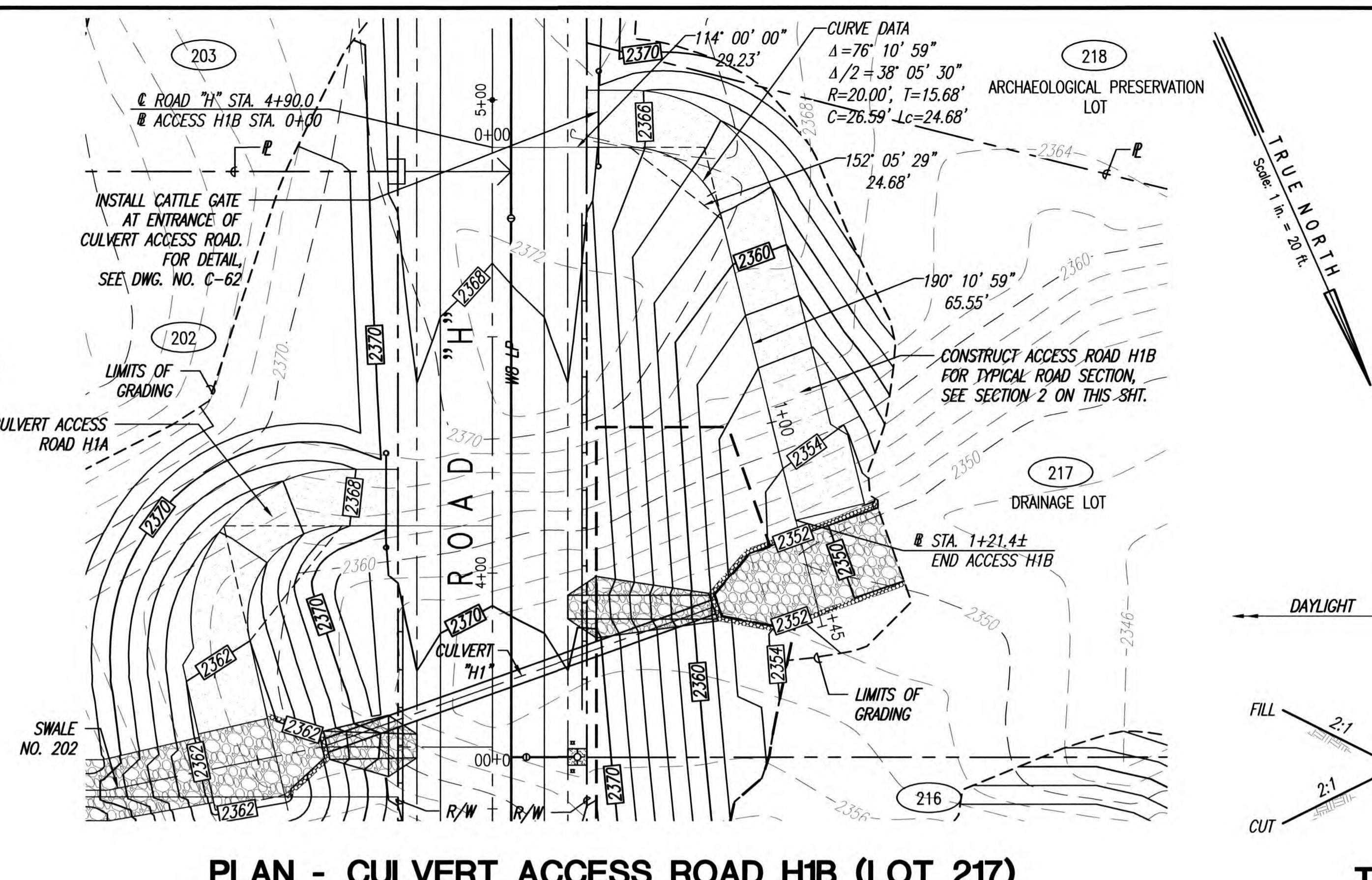
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM
---------------	--------------------	-----------------

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----



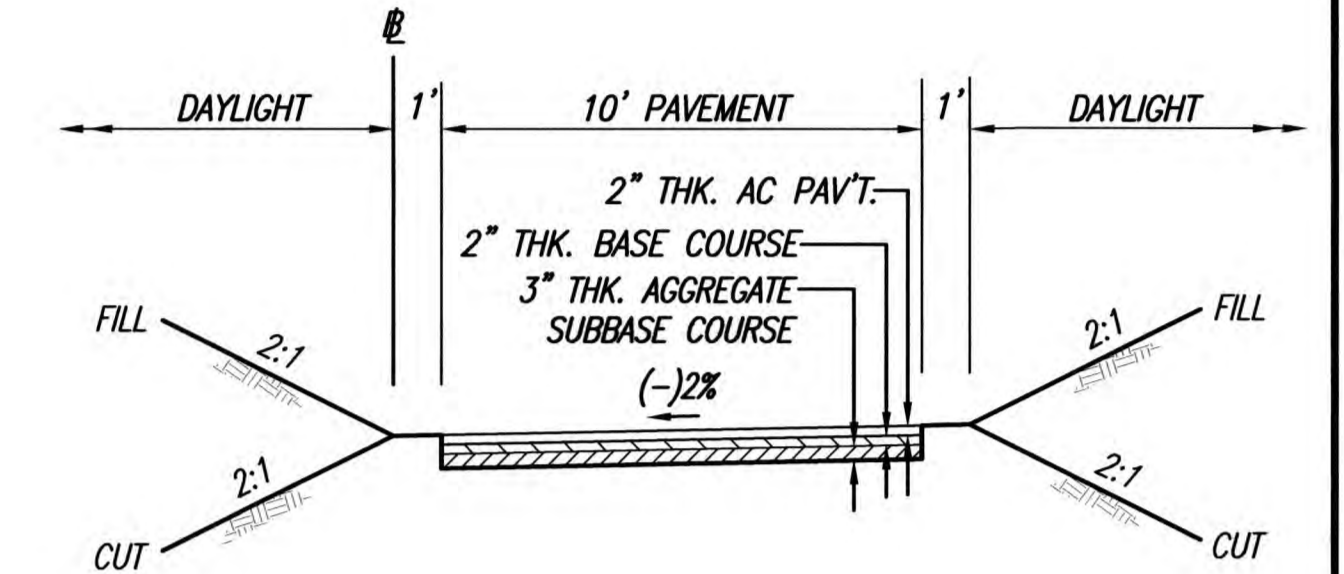
**PLAN - CULVERT ACCESS ROAD H1A (LOT 202)**

SCALE: 1"=20'



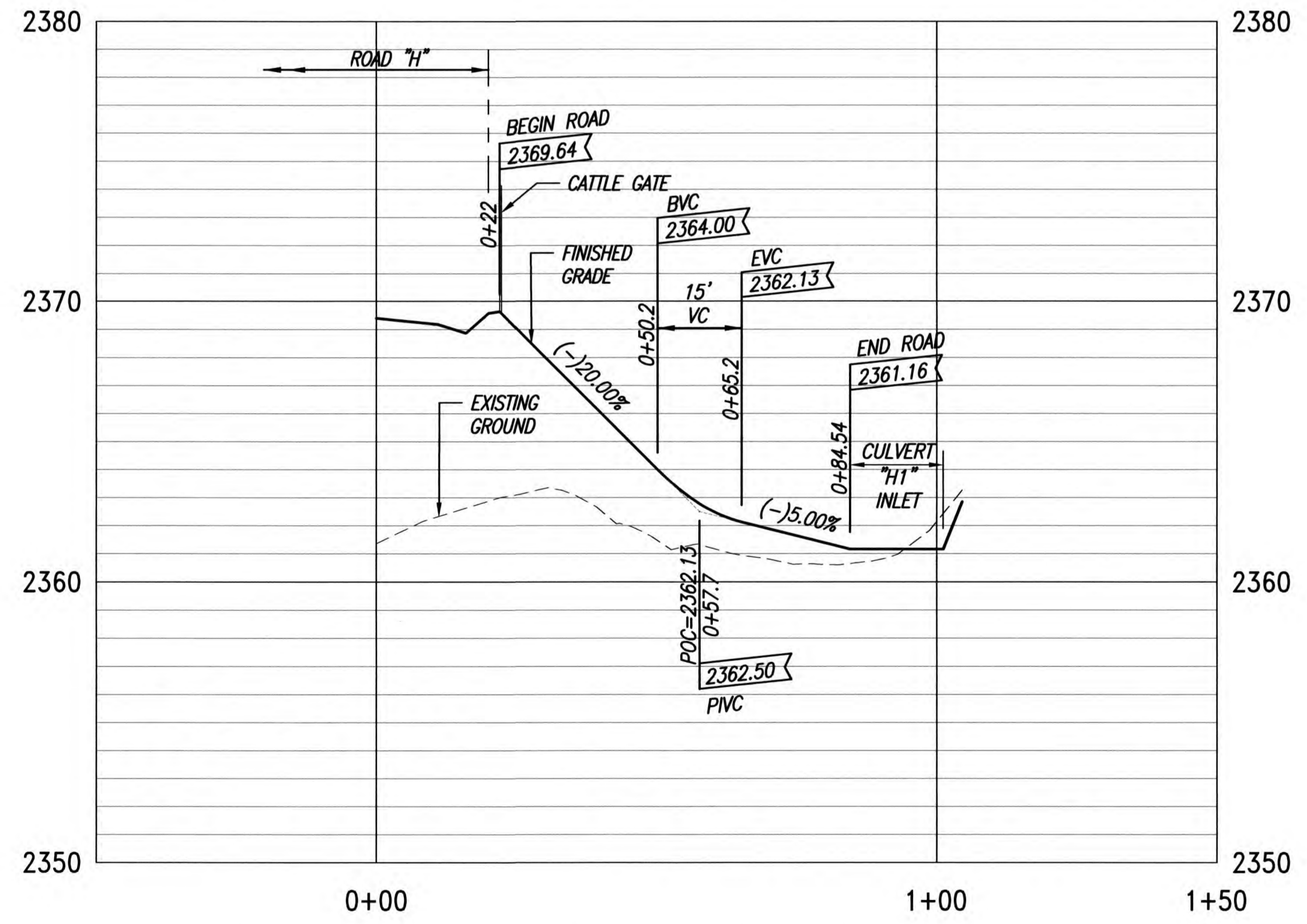
**PLAN - CULVERT ACCESS ROAD H1B (LOT 217)**

SCALE: 1"=20'



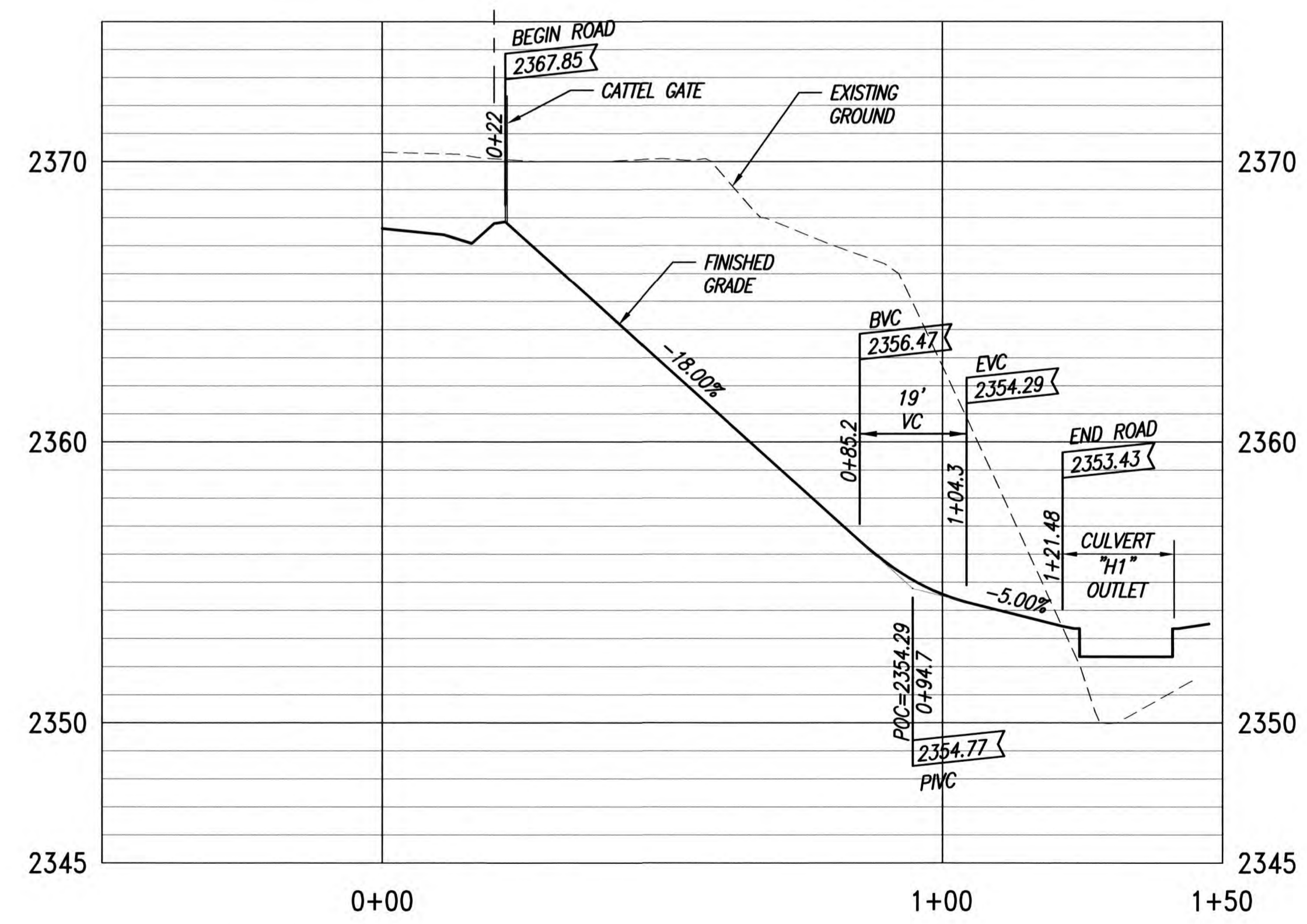
**TYPICAL ACCESS ROAD SECTION 1**

NOT TO SCALE



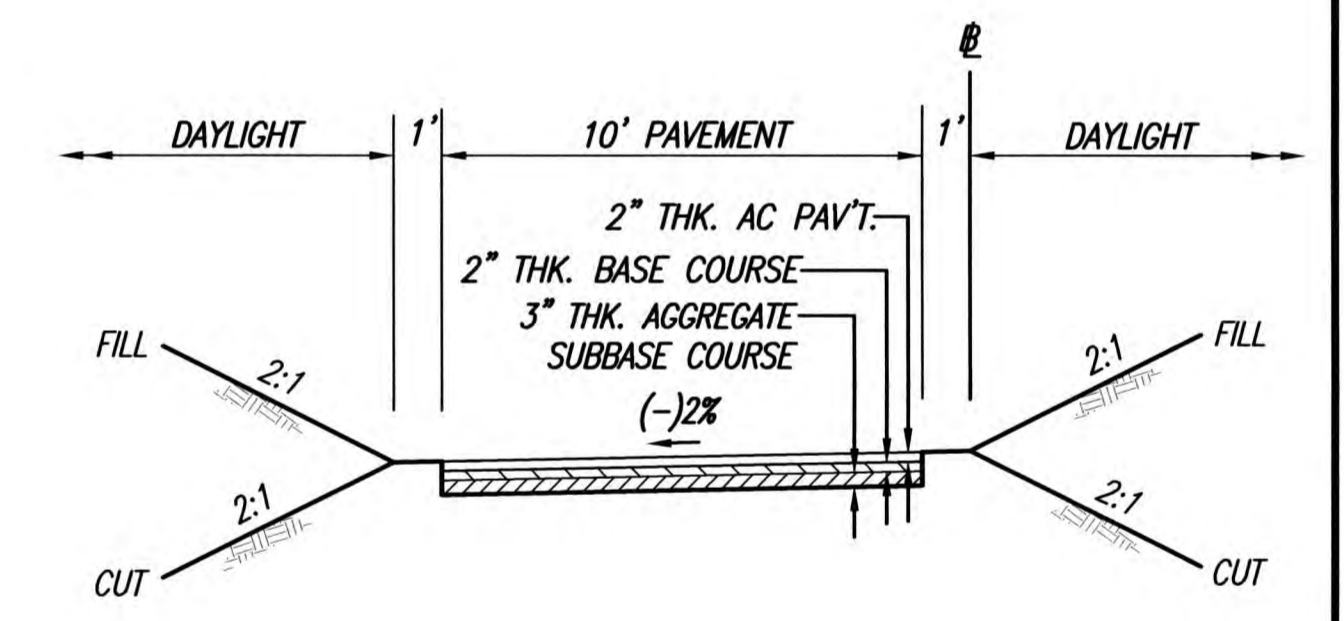
**PROFILE - CULVERT ACCESS ROAD H1A (LOT 202)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD H1B (LOT 217)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

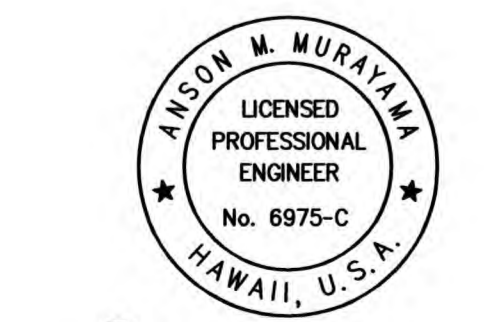
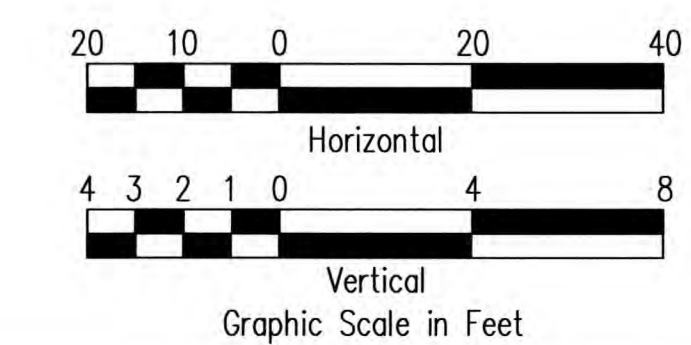


**TYPICAL ACCESS ROAD SECTION 2**

NOT TO SCALE

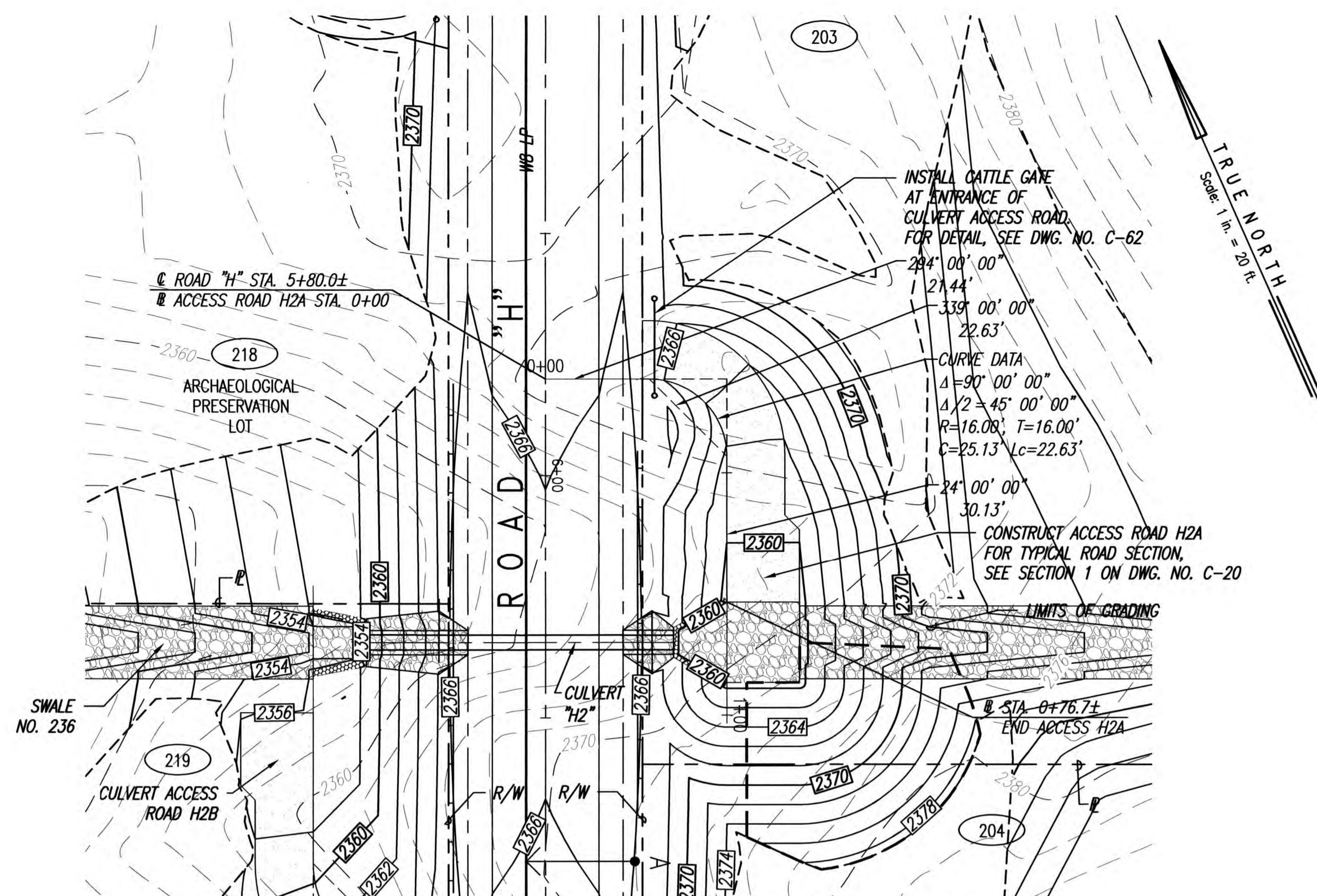
**LEGEND**

- LIMITS OF GRADING
- - - EXISTING GROUND CONTOUR
- FINISH GRADE CONTOUR
- PROPERTY LINE
- GUARDRAIL
- CATTLE GATE
- NEW WATER LINE
- ←○→ TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LOT NUMBER



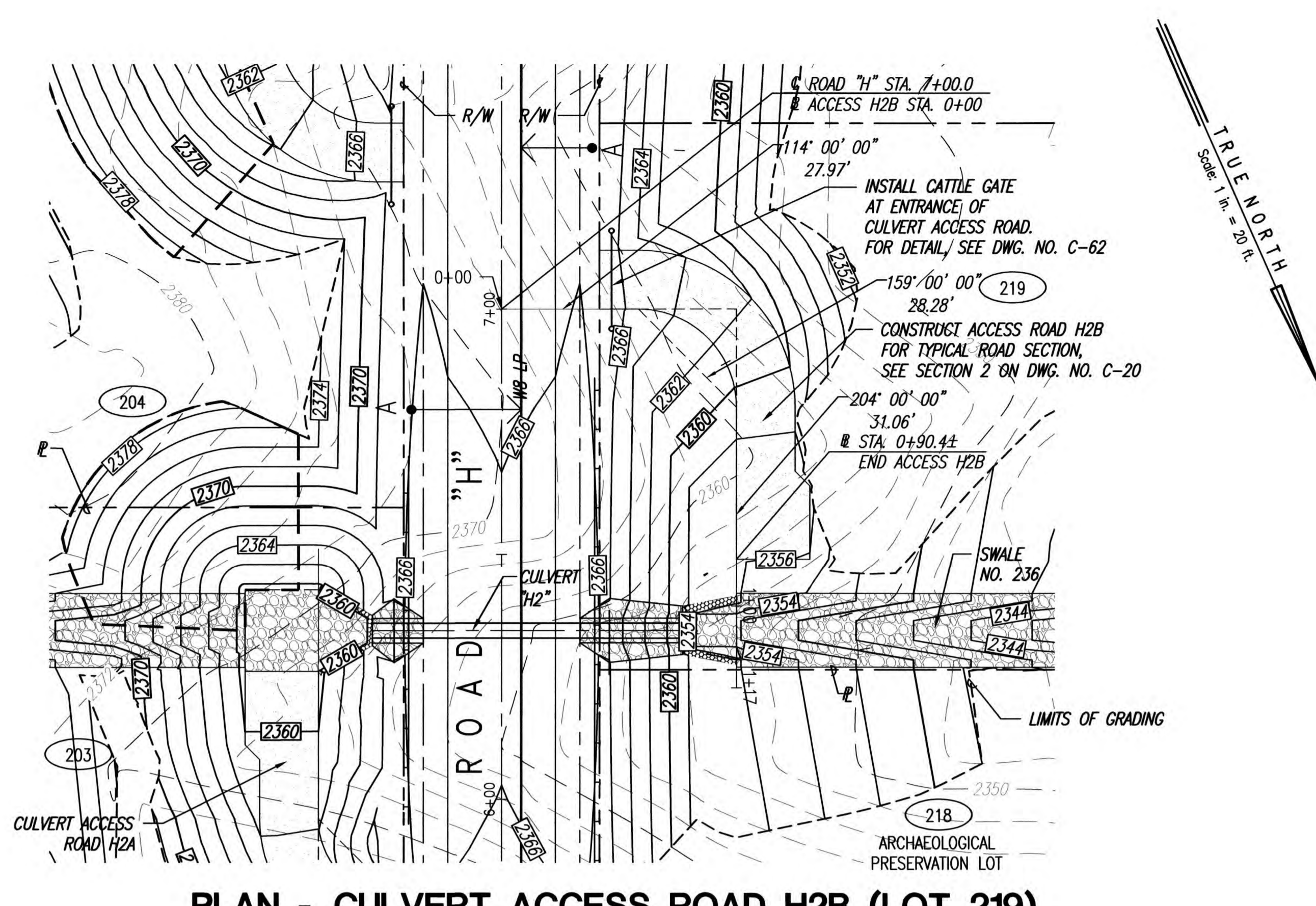
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE CULVERT ACCESS ROAD "H" (A &amp; B)</b></p>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



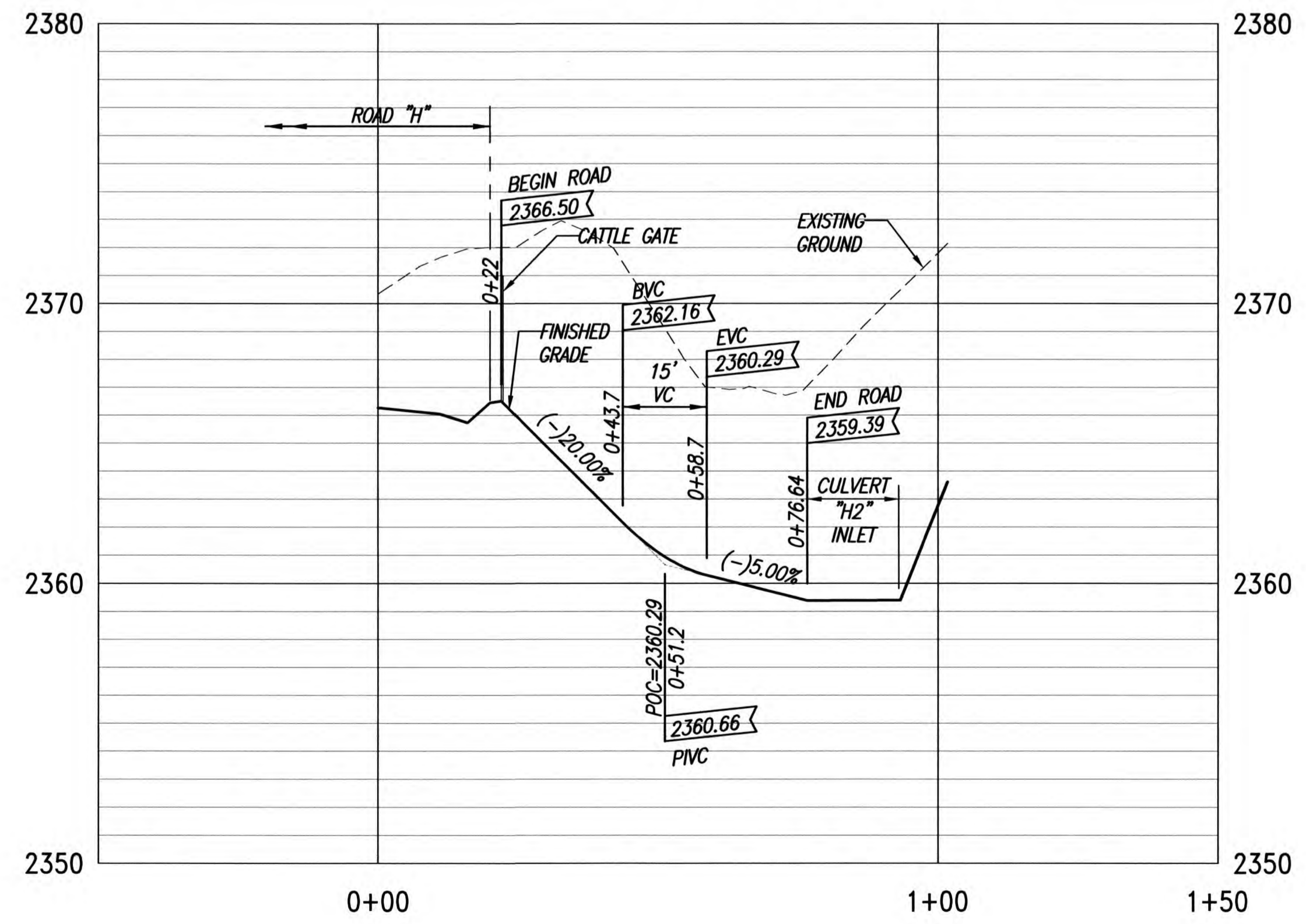
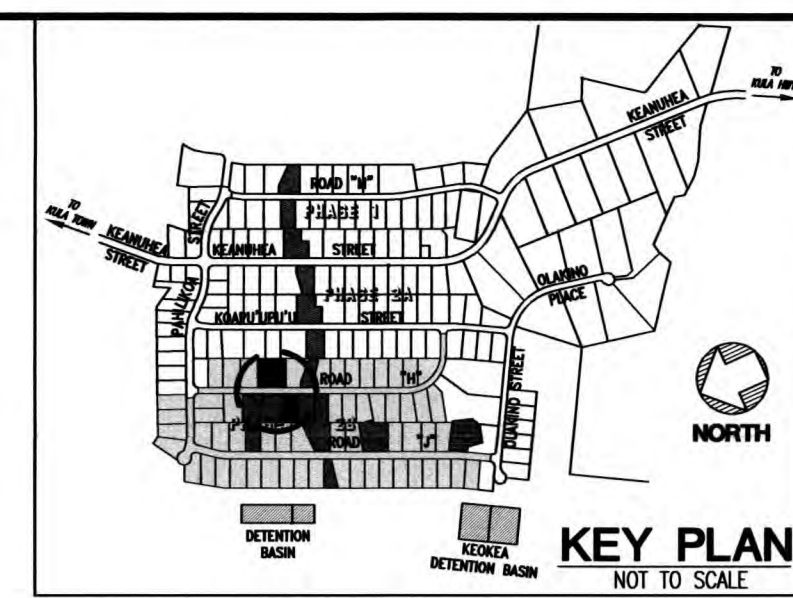
**PLAN - CULVERT ACCESS ROAD H2A (LOT 203)**

SCALE: 1"=20'



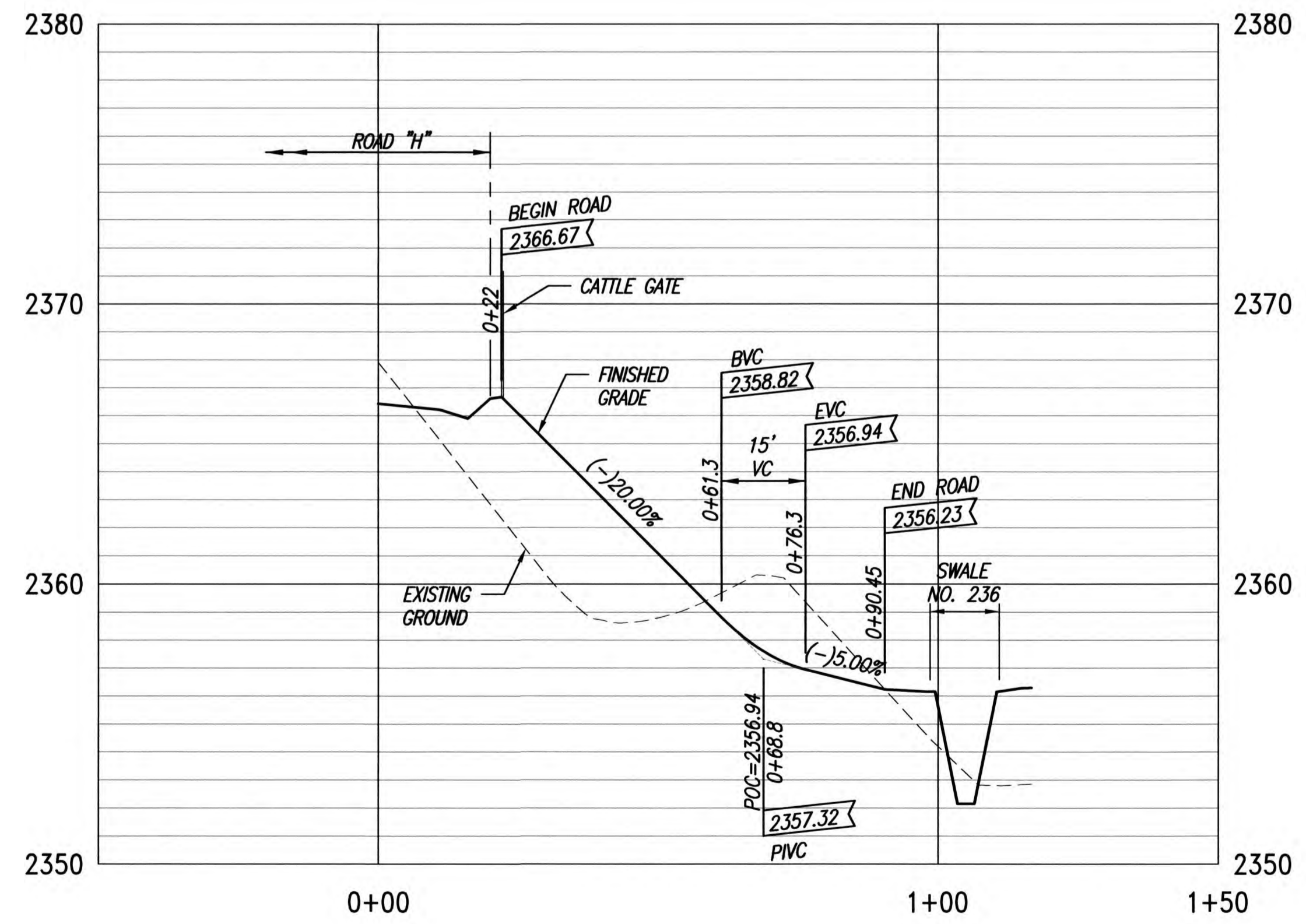
**PLAN - CULVERT ACCESS ROAD H2B (LOT 219)**

SCALE: 1"=20'



**PROFILE - CULVERT ACCESS ROAD H2A (LOT 203)**

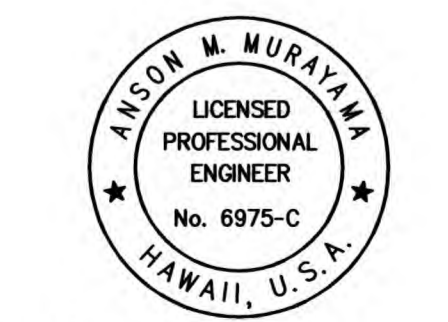
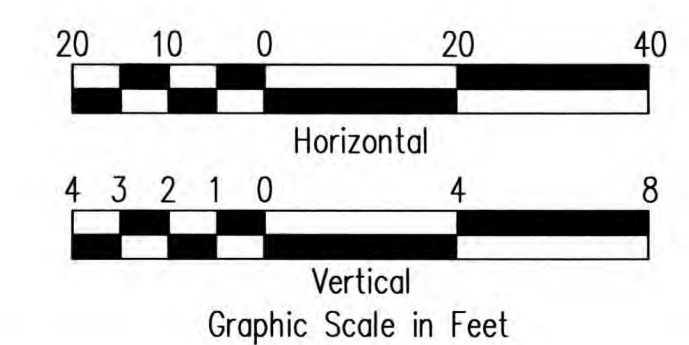
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD H2B (LOT 219)**

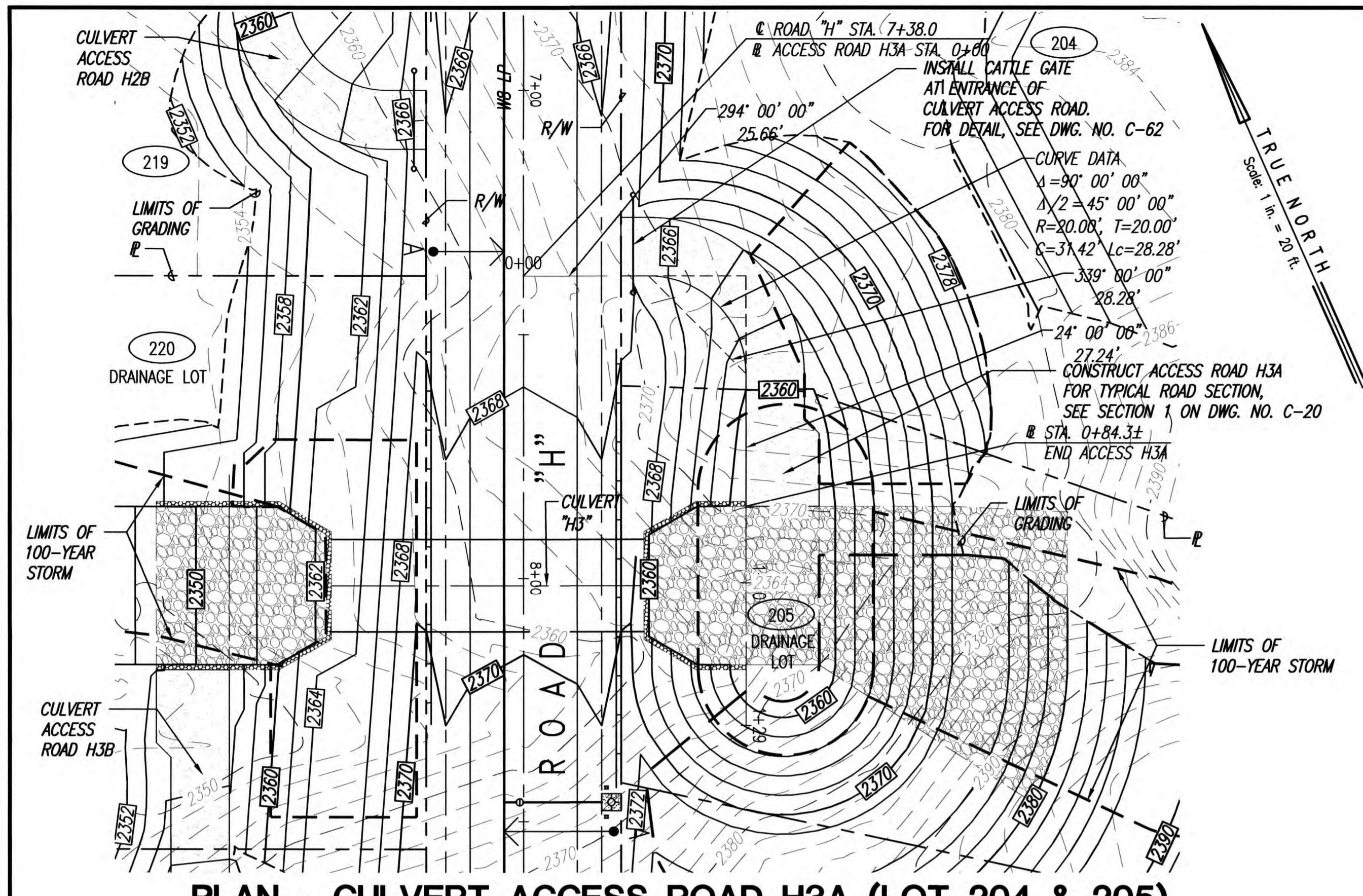
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - 2500 EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - GUARDRAIL
  - CATTLE GATE
  - WB NEW WATER LINE
  - ←--- TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - 216 LOT NUMBER



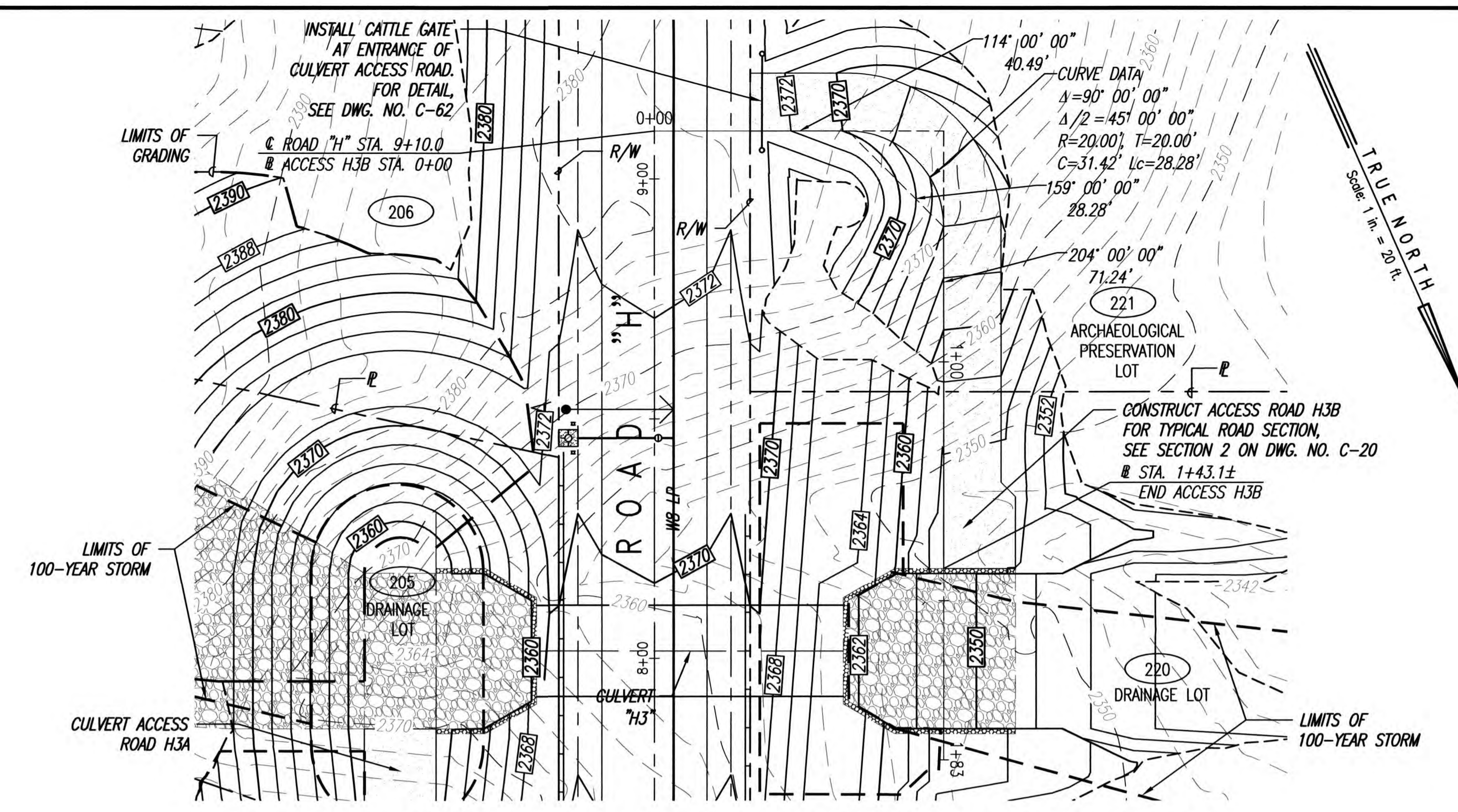
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b>          Engineering Design   Construction Management   Infrastructure Planning          1288 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b>          KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI          OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS          TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE CULVERT ACCESS ROAD "H2" (A &amp; B)</b></p>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	
FILE	PROJECT	FOLDER	NO.



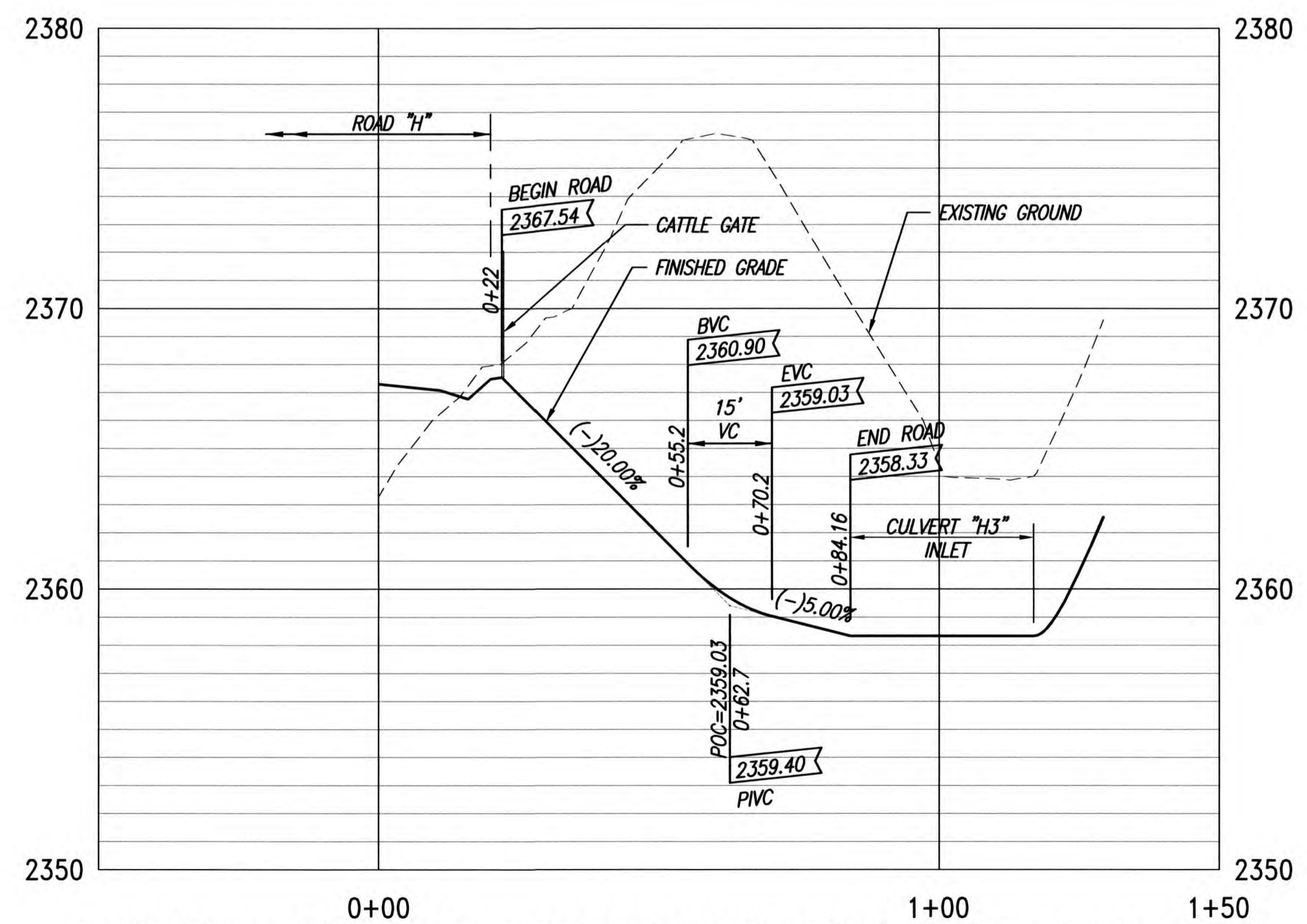
**PLAN - CULVERT ACCESS ROAD H3A (LOT 204 & 205)**

SCALE: 1"=20'



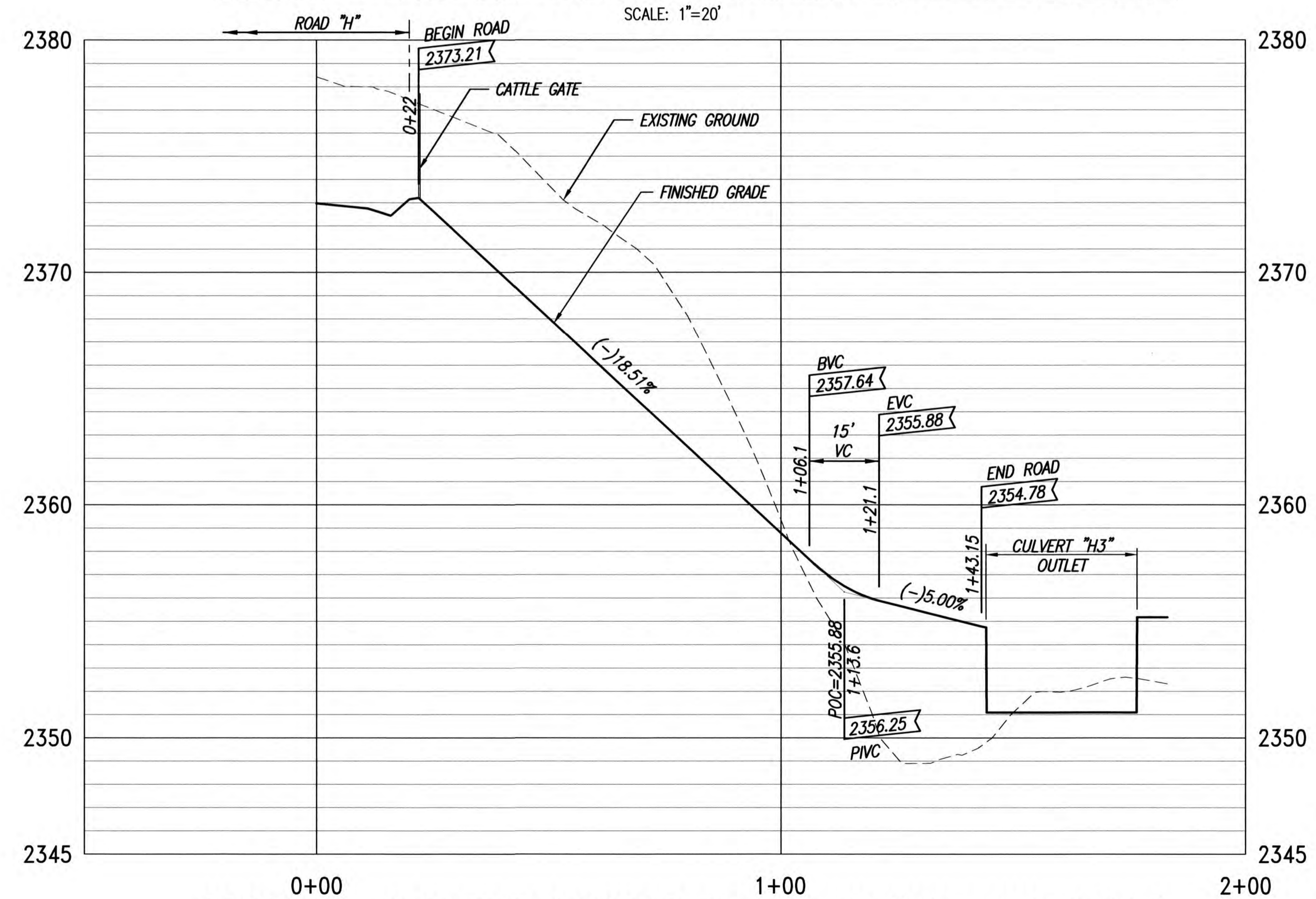
**PLAN - CULVERT ACCESS ROAD H3B (LOT 220 & 221)**

SCALE: 1"=20'



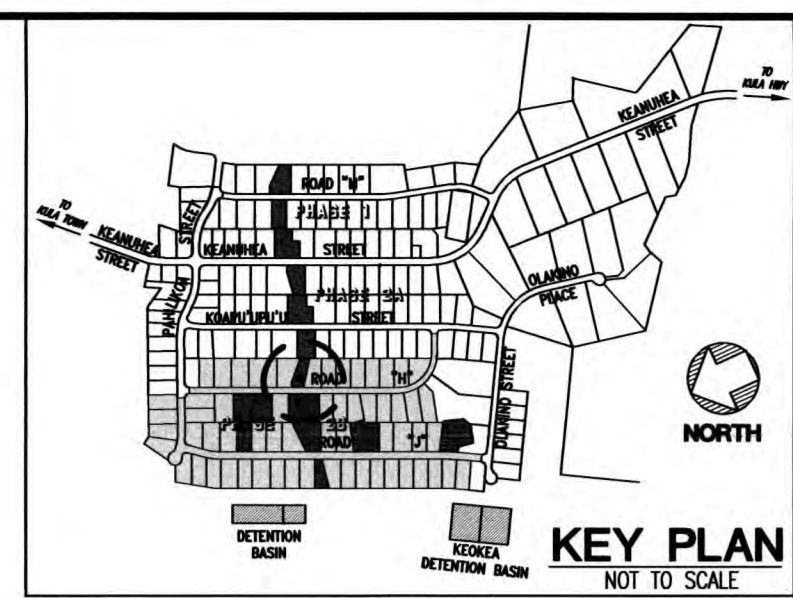
**PROFILE - CULVERT ACCESS ROAD H3A (LOT 204 & 205)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

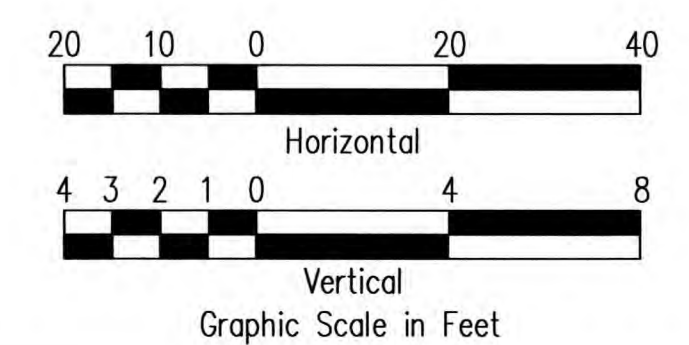


**PROFILE - CULVERT ACCESS ROAD H3B (LOT 220 & 221)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - EXISTING GROUND CONTOUR
  - PROPERTY LINE
  - - - - - LIMITS OF 100-YEAR STORM
  - - - - - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

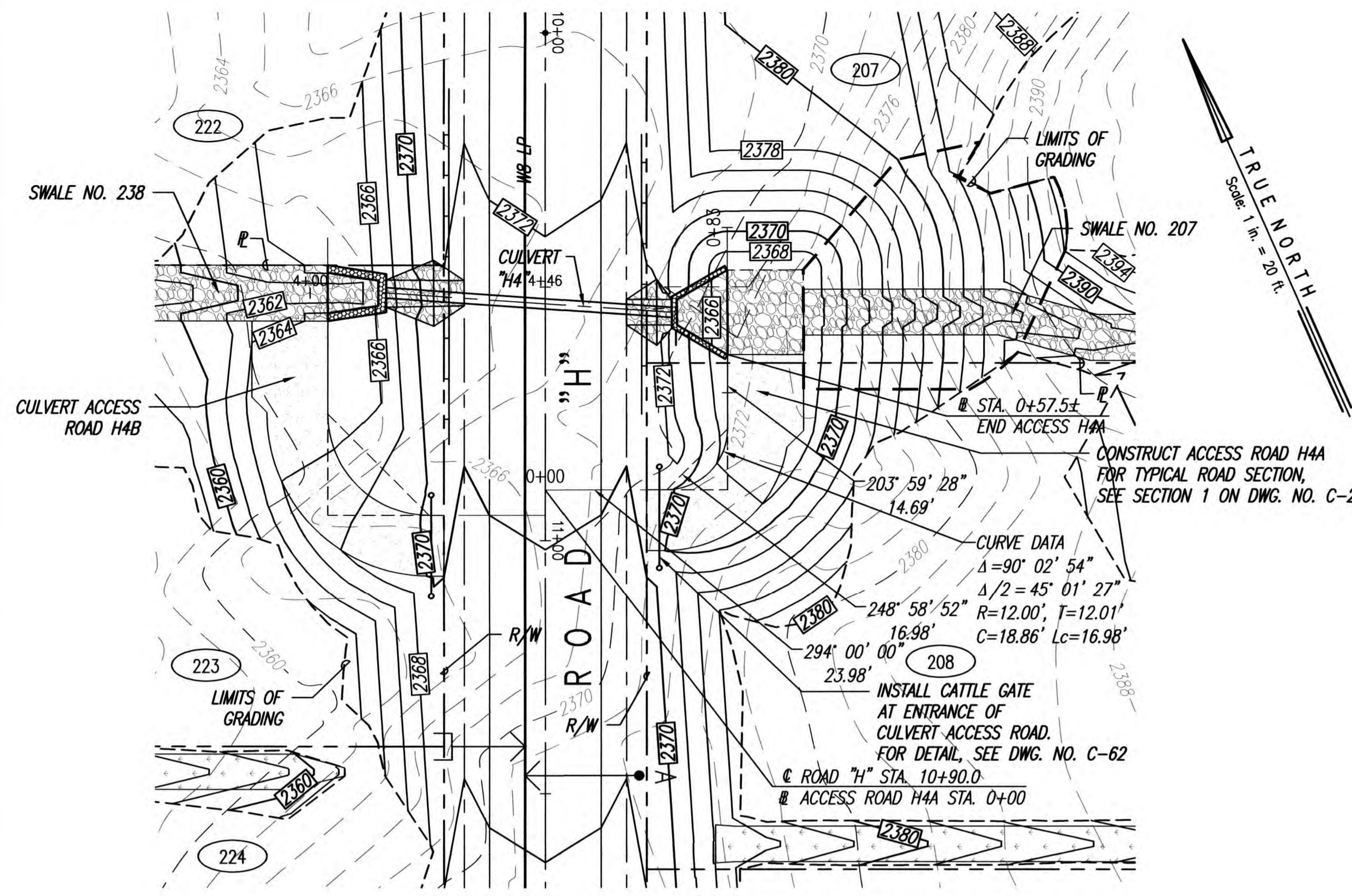
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor, Honolulu, Hawaii

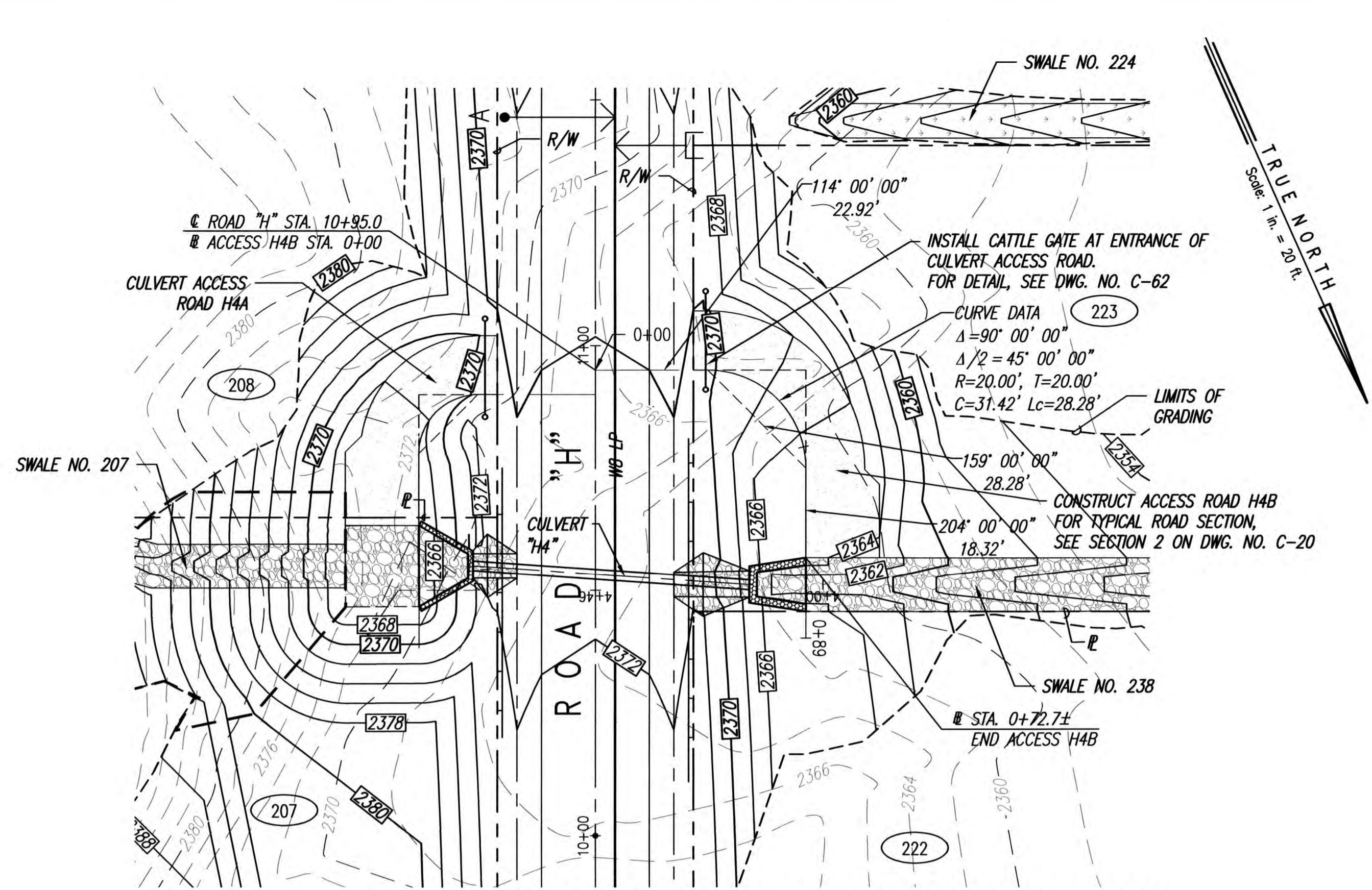
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE CULVERT ACCESS ROAD "H3" (A & B)**

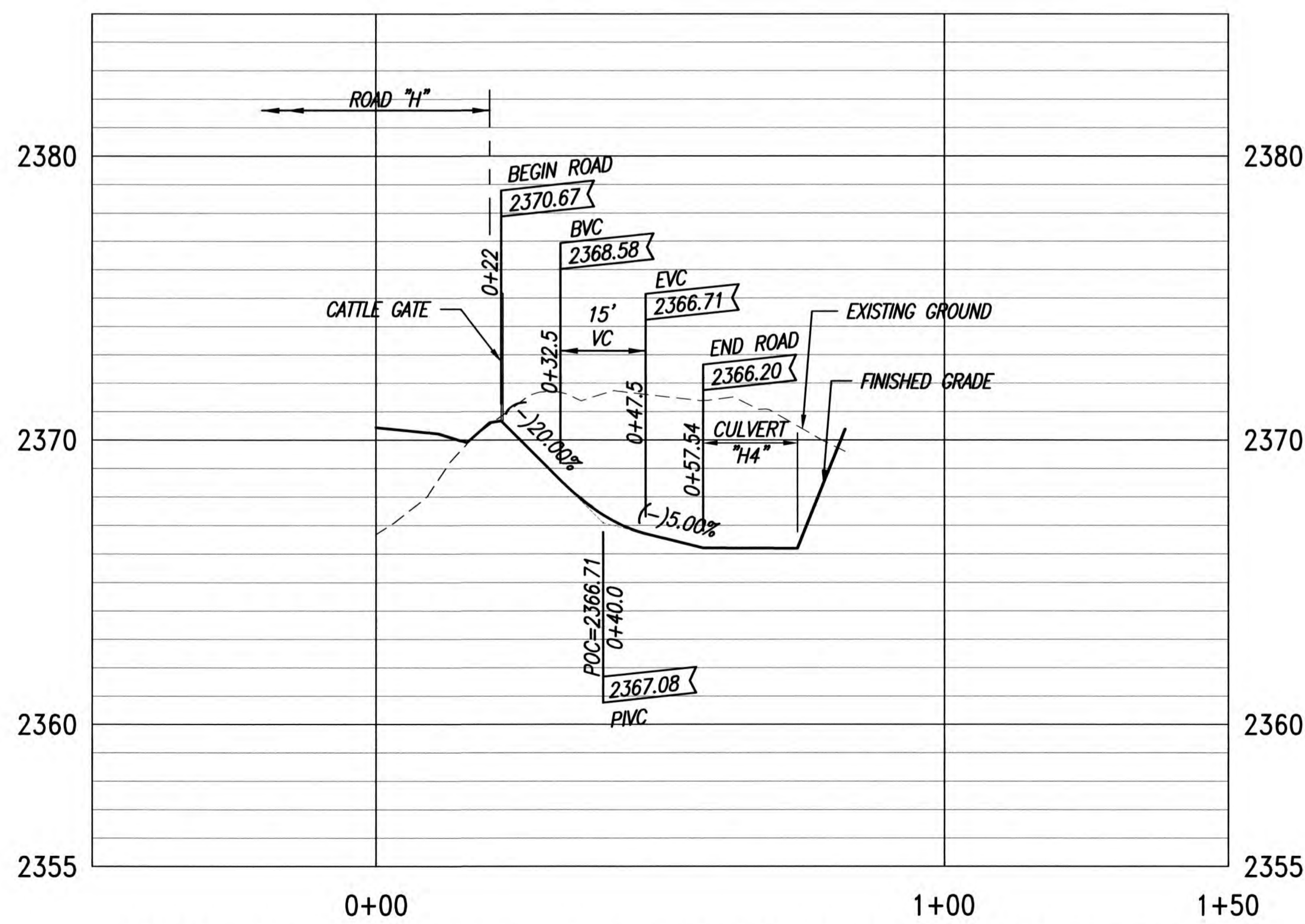
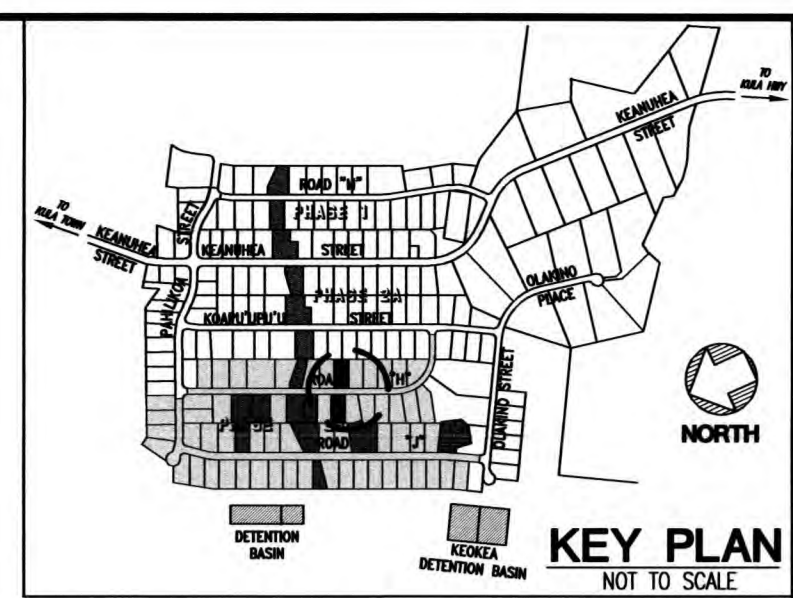
DRAWN BY: JSO    ENGINEER: JSO, FJC    CHECKED BY: AMM



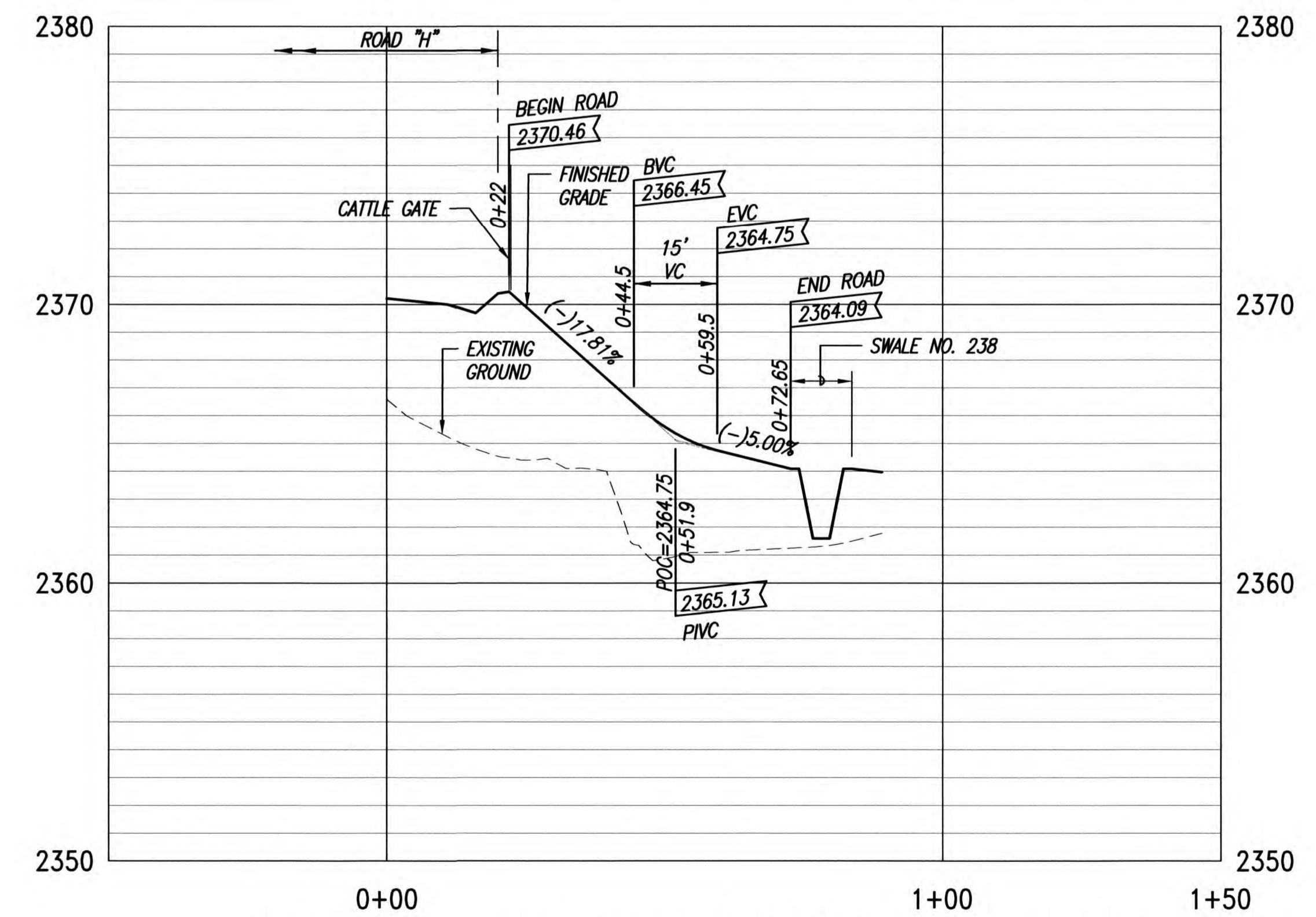
**PLAN - CULVERT ACCESS ROAD H4A (LOT 208)**  
SCALE: 1"=20'



**PLAN - CULVERT ACCESS ROAD H4B (LOT 223)**  
SCALE: 1"=20'

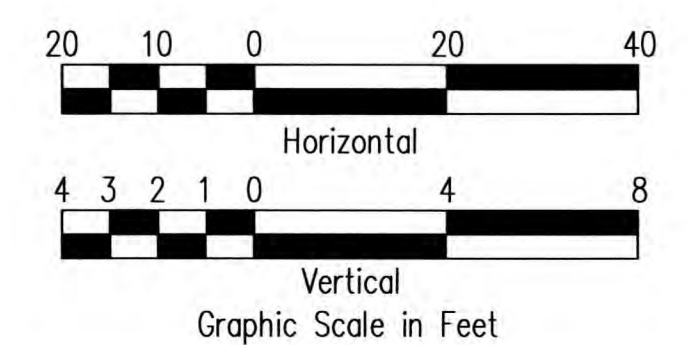


**PROFILE - CULVERT ACCESS ROAD H4A (LOT 208)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD H4B (LOT 223)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - [2450] — FINISH GRADE CONTOUR
  - — — — — PROPERTY LINE
  - + + + — GUARDRAIL
  - — ○ CATTLE GATE
  - WB — NEW WATER LINE
  - ◁ — ▷ TYPE "A" SERVICE LATERAL
  - ▷ — TYPE "A-1" SERVICE LATERAL
  - 216 ○ LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

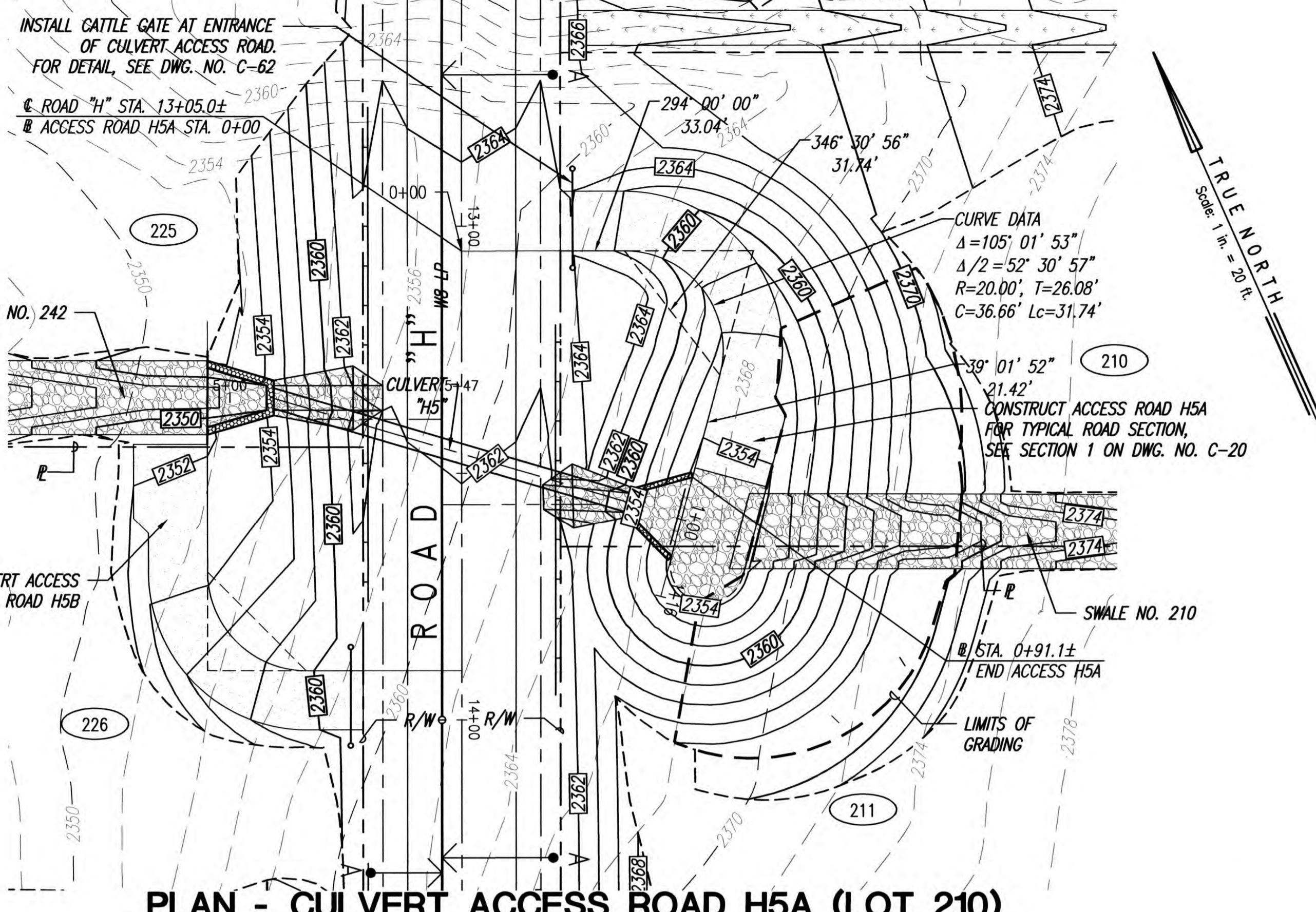
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE CULVERT ACCESS ROAD "H4" (A & B)**

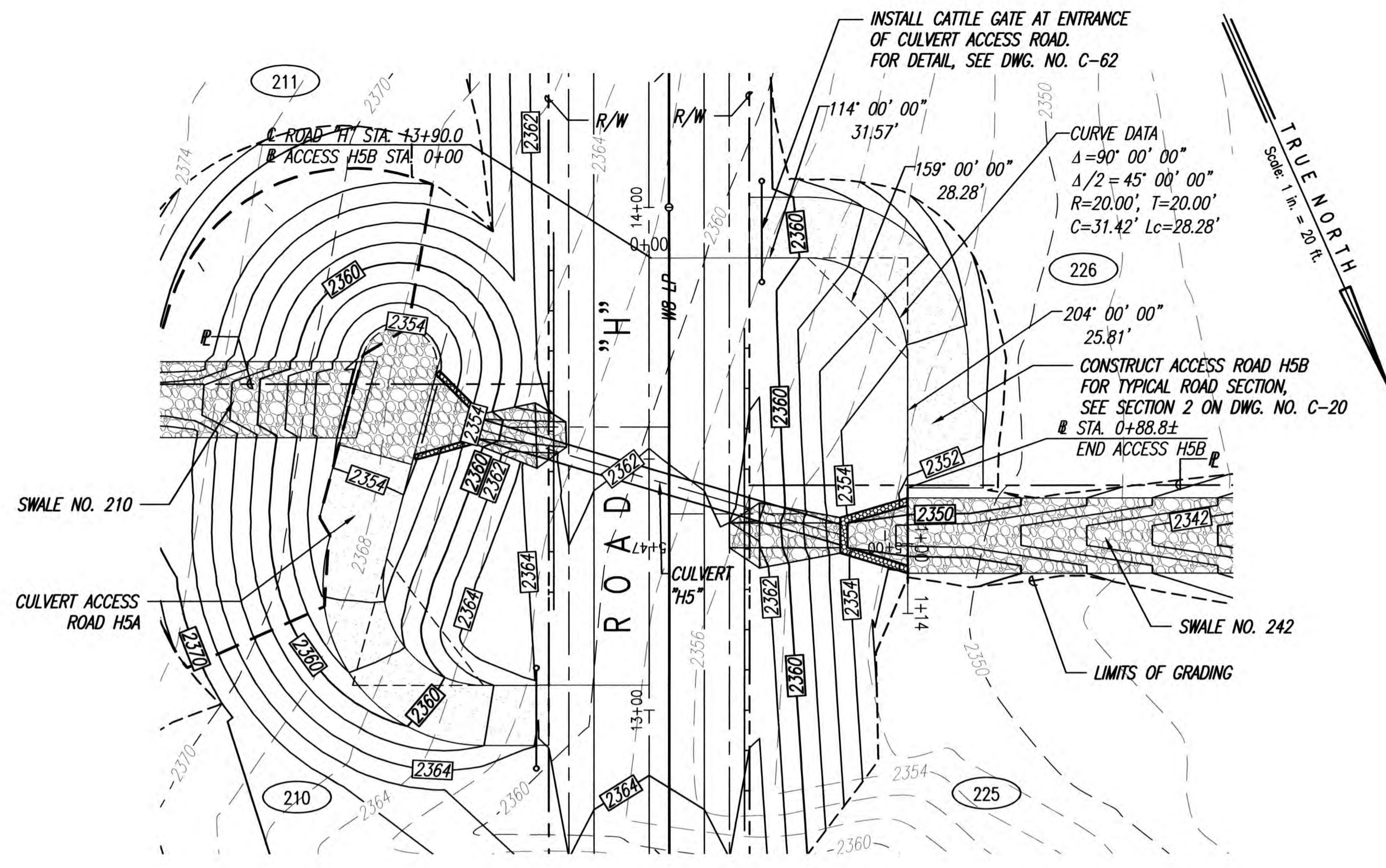
DRAWN BY: JSO    ENGINEER: JSO, FJC    CHECKED BY: AMM





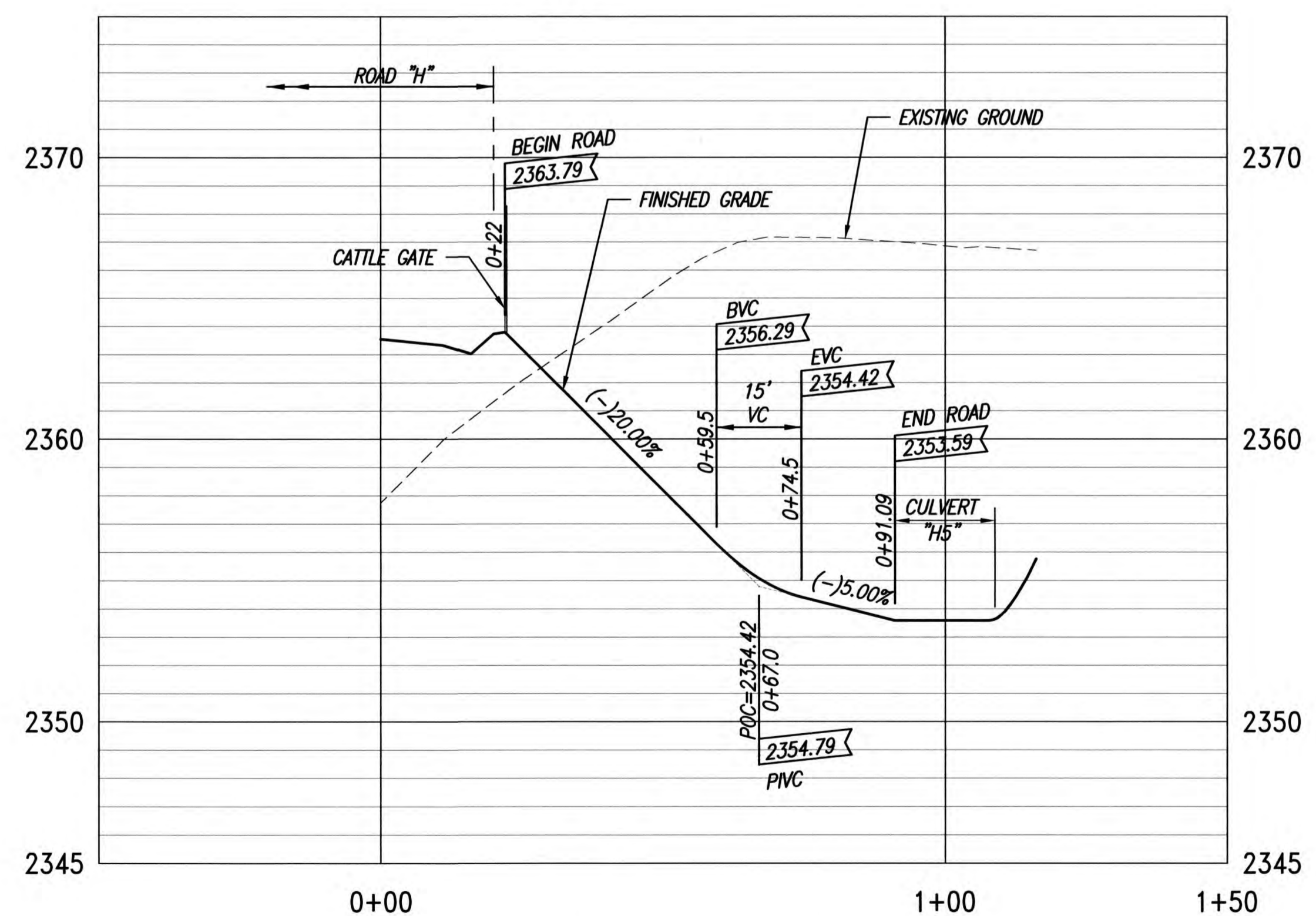
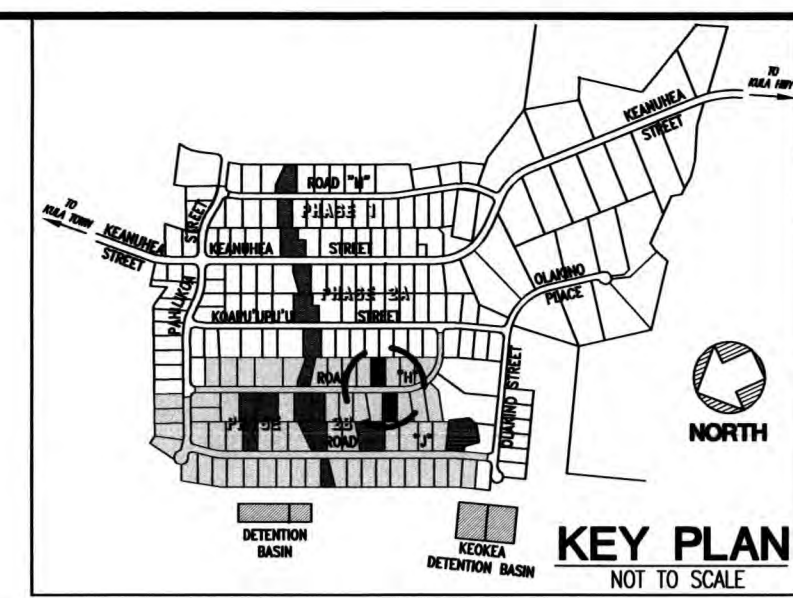
**PLAN - CULVERT ACCESS ROAD H5A (LOT 210)**

SCALE: 1"=20'



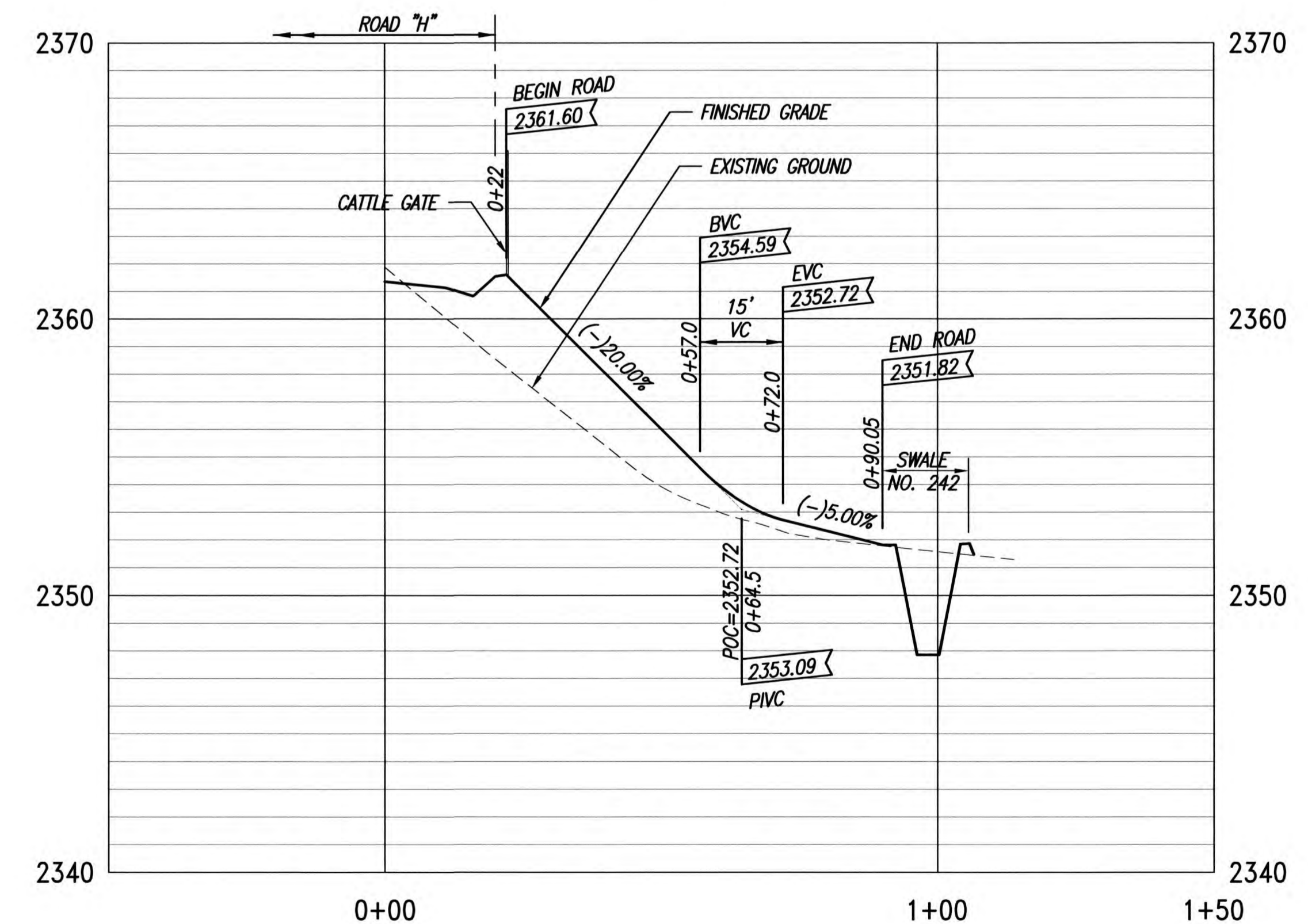
**PLAN - CULVERT ACCESS ROAD H5B (LOT 226)**

SCALE: 1"=20'



**PROFILE - CULVERT ACCESS ROAD H5A (LOT 210)**

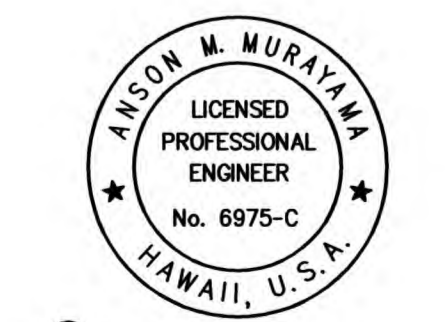
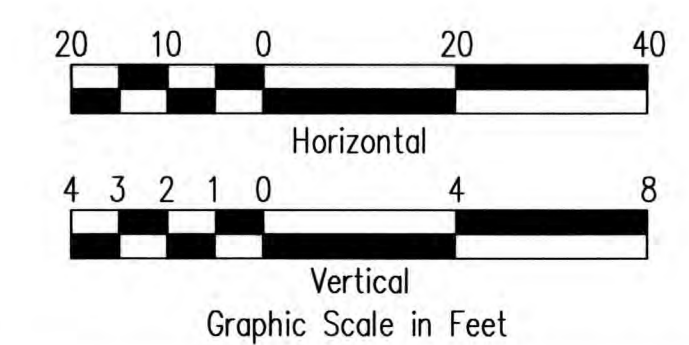
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD H5B (LOT 226)**

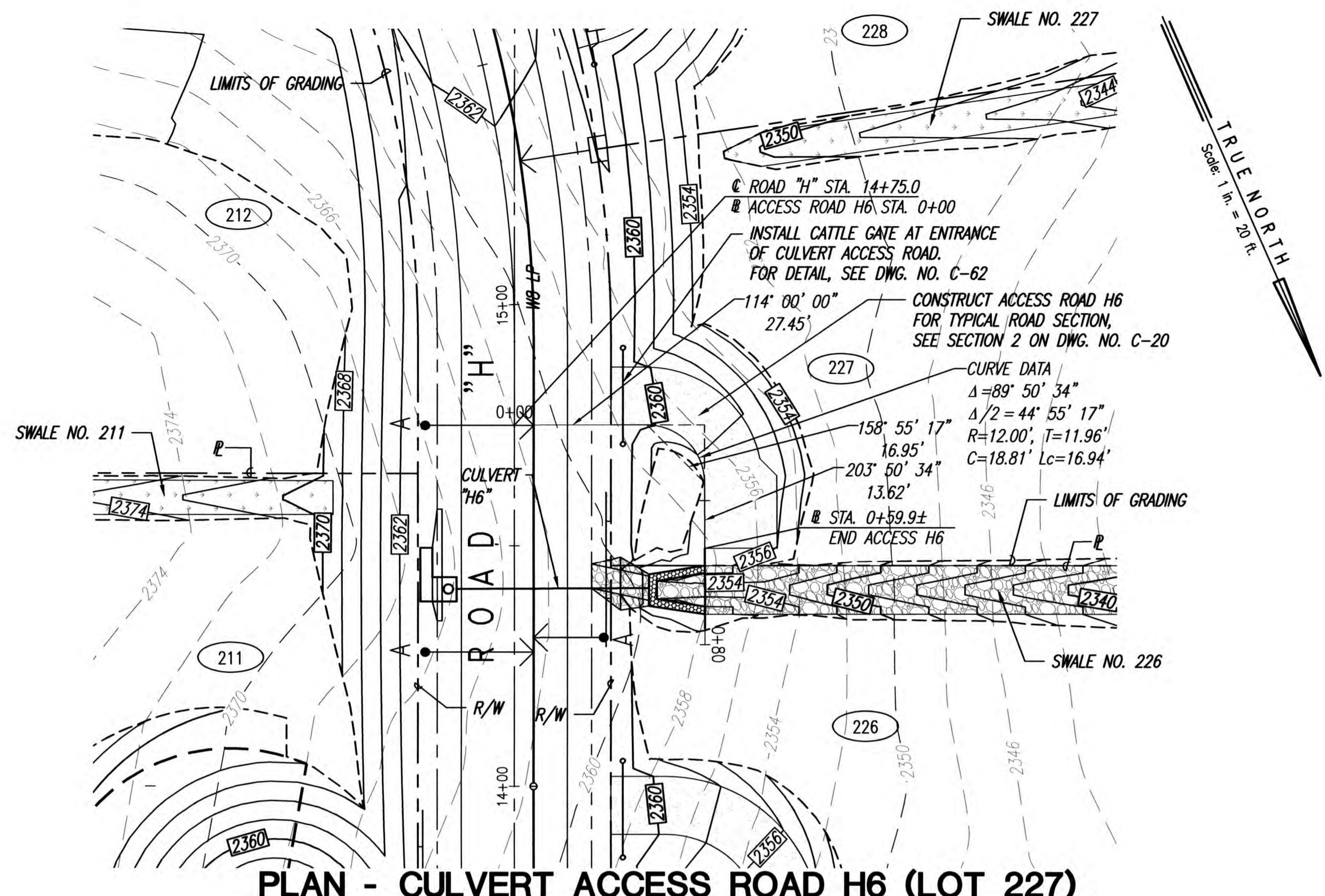
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - 2350 — FINISH GRADE CONTOUR
  - PROPERTY LINE
  - - - - - GUARDRAIL
  - CATTLE GATE
  - WB — NEW WATER LINE
  - ← ○ → TYPE "A" SERVICE LATERAL
  - ○ — TYPE "A-1" SERVICE LATERAL
  - 216 ○ LOT NUMBER

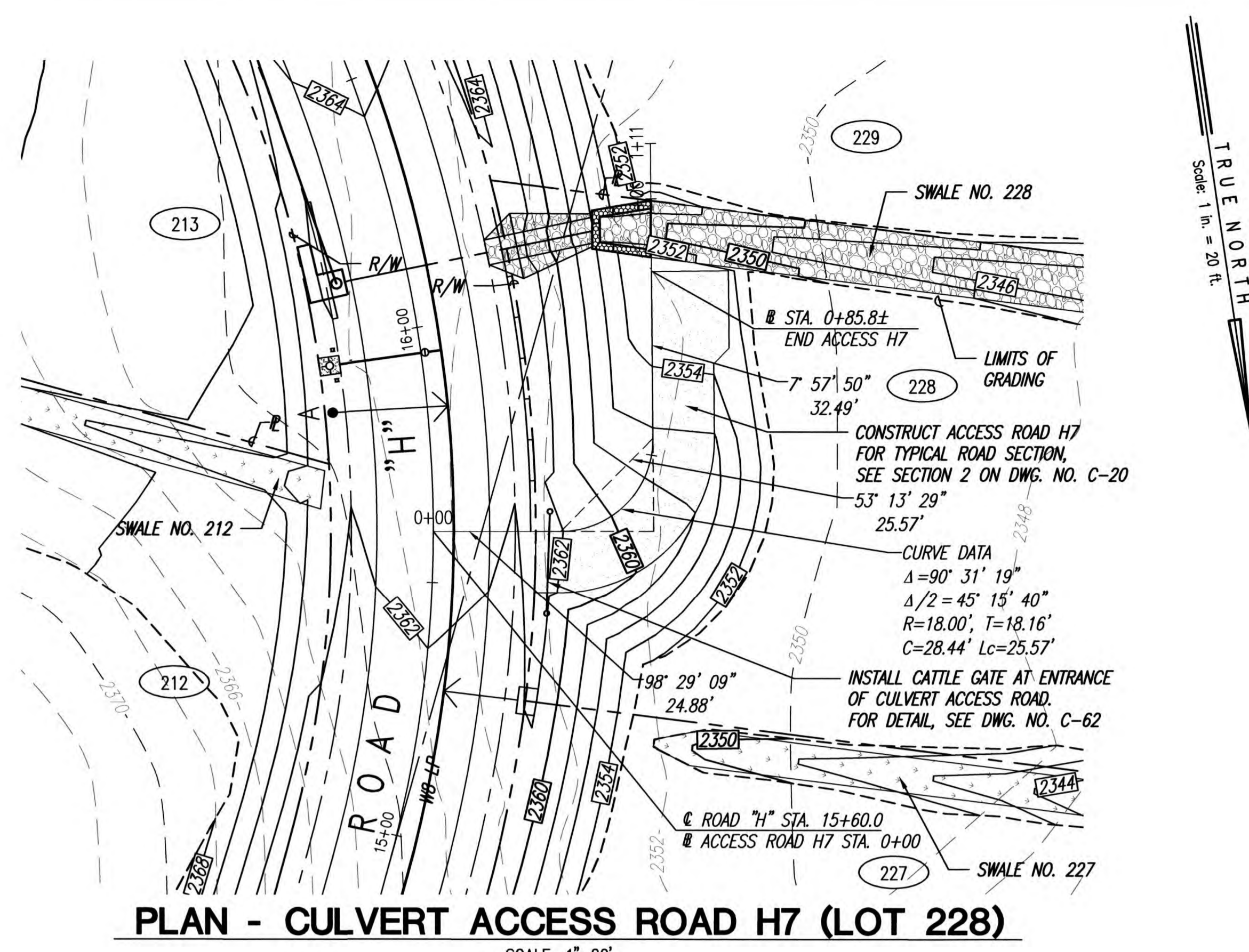


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

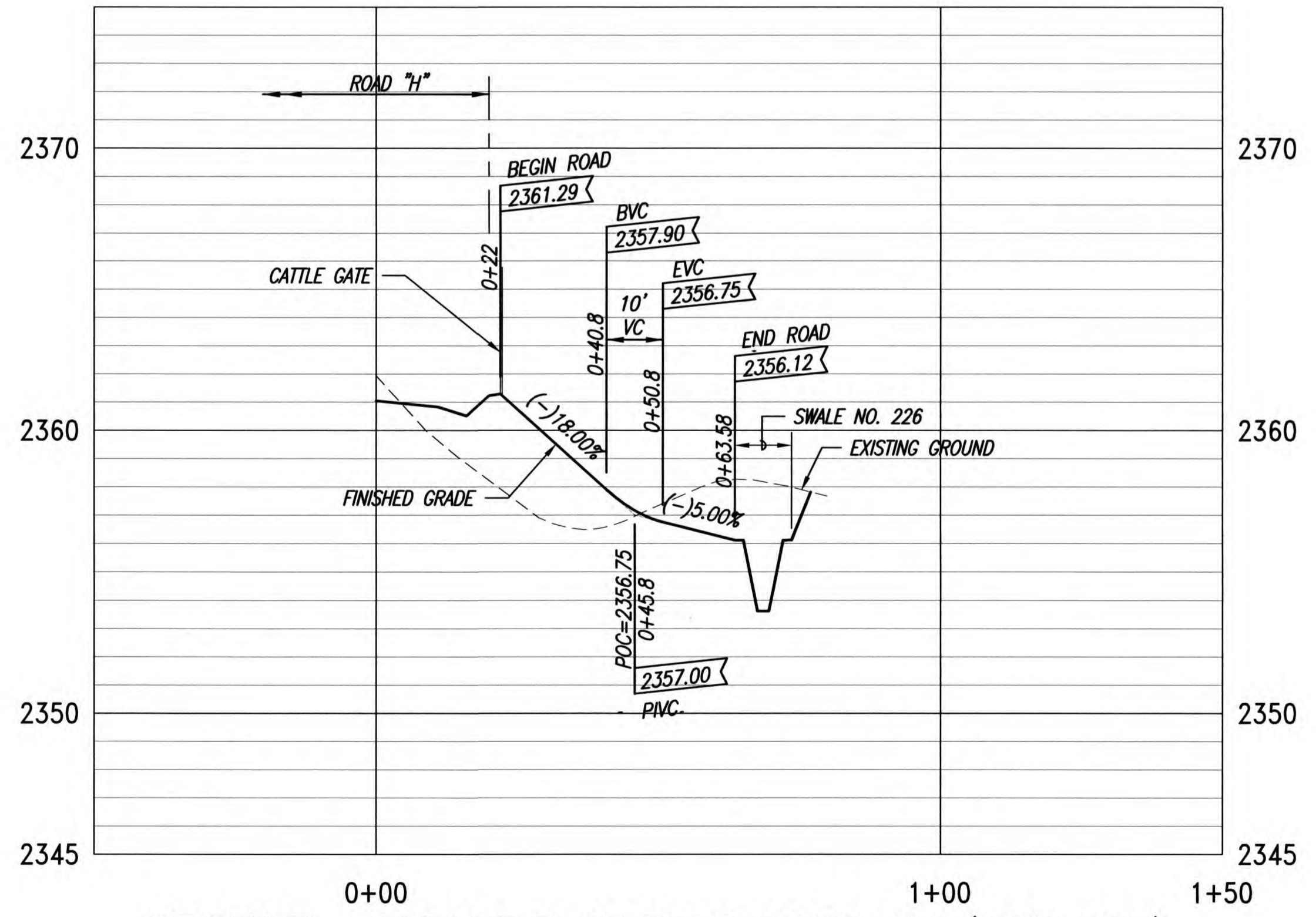
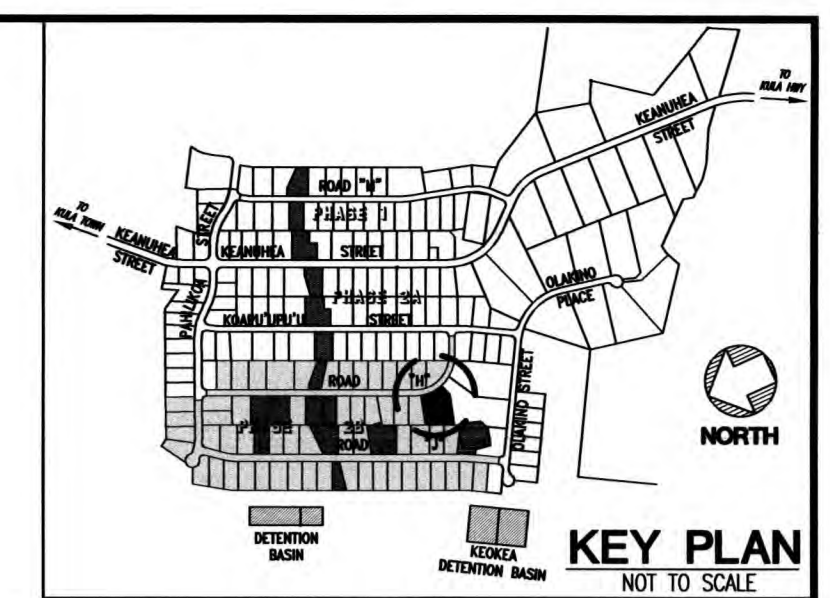
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN AND PROFILE CULVERT ACCESS ROAD "H5" (A &amp; B)</b>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



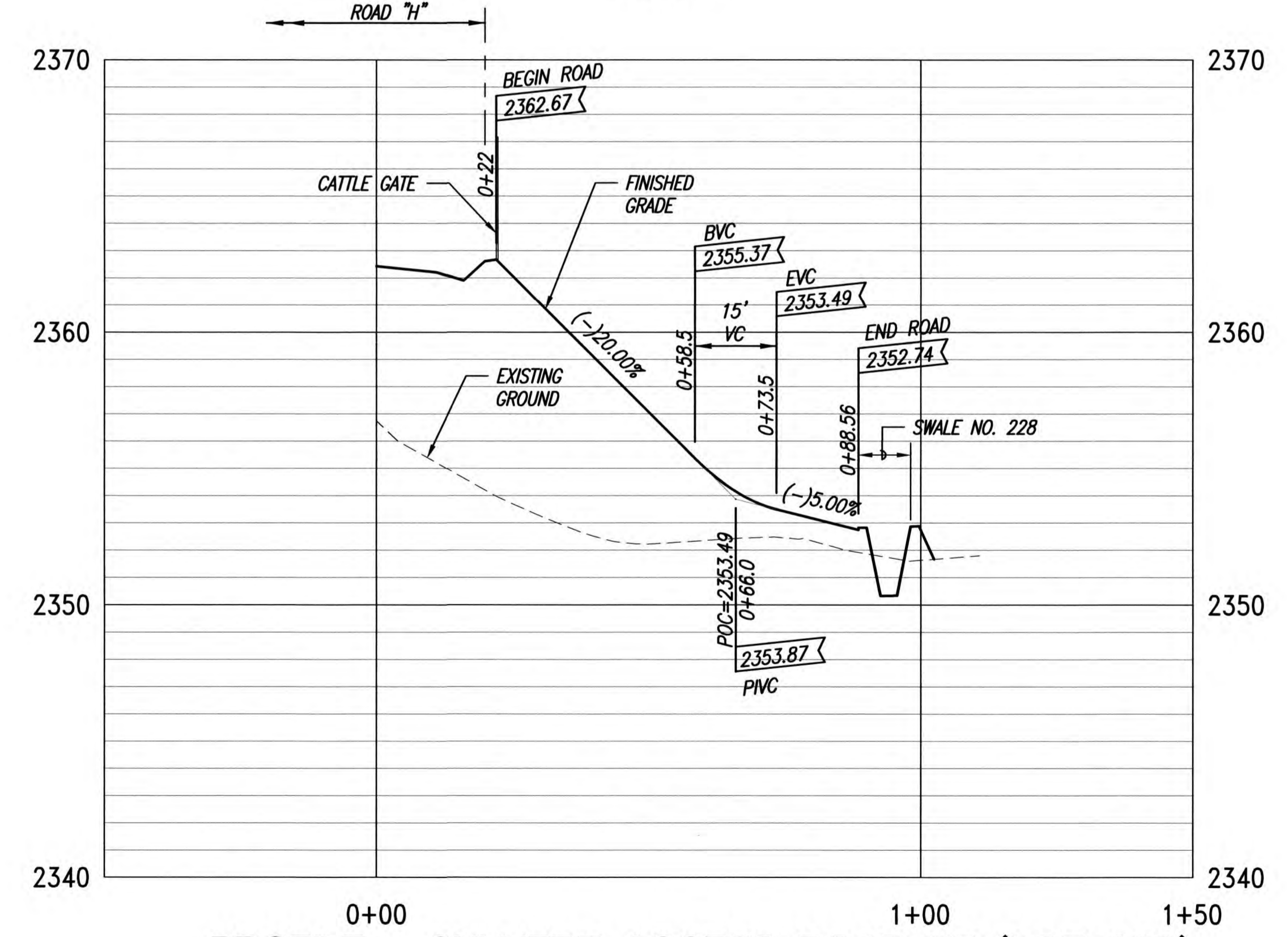
**PLAN - CULVERT ACCESS ROAD H6 (LOT 227)**  
SCALE: 1"=20'



**PLAN - CULVERT ACCESS ROAD H7 (LOT 228)**  
SCALE: 1"=20'

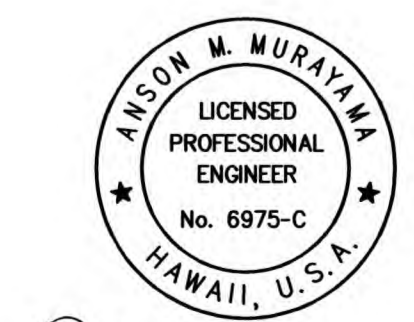
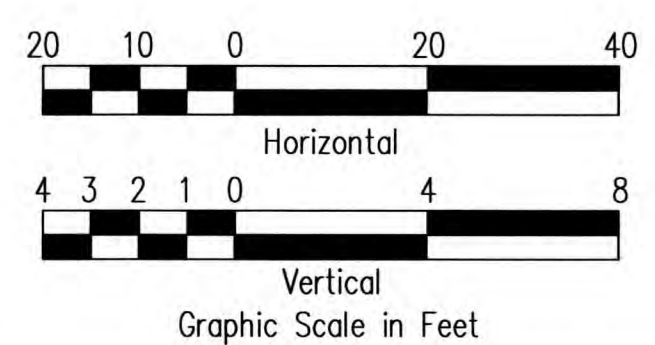


**PROFILE - CULVERT ACCESS ROAD H6 (LOT 227)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD H7 (LOT 228)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - 2500 EXISTING GROUND CONTOUR
  - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - ←○→ TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

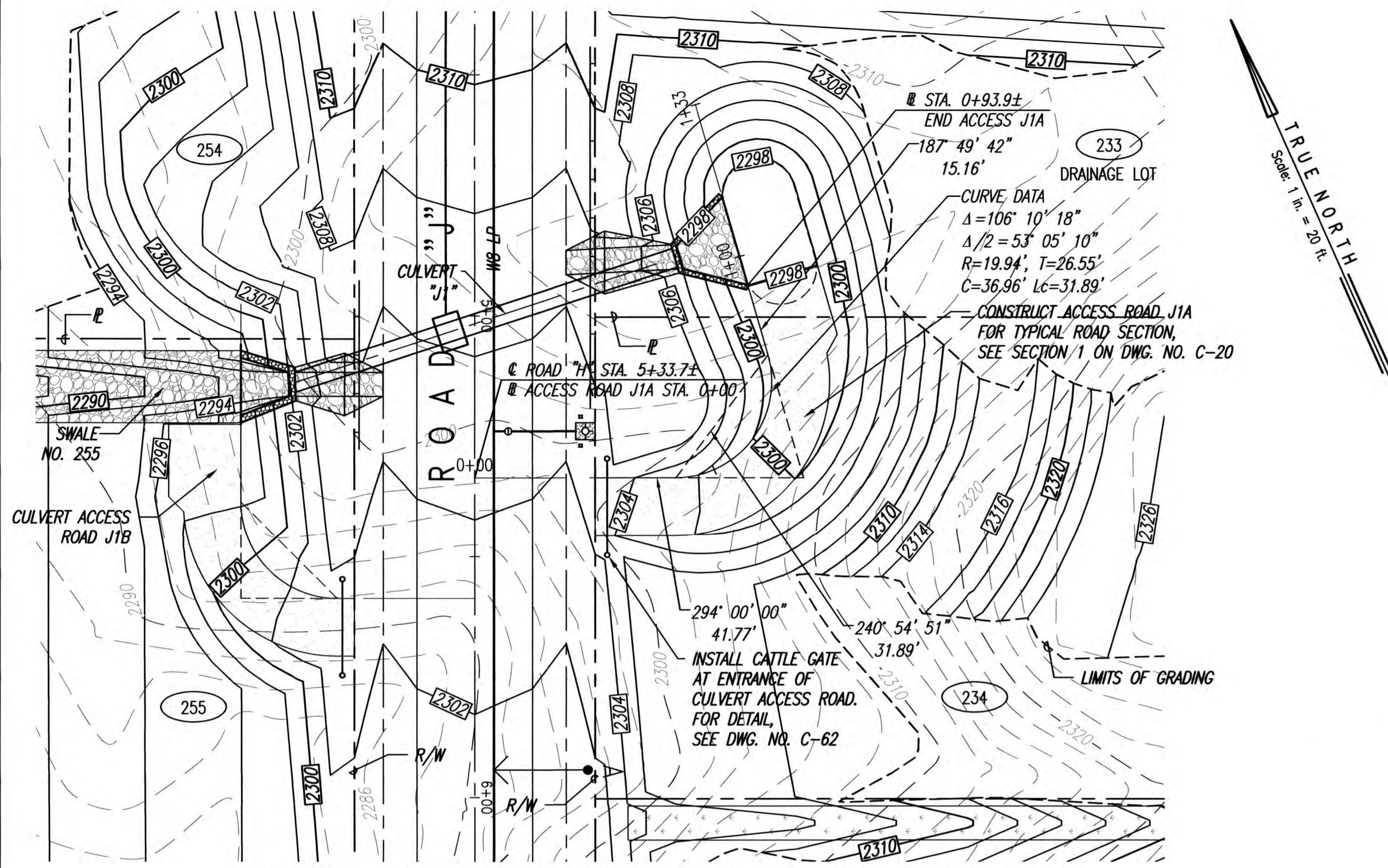
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE ACCESS ROAD CULVERTS "H6" & "H7"**

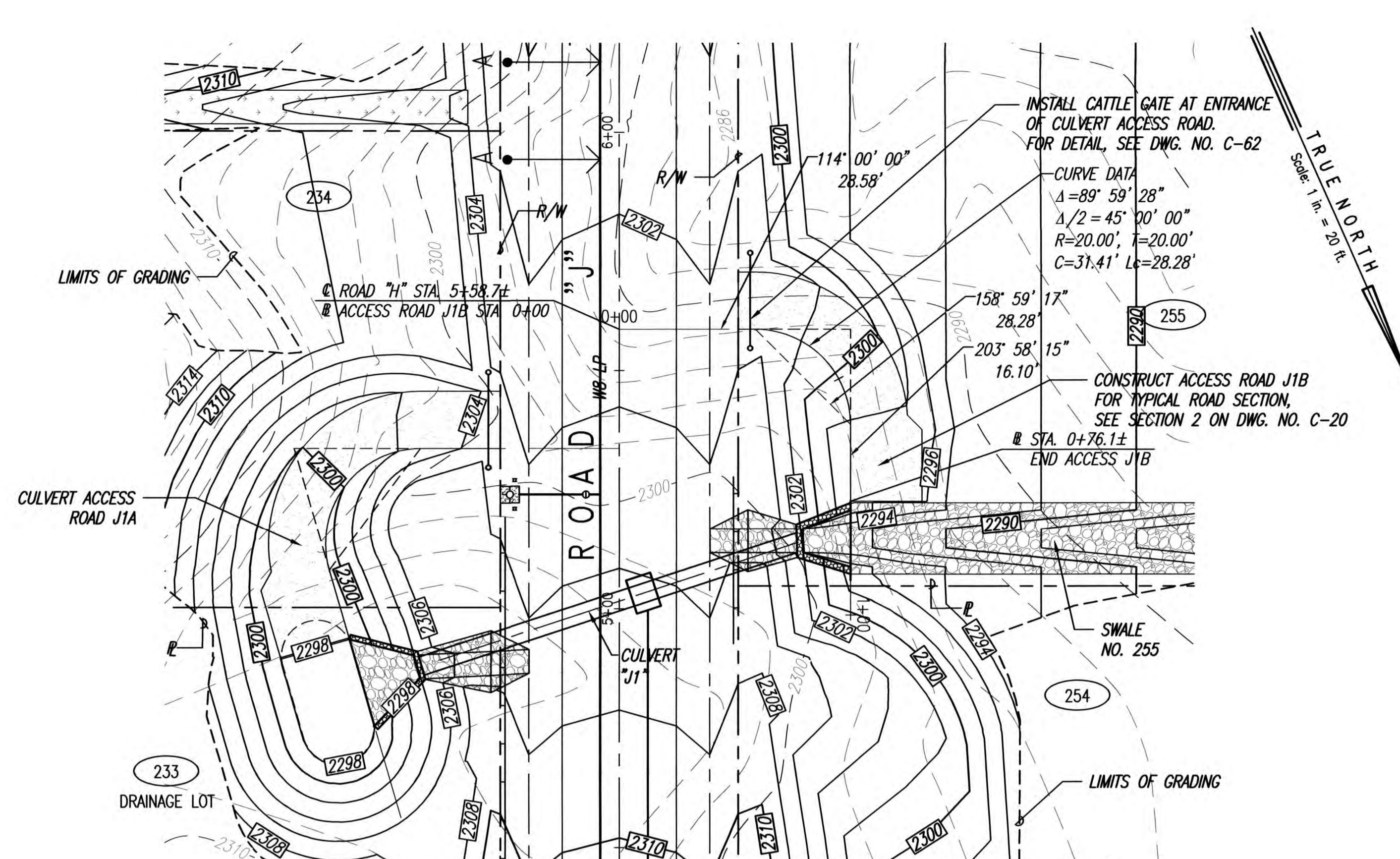
DRAWN BY: JSO ENGINEER: JSO, FJC CHECKED BY: AMM

FILE	PROJECT	FOLDER	NO.



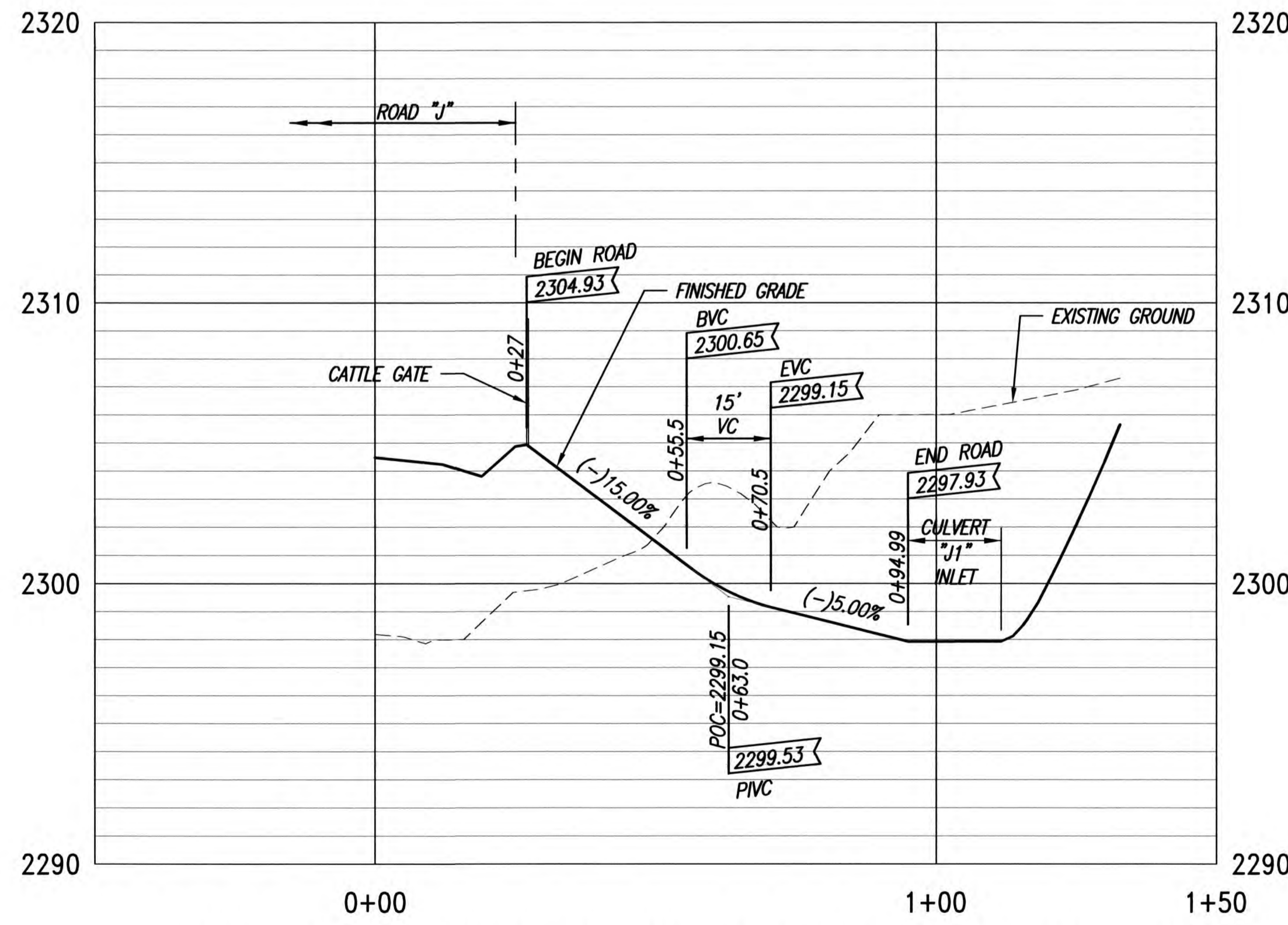
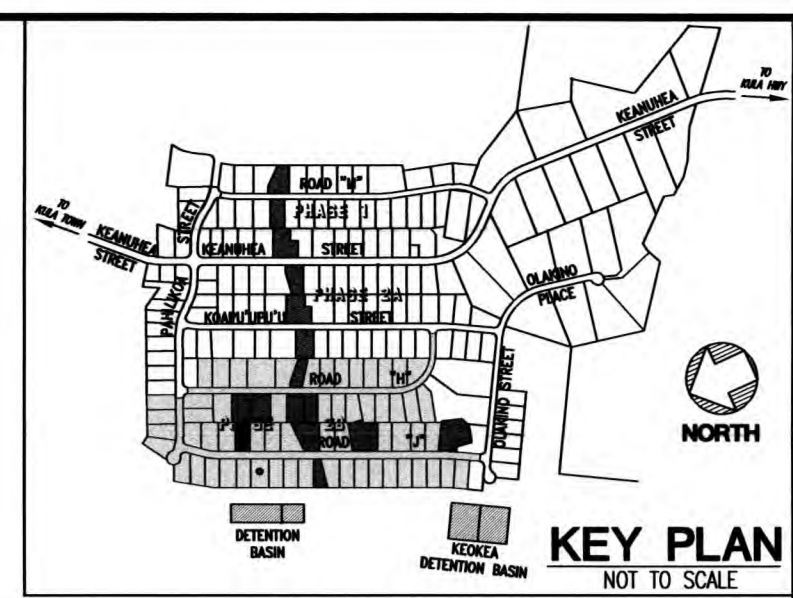
**PLAN - CULVERT ACCESS ROAD J1A (LOT 234)**

SCALE: 1"=20'



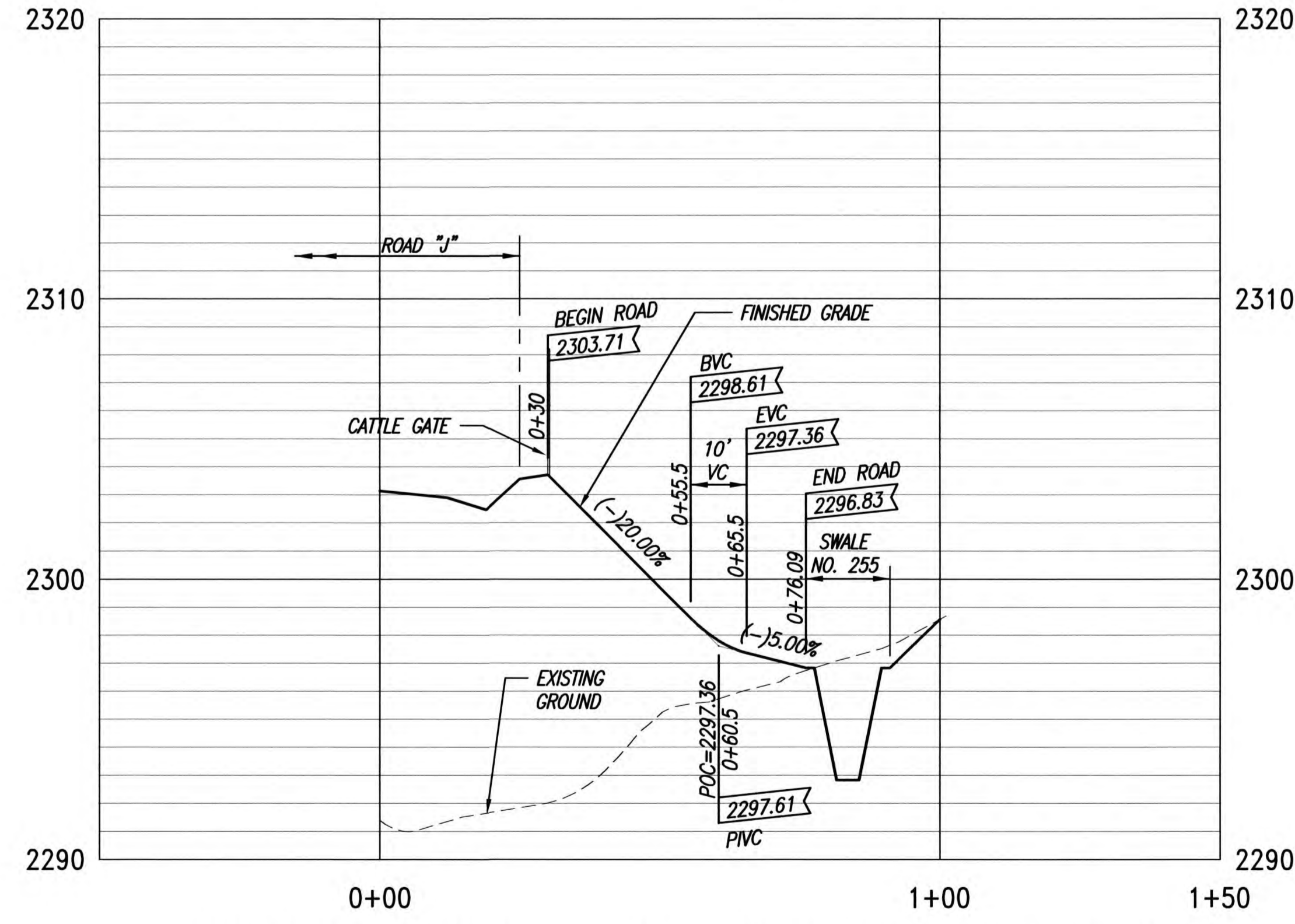
**PLAN - CULVERT ACCESS ROAD J1B (LOT 255)**

SCALE: 1"=20'



**PROFILE - CULVERT ACCESS ROAD J1A (LOT 234)**

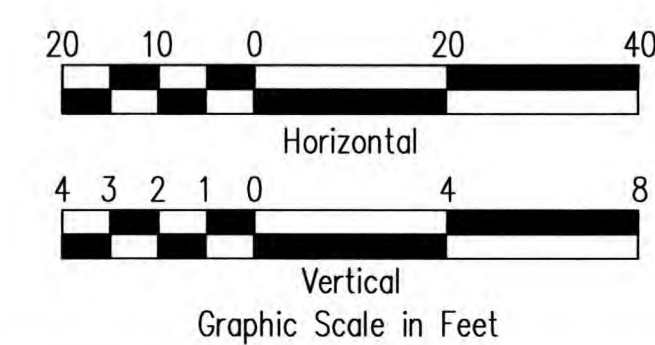
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD J1B (LOT 255)**

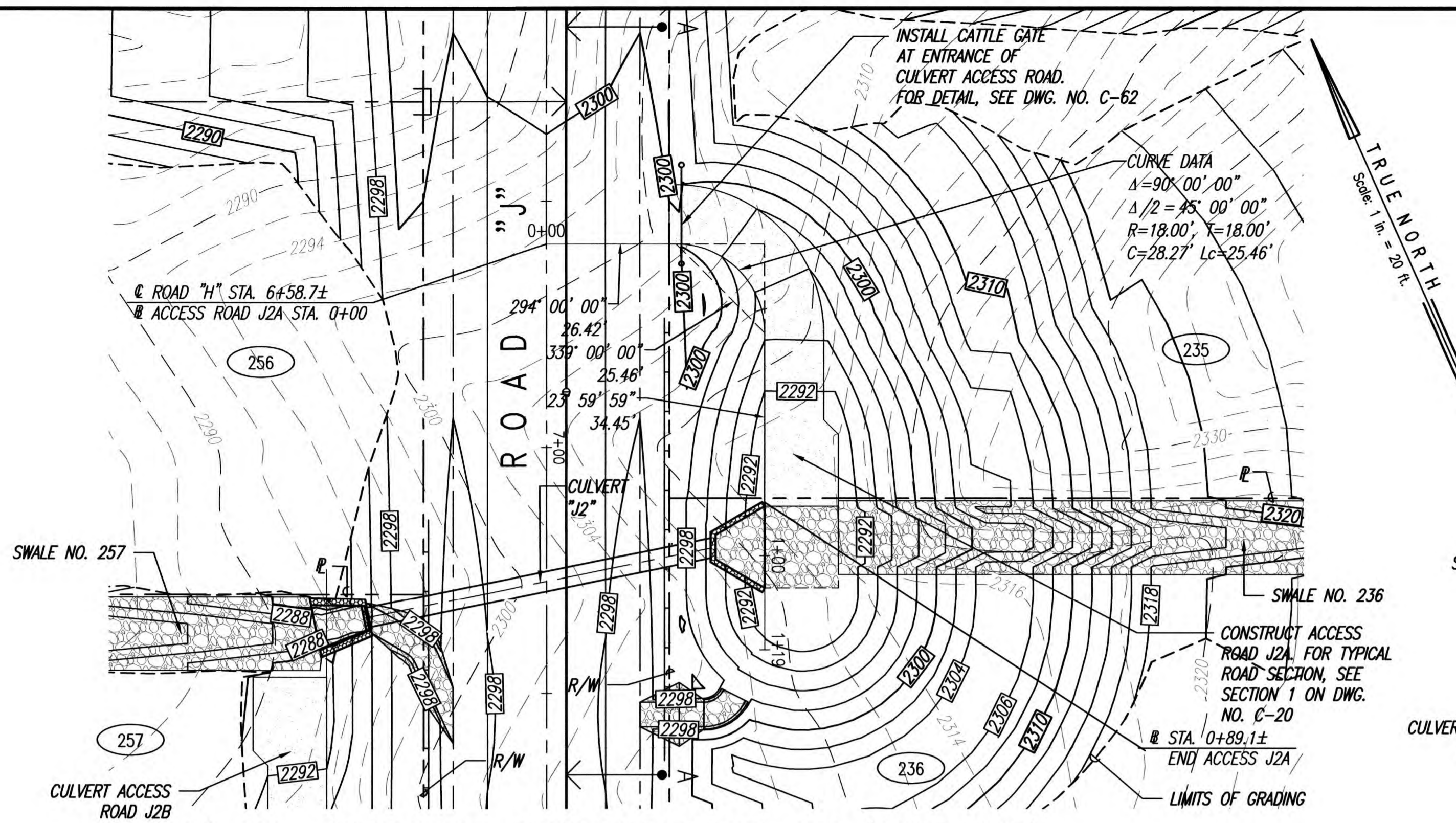
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - 2500 --- EXISTING GROUND CONTOUR
  - 2450 --- FINISH GRADE CONTOUR
  - - - - - PROPERTY LINE
  - - - - - GUARDRAIL
  - CATTLE GATE
  - WB NEW WATER LINE
  - ←○→ TYPE "A" SERVICE LATERAL
  - ← TYPE "A-1" SERVICE LATERAL
  - 216 LOT NUMBER

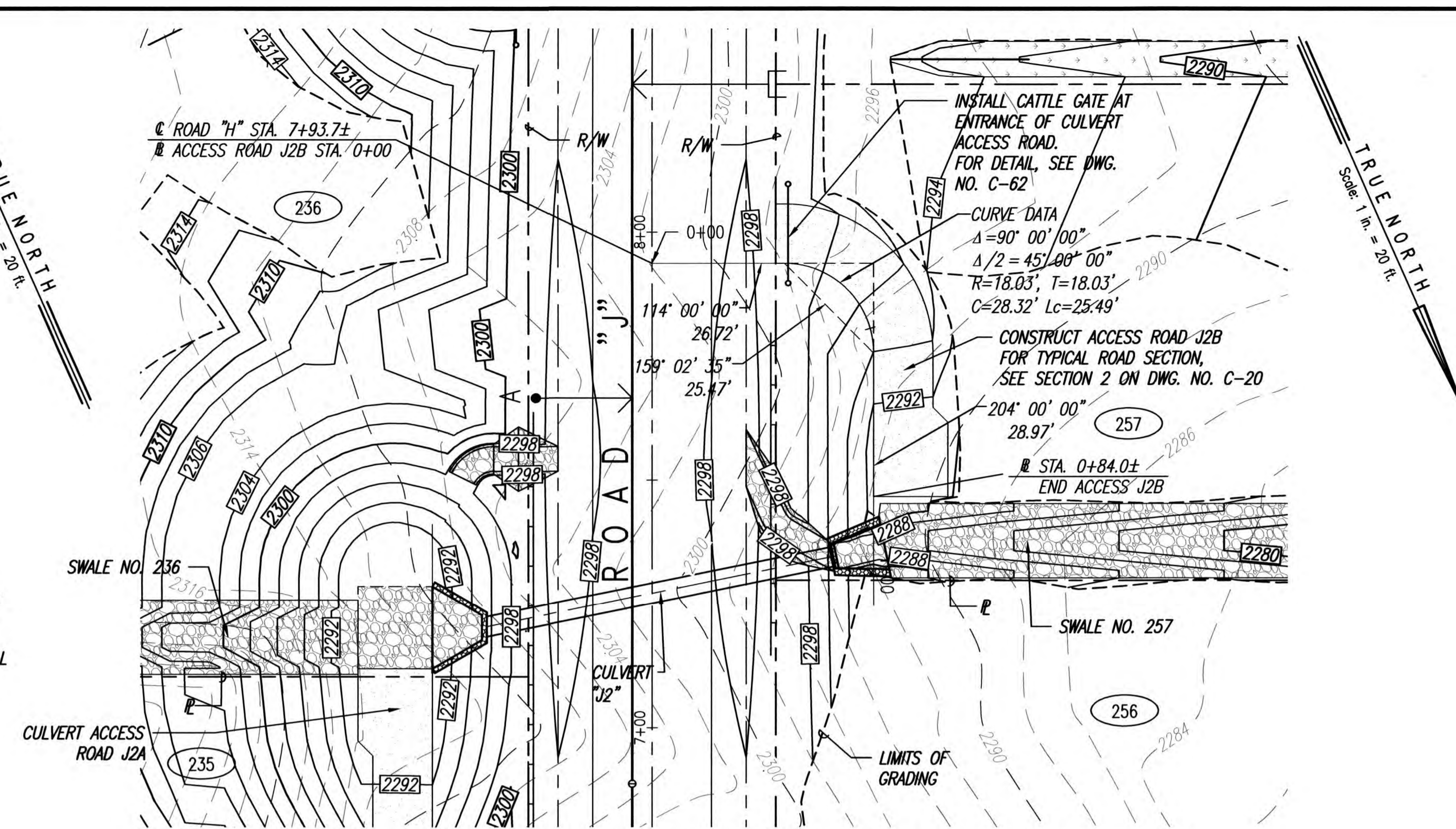


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

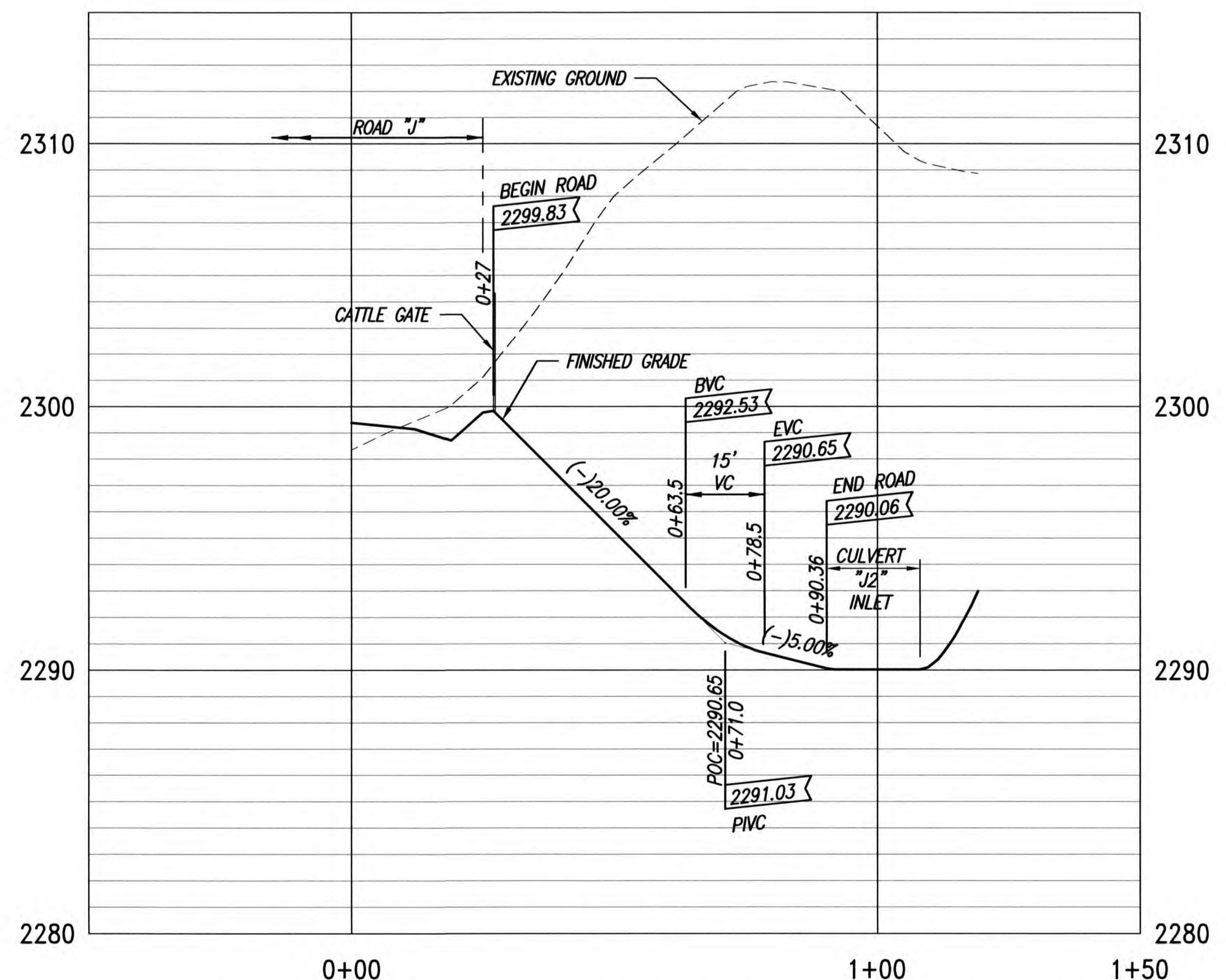
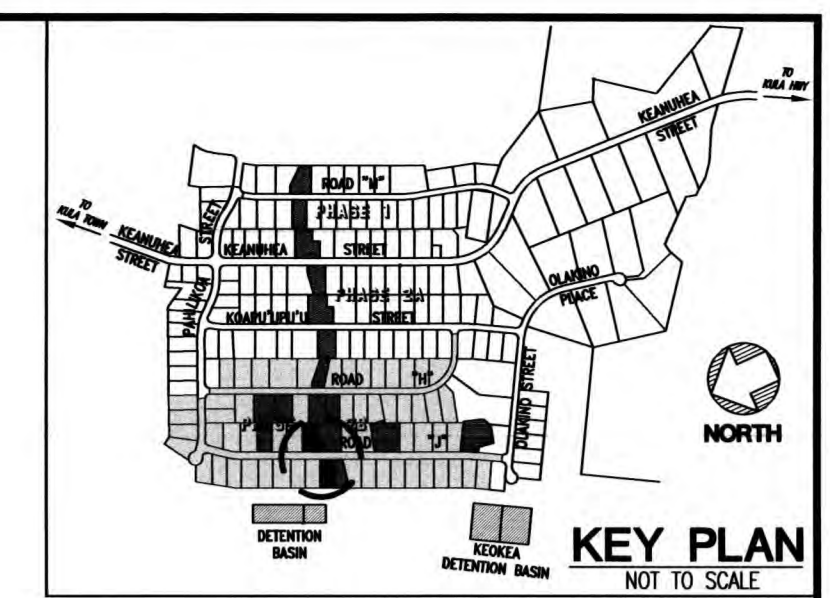
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN AND PROFILE ACCESS ROAD CULVERTS "J"</b> <b>(A &amp; B)</b>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	



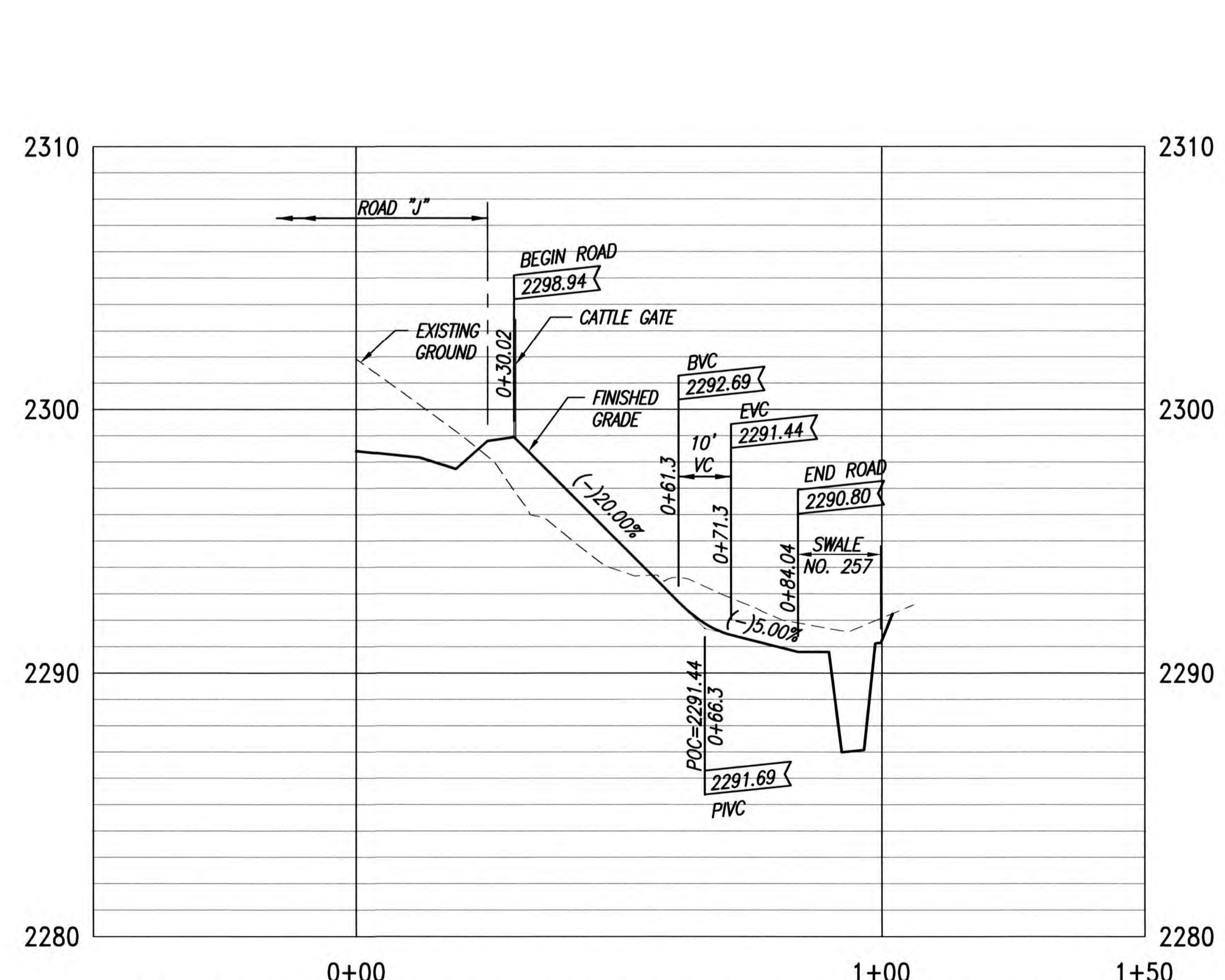
**PLAN - CULVERT ACCESS ROAD J2A (LOT 235)**  
SCALE: 1"=20'



**PLAN - CULVERT ACCESS ROAD J2B (LOT 257)**  
SCALE: 1"=20'

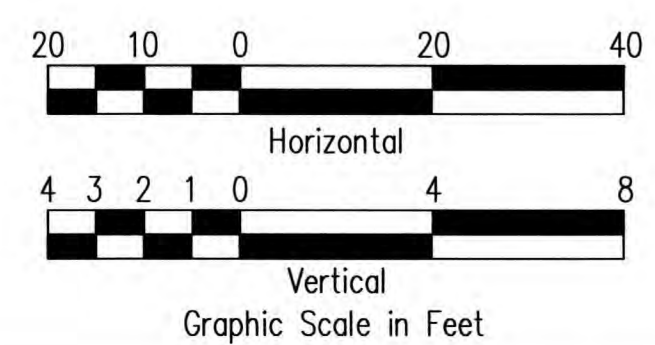


**PROFILE - CULVERT ACCESS ROAD J2A (LOT 235)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD J2B (LOT 257)**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

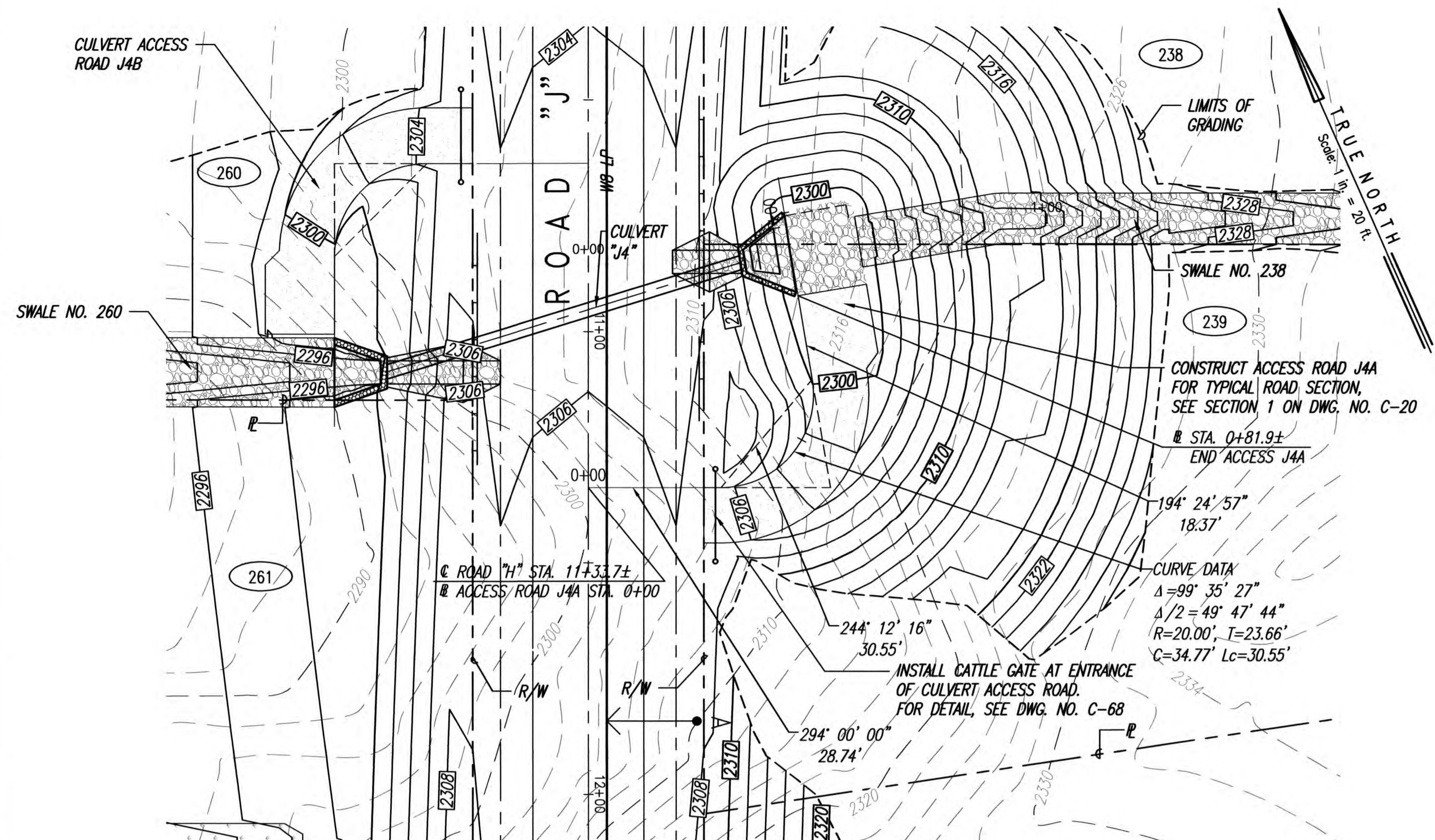
- LEGEND**
- LIMITS OF GRADING
  - - - 2500 EXISTING GROUND CONTOUR
  - - - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - - - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - ←→ TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - 216 LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

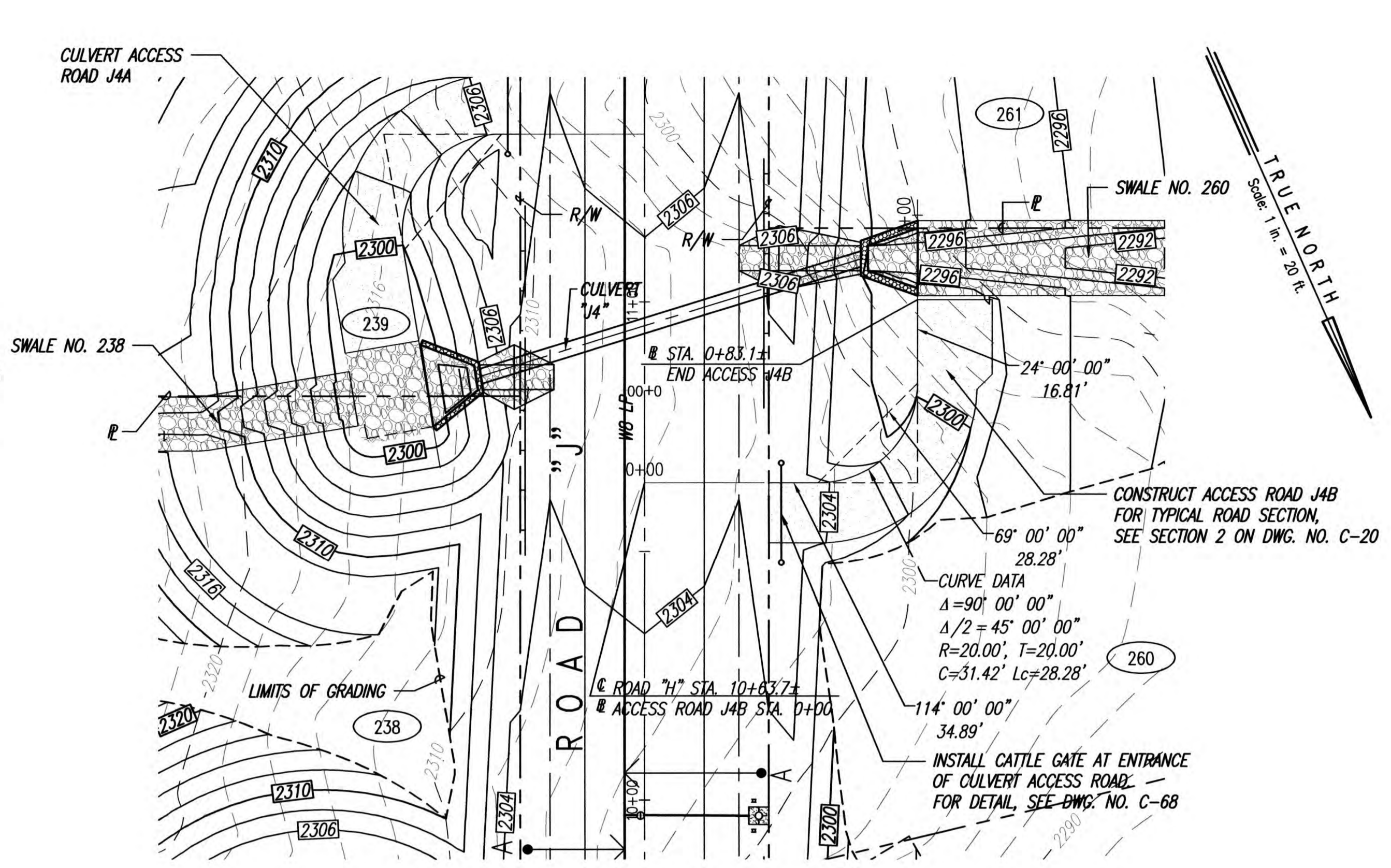
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p>Community Planning and Engineering, Inc. Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE ACCESS ROAD CULVERTS "J2" (A &amp; B)</b></p>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	
DWG. NO. C-27	SHEET 28 OF 79 SHEETS	FILE	POCKET





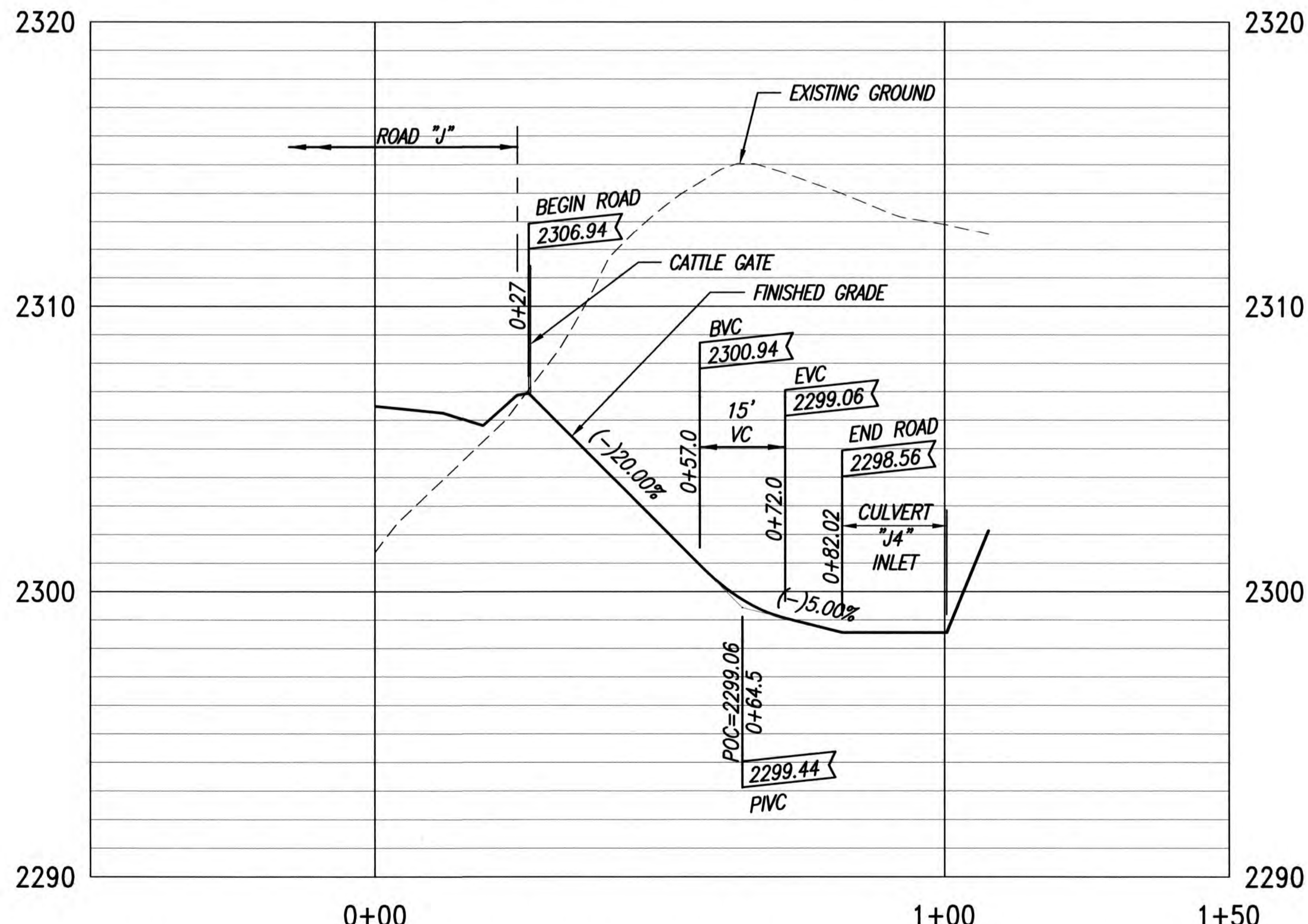
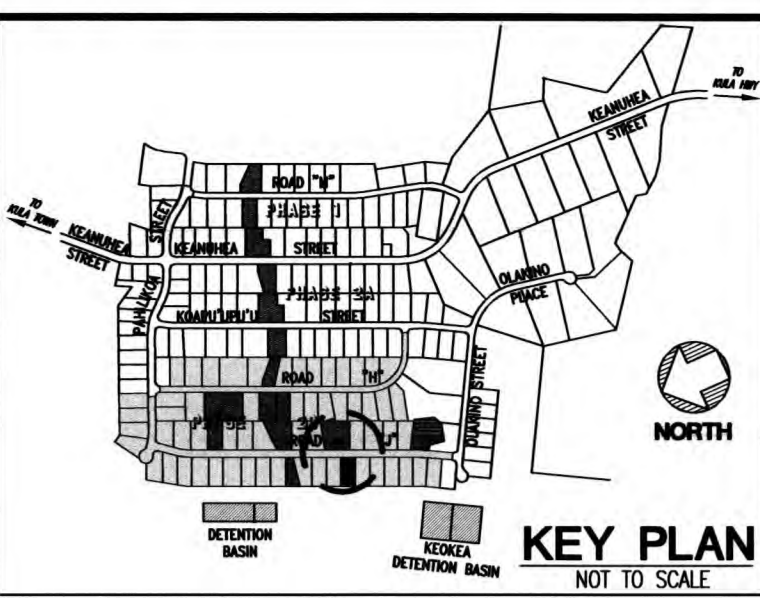
**PLAN - CULVERT ACCESS ROAD J4A (LOT 239)**

SCALE: 1"=20'



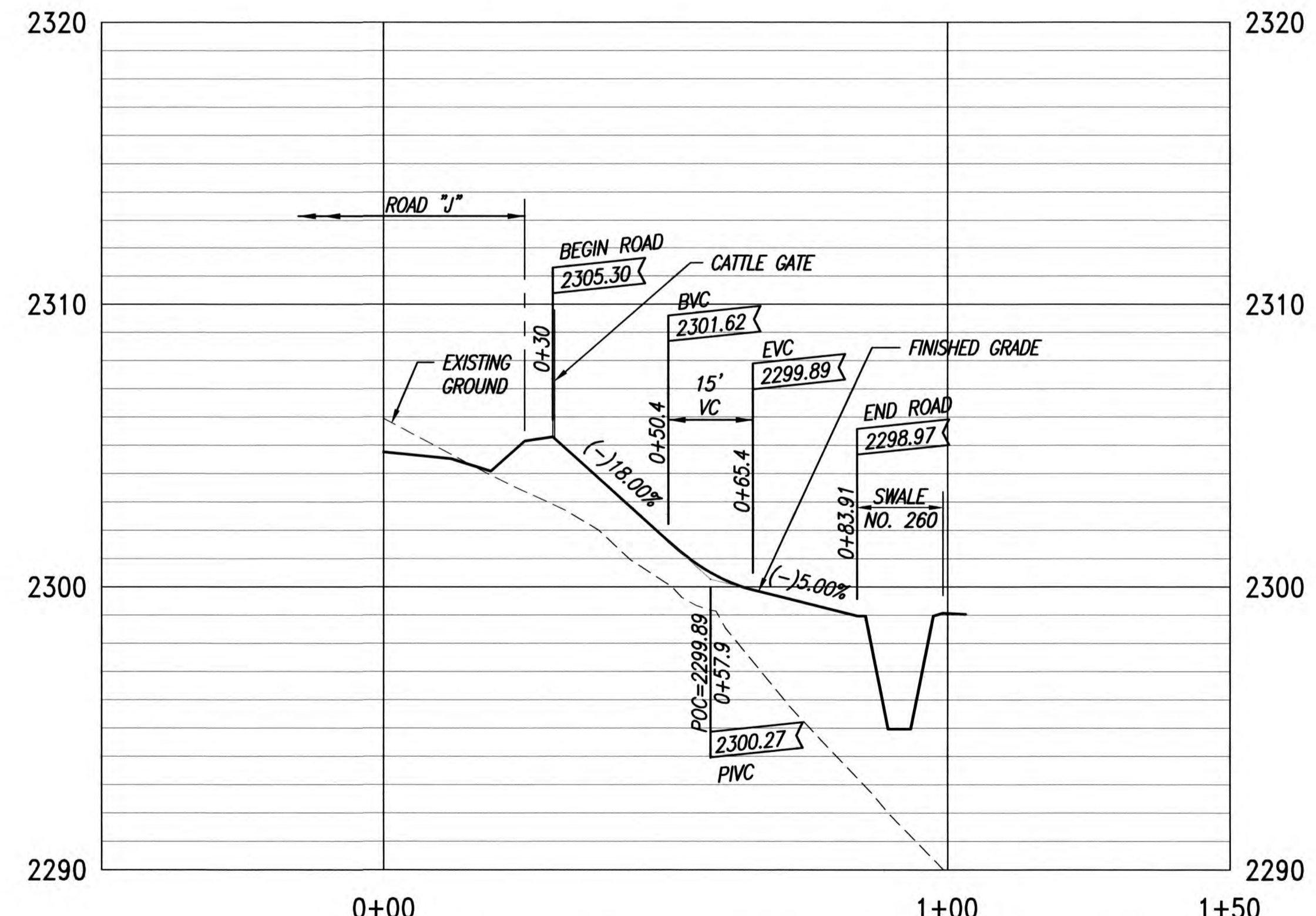
**PLAN - CULVERT ACCESS ROAD J4B (LOT 260)**

SCALE: 1"=20'



**PROFILE - CULVERT ACCESS ROAD J4A (LOT 239)**

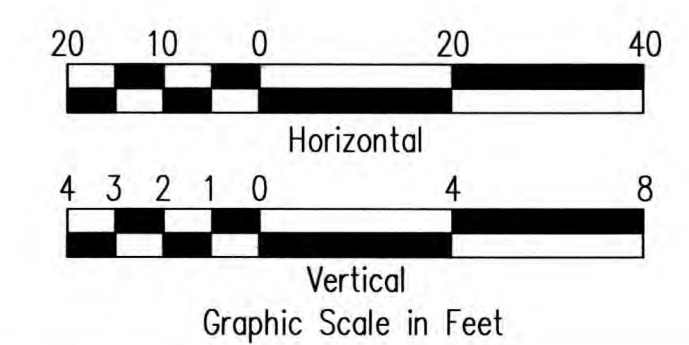
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD J4B (LOT 260)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - ←○→ TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

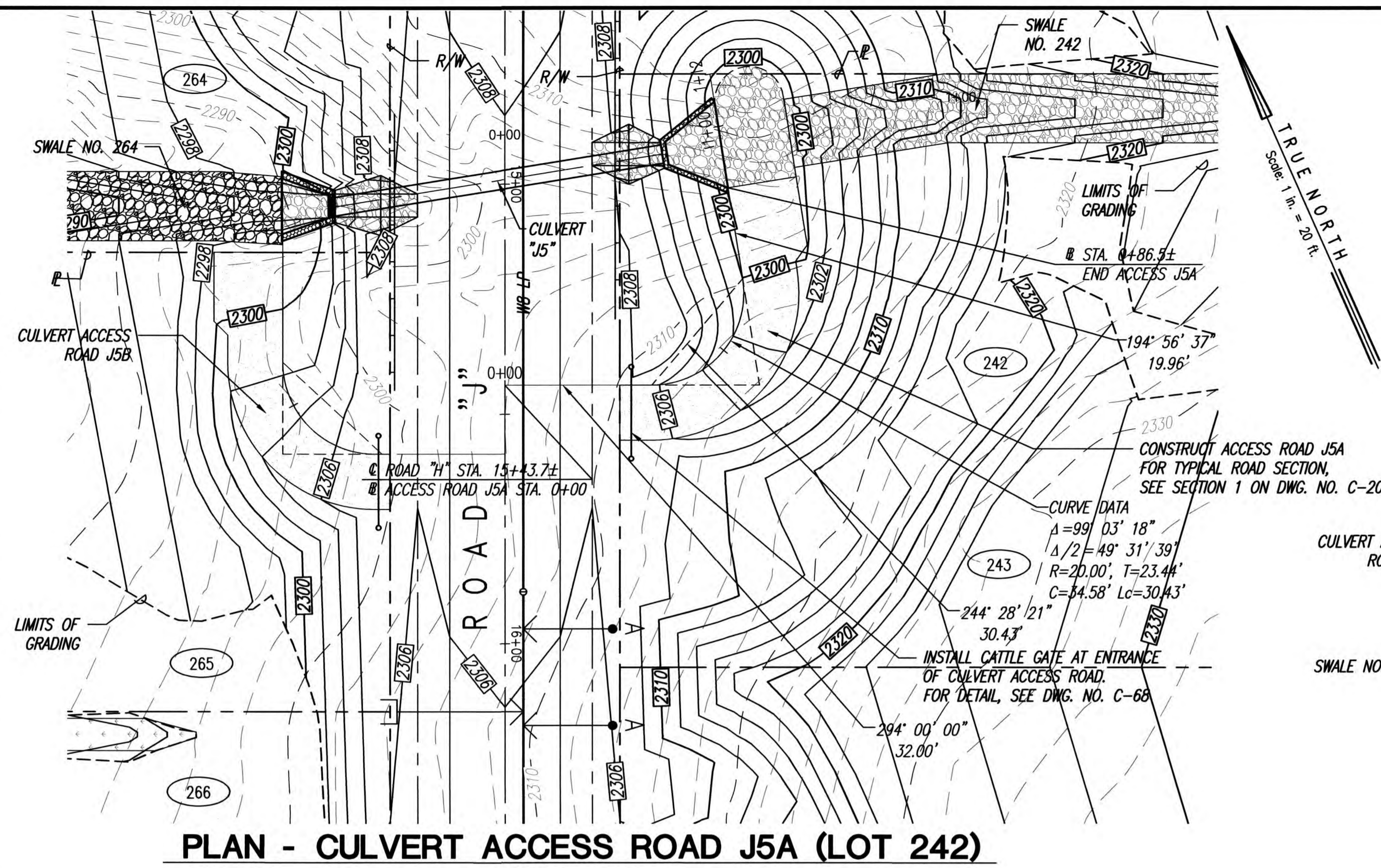
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

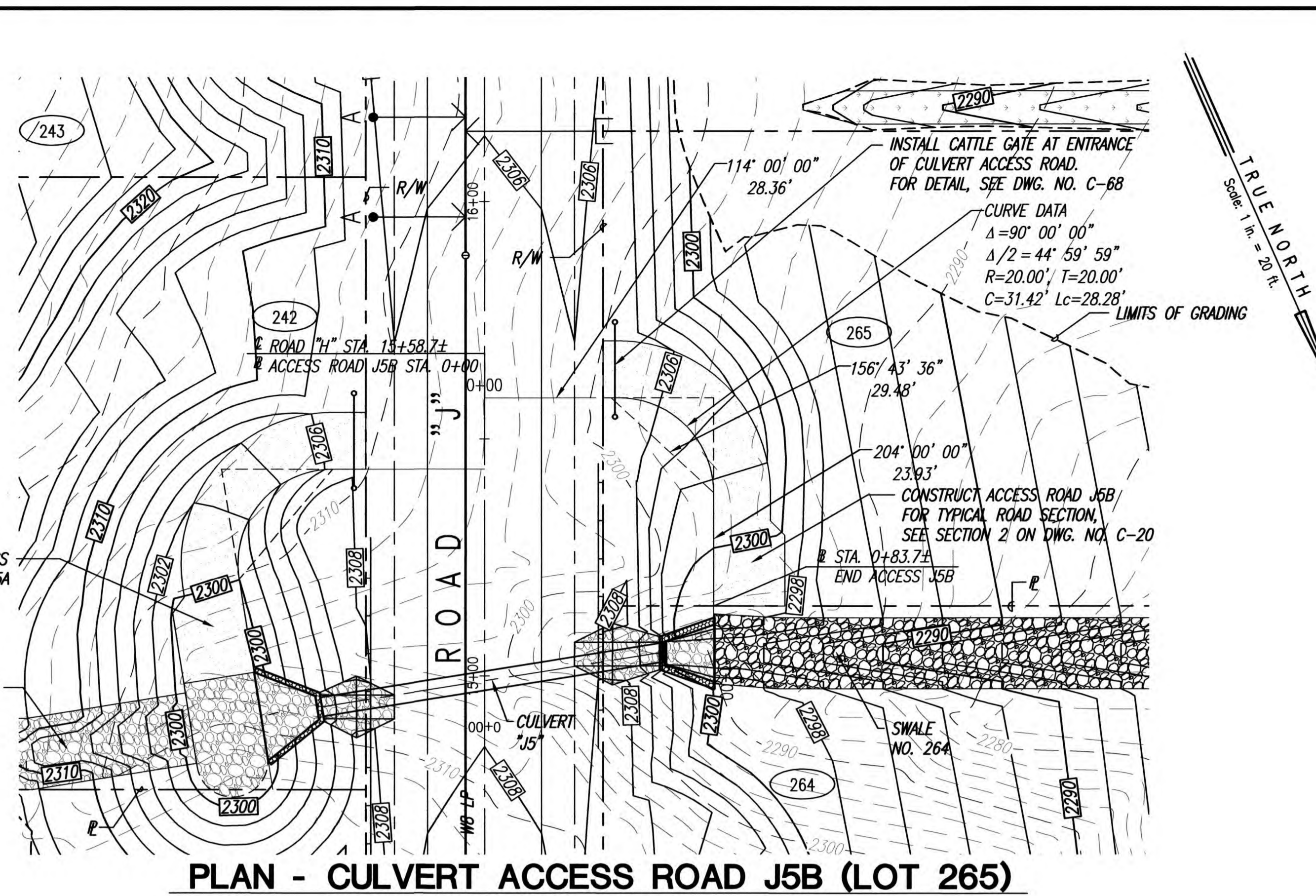
**PLAN AND PROFILE ACCESS ROAD CULVERTS "J4" (A & B)**

DRAWN BY: JSO    ENGINEER: JSO, FJC    CHECKED BY: AMM



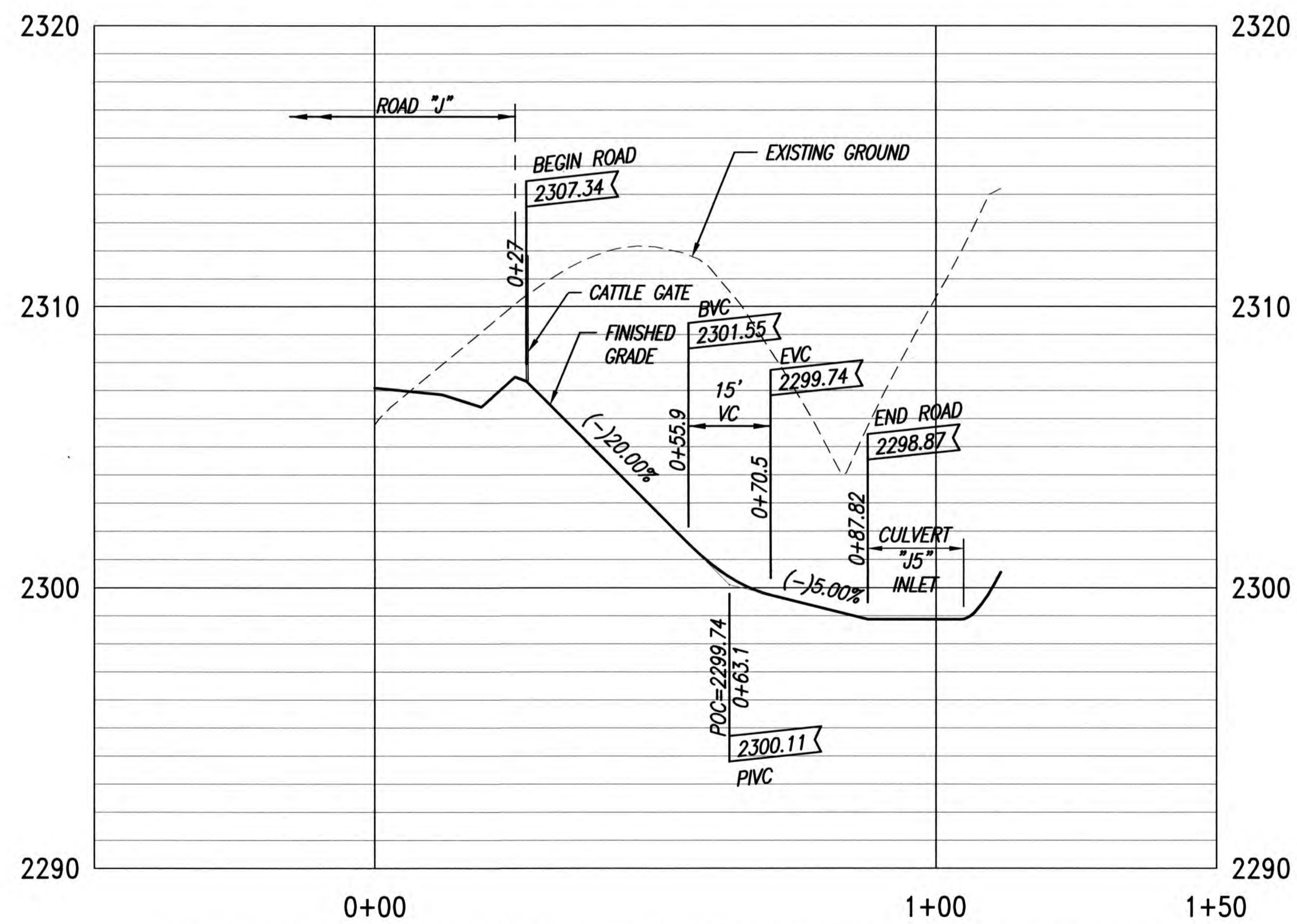
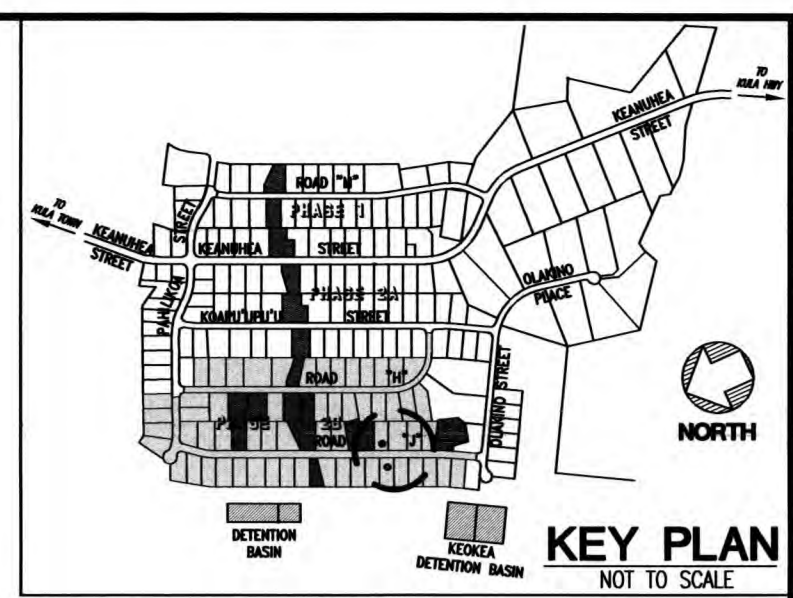
**PLAN - CULVERT ACCESS ROAD J5A (LOT 242)**

SCALE: 1"=20'



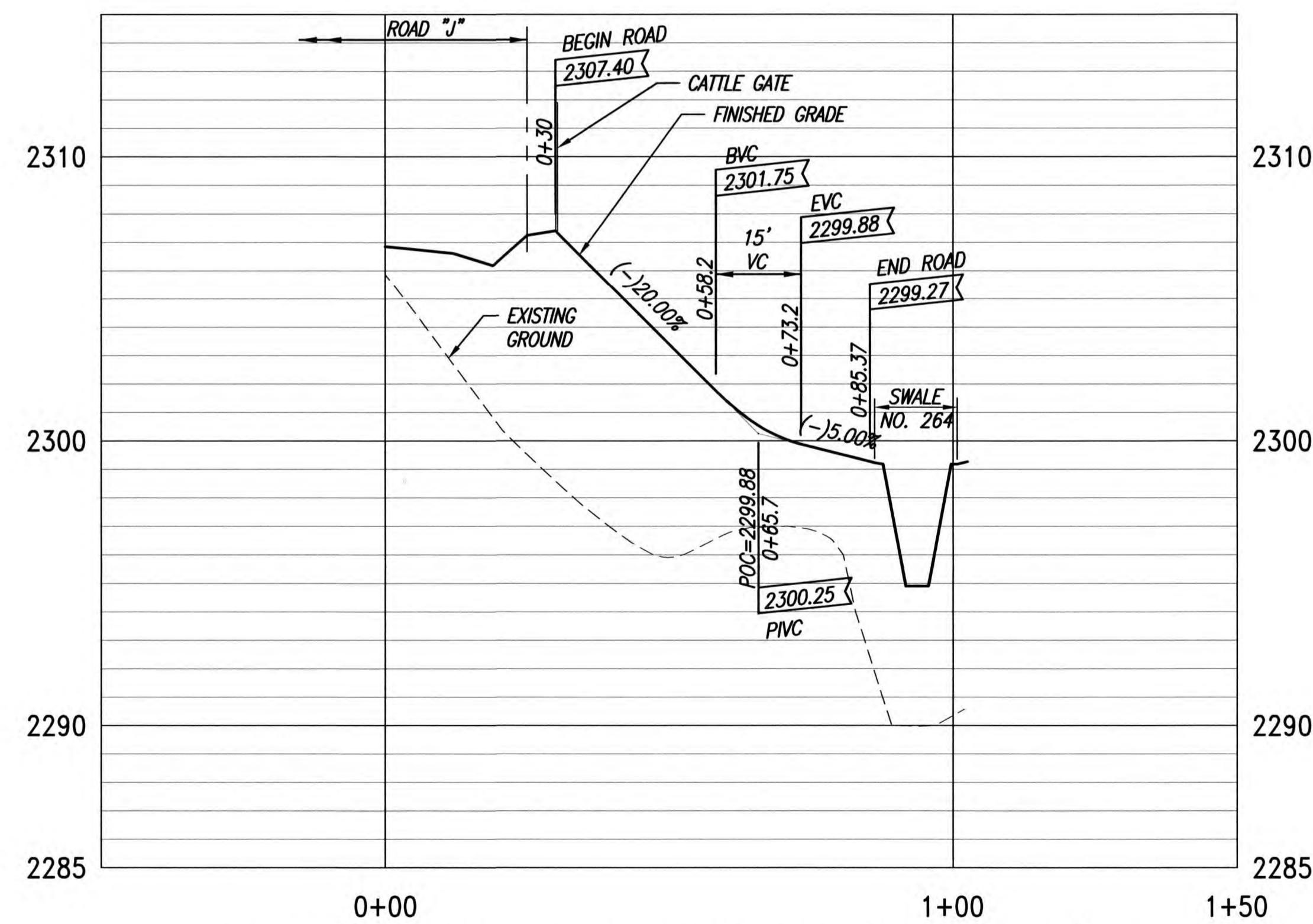
**PLAN - CULVERT ACCESS ROAD J5B (LOT 265)**

SCALE: 1"=20'



**PROFILE - CULVERT ACCESS ROAD J5A (LOT 242)**

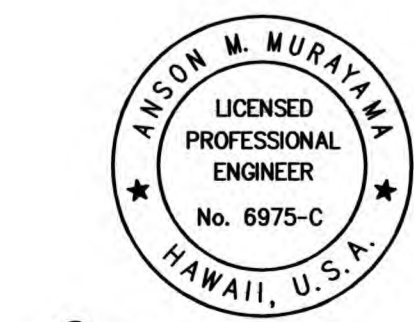
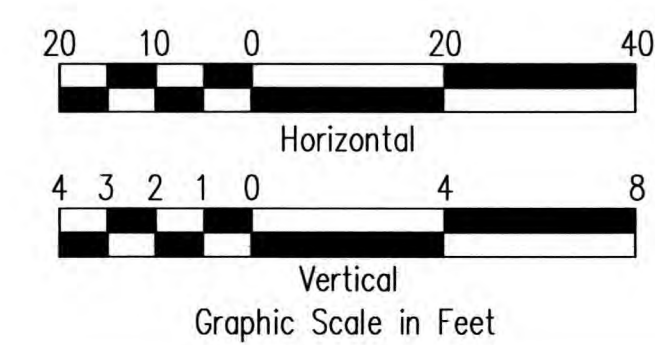
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - CULVERT ACCESS ROAD J5B (LOT 265)**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - EXISTING GROUND CONTOUR
  - 2450 — FINISH GRADE CONTOUR
  - PROPERTY LINE
  - - - GUARDRAIL
  - CATTLE GATE
  - WS — NEW WATER LINE
  - ←○→ TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - (216) LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor   Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN AND PROFILE ACCESS ROAD CULVERTS "J5" (A &amp; B)</b>			
DRAWN BY: JSO	ENGINEER: JSO, FJC	CHECKED BY: AMM	

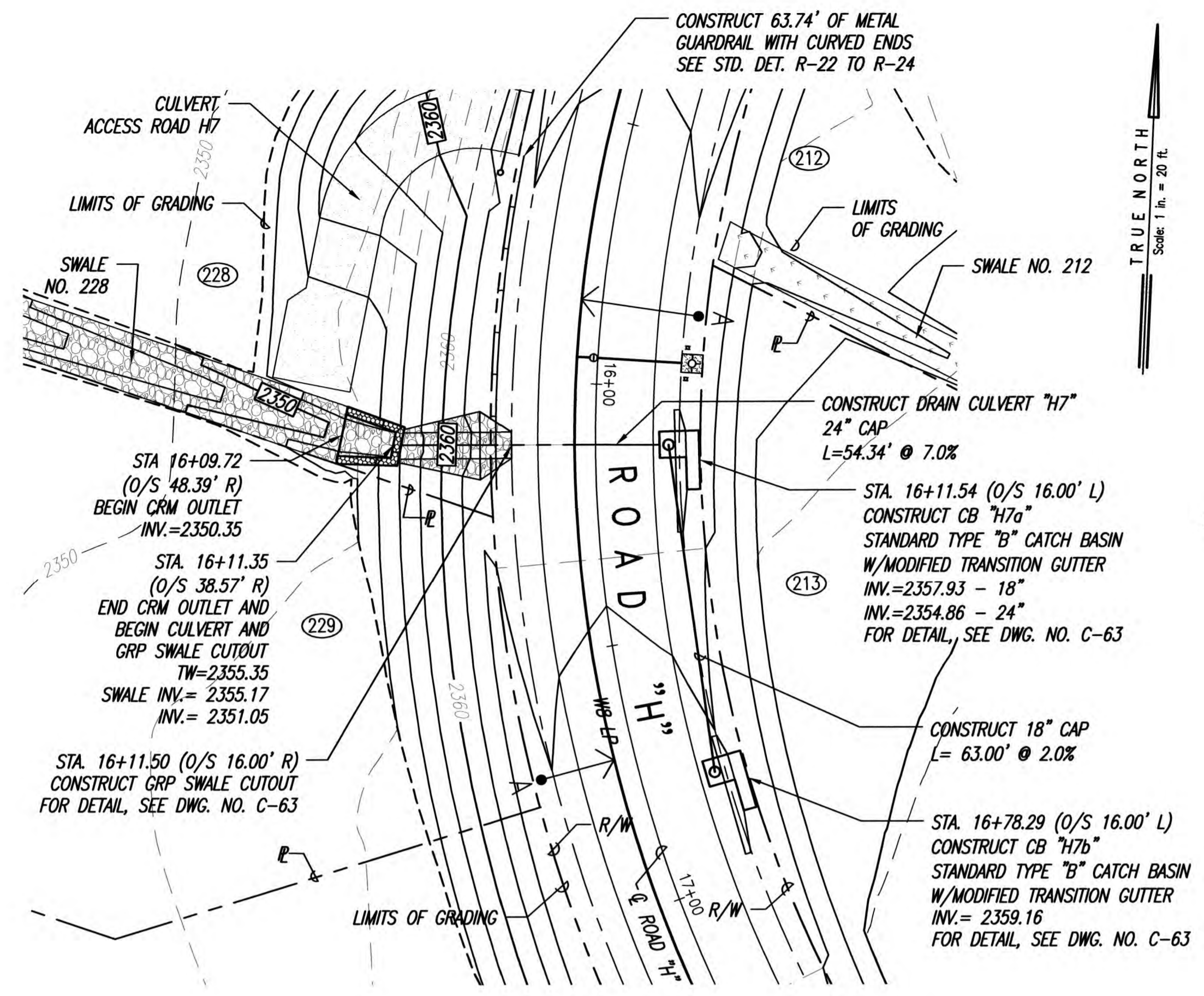
FILE	POCKET	FOLDER	NO.
------	--------	--------	-----





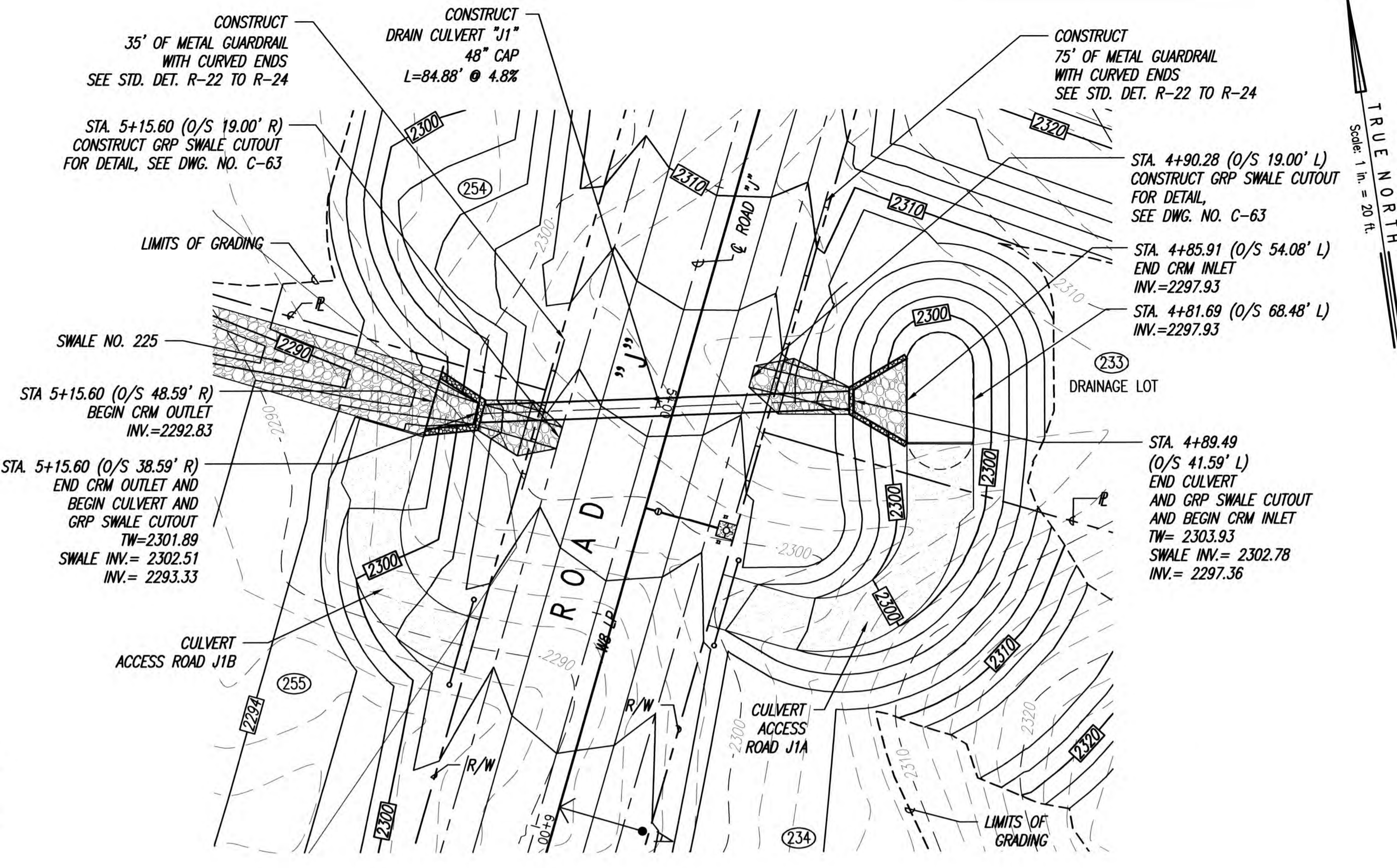






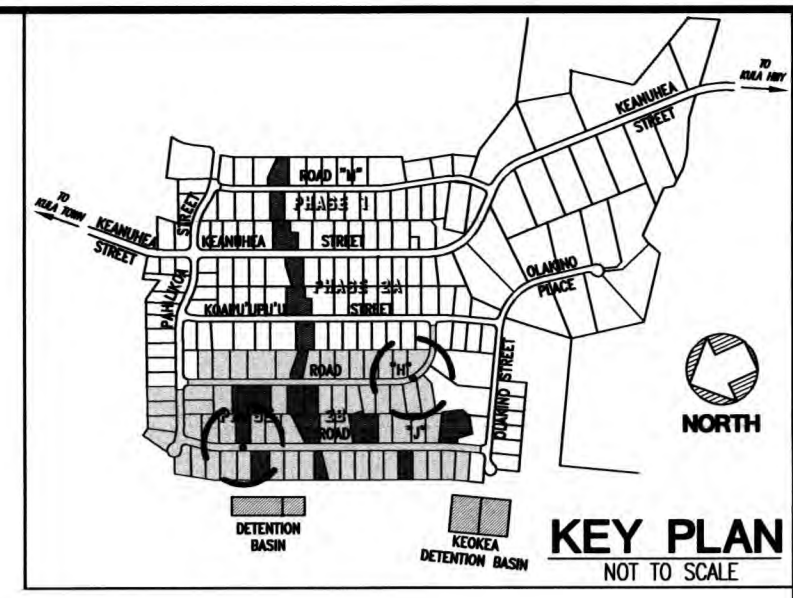
**PLAN - CULVERT "H7"**

SCALE: 1"=20'

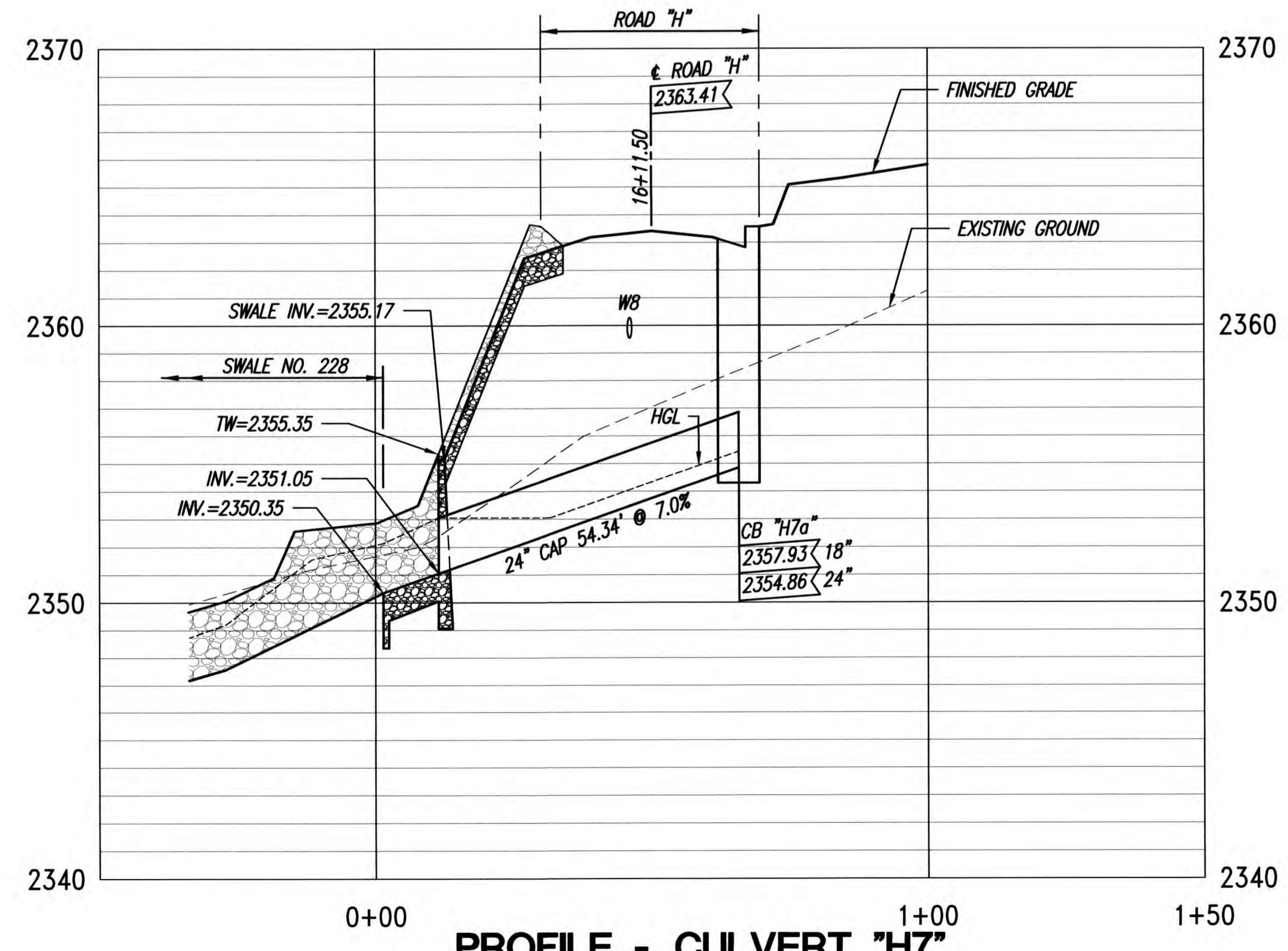
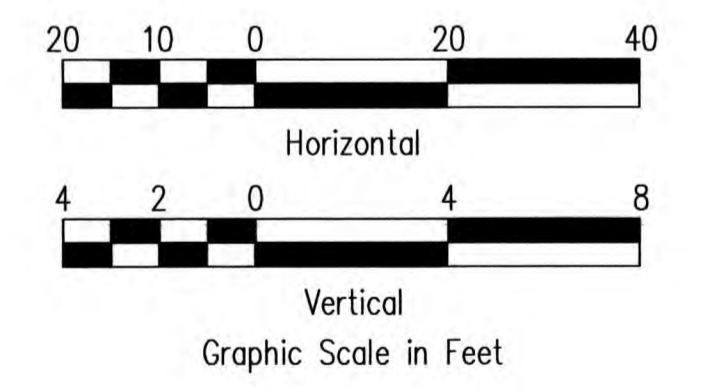


**PLAN - CULVERT "J1"**

SCALE: 1"=20'

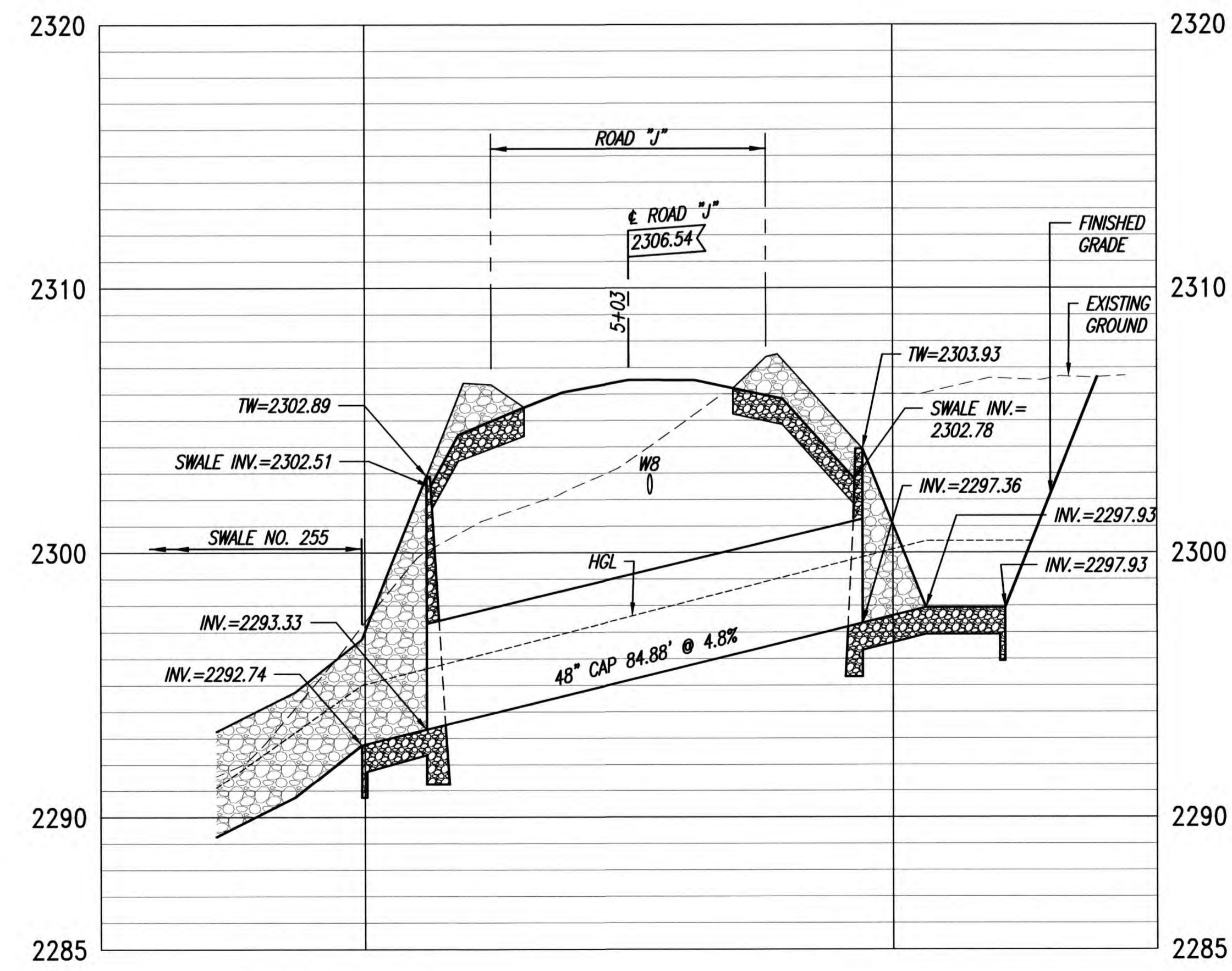


- LEGEND**
- LIMITS OF GRADING
  - 2500- EXISTING GROUND CONTOUR
  - 2450- FINISH GRADE CONTOUR
  - - - PROPERTY LINE
  - - - GUARDRAIL
  - CATTLE GATE
  - WB NEW WATER LINE
  - ←→ TYPE "A" SERVICE LATERAL
  - ↑↓ TYPE "A-1" SERVICE LATERAL
  - (216) LOT NUMBER



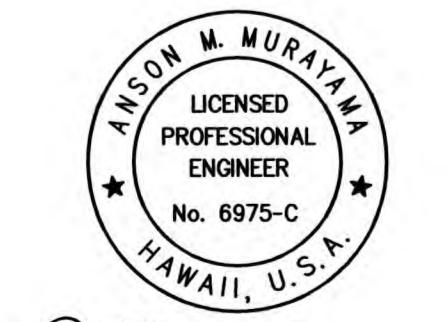
**PROFILE - CULVERT "H7"**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



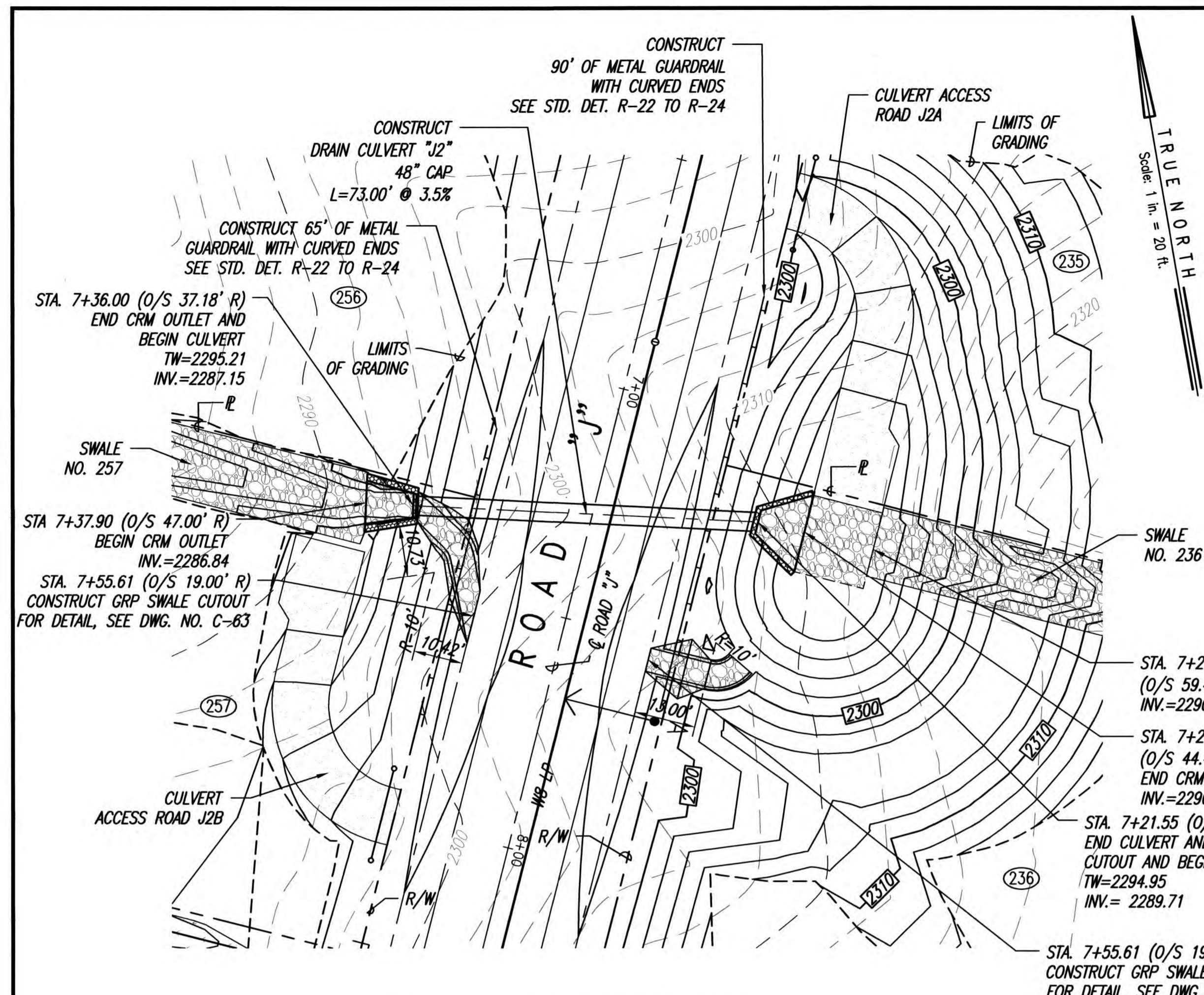
**PROFILE - CULVERT "J1"**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

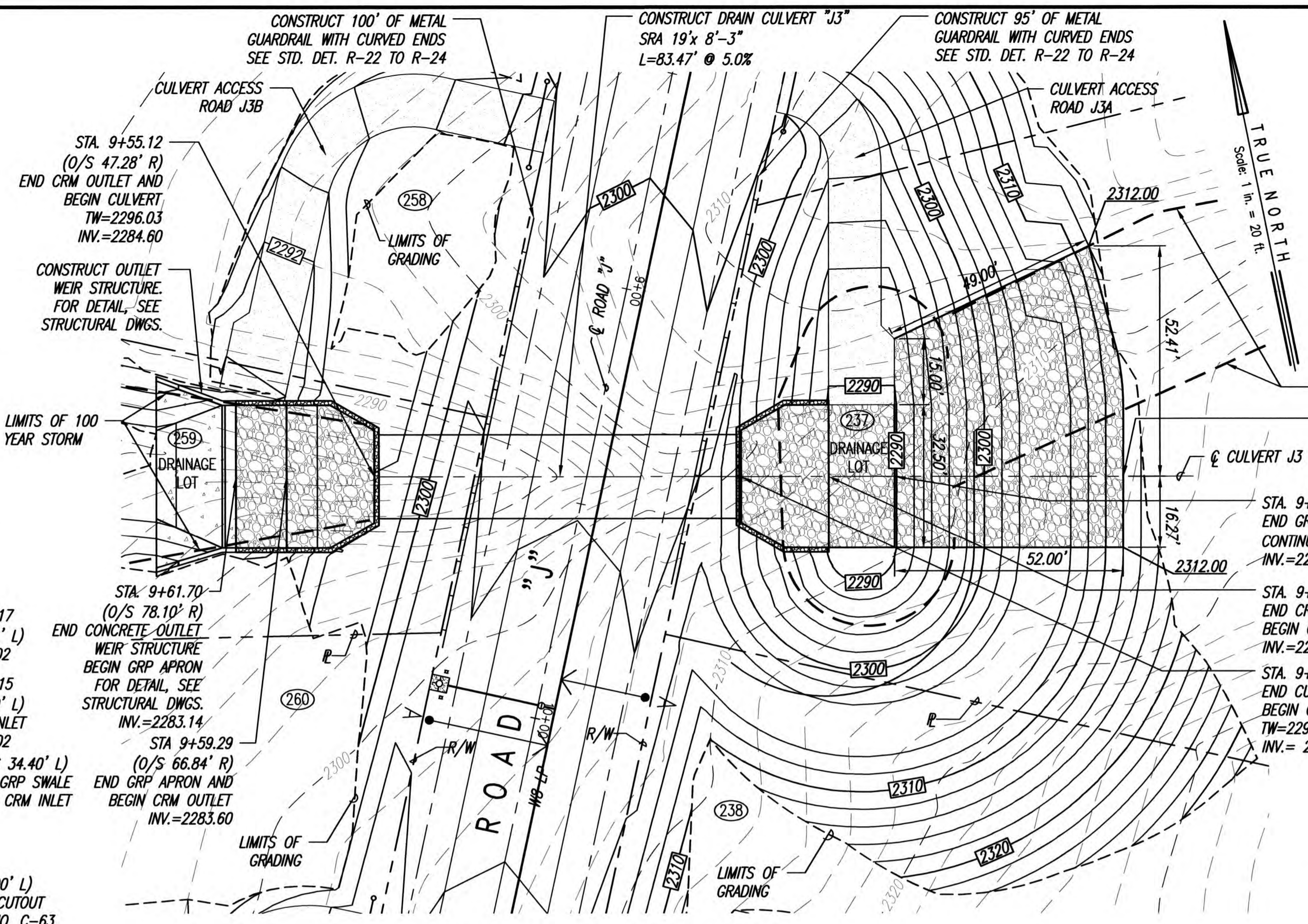


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

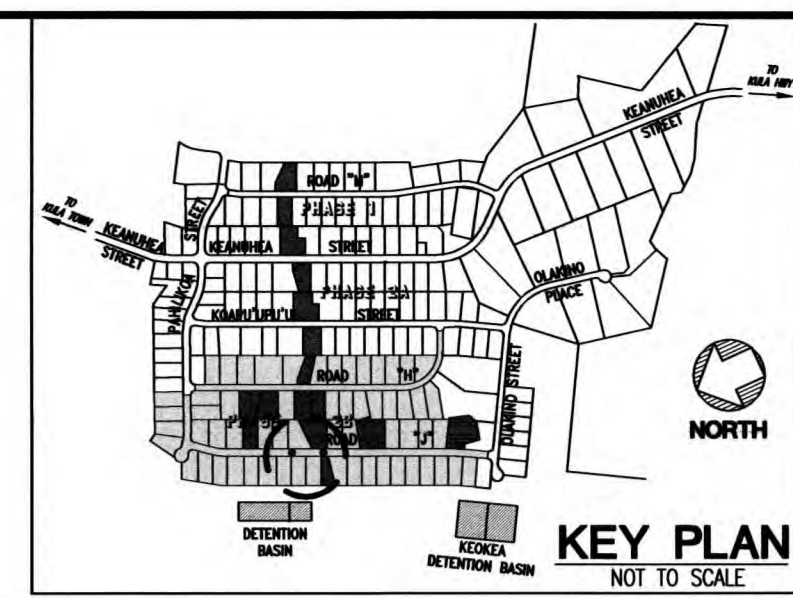
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b>          Engineering Design   Construction Management   Infrastructure Planning          1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b>          KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI          OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS          TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE DRAIN CULVERTS "H7" &amp; "J1"</b></p>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	



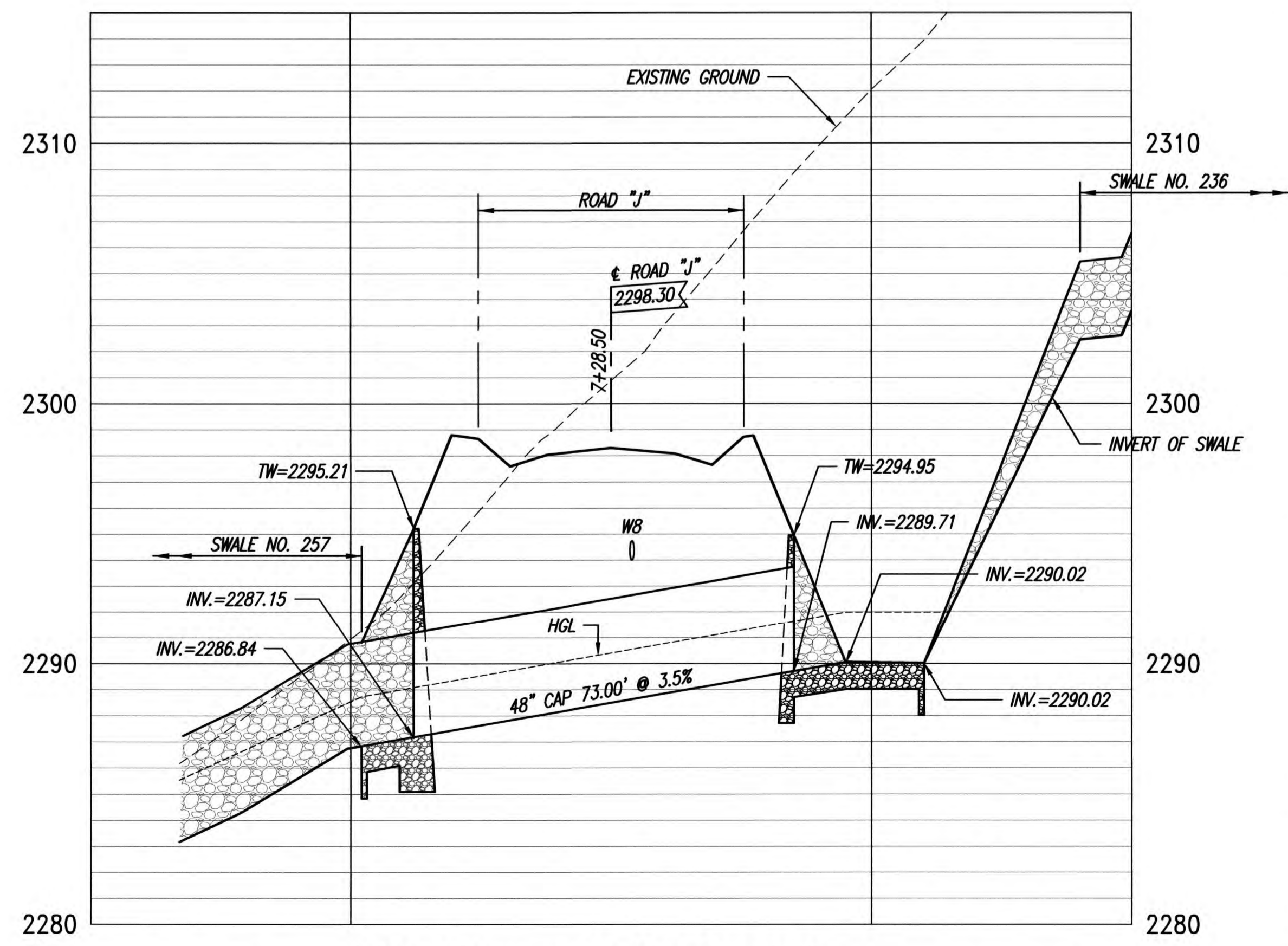
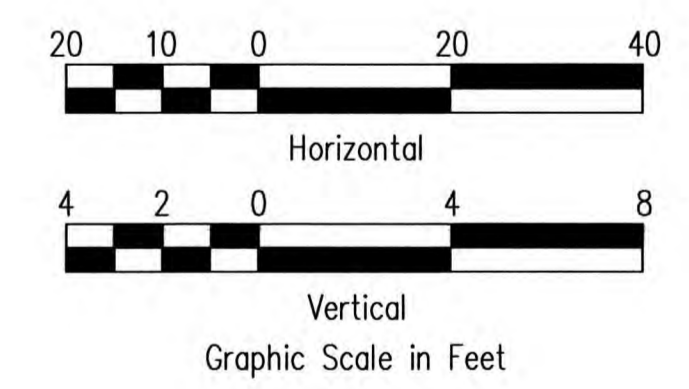
**PLAN - CULVERT "J2"**  
SCALE: 1"=20'



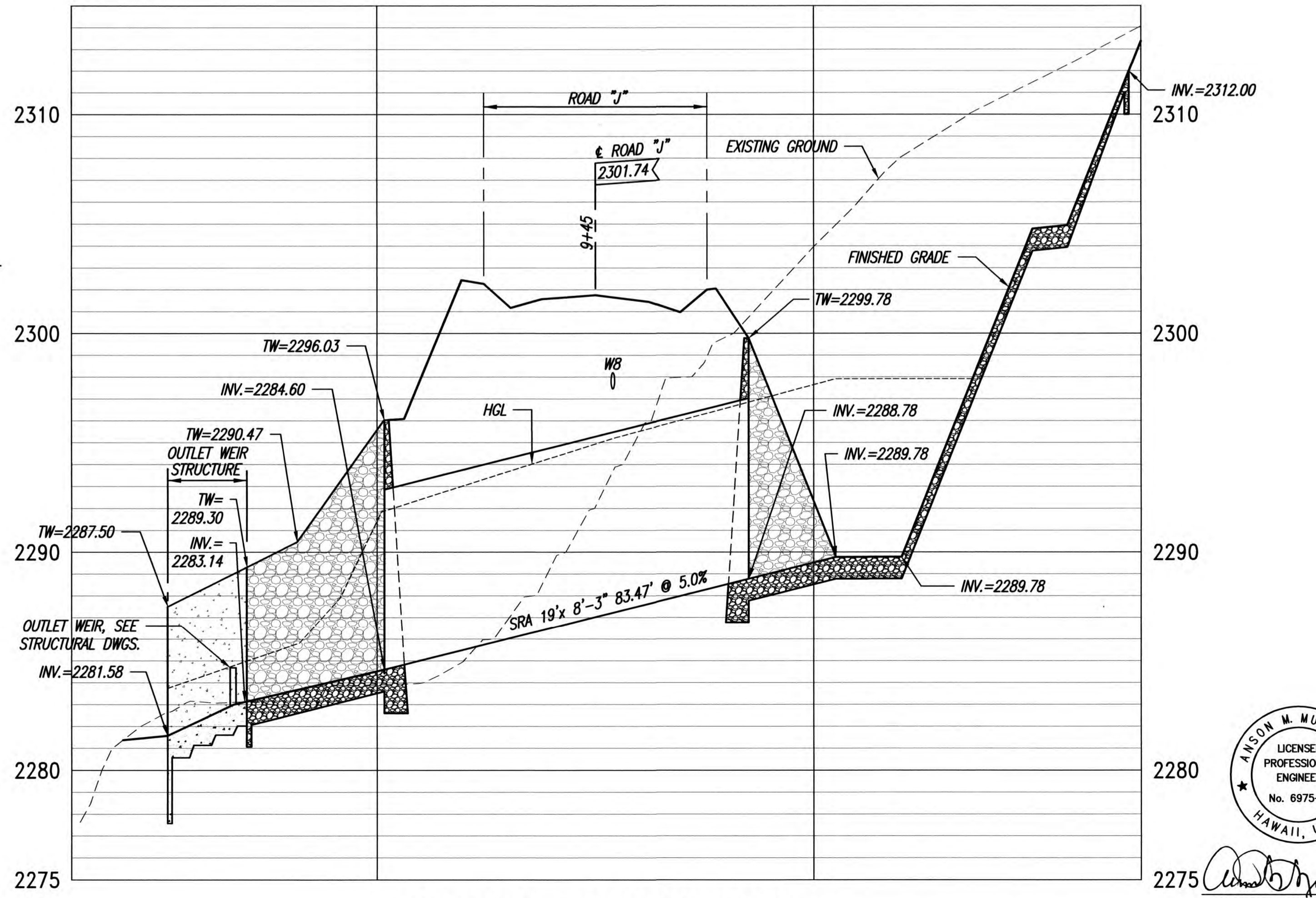
**PLAN - CULVERT "J3"**  
SCALE: 1"=20'



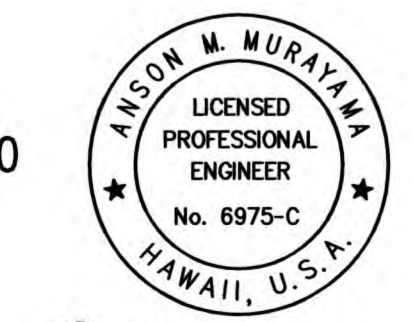
- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - - - - - LIMITS OF 100 YEAR STORM
  - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - (216) LOT NUMBER



**PROFILE - CULVERT "J2"**  
SCALES: HORIZ. 1"=20'  
VERT. 1"=4'

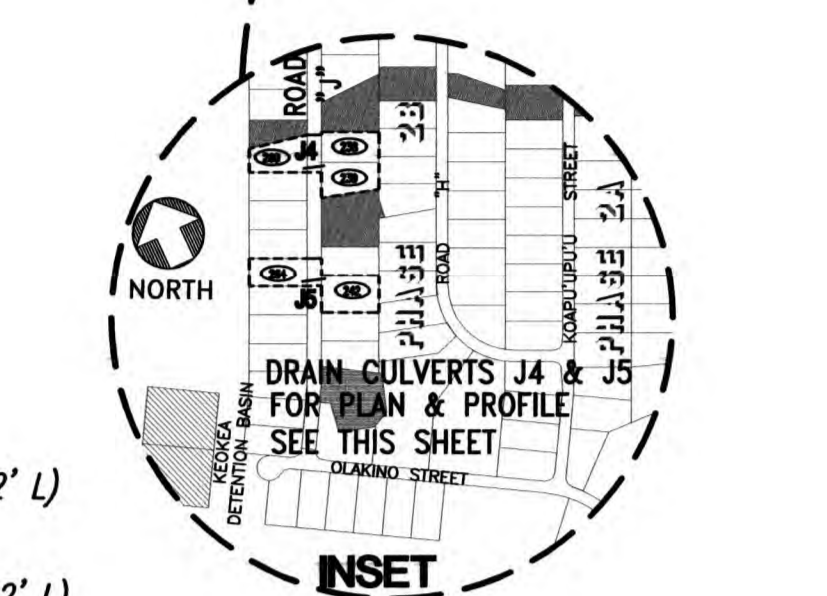
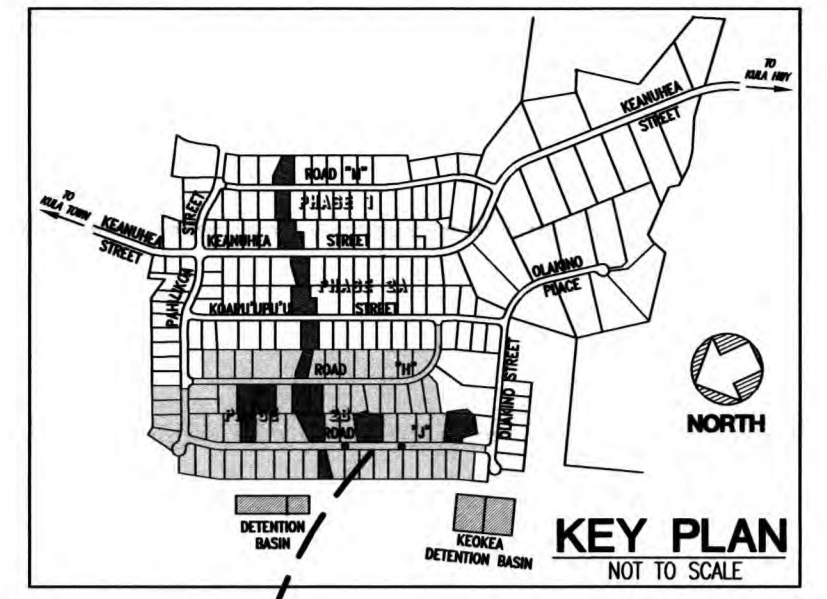
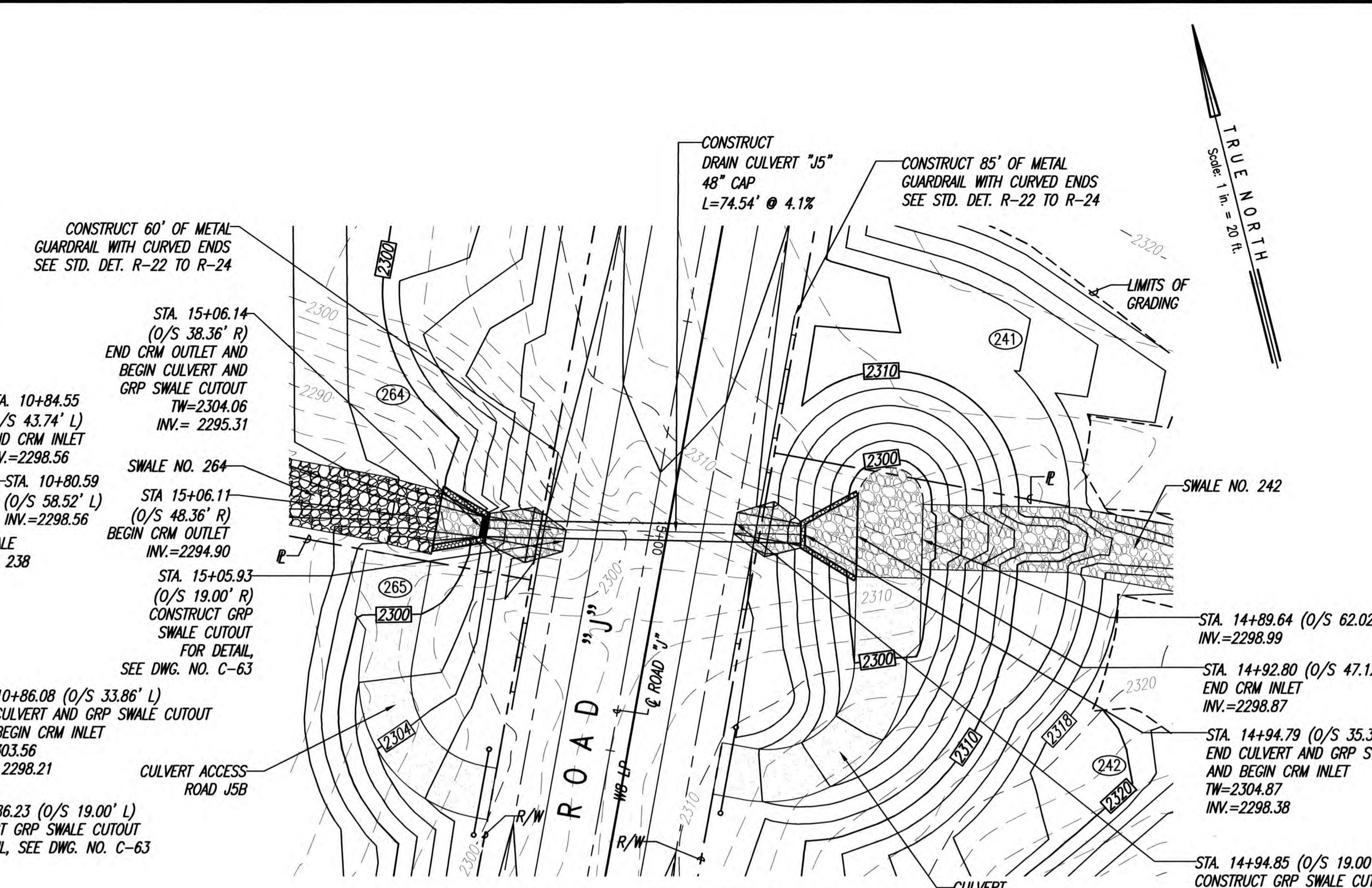
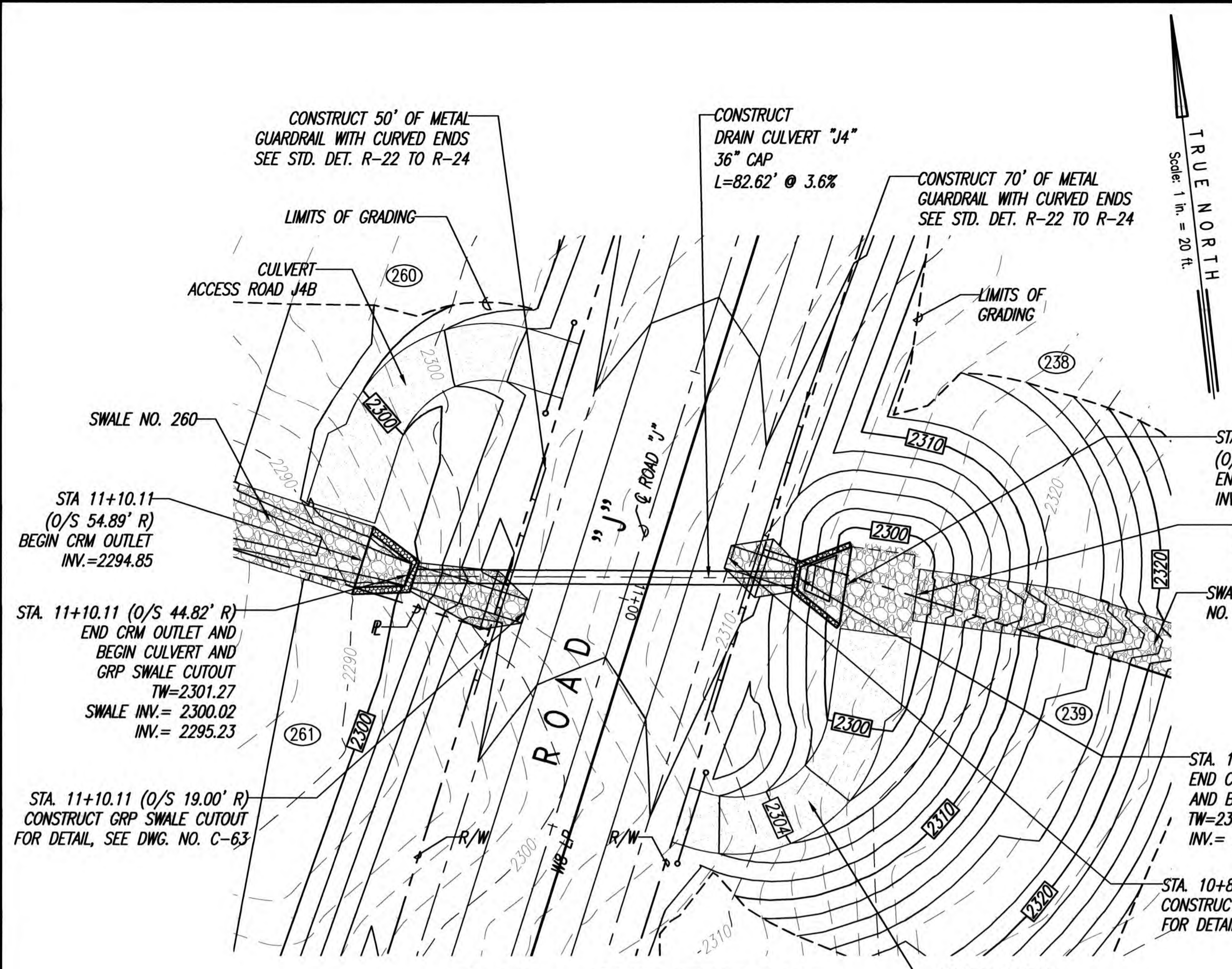


**PROFILE - CULVERT "J3"**  
SCALES: HORIZ. 1"=20'  
VERT. 1"=4'

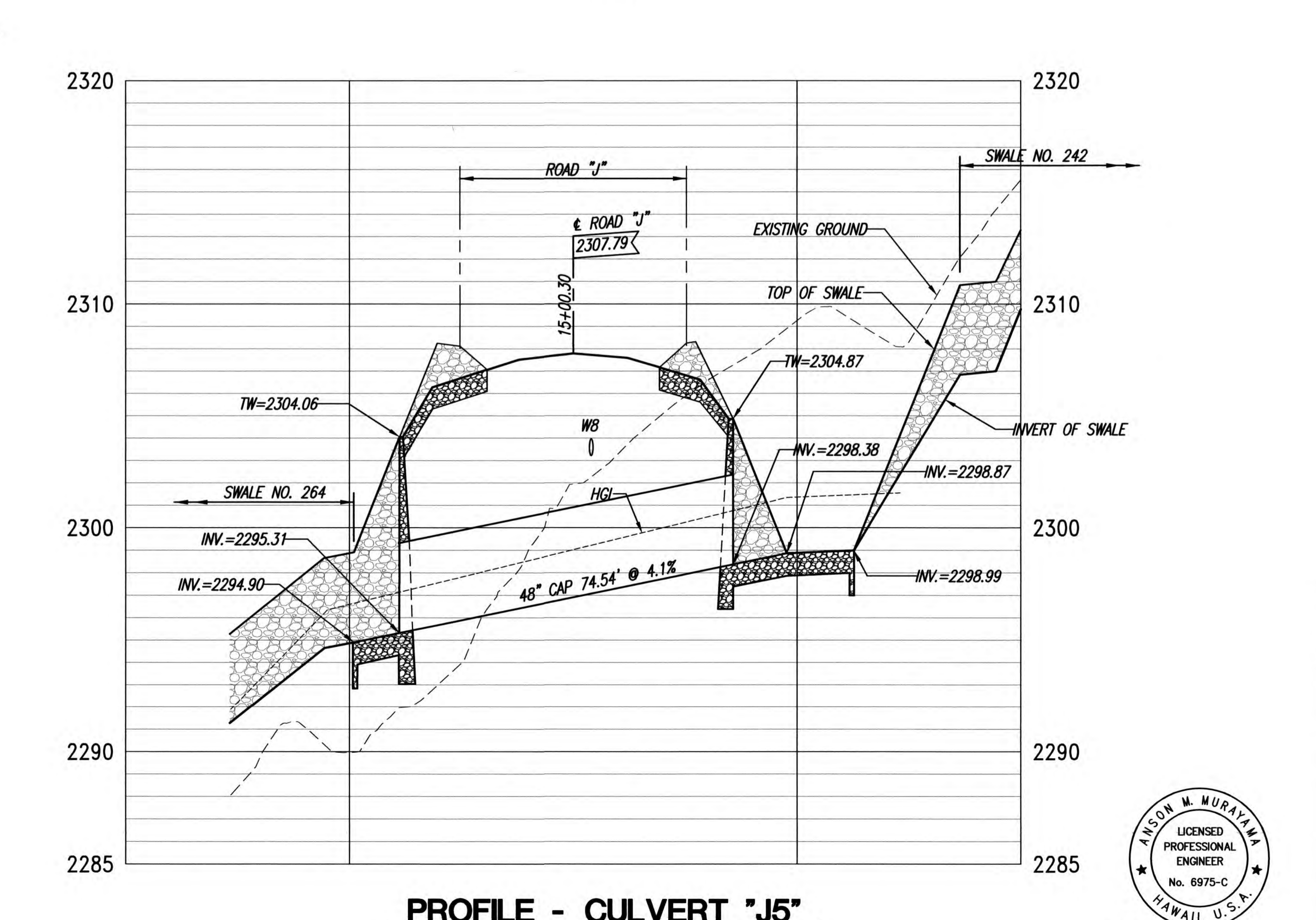
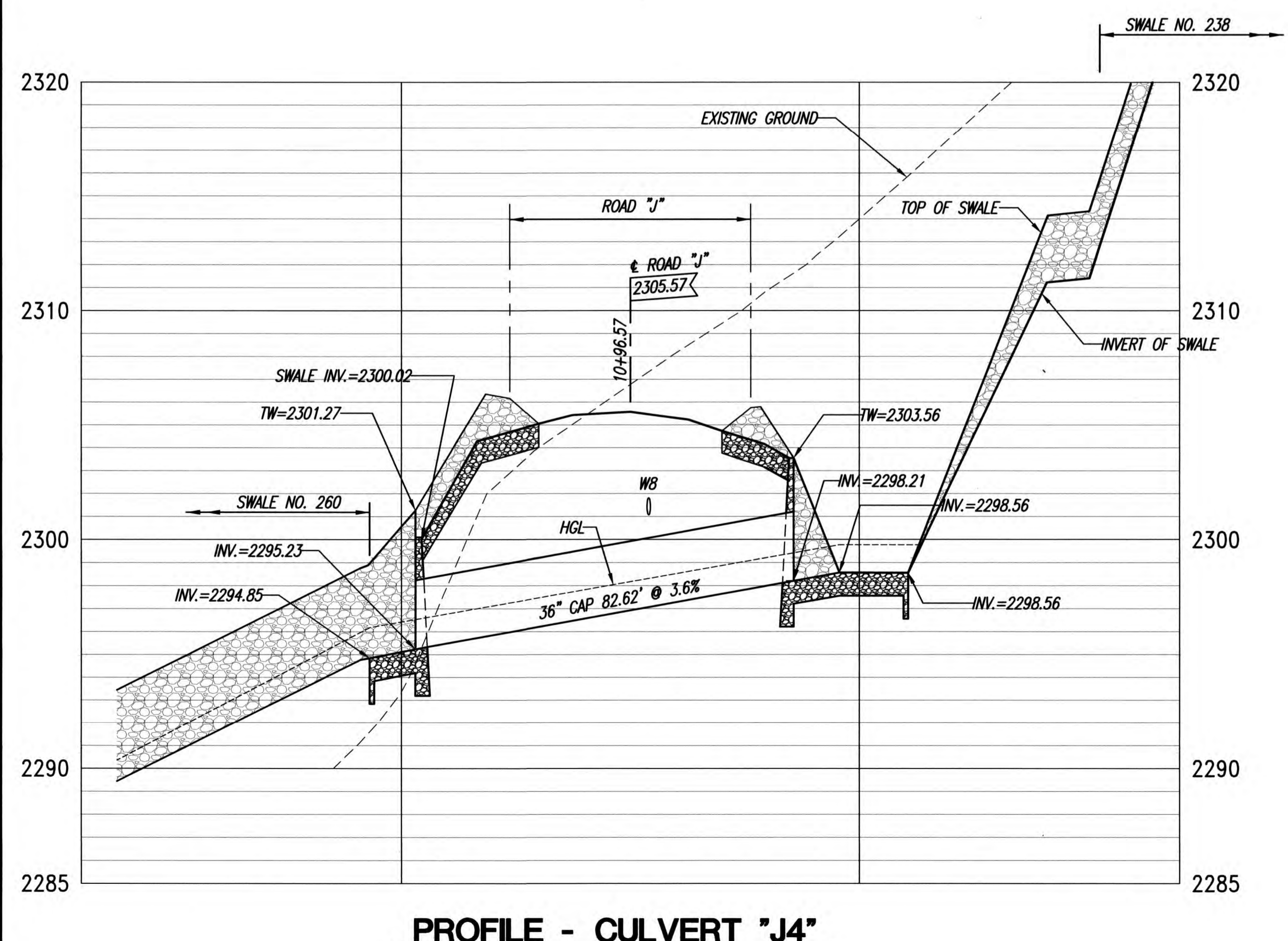
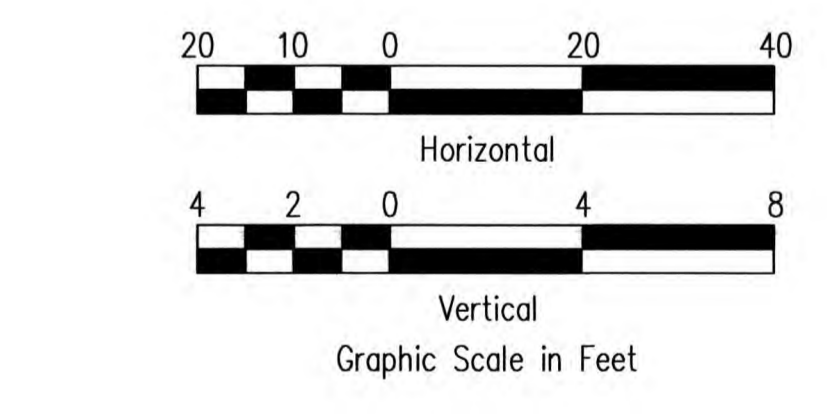


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN AND PROFILE DRAIN CULVERTS "J2" &amp; "J3"</b>			
DRAWN BY: HWH	ENGINEER: HWH, FJC	CHECKED BY: AMM	



- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - GUARDRAIL
  - CATTLE GATE
  - NEW WATER LINE
  - TYPE "A" SERVICE LATERAL
  - TYPE "A-1" SERVICE LATERAL
  - 216 LOT NUMBER



ANSON M. MURAYAMA  
LICENSED PROFESSIONAL ENGINEER  
No. 6975-C  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

Community Planning and Engineering, Inc.  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor, Honolulu, Hawaii

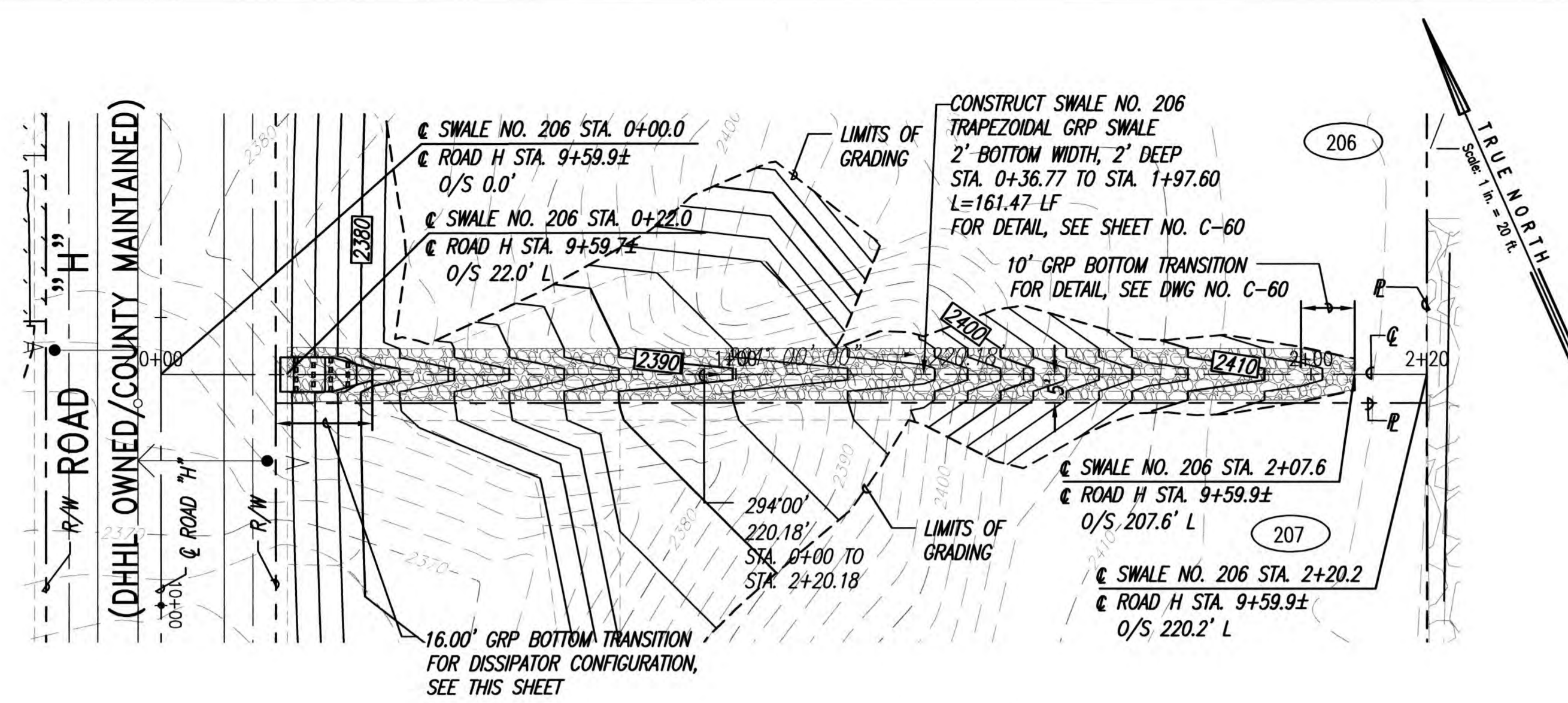
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE DRAIN CULVERTS "J4" & "J5"**

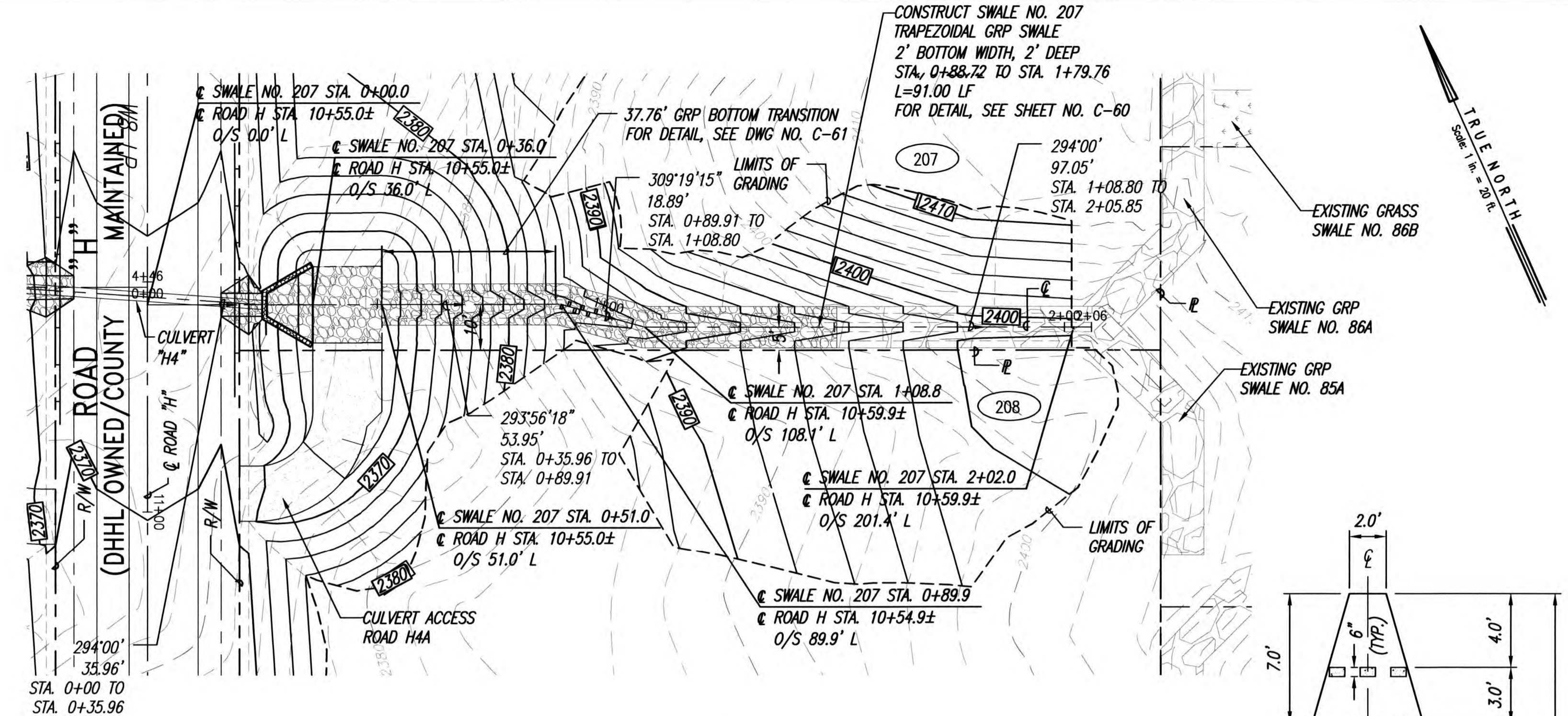
DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: AMM

REVISION DATE DESCRIPTION MADE BY APPROVED

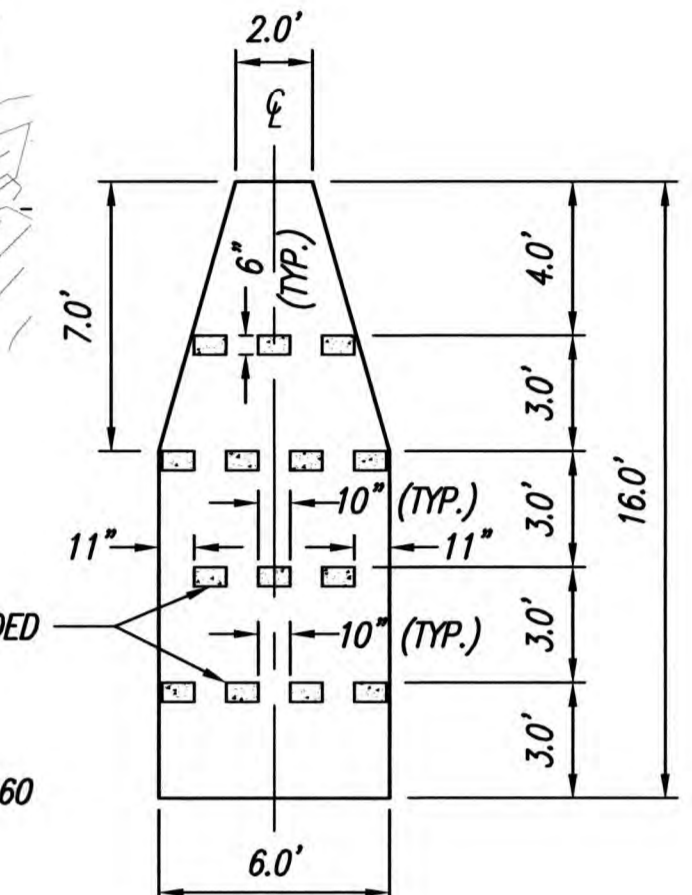




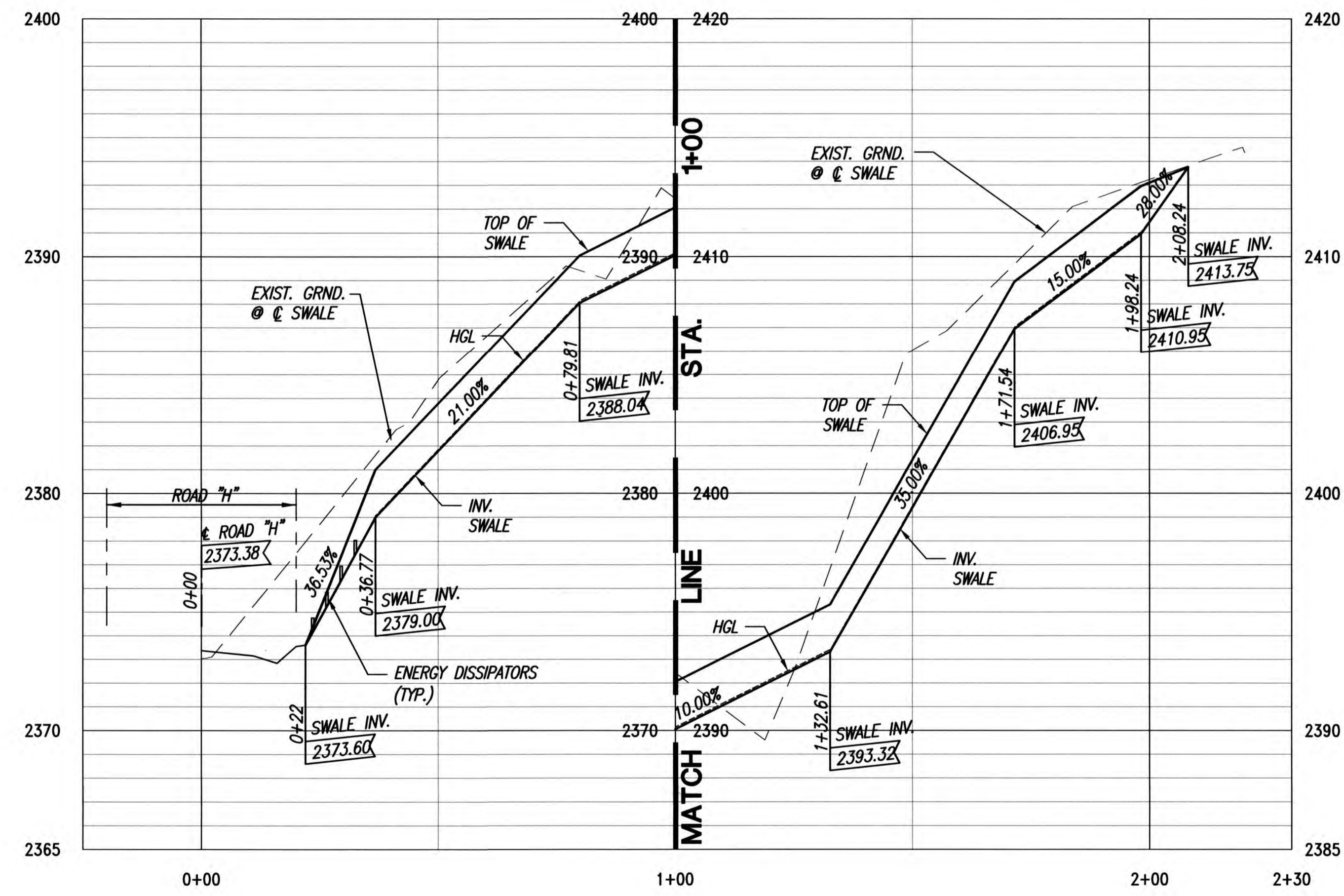
**PLAN - SWALE NO. 206**  
SCALE: 1"=20'



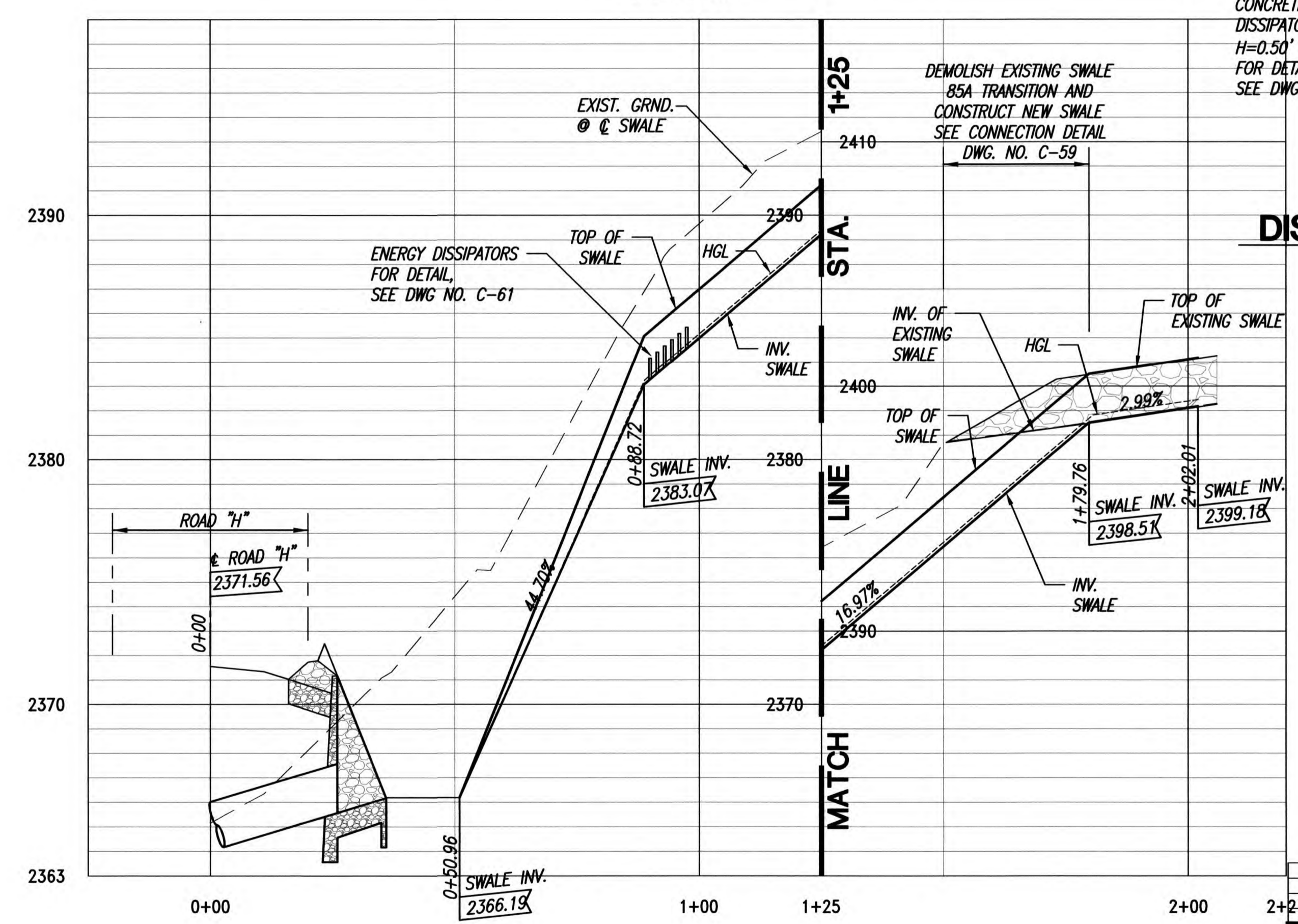
**PLAN - SWALE NO. 207**  
SCALE: 1"=20'



**SWALE NO. 206 DISSIPATOR CONFIGURATION**  
SCALE: 1"= 5'



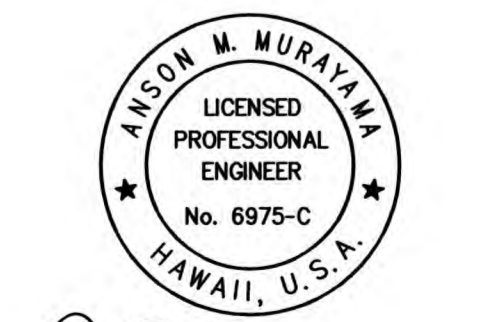
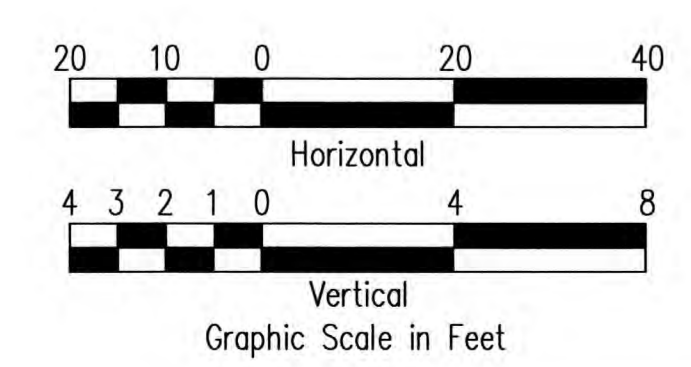
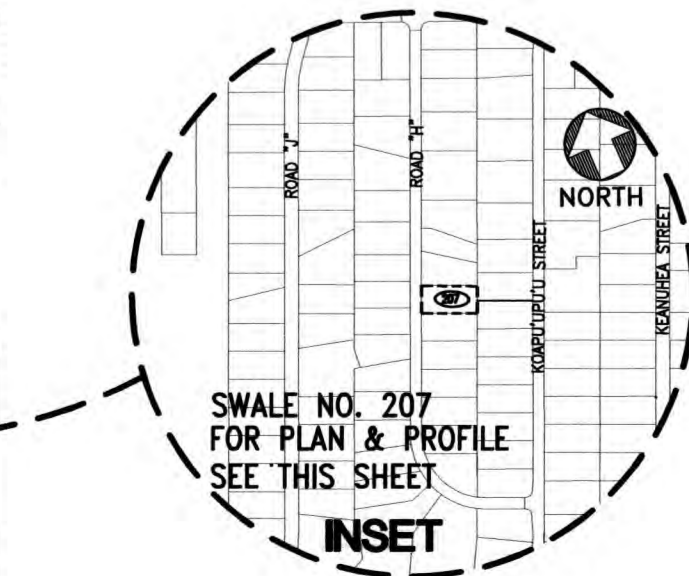
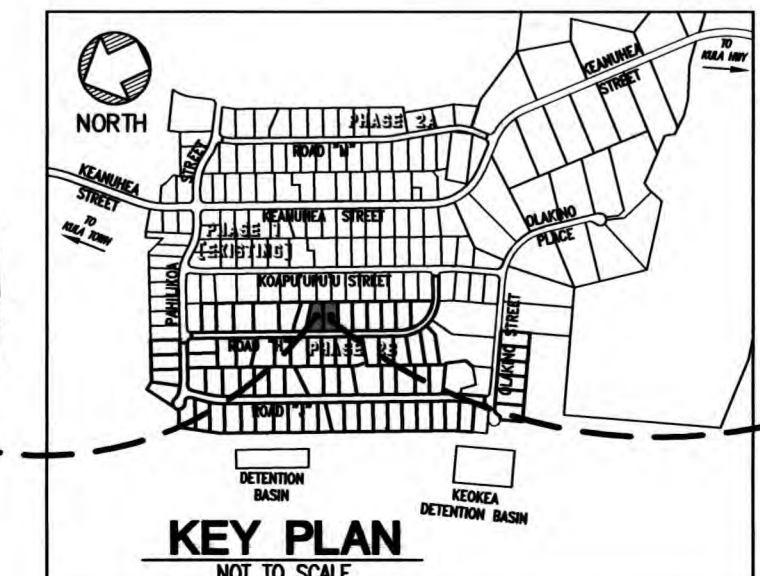
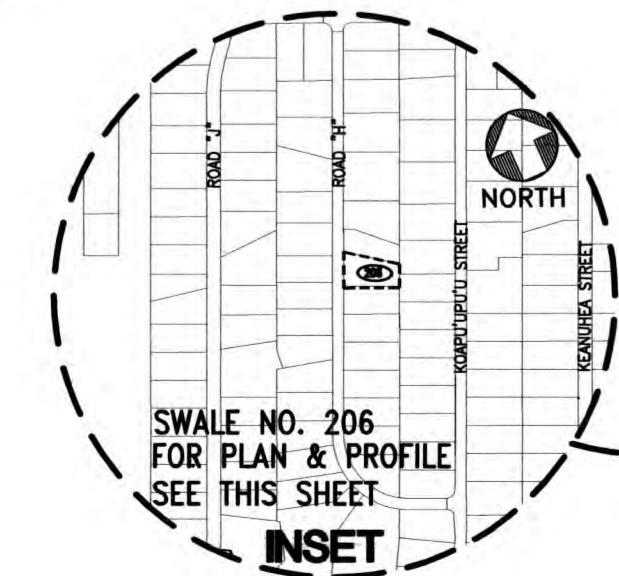
**PROFILE - SWALE NO. 206**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - SWALE NO. 207**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

**LEGEND**

- LIMITS OF GRADING
- - - EXISTING GROUND CONTOUR
- ▬ FINISH GRADE CONTOUR
- ▬ PROPERTY LINE
- LOT NUMBER
- EXISTING LOT NUMBER



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

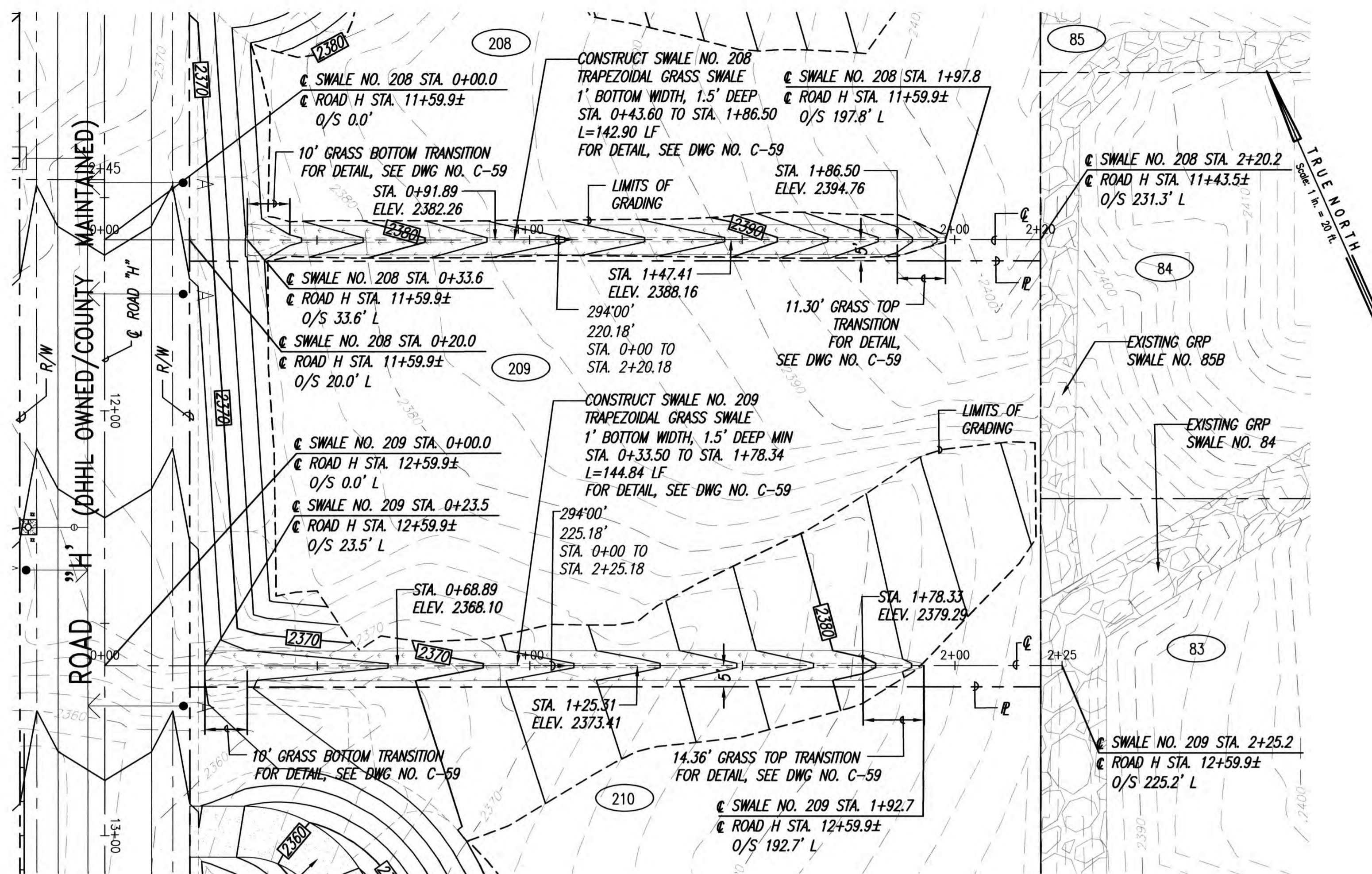
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE SWALE NO. 206 & 207**

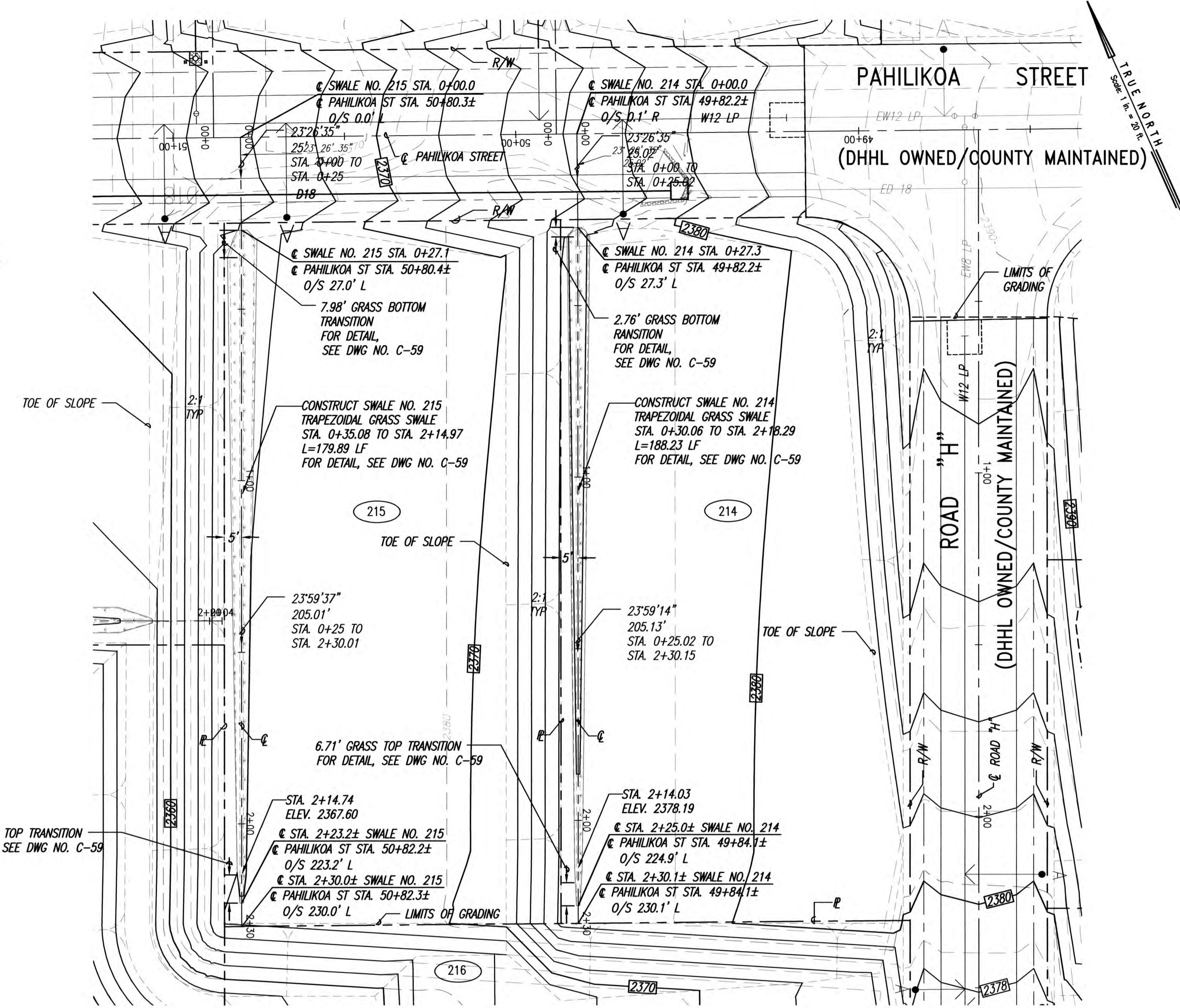
DRAWN BY: HWH, CO ENGINEER: HWH, FJC CHECKED BY: AMM

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----



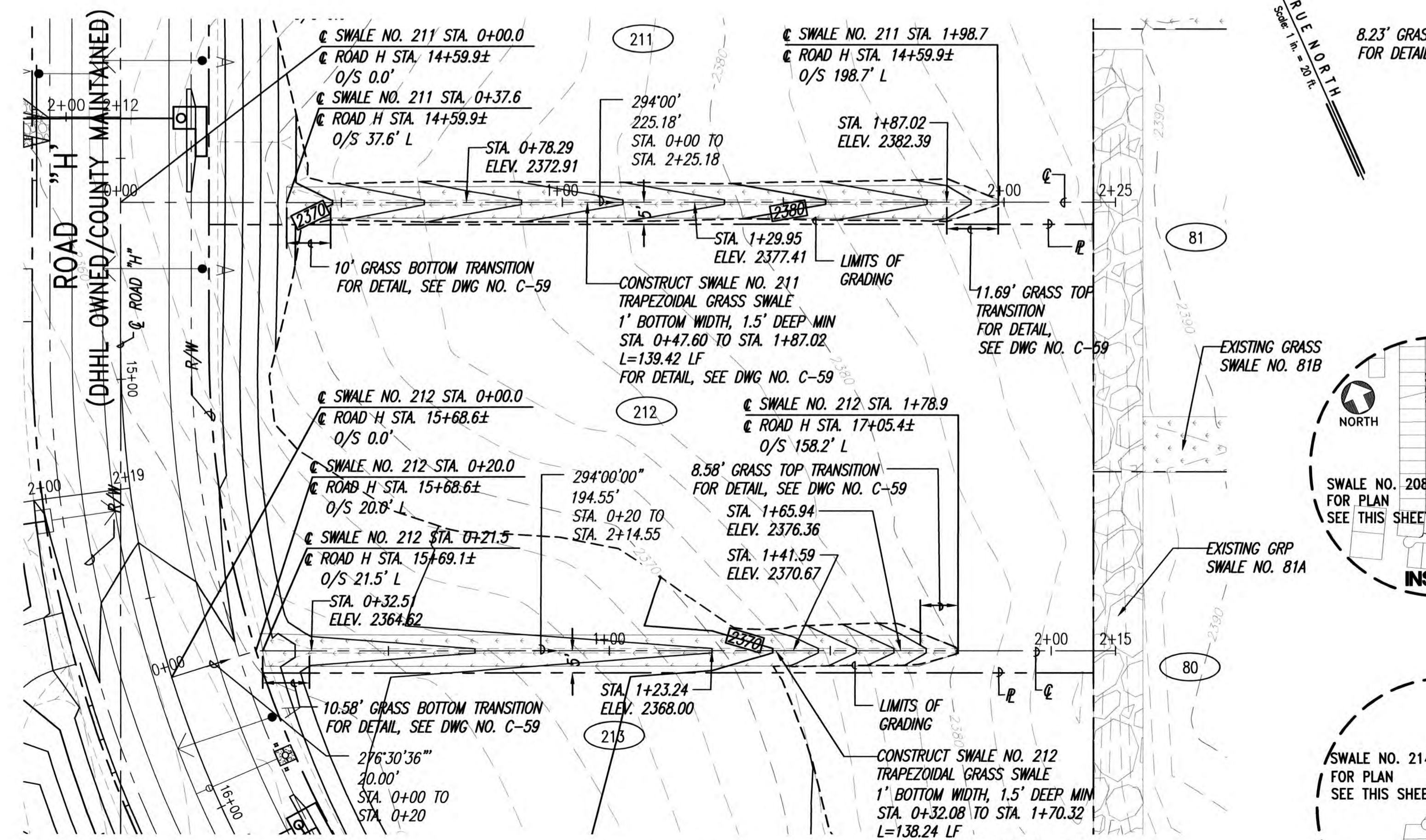
**PLAN - SWALE NO. 208 & 209**

SCALE: 1"=20'



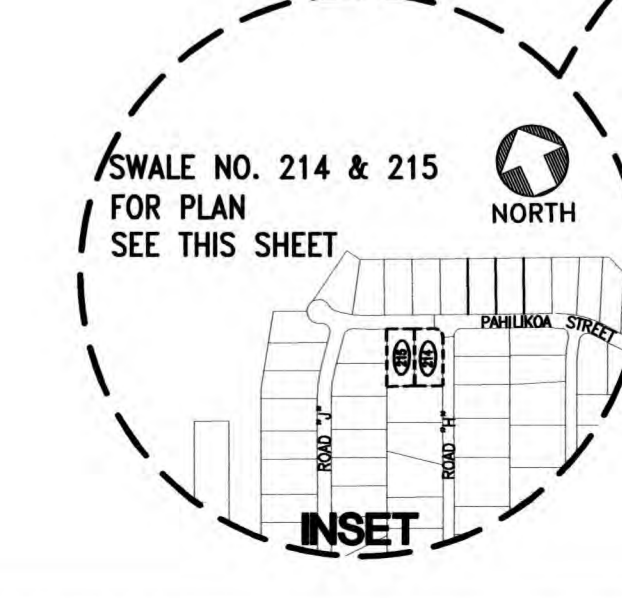
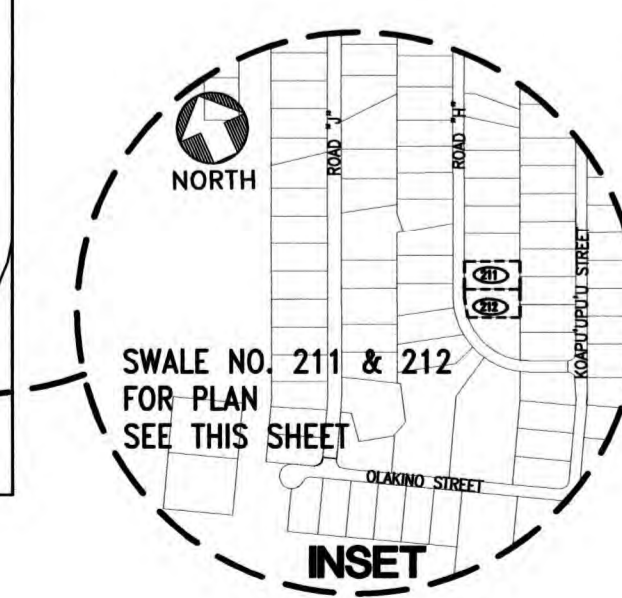
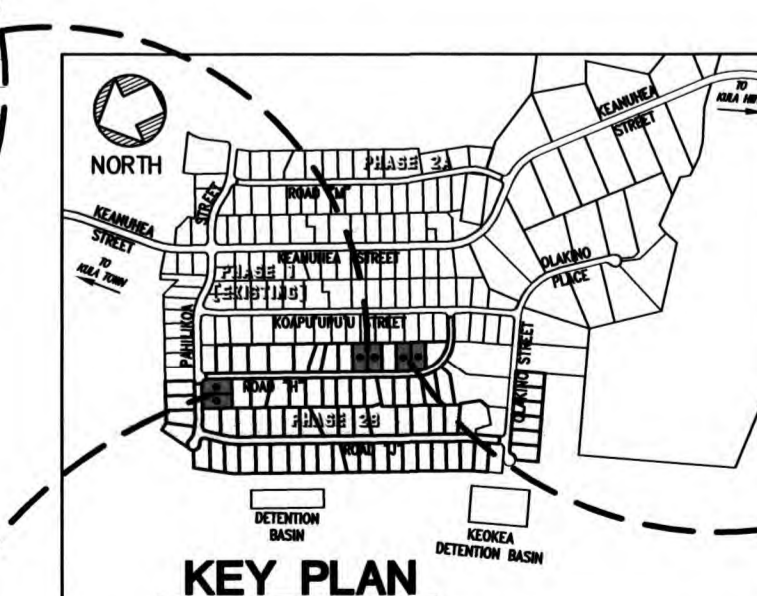
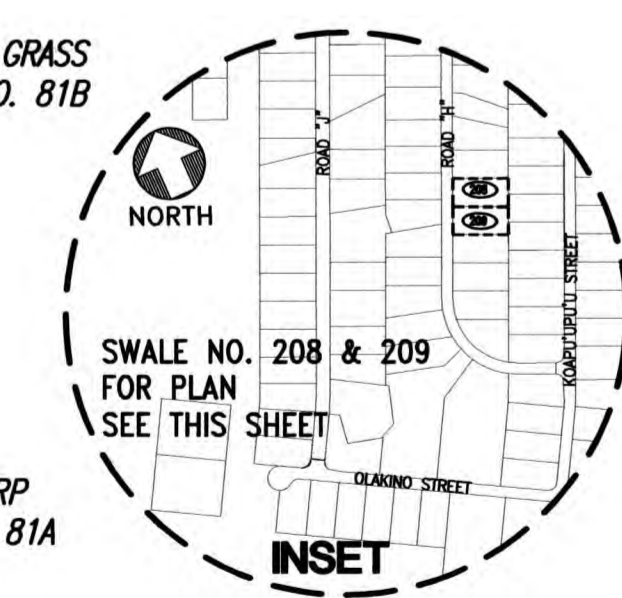
**PLAN - SWALE NO. 214 & 215**

SCALE: 1"=20'

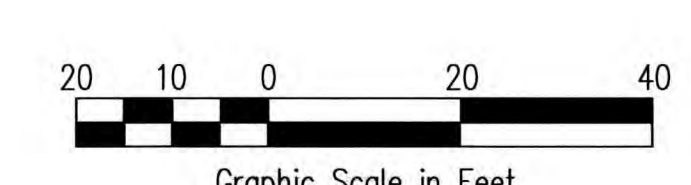


**PLAN - SWALE NO. 211 & 212**

SCALE: 1"=20'



- LEGEND**
- LIMITS OF GRADING
  - 2500 EXISTING GROUND CONTOUR
  - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002:014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

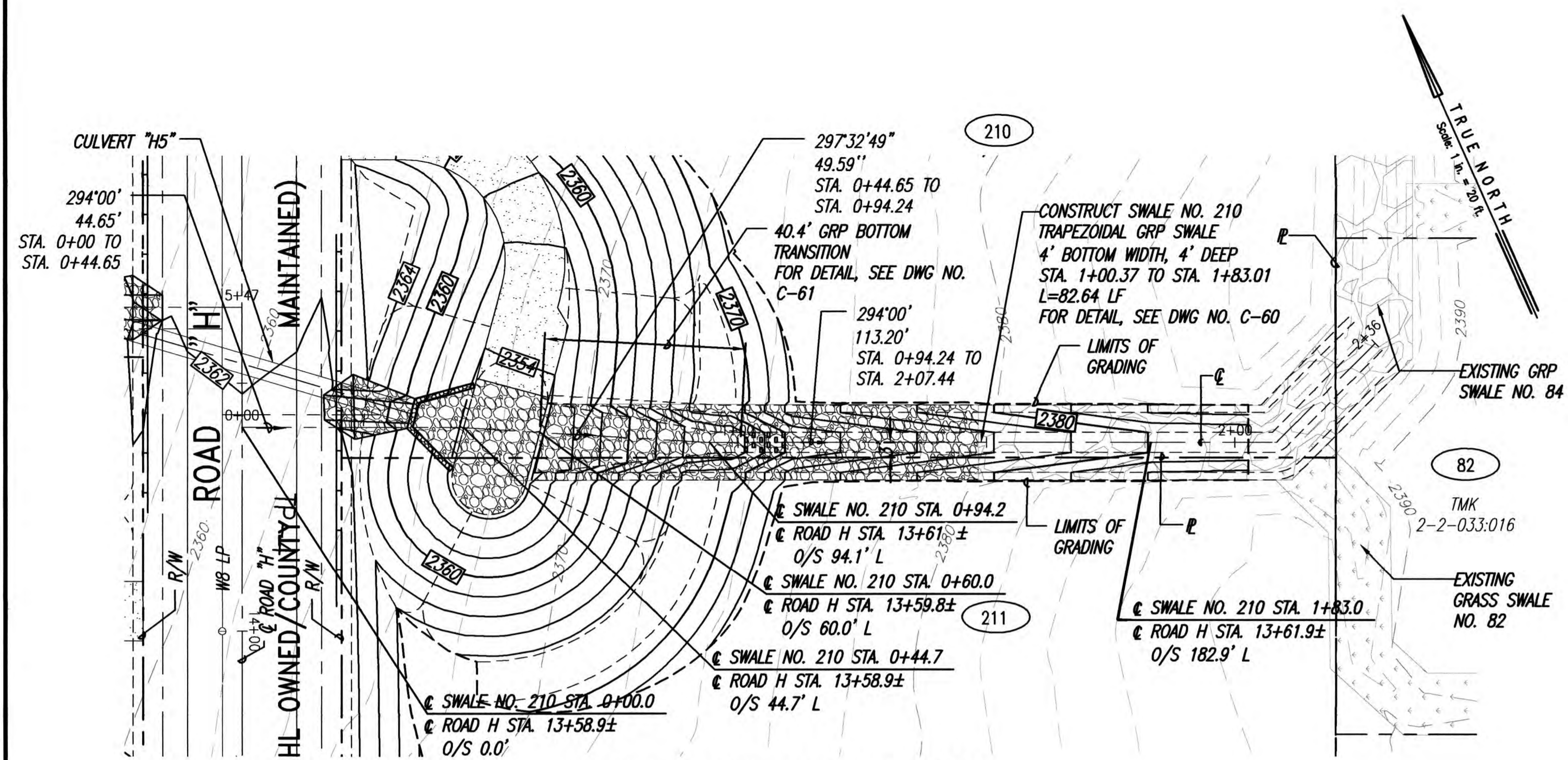
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

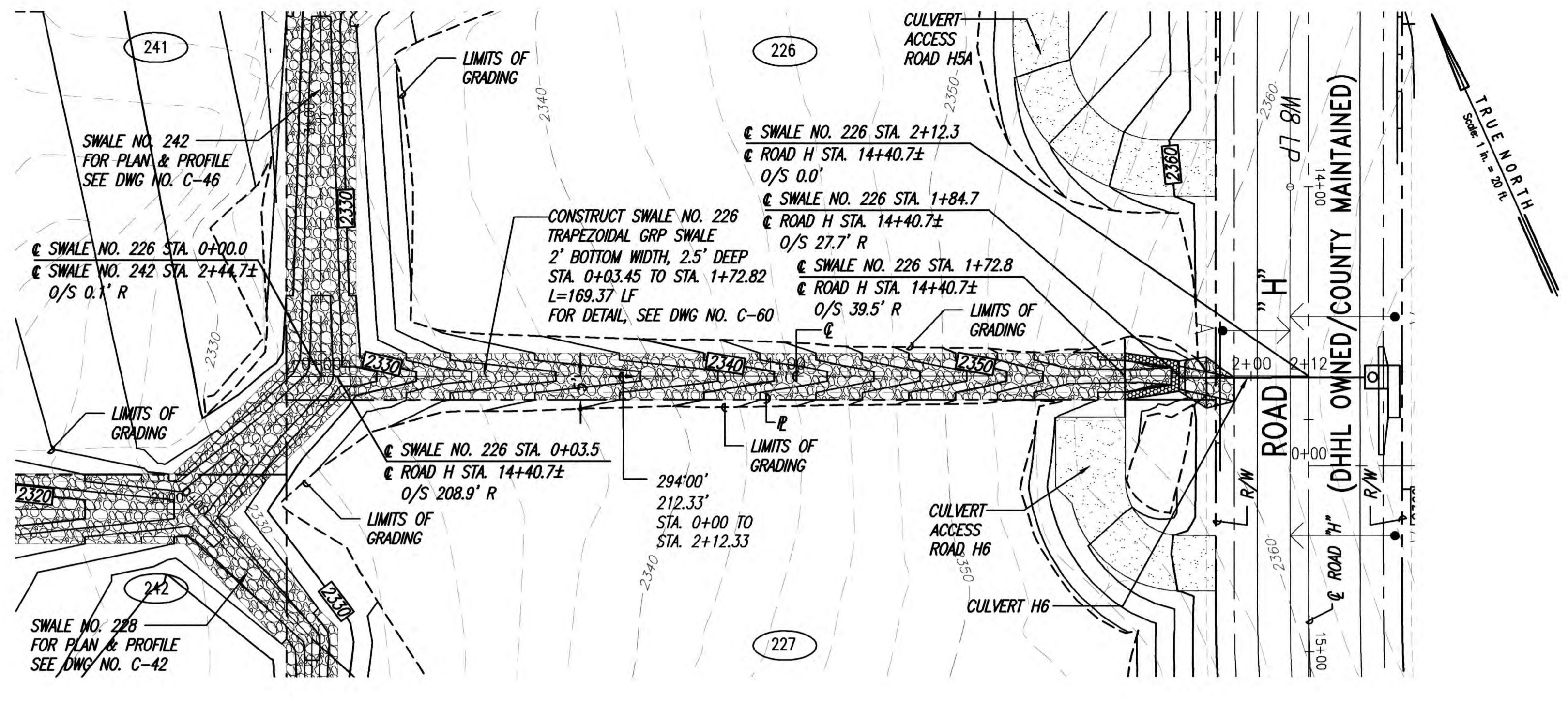
**PLAN SWALE NO. 208, 209, 211, 212, 214 & 215**

DRAWN BY: HWH, CO ENGINEER: HWH, FJC CHECKED BY: AMM

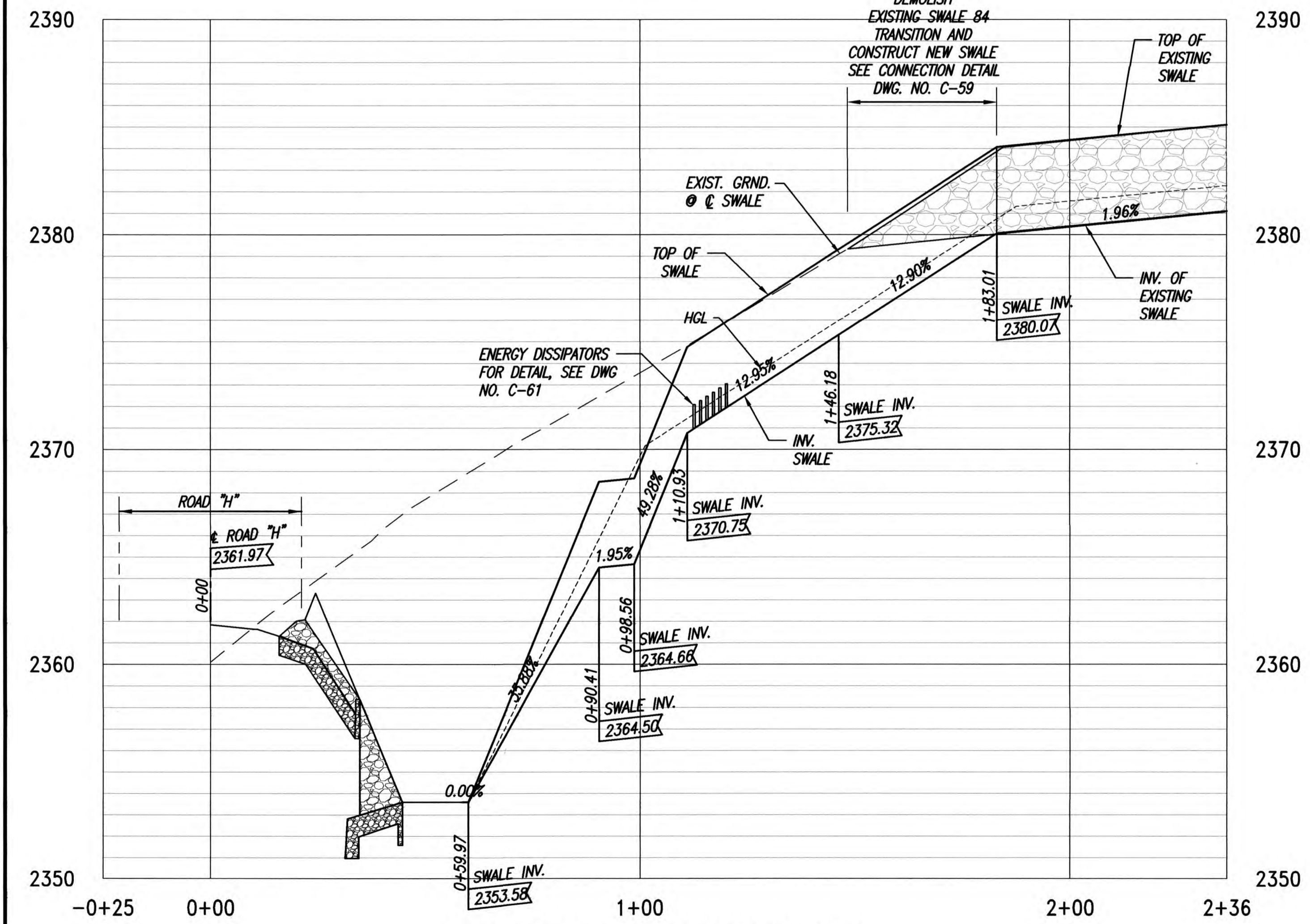




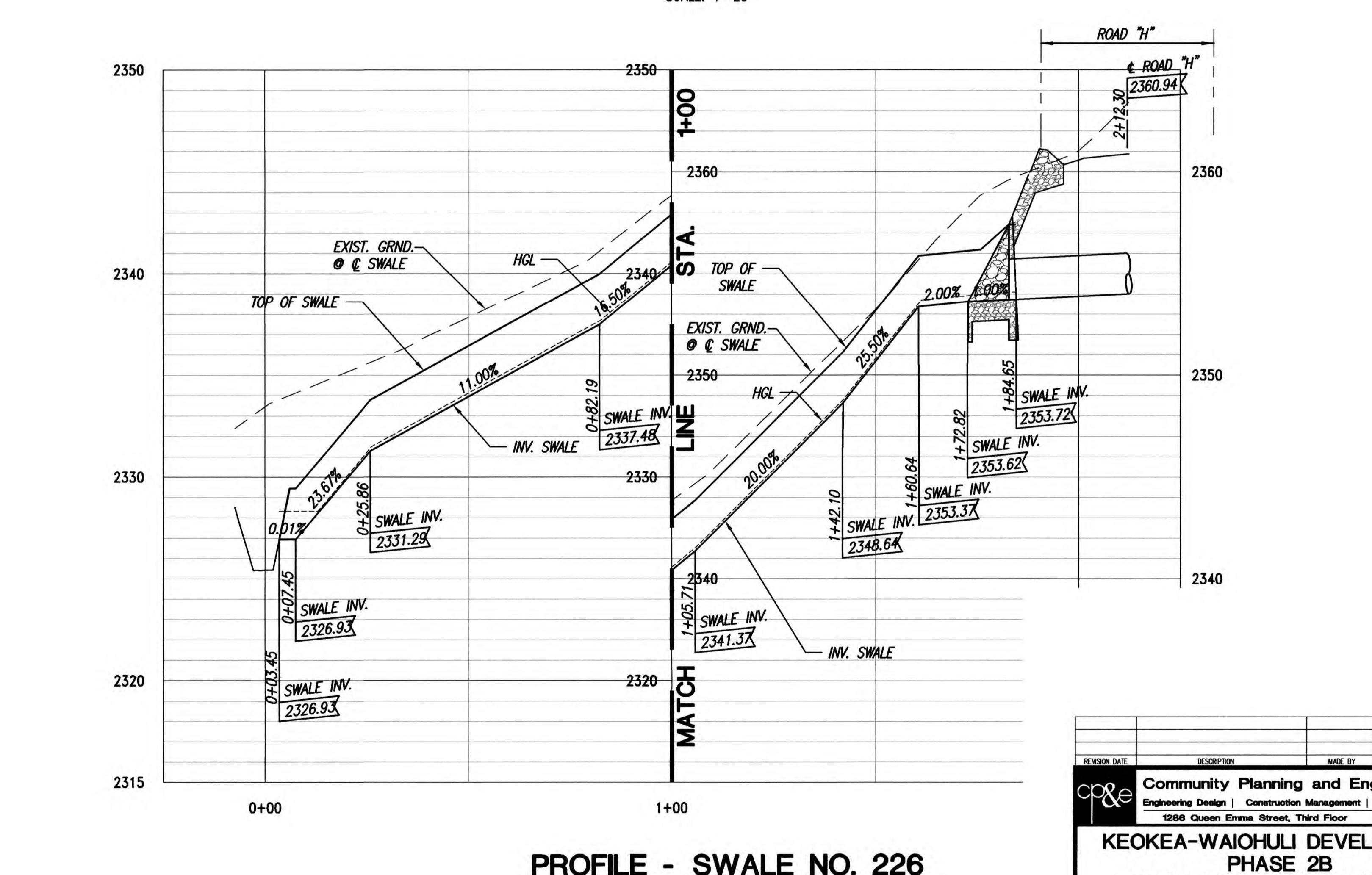
**PLAN - SWALE NO. 210**  
SCALE: 1"=20'



**PLAN - SWALE NO. 226**  
SCALE: 1"=20'

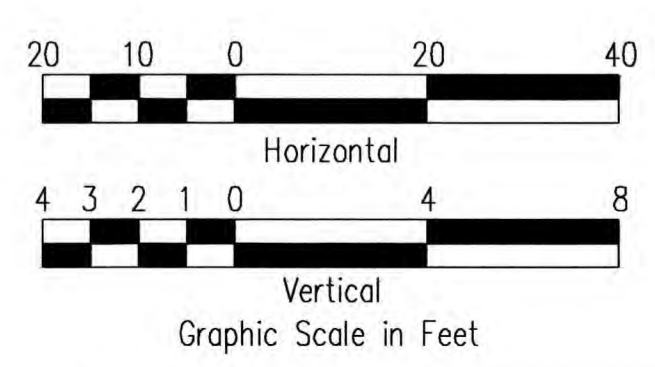
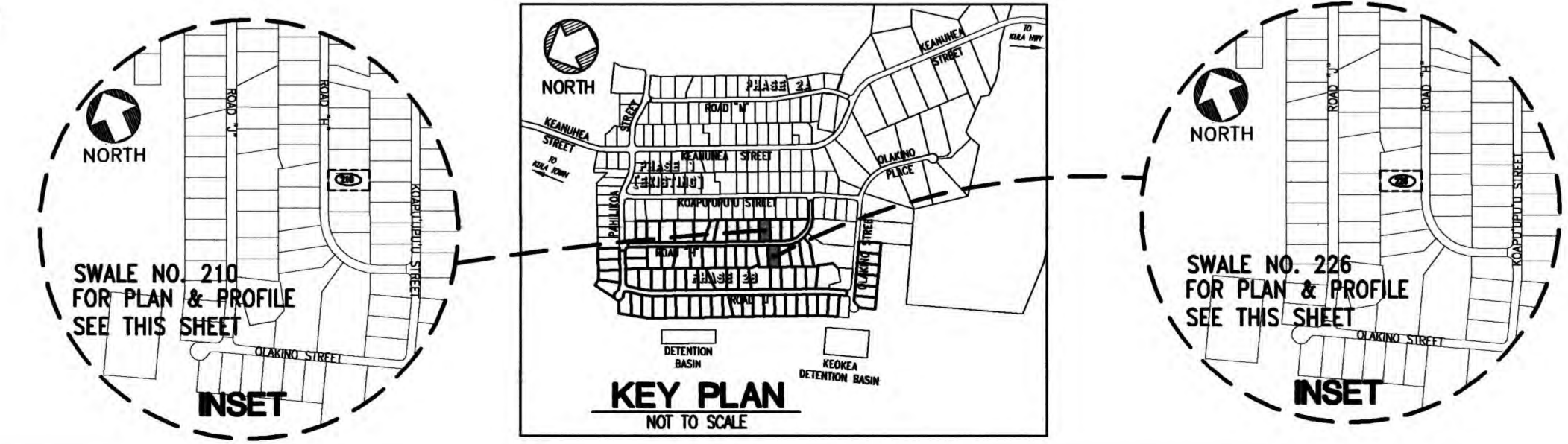


**PROFILE - SWALE NO. 210**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - SWALE NO. 226**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - 2500 --- EXISTING GROUND CONTOUR
  - - - 2450 --- FINISH GRADE CONTOUR
  - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

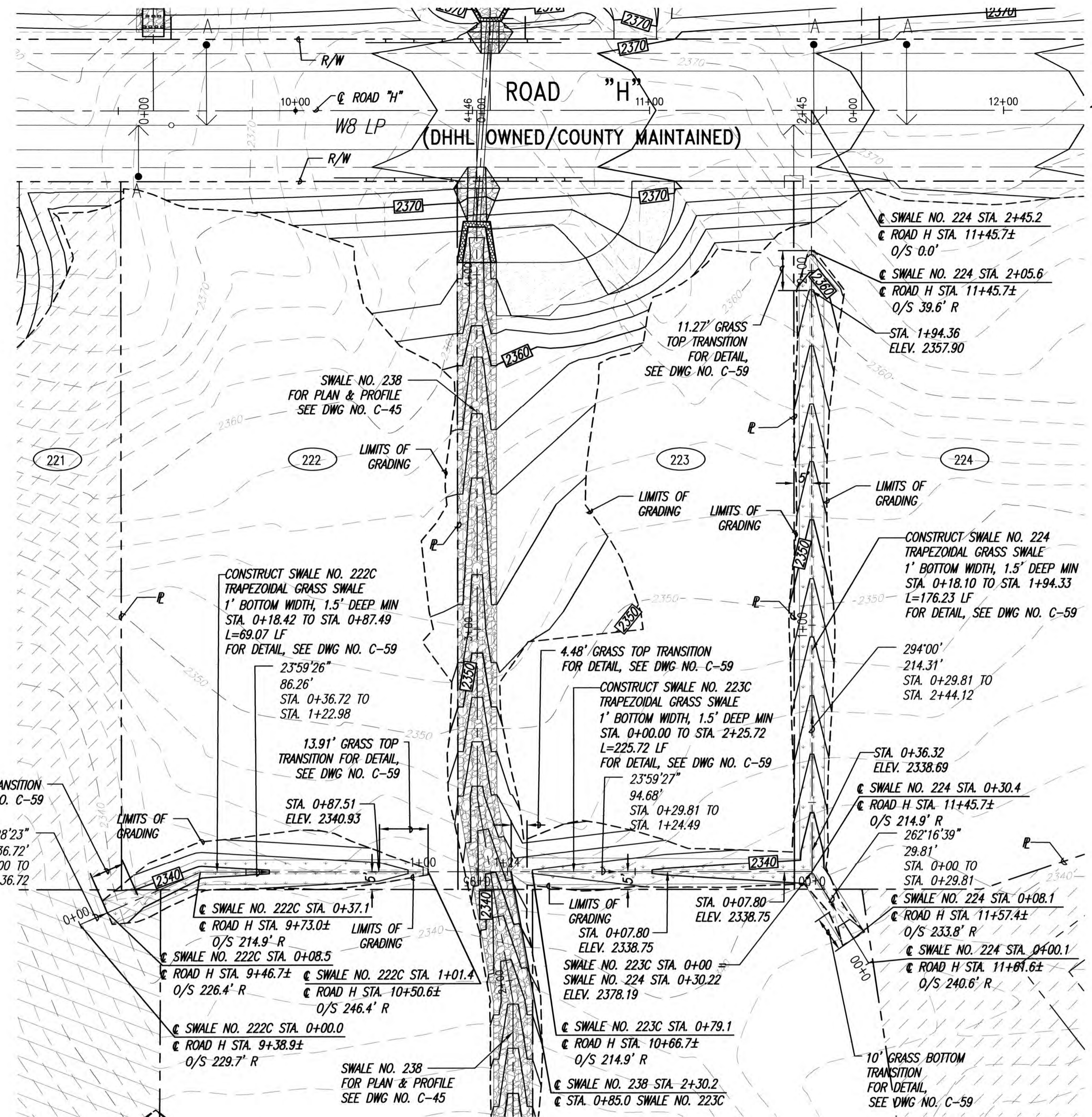
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1208 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

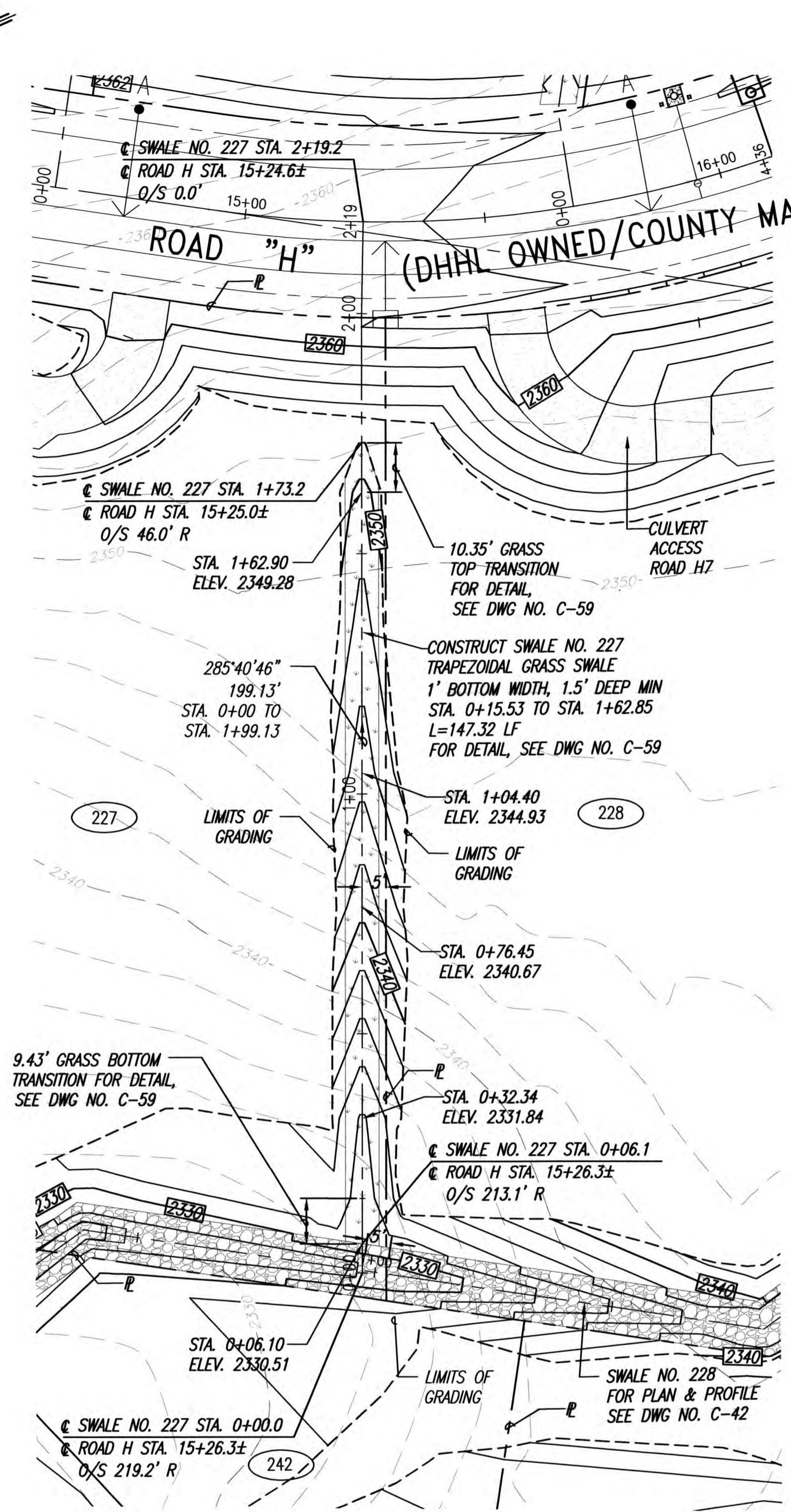
**PLAN AND PROFILE SWALE NO. 210 & 226**

DRAWN BY: HWH, CO ENGINEER: HWH, FJC CHECKED BY: AMM



**PLAN - SWALE NO. 222C, 223C, & 224**

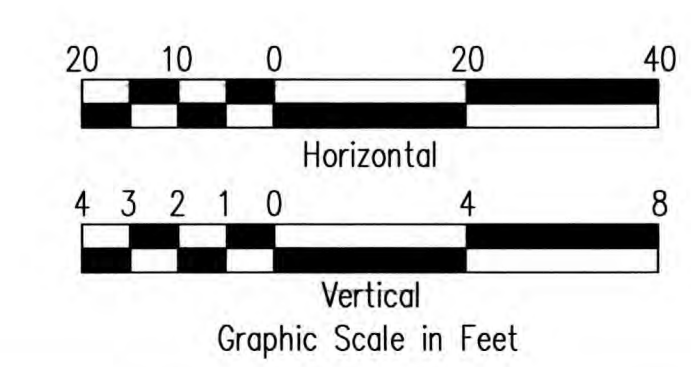
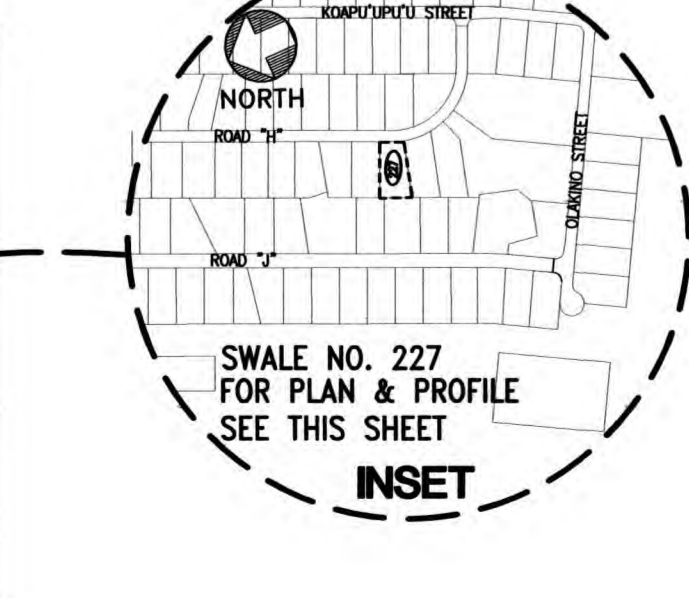
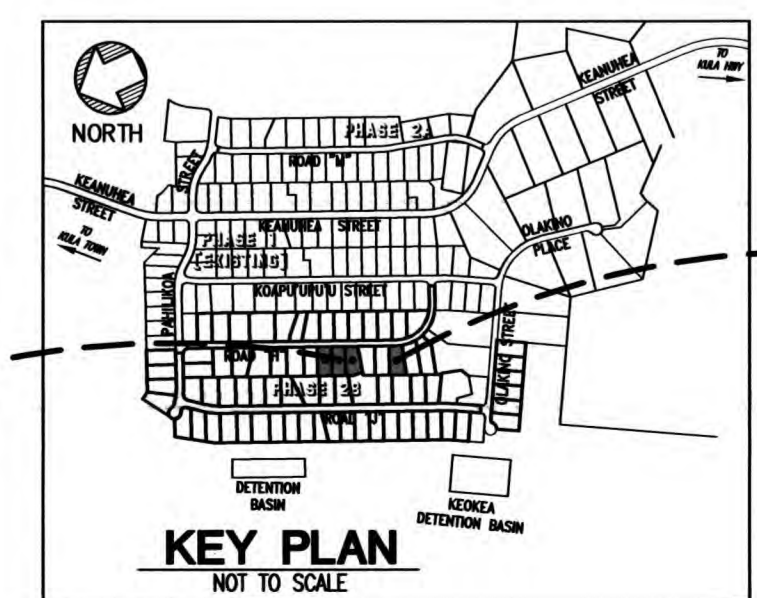
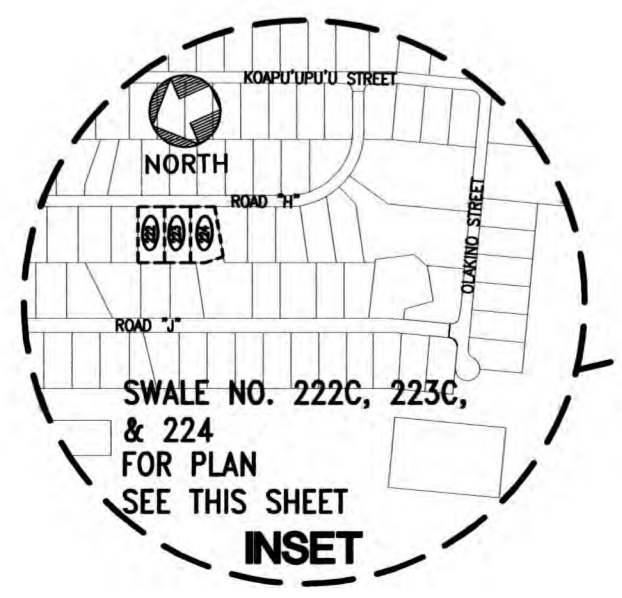
SCALE: 1"=20'



**PLAN - SWALE NO. 227**

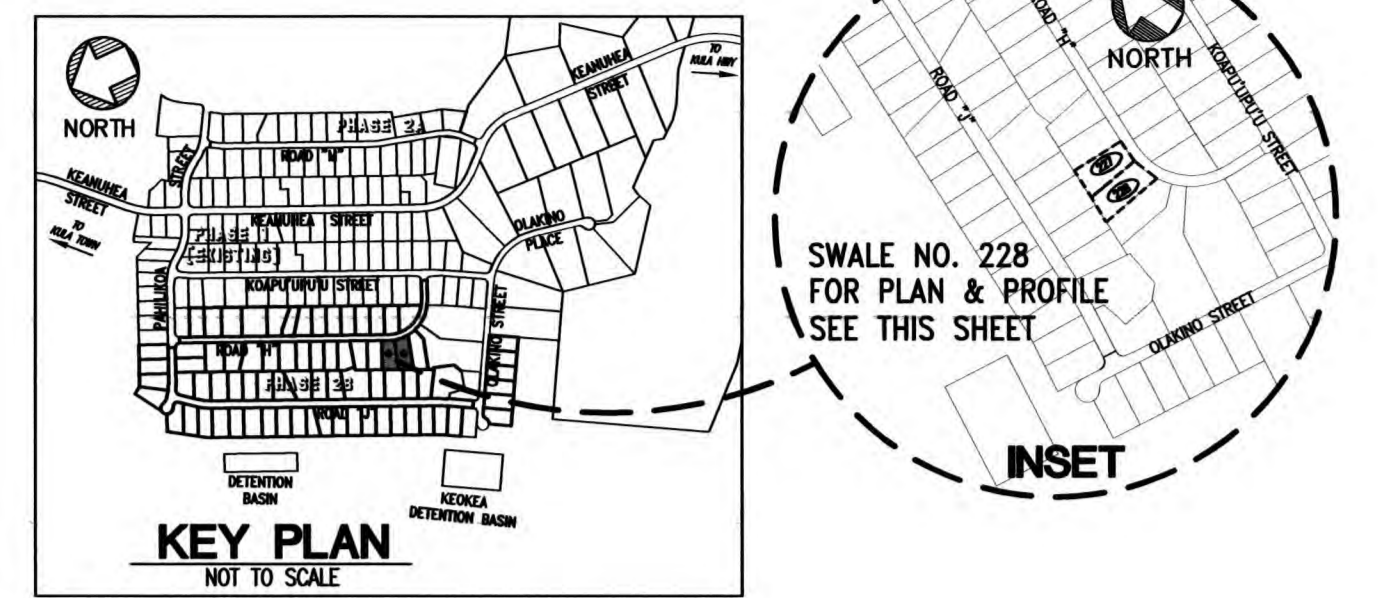
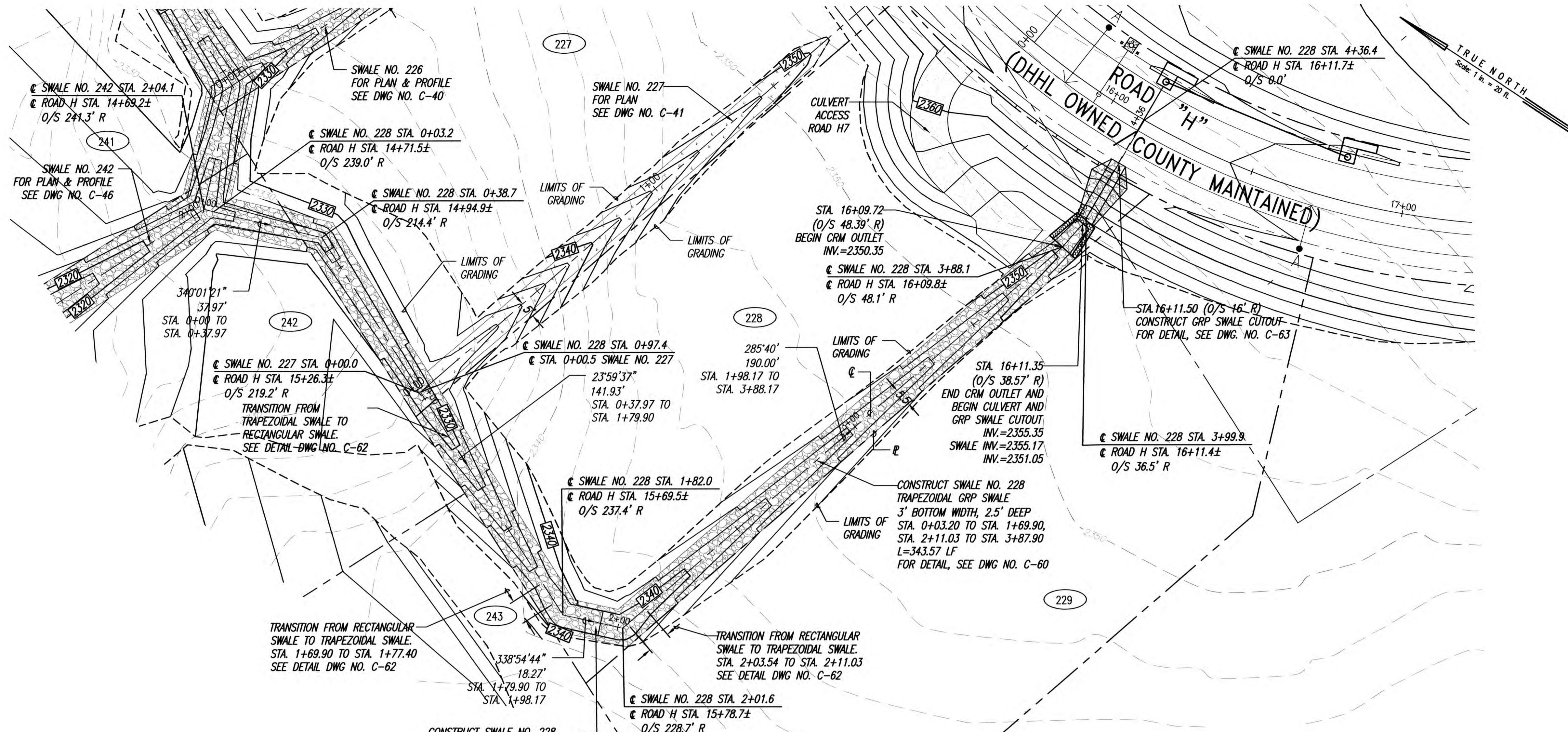
SCALE: 1"=20'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - 2450 — FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002:014



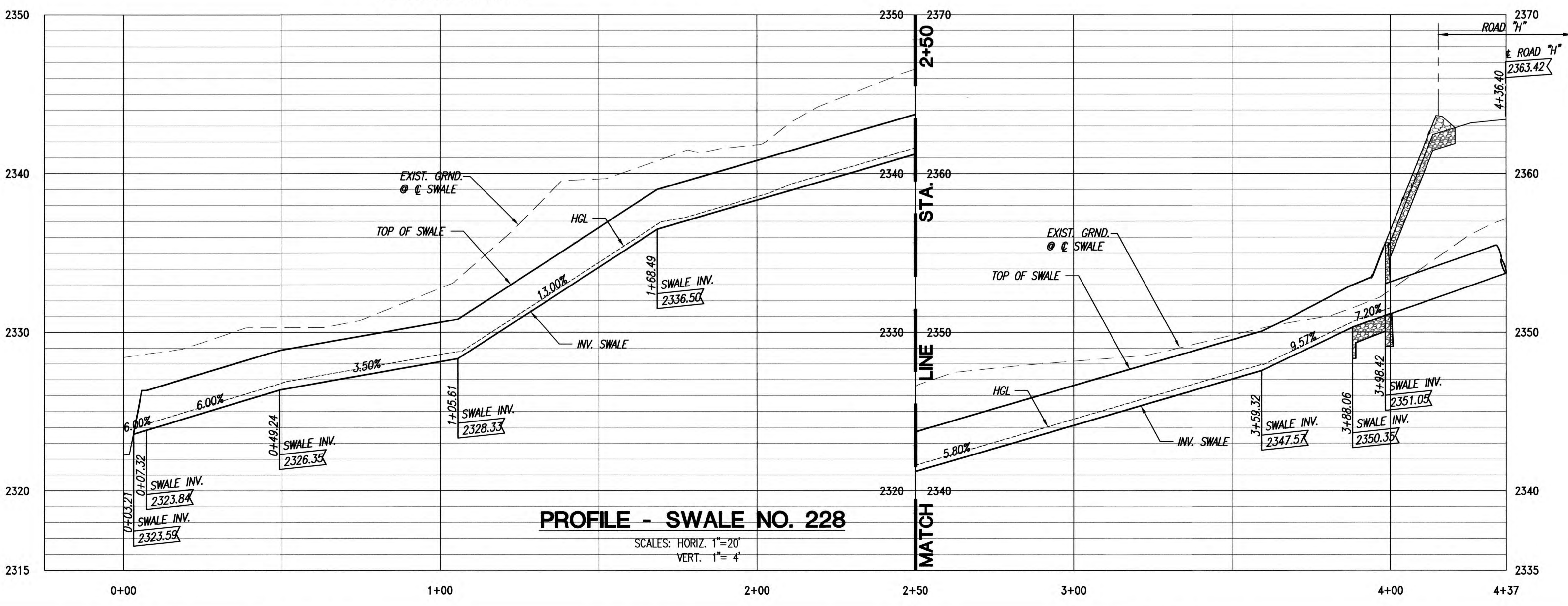
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b>          Engineering Design   Construction Management   Infrastructure Planning          1288 Queen Emma Street, Third Floor   Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b>          KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI          OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS          TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN SWALE NO. 222C, 223C, 224 &amp; 227</b></p>			
DRAWN BY: HWH, CO	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



**PLAN - SWALE NO. 228**

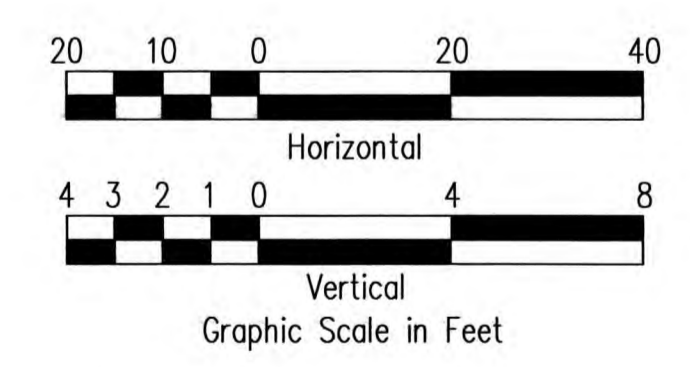
SCALE: 1"=20'



**PROFILE - SWALE NO. 228**

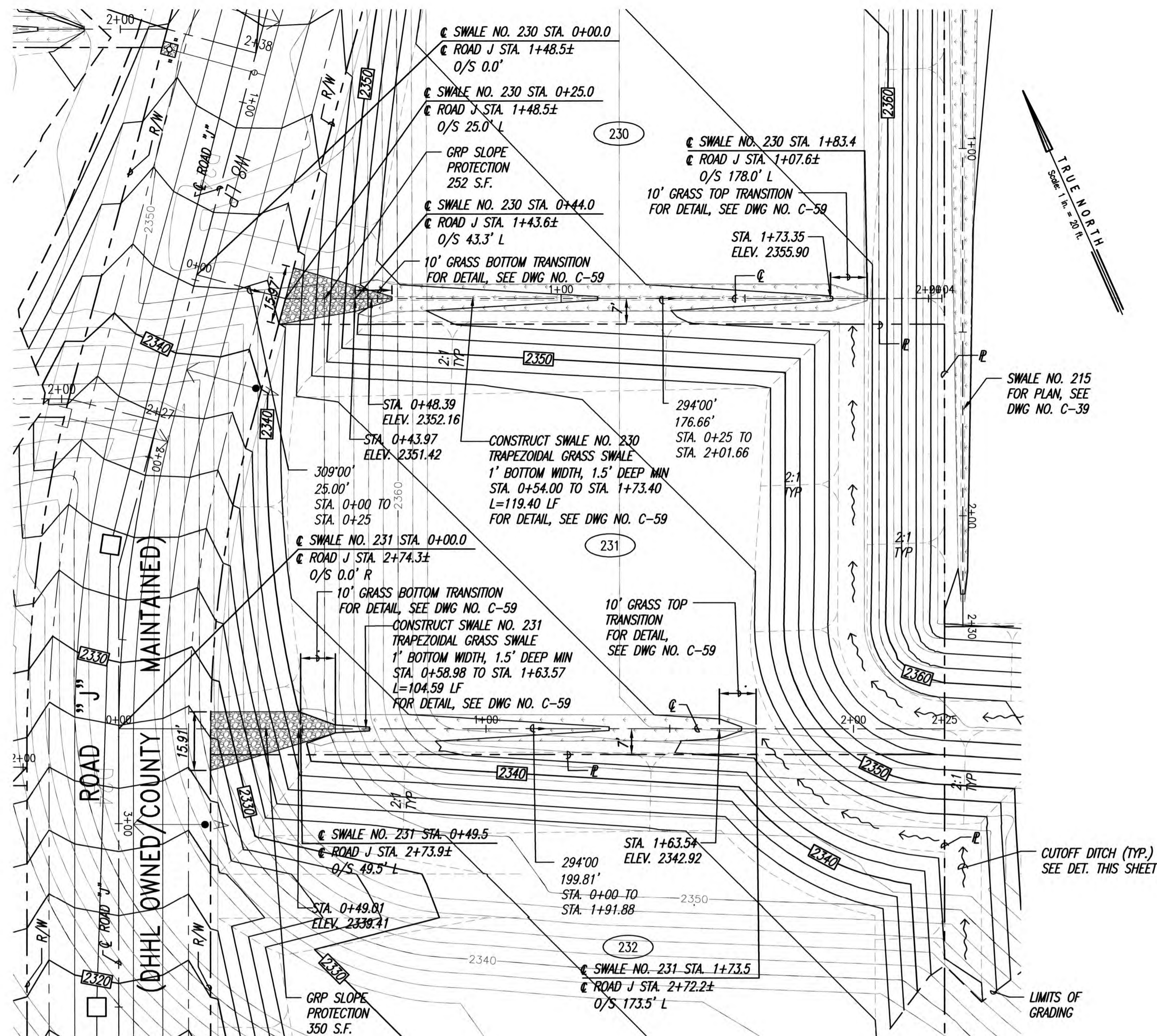
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - - 2500 EXISTING GROUND CONTOUR
  - - - - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002-014

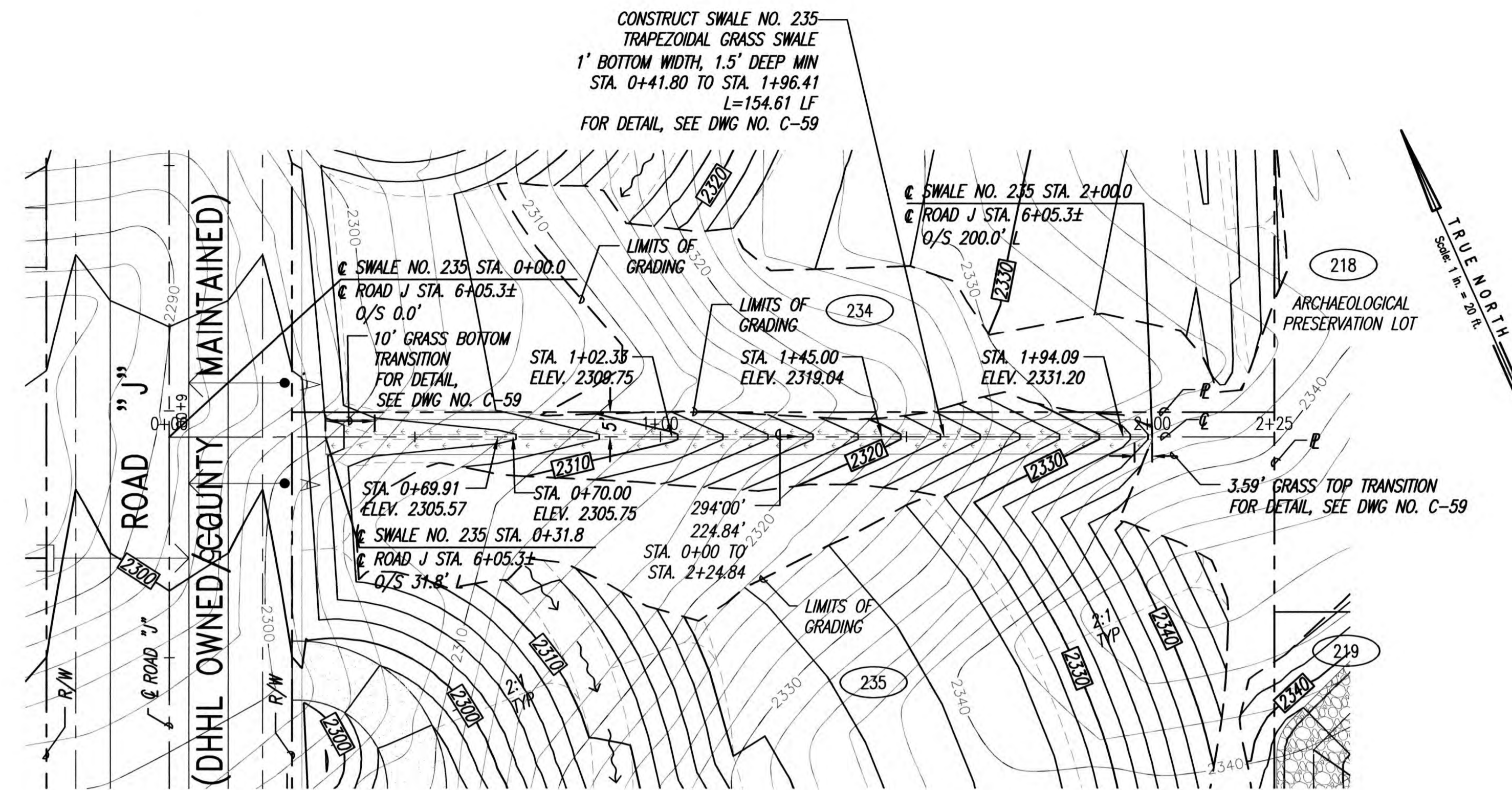


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

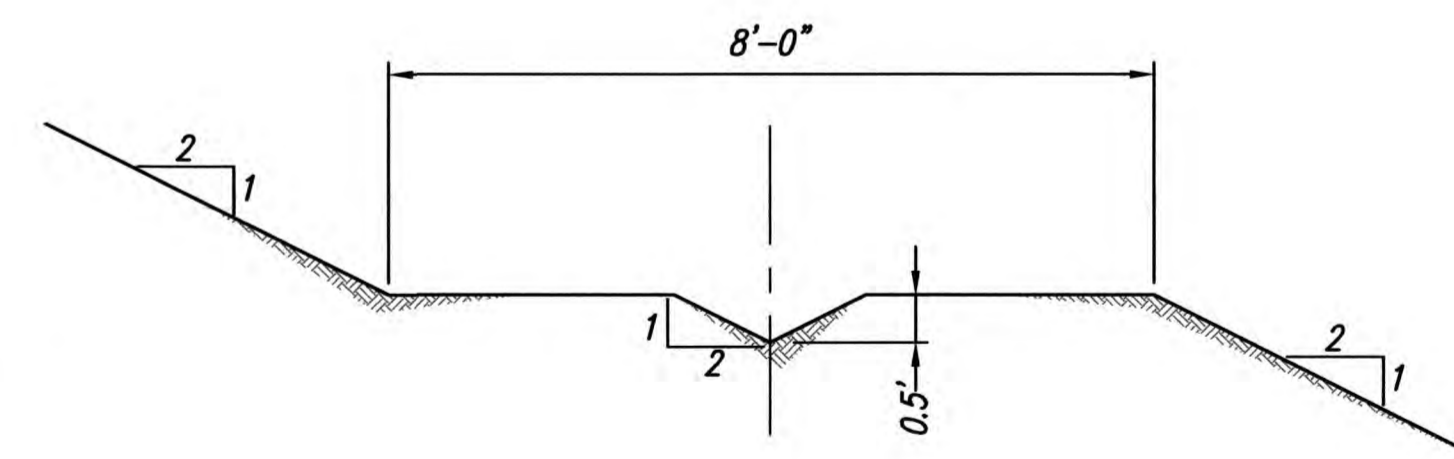
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023</p>			
<p><b>PLAN AND PROFILE SWALE NO. 228</b></p>			
DRAWN BY: HWH, CO		ENGINEER: HWH, JFC	CHECKED BY: AMM



**PLAN - SWALE NO. 230 & 231**  
SCALE: 1"=20'

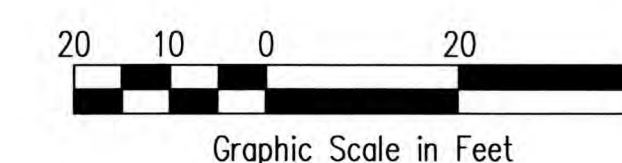
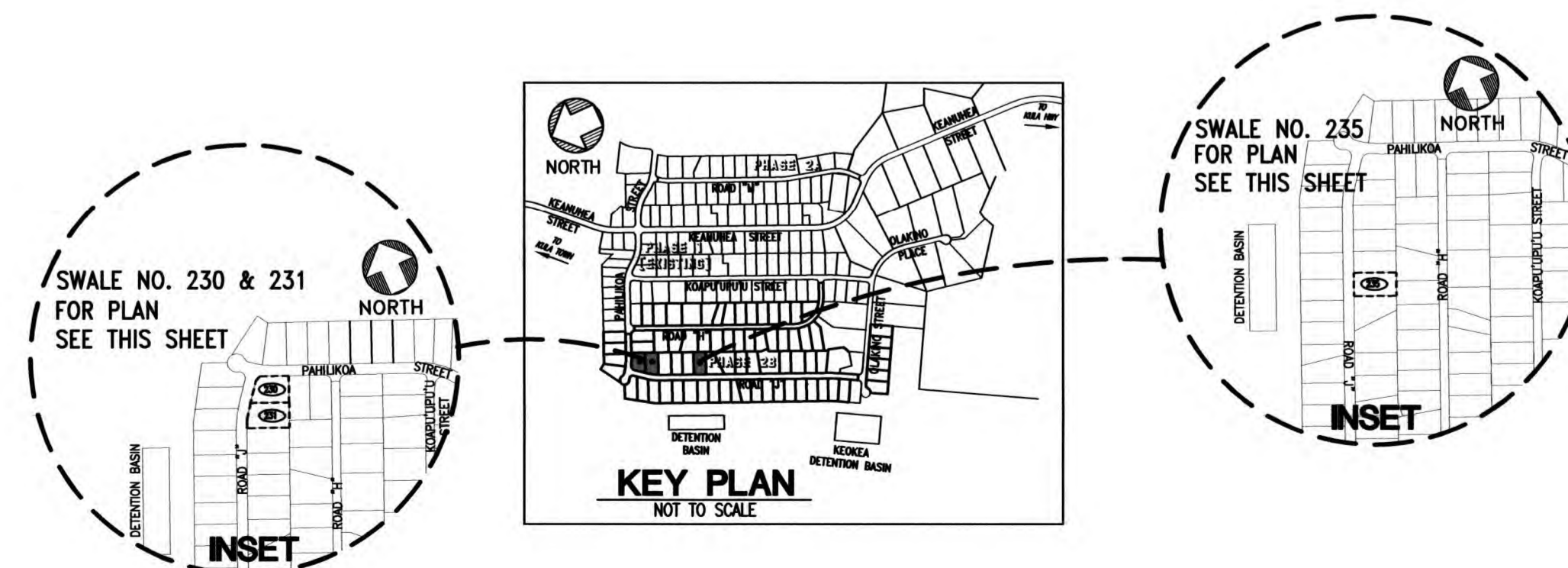


**PLAN - SWALE NO. 235**  
SCALE: 1"=20'



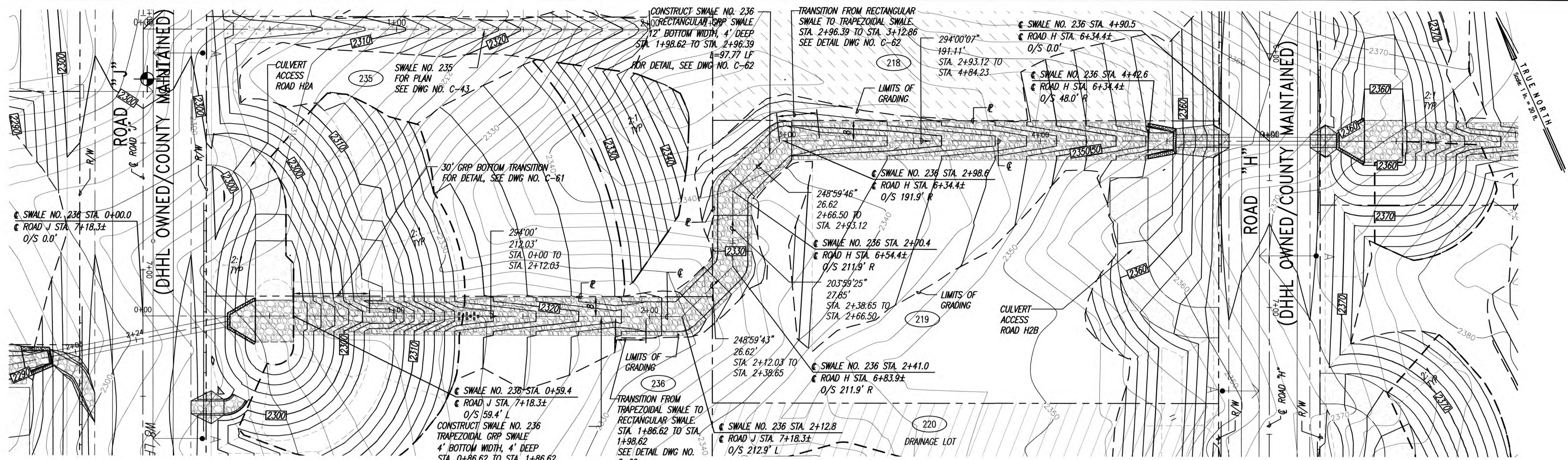
**CUTOFF DITCH DETAIL**  
SCALE: 1"=2'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002:014



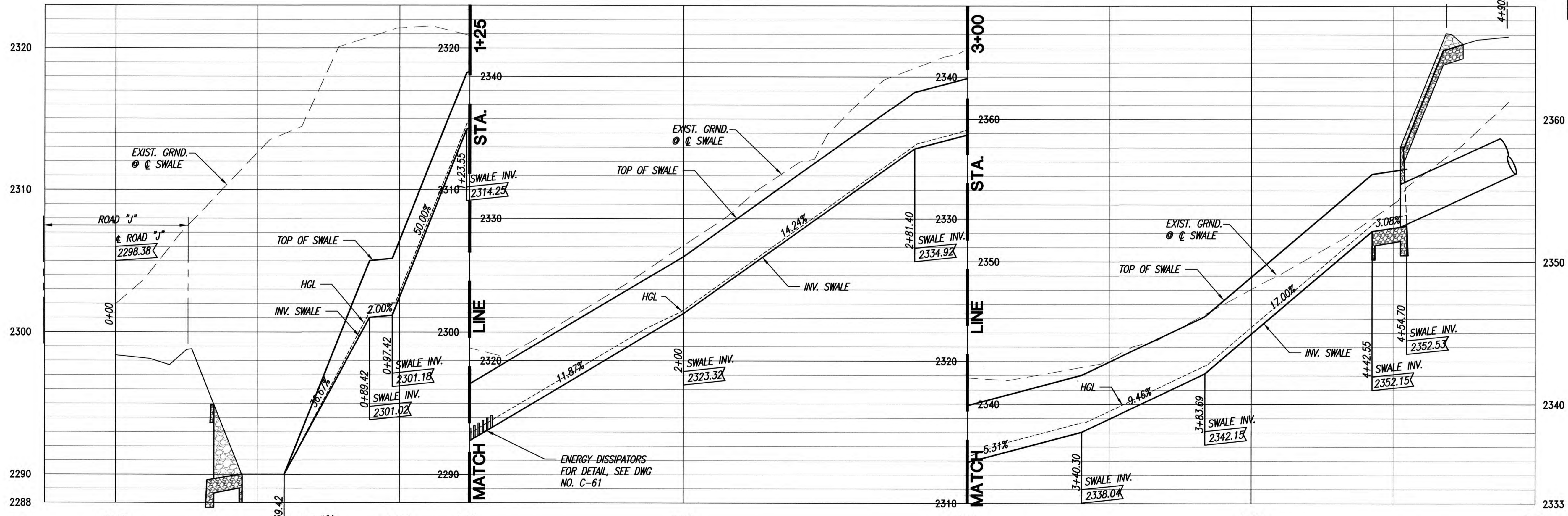
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1288 Queen Emma Street, Third Floor Honolulu, Hawaii</p> <p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p> <p><b>PLAN SWALE NO. 230, 231, &amp; 235</b></p>			
DRAWN BY: HWH, CO	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



**PLAN - SWALE NO. 236**

SCALE: 1"=20'

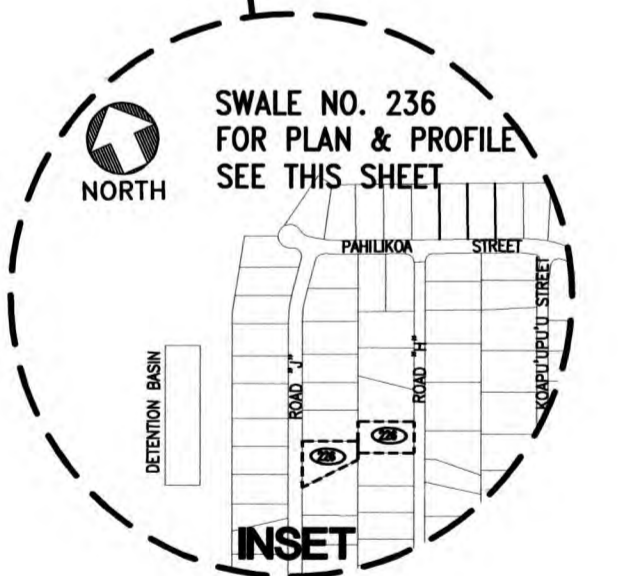
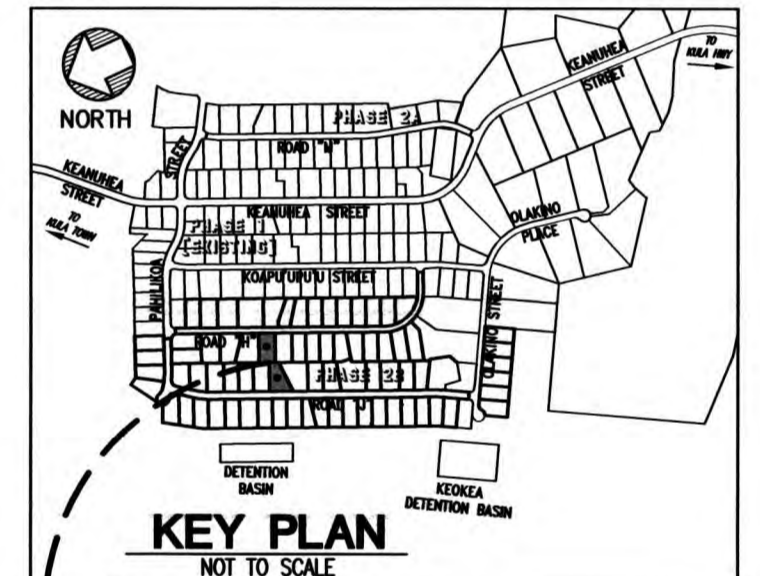


**PROFILE - SWALE NO. 236**

SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

**LEGEND**

- LIMITS OF GRADING
- - - EXISTING GROUND CONTOUR
- FINISH GRADE CONTOUR
- PROPERTY LINE
- (140) LOT NUMBER
- (165) EXISTING LOT NUMBER
- TMK 2-2-002:014



REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

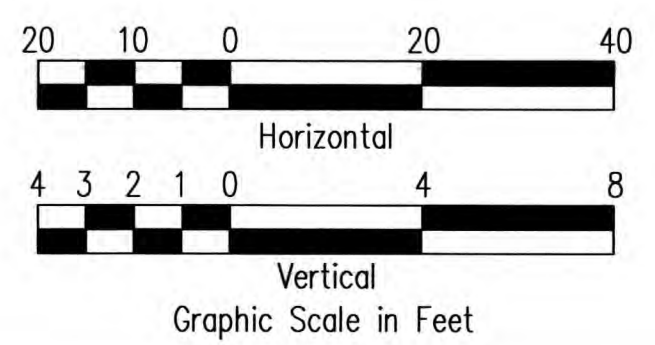
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

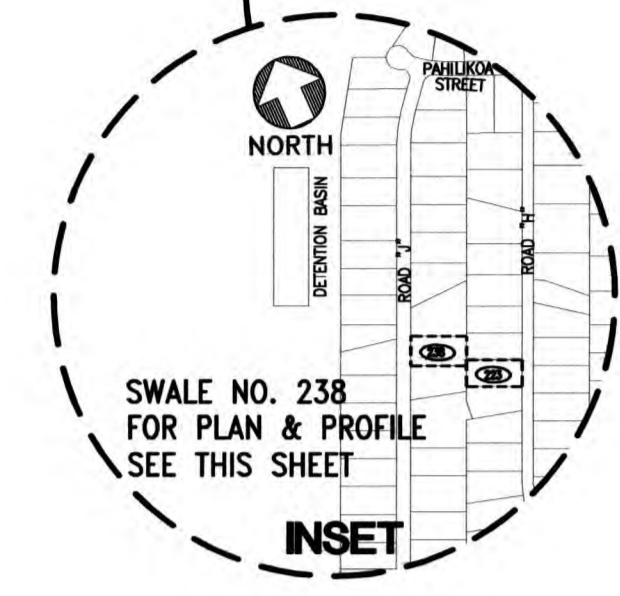
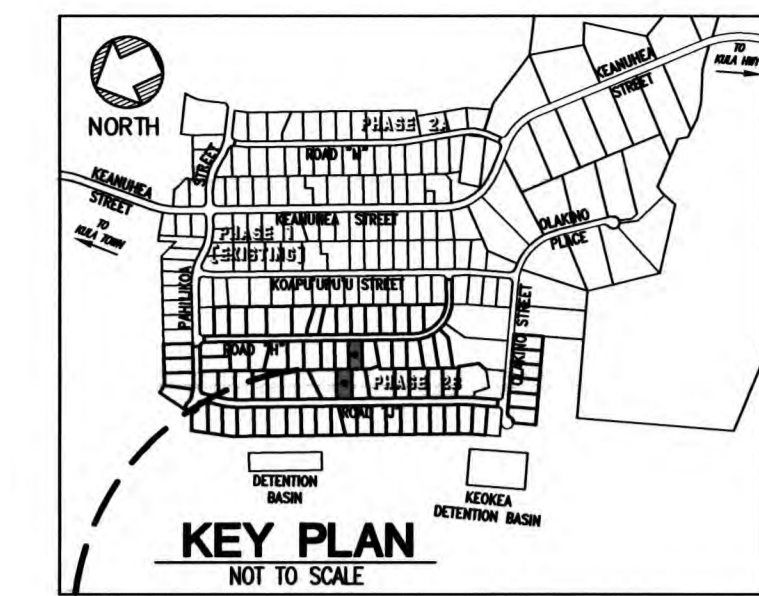
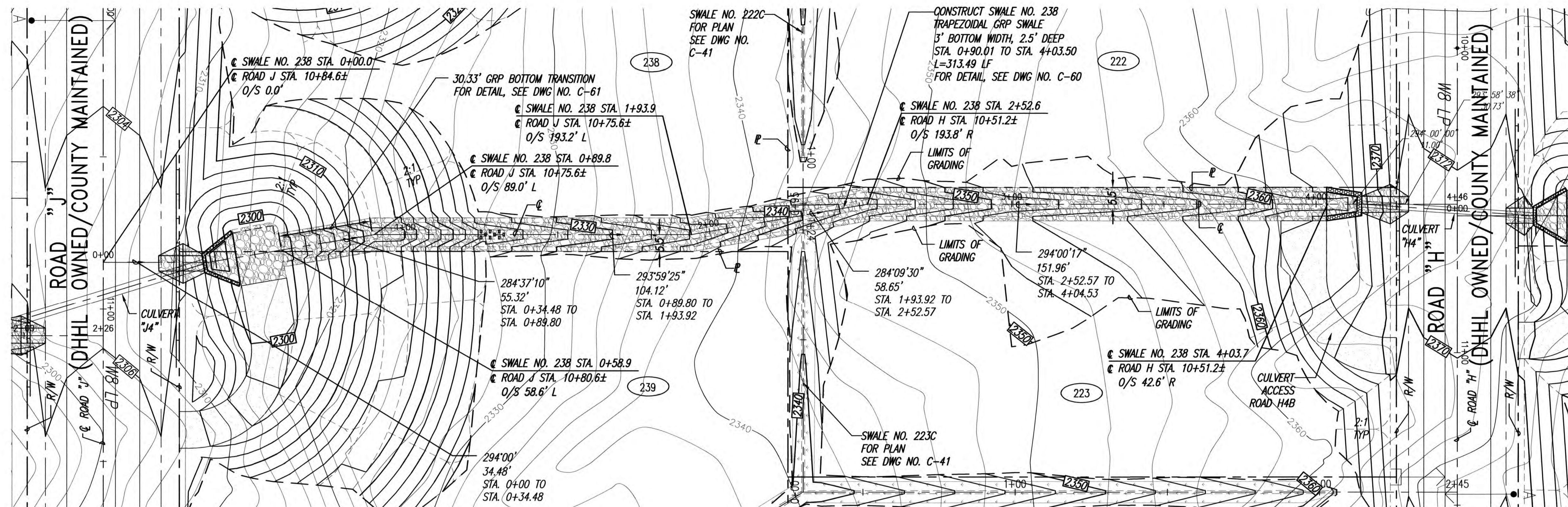
**PLAN AND PROFILE SWALE NO. 236**

DRAWN BY: HWI, CO ENGINEER: HWI, FJC CHECKED BY: AMM

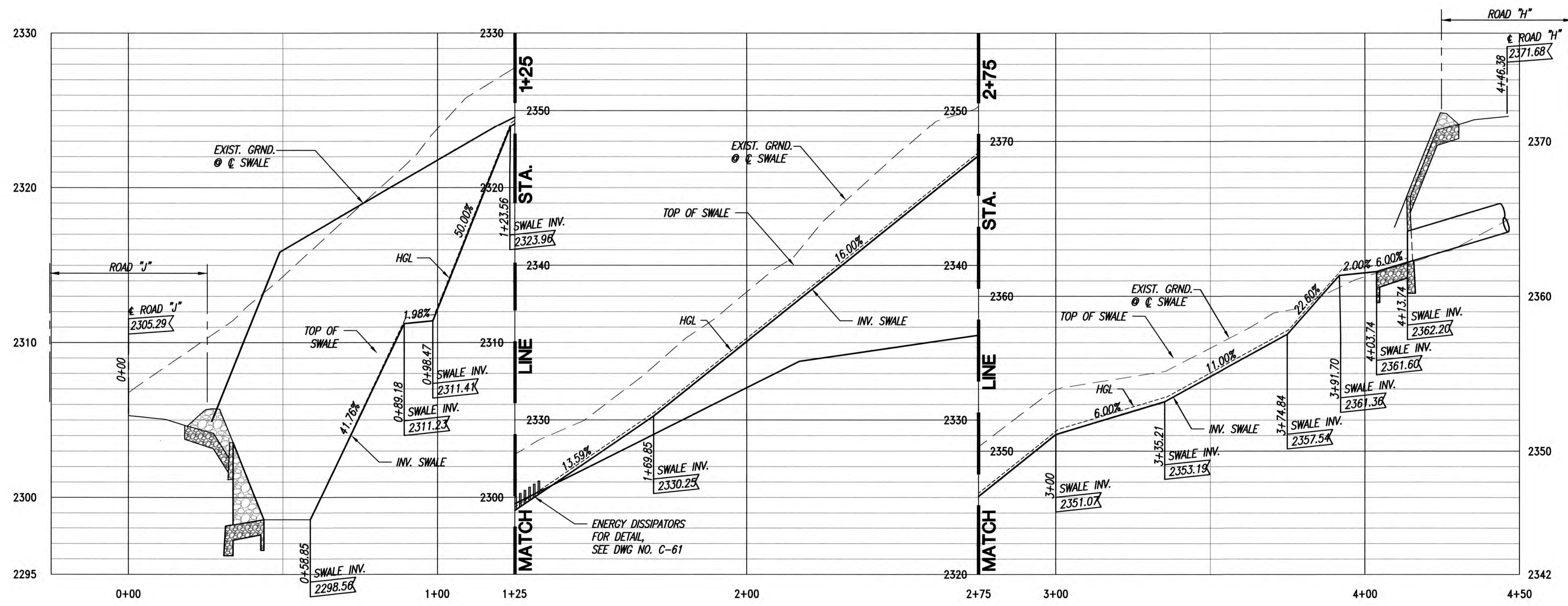


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26



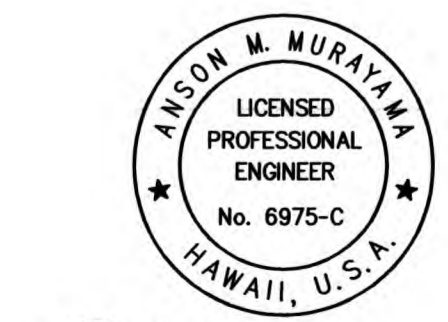
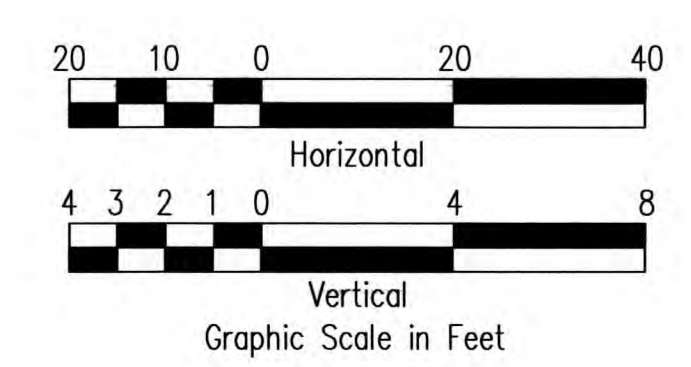


**PLAN - SWALE NO. 238**  
SCALE: 1"=20'



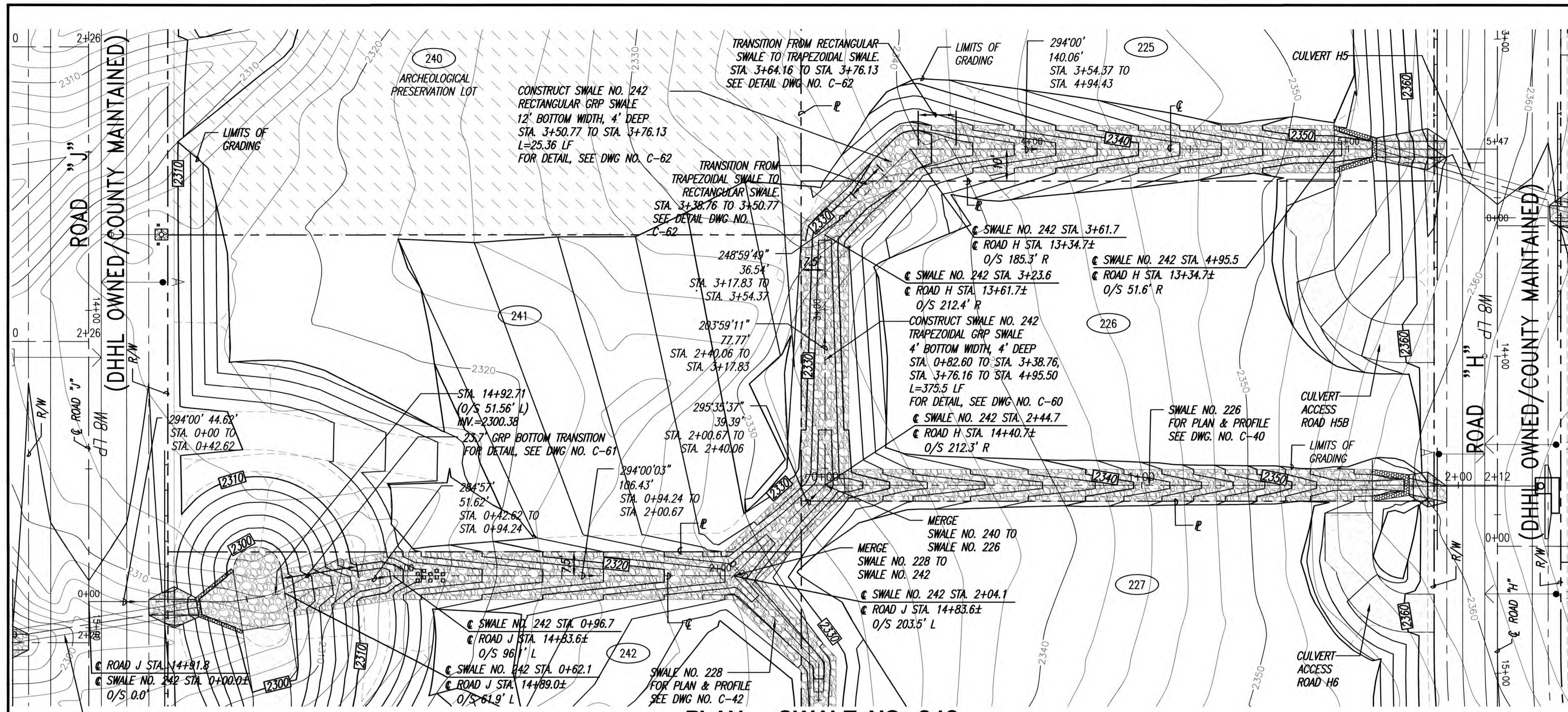
**PROFILE - SWALE NO. 238**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014

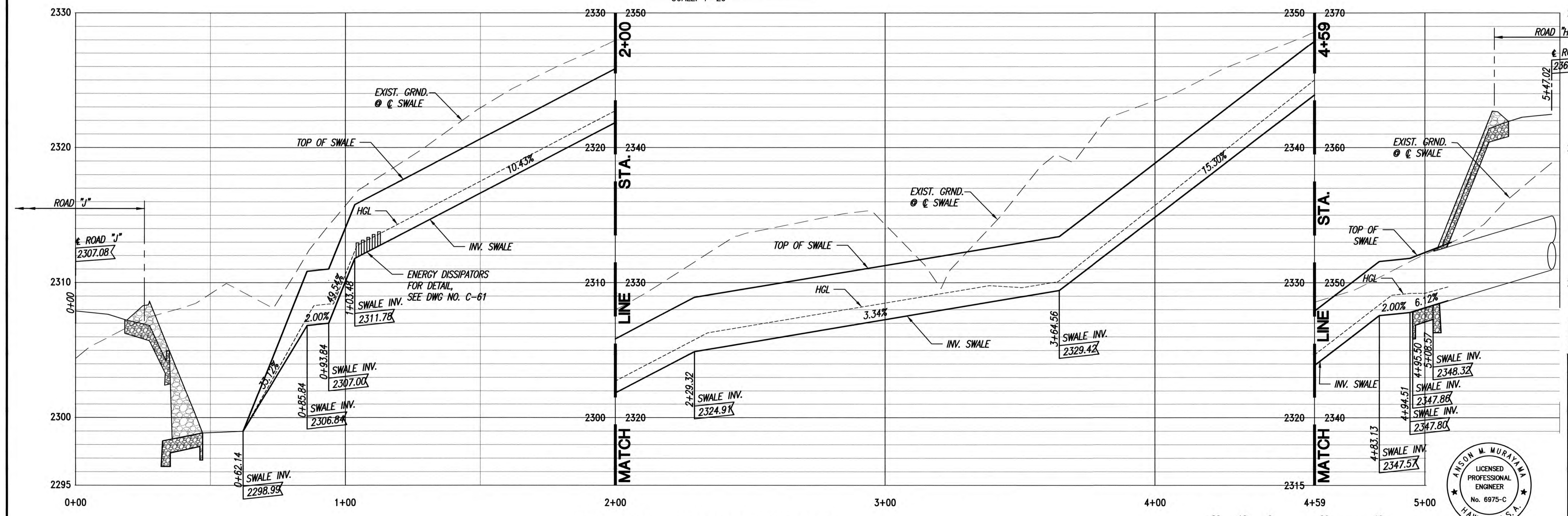
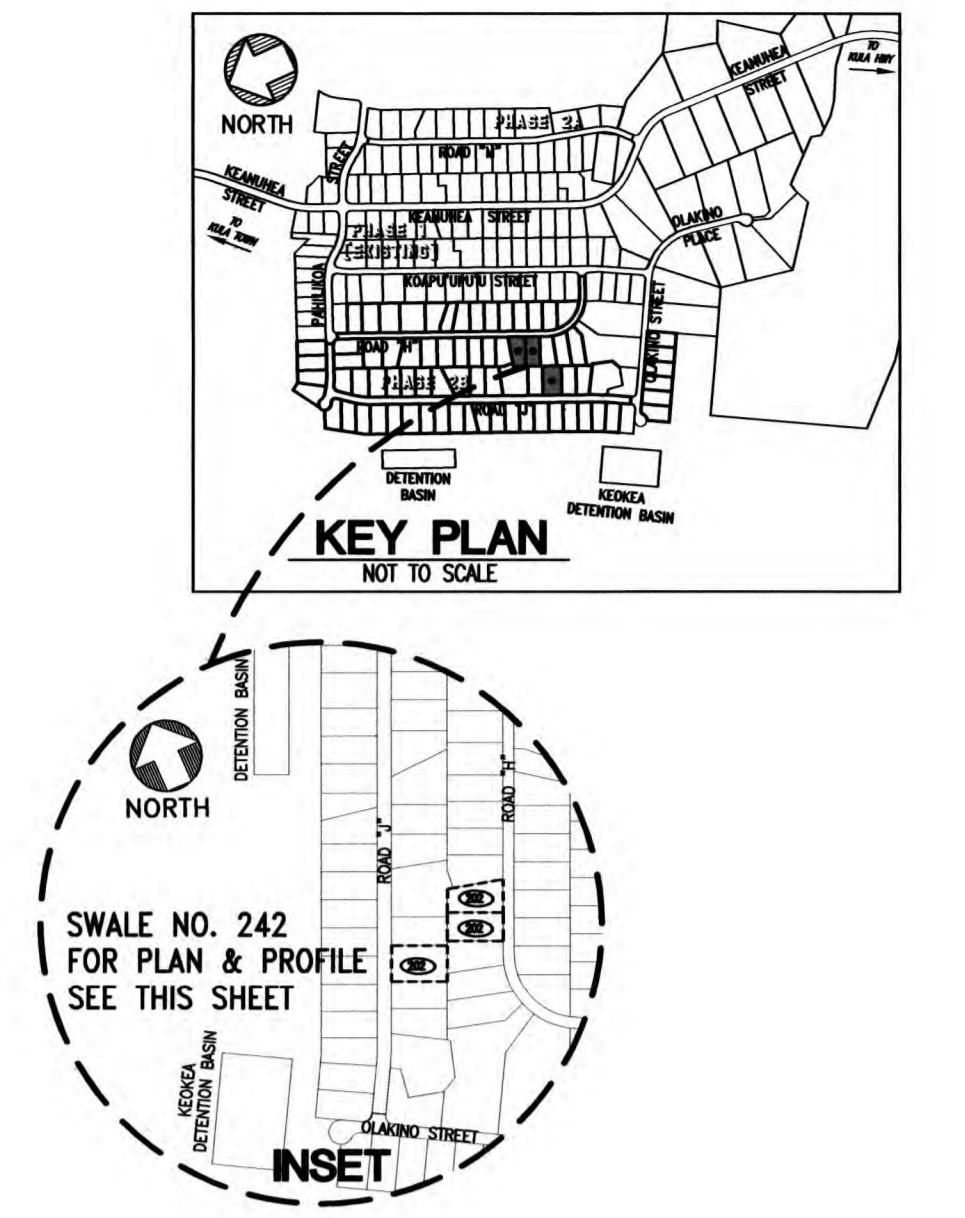
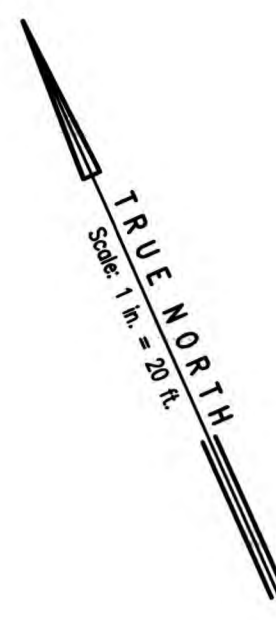


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1288 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE SWALE NO. 238</b></p>			
DRAWN BY: HW1, CO		ENGINEER: HW1, FJC	CHECKED BY: AMM
FILE	POCKET	FOLDER	NO.

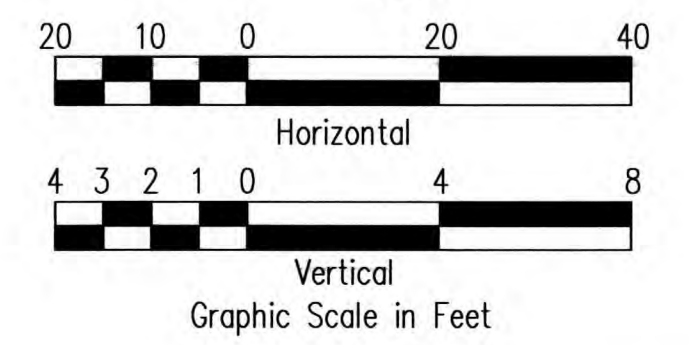


**PLAN - SWALE NO. 242**  
SCALE: 1"=20'



**PROFILE - SWALE NO. 242**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - 2450 — FINISH GRADE CONTOUR
  - - - - - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

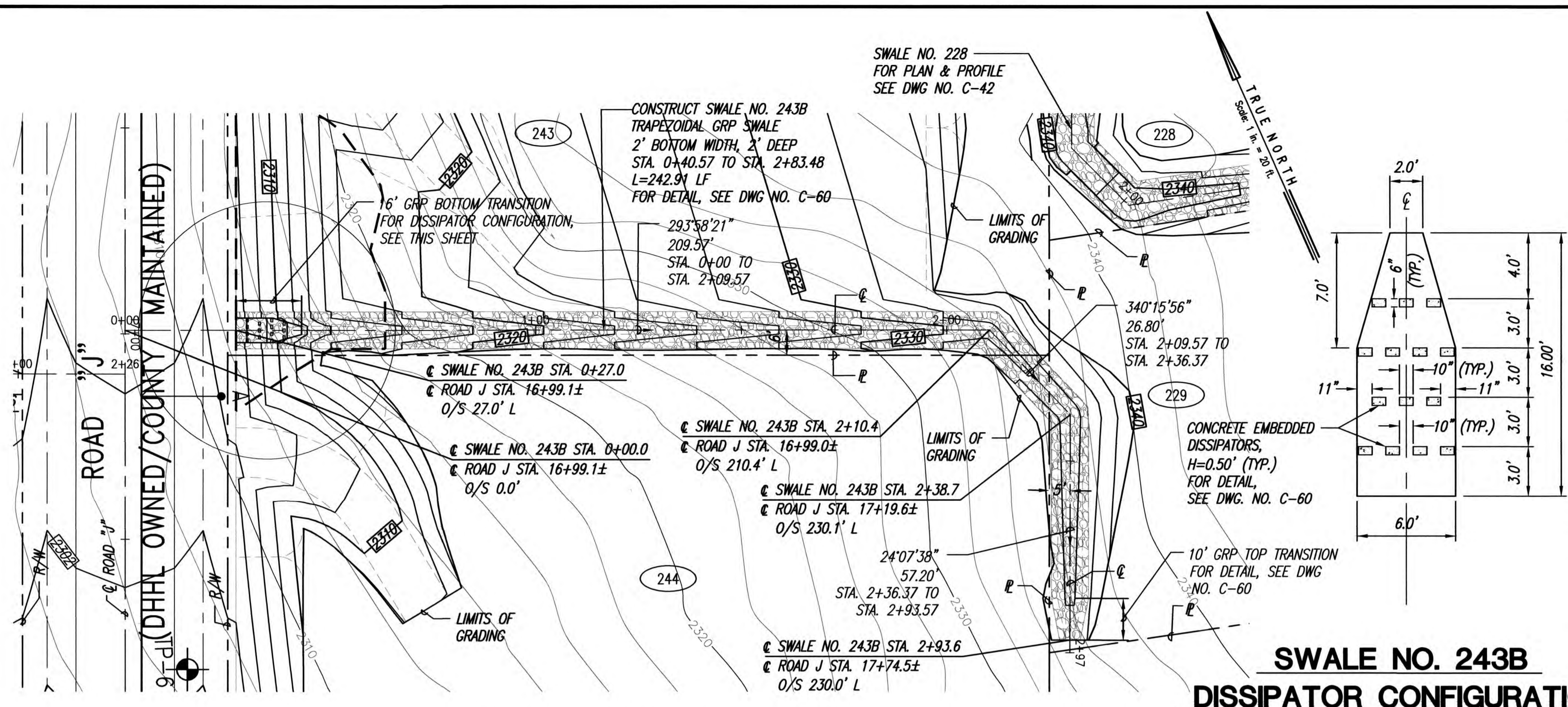
Community Planning and Engineering, Inc.  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

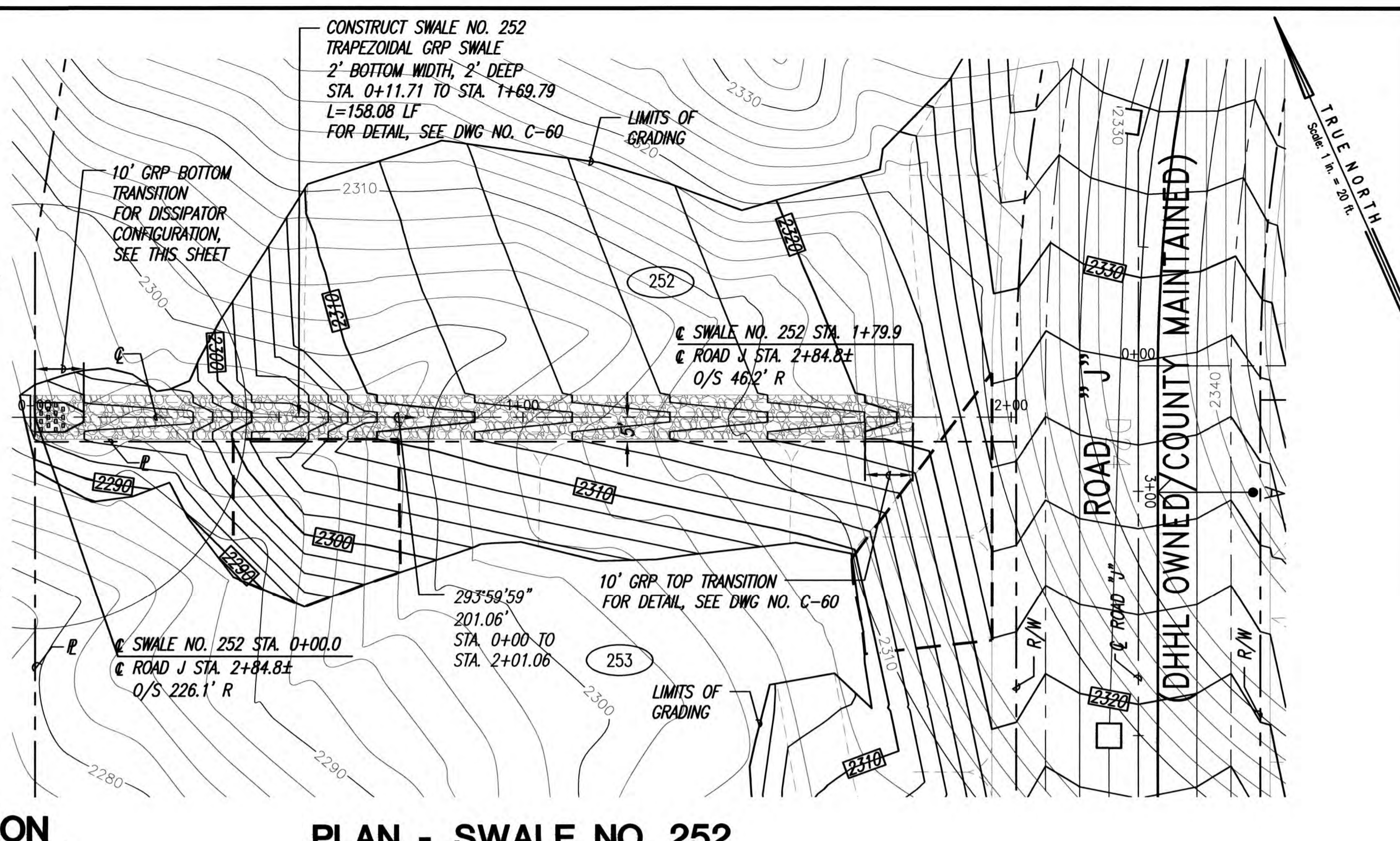
**PLAN AND PROFILE SWALE NO. 242**

DRAWN BY: HWH, CO ENGINEER: HWH, FJC CHECKED BY: AMM

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----



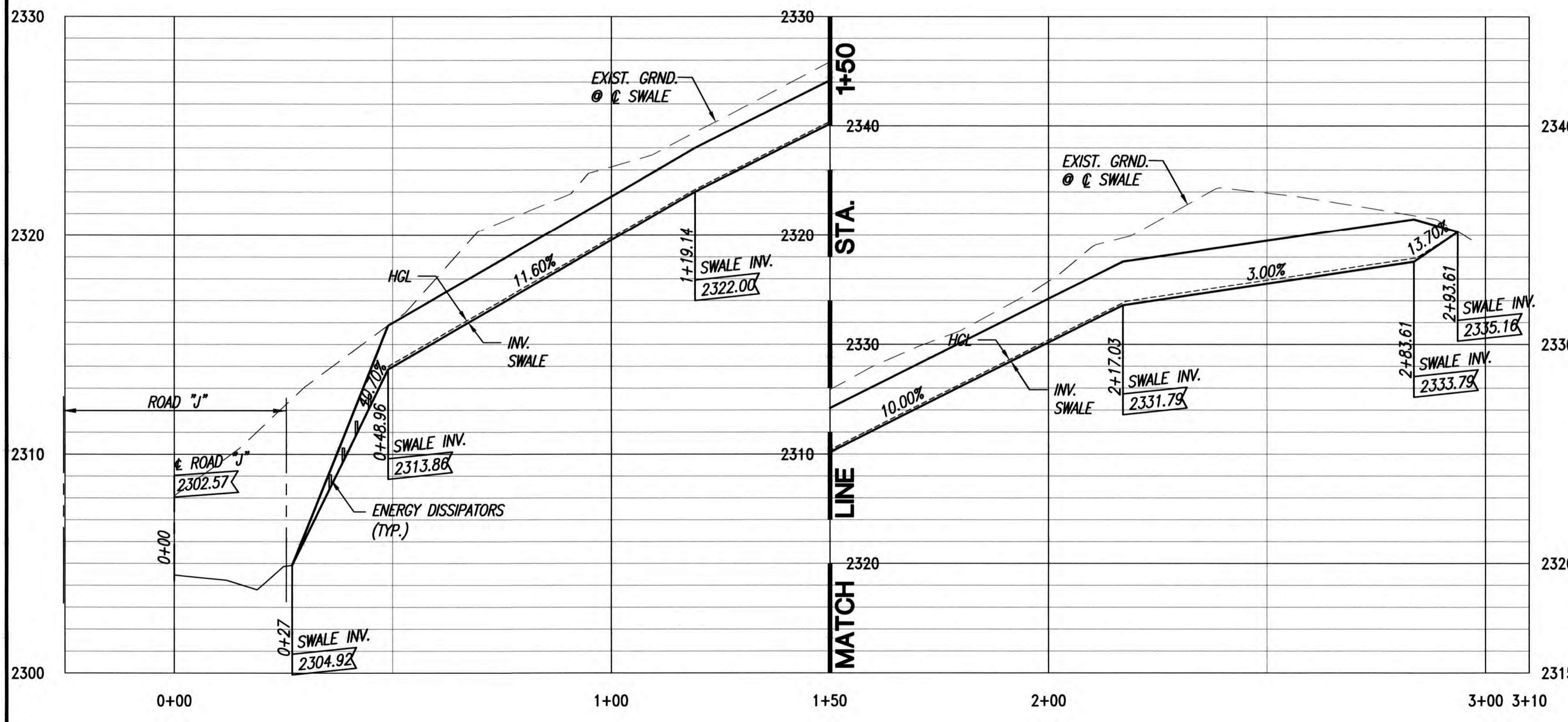
**PLAN - SWALE NO. 243B**  
SCALE: 1"=20'



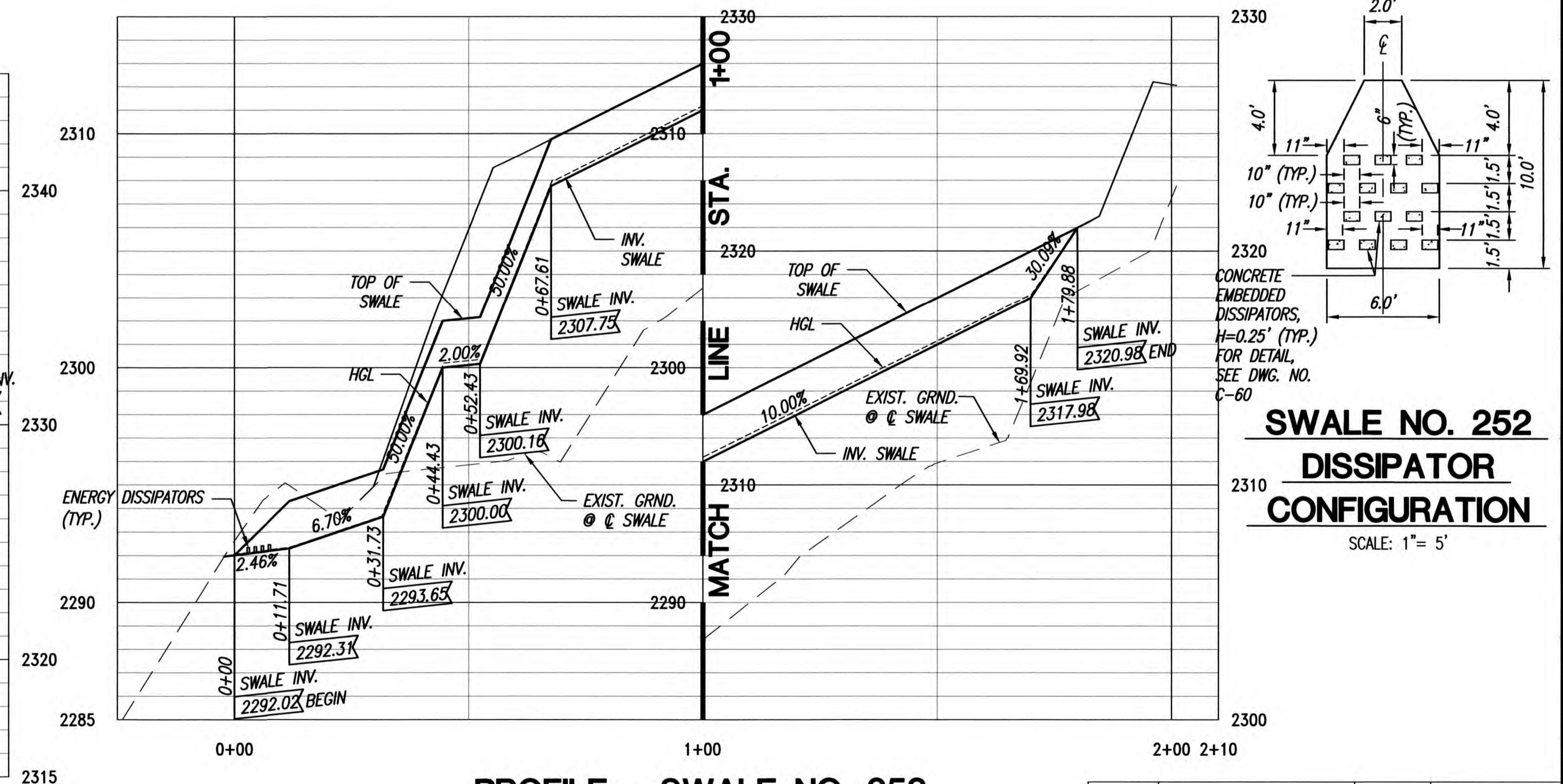
**PLAN - SWALE NO. 252**  
SCALE: 1"=20'

**SWALE NO. 243B  
DISSIPATOR CONFIGURATION**  
SCALE: 1"= 5'

**SWALE NO. 252  
DISSIPATOR CONFIGURATION**  
SCALE: 1"= 5'

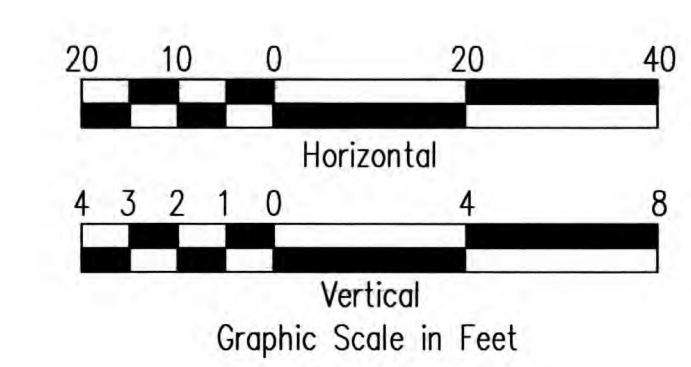
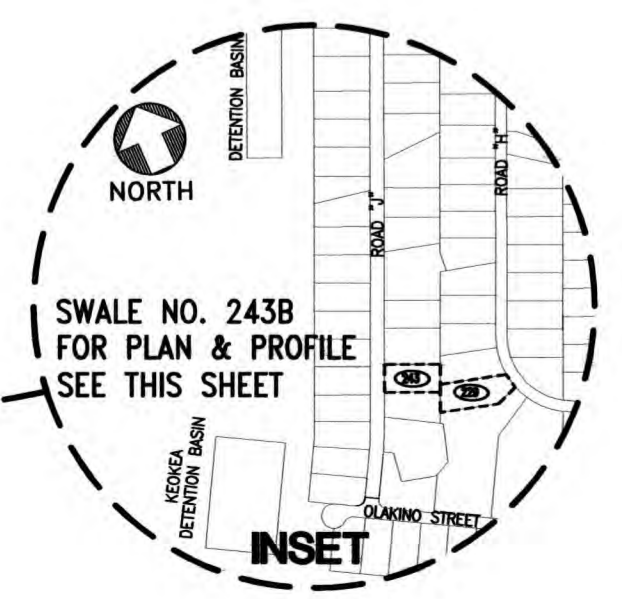
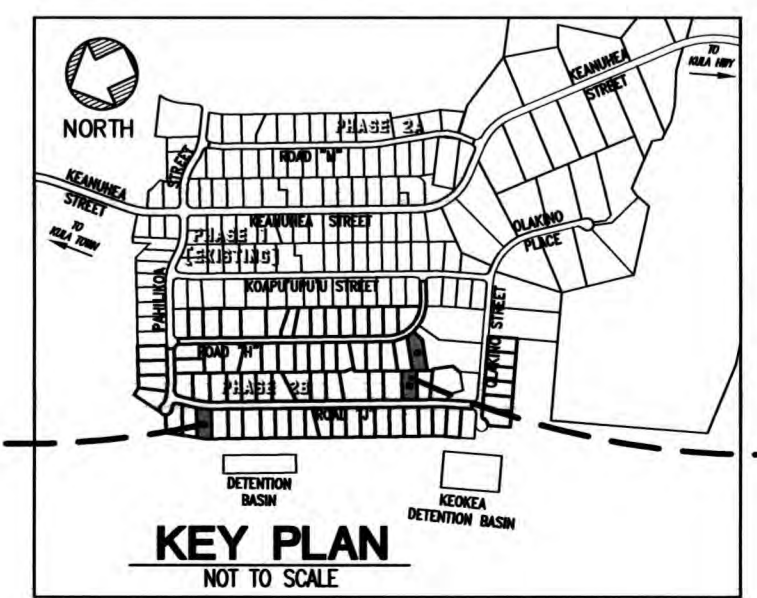
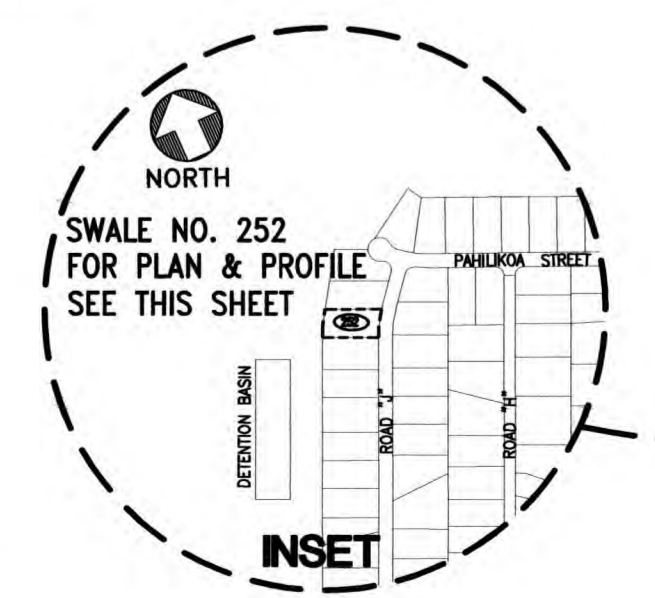


**PROFILE - SWALE NO. 243B**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'



**PROFILE - SWALE NO. 252**  
SCALES: HORIZ. 1"=20'  
VERT. 1"= 4'

- LEGEND**
- LIMITS OF GRADING
  - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - - - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014

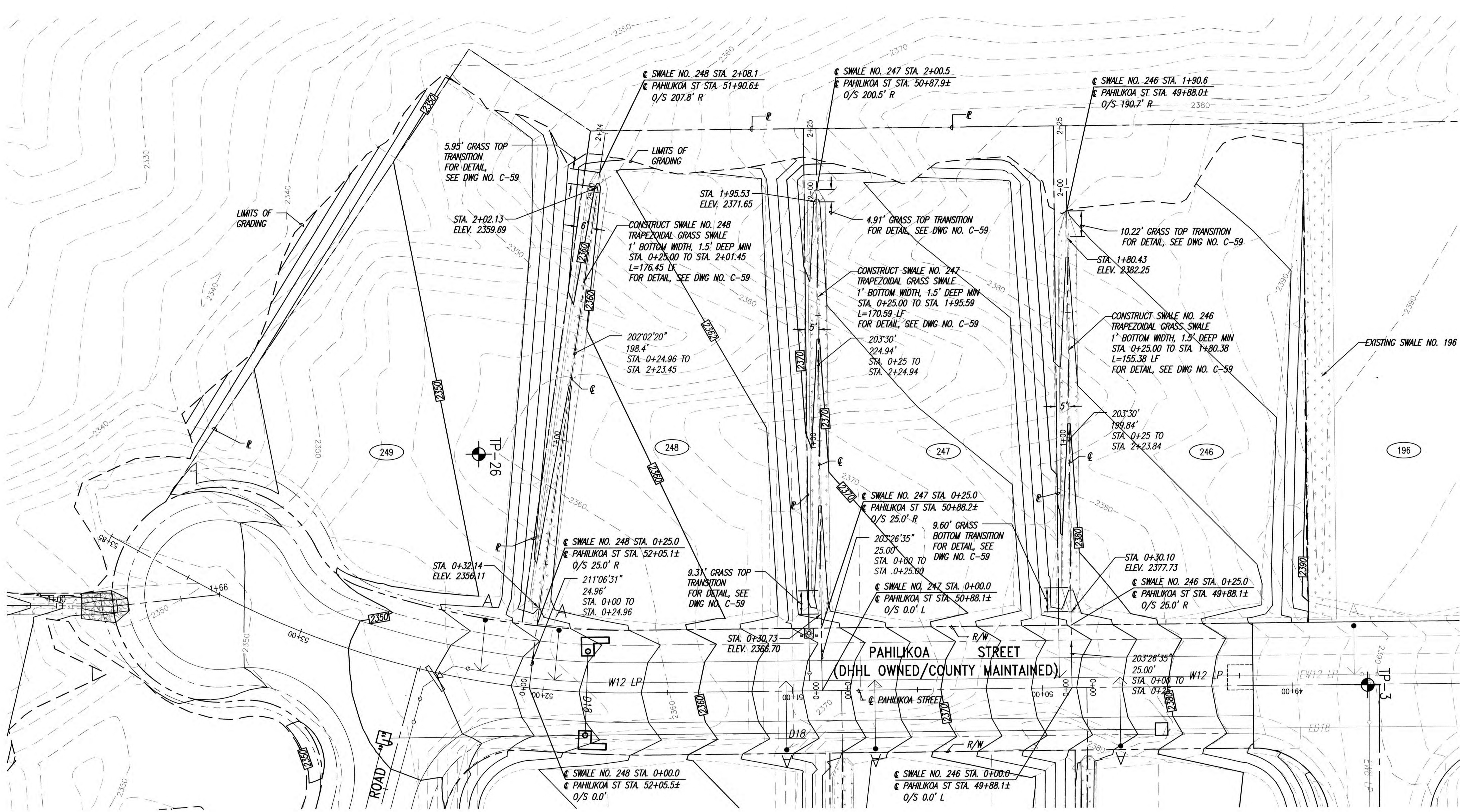
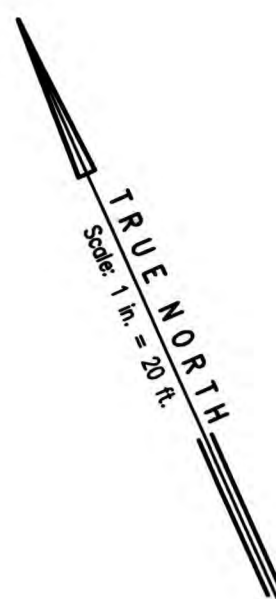


ANSON M. MURATAKI  
LICENSED PROFESSIONAL ENGINEER  
No. 6975-C  
HAWAII, U.S.A.

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

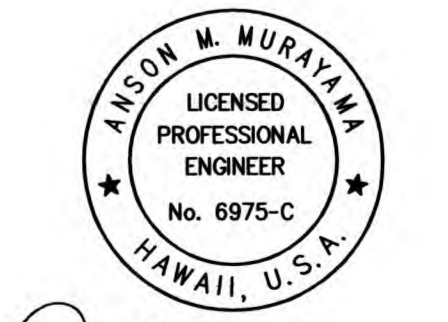
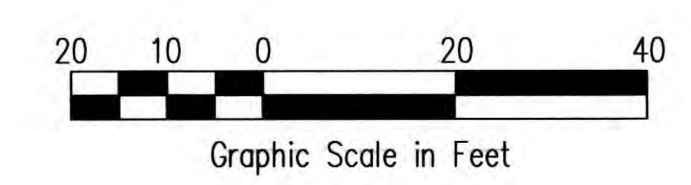
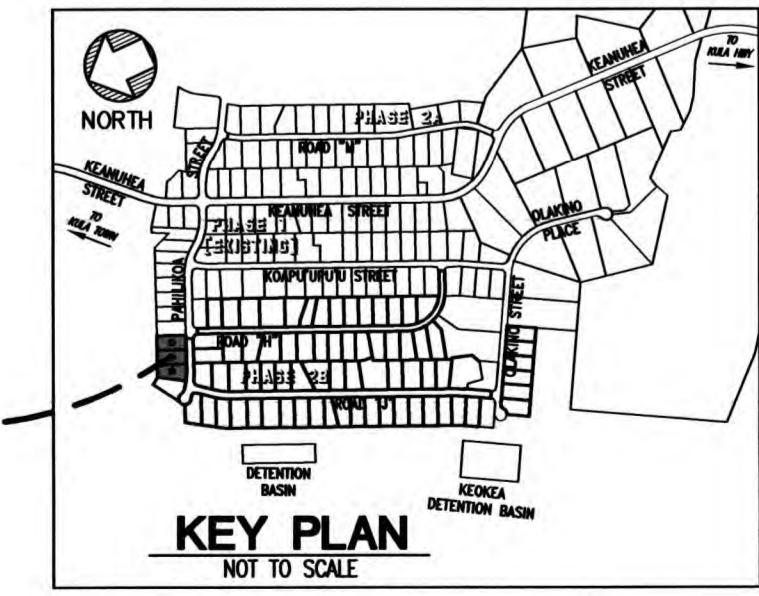
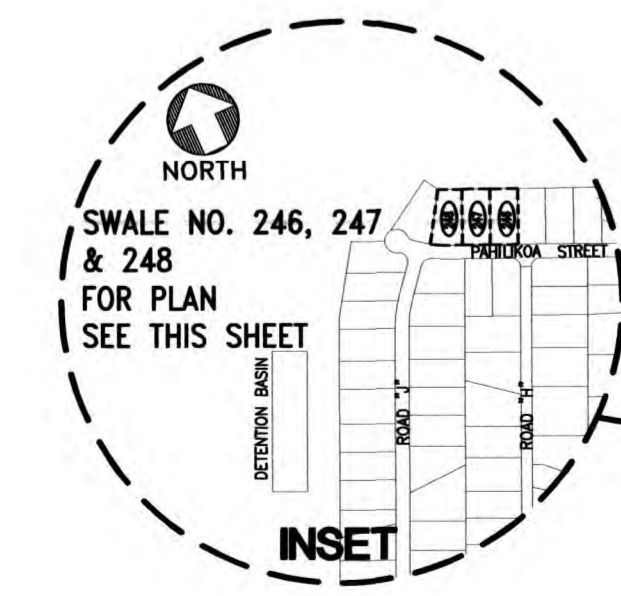
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1288 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>PLAN AND PROFILE SWALE NO. 243B &amp; 252</b></p>			
DRAWN BY: HWH, CO	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.





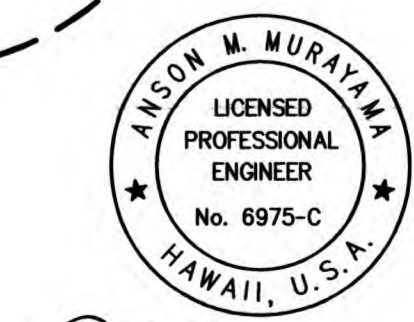
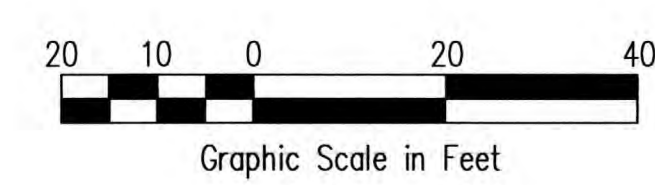
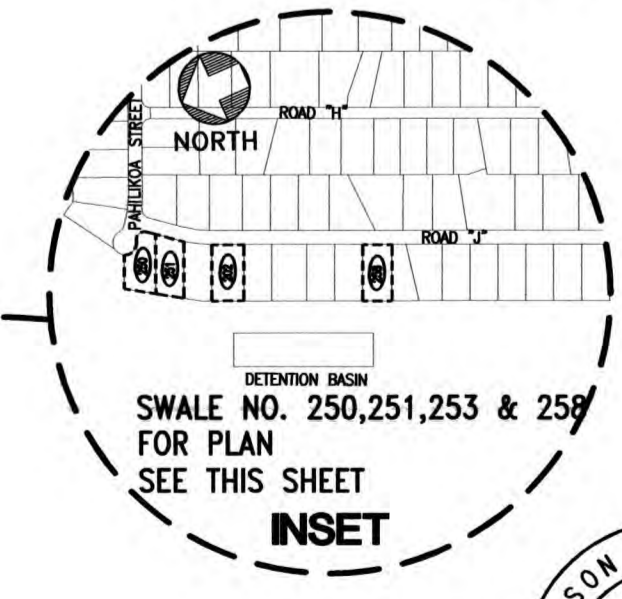
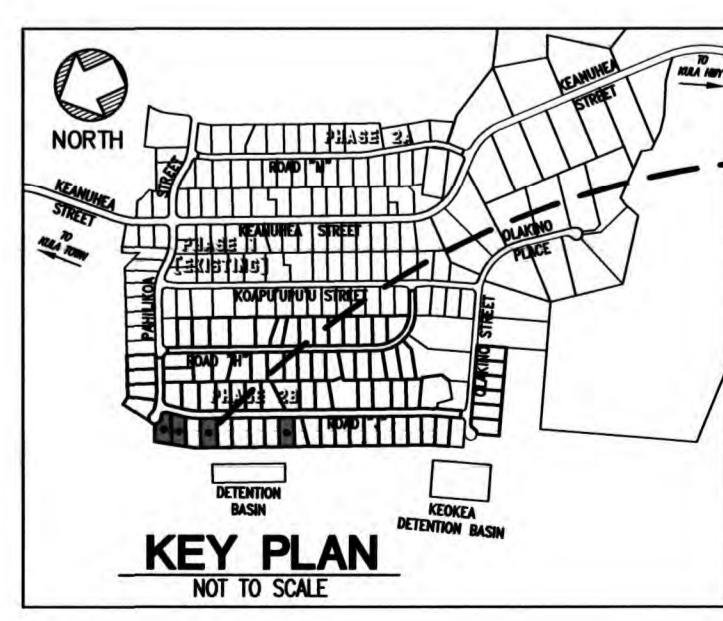
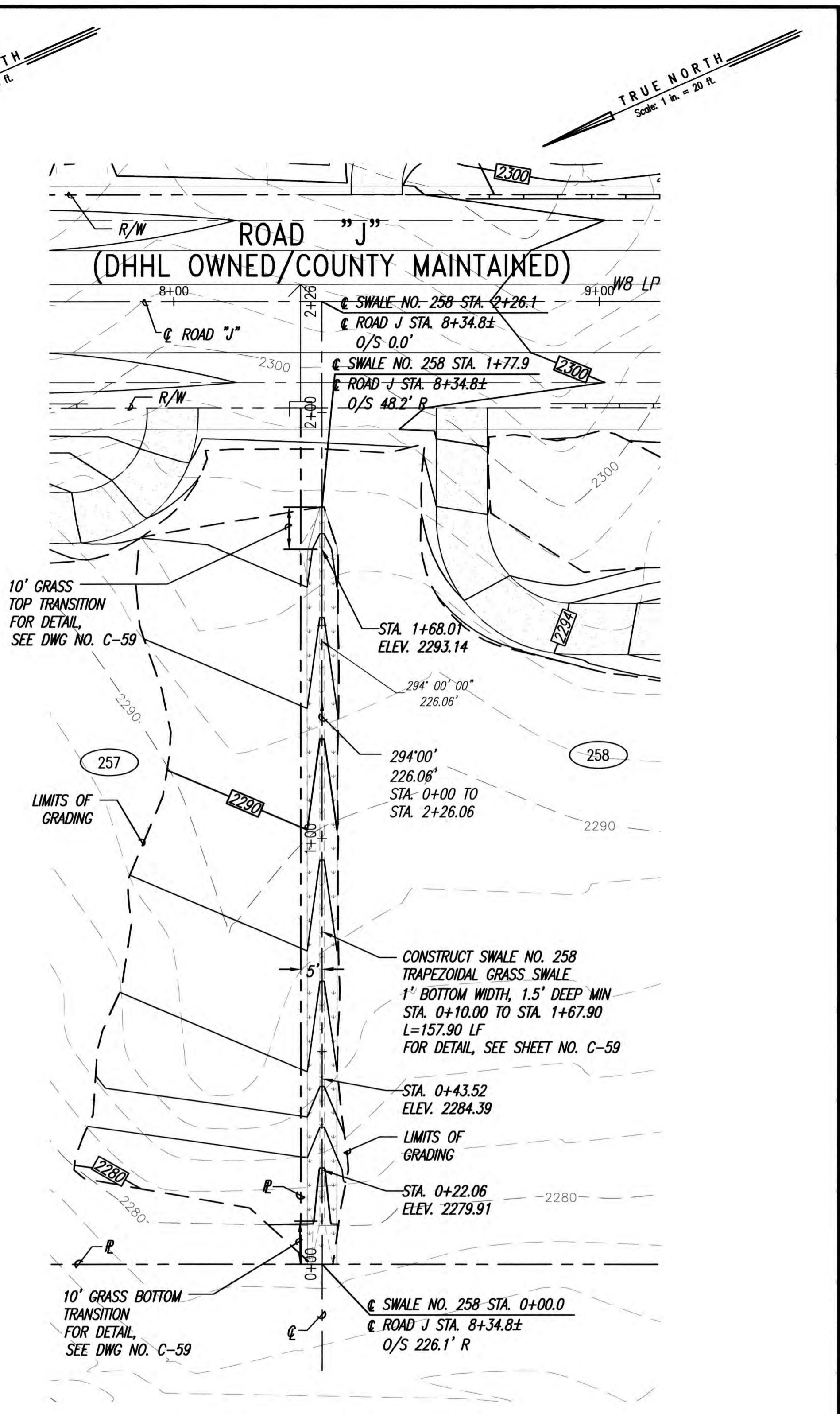
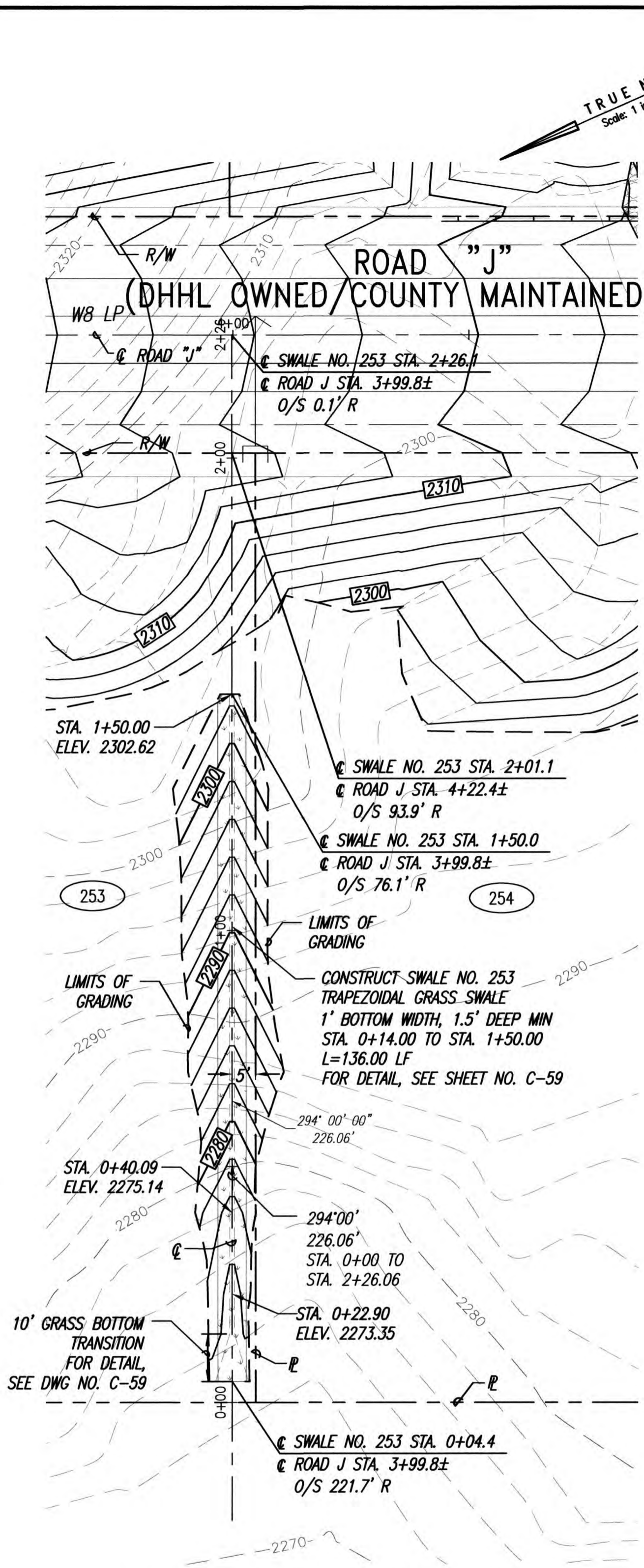
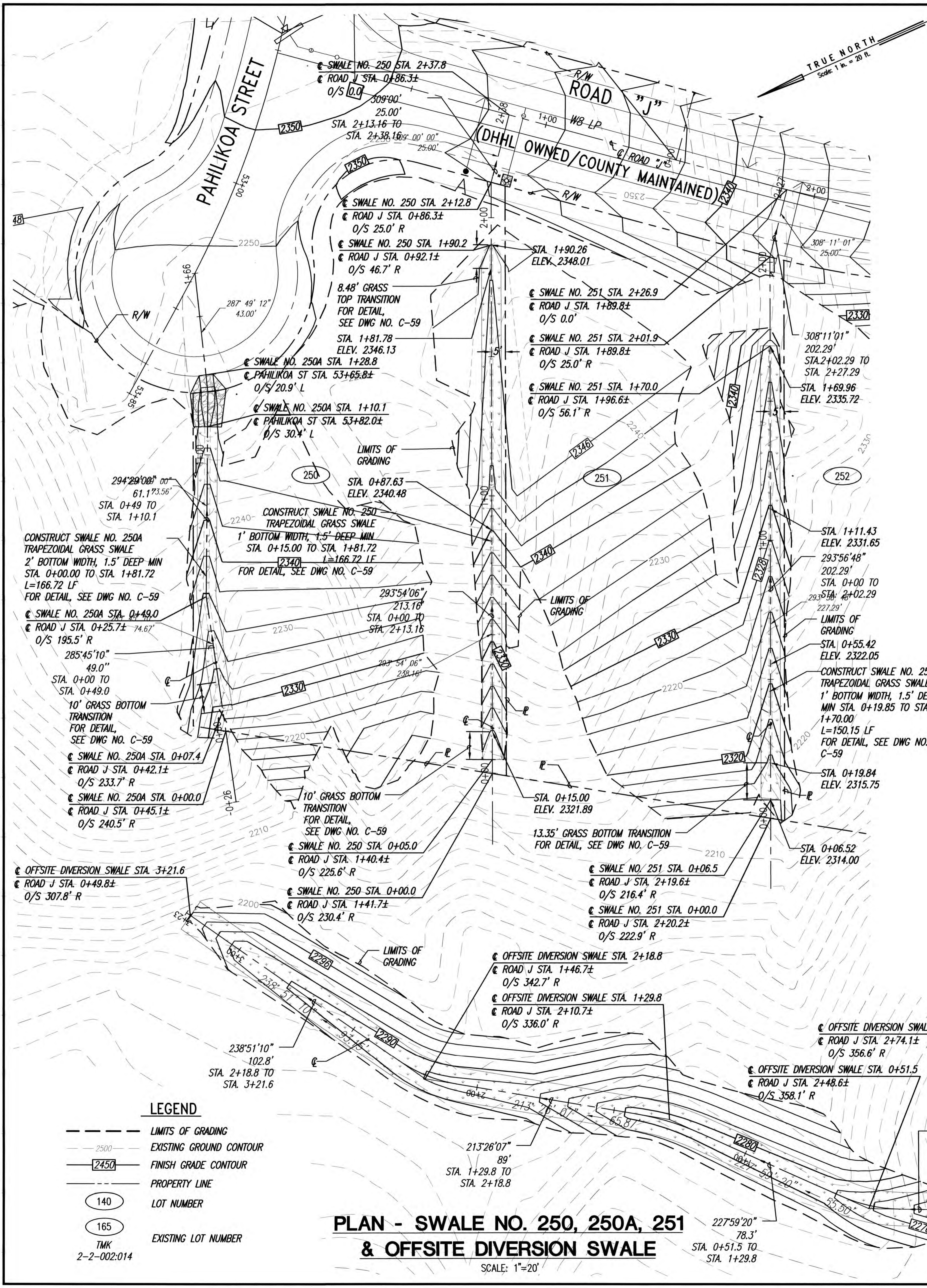
**PLAN - SWALE NO. 246, 247 & 248**  
SCALE: 1"=20'

- LEGEND**
- LIMITS OF GRADING
  - - - 2500 EXISTING GROUND CONTOUR
  - - - 2450 FINISH GRADE CONTOUR
  - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN SWALE NO. 246, 247 &amp; 248</b>			
DRAWN BY: HWH, CO	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

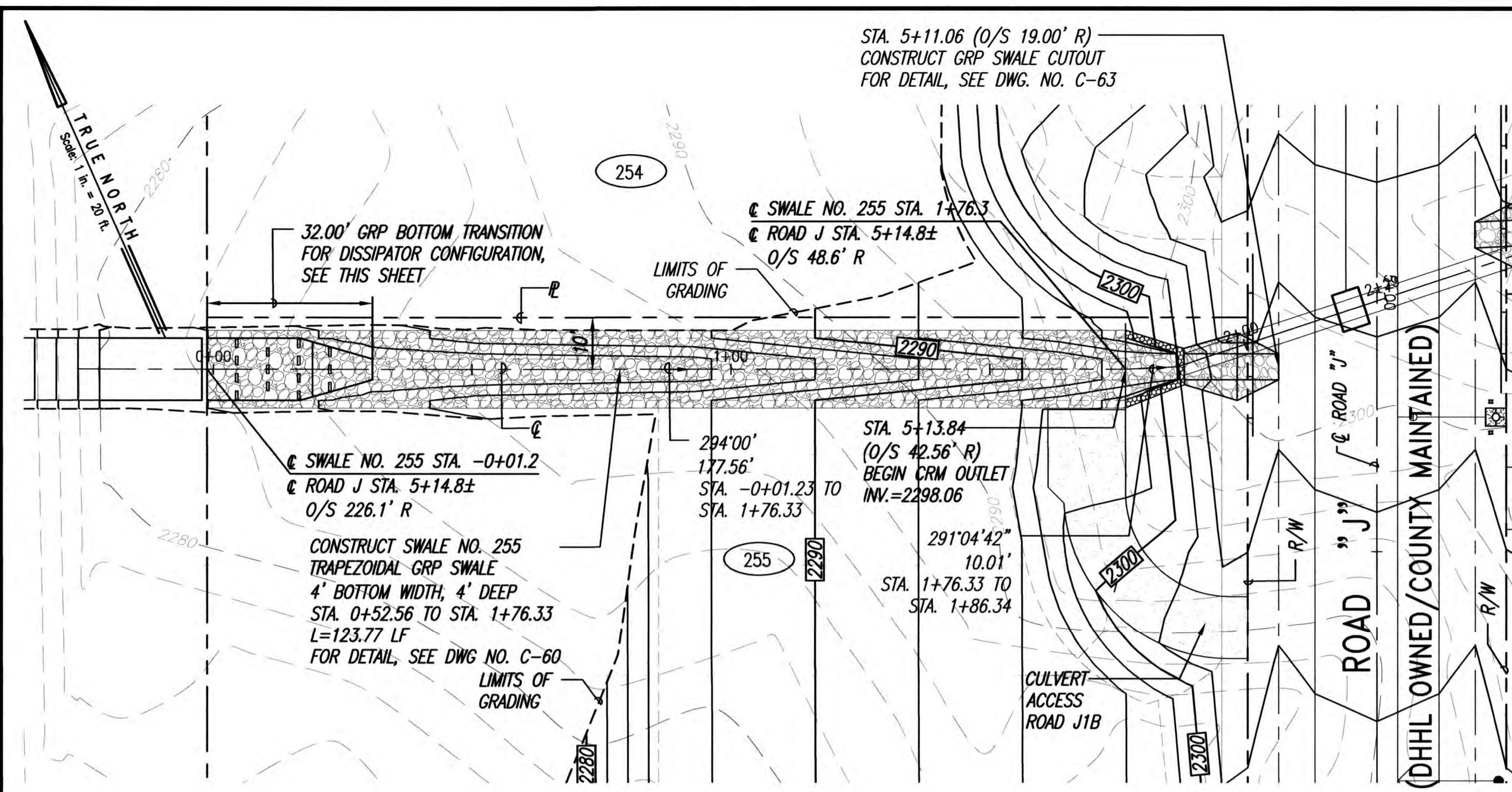
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

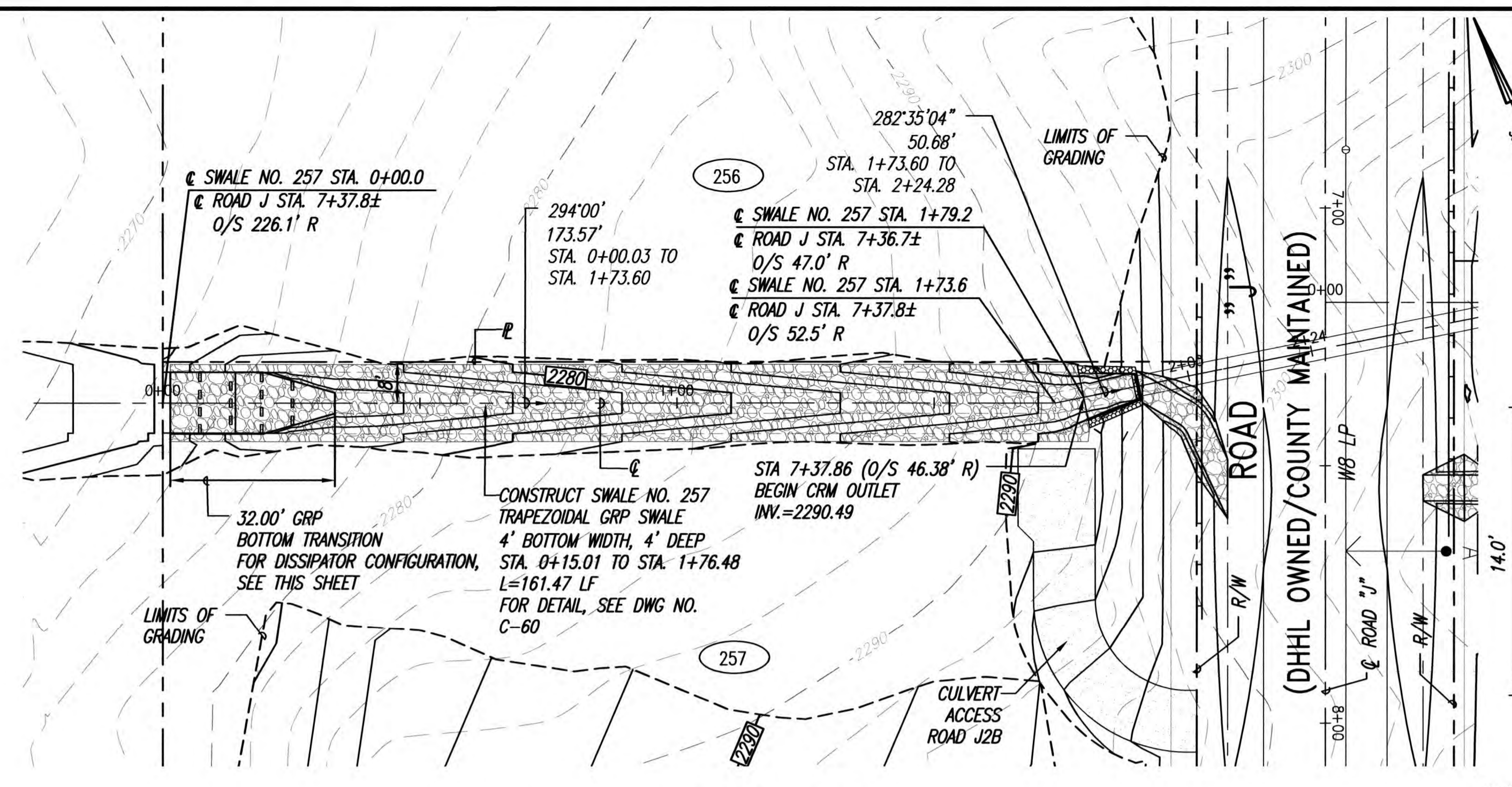
**PLAN SWALE NO. 250, 250A, 251, 253, 258 & OFFSITE DIVERSION SWALE**

DRAWN BY: HWH, CO ENGINEER: HWH, FJC CHECKED BY: AMM

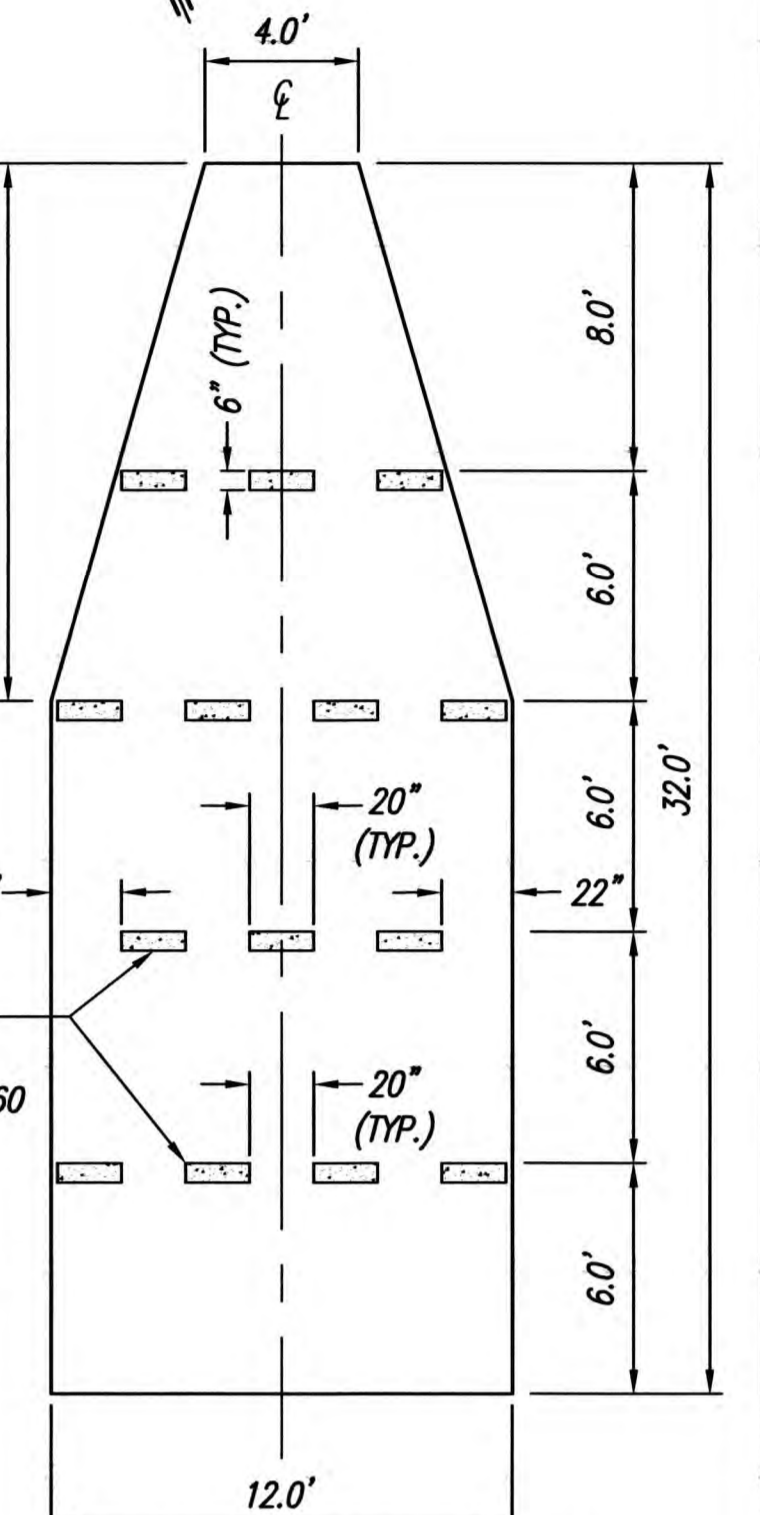
DWG. NO. **C-49** SHEET 50 OF 79 SHEETS



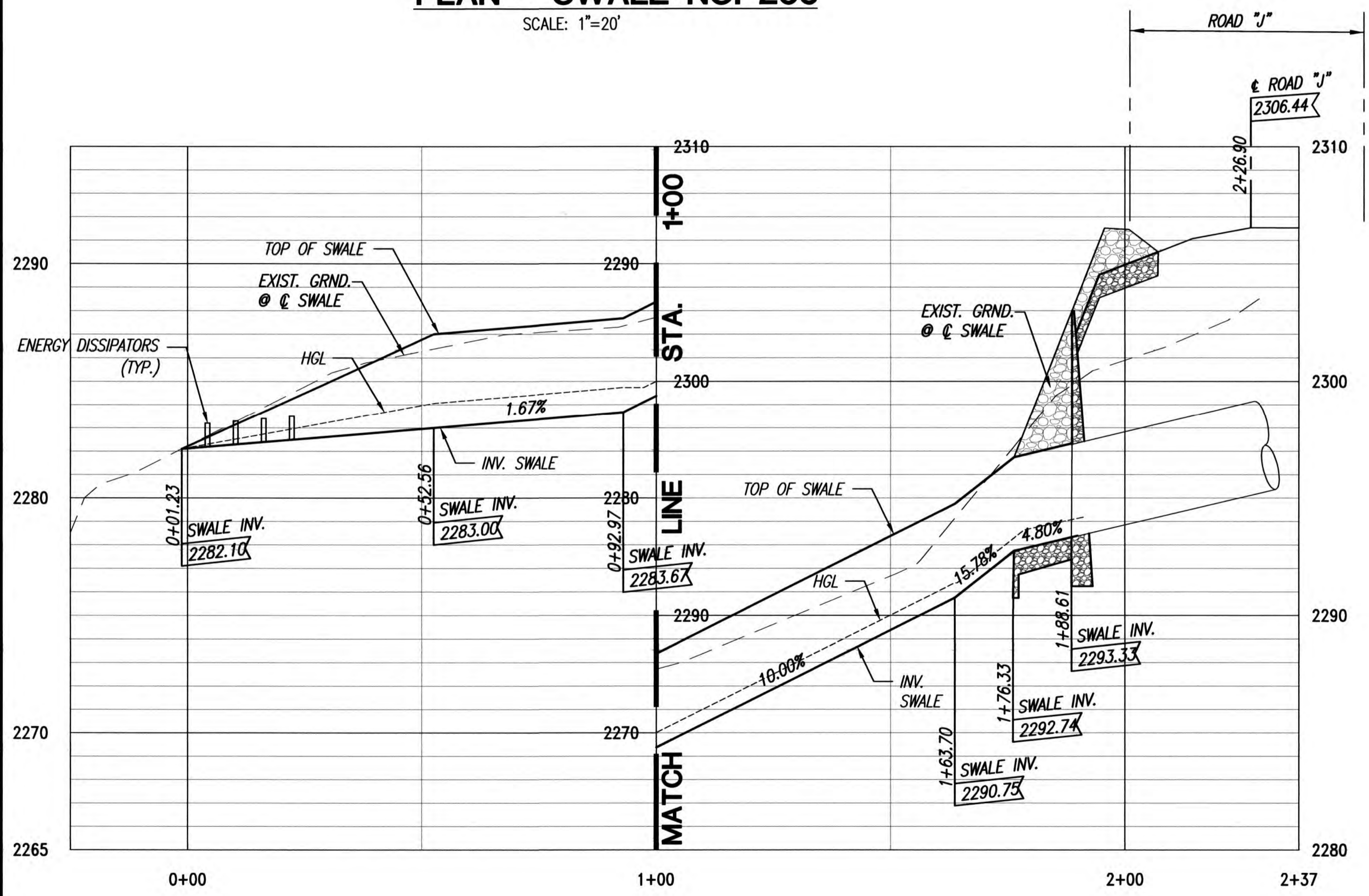
PLAN - SWALE NO. 255



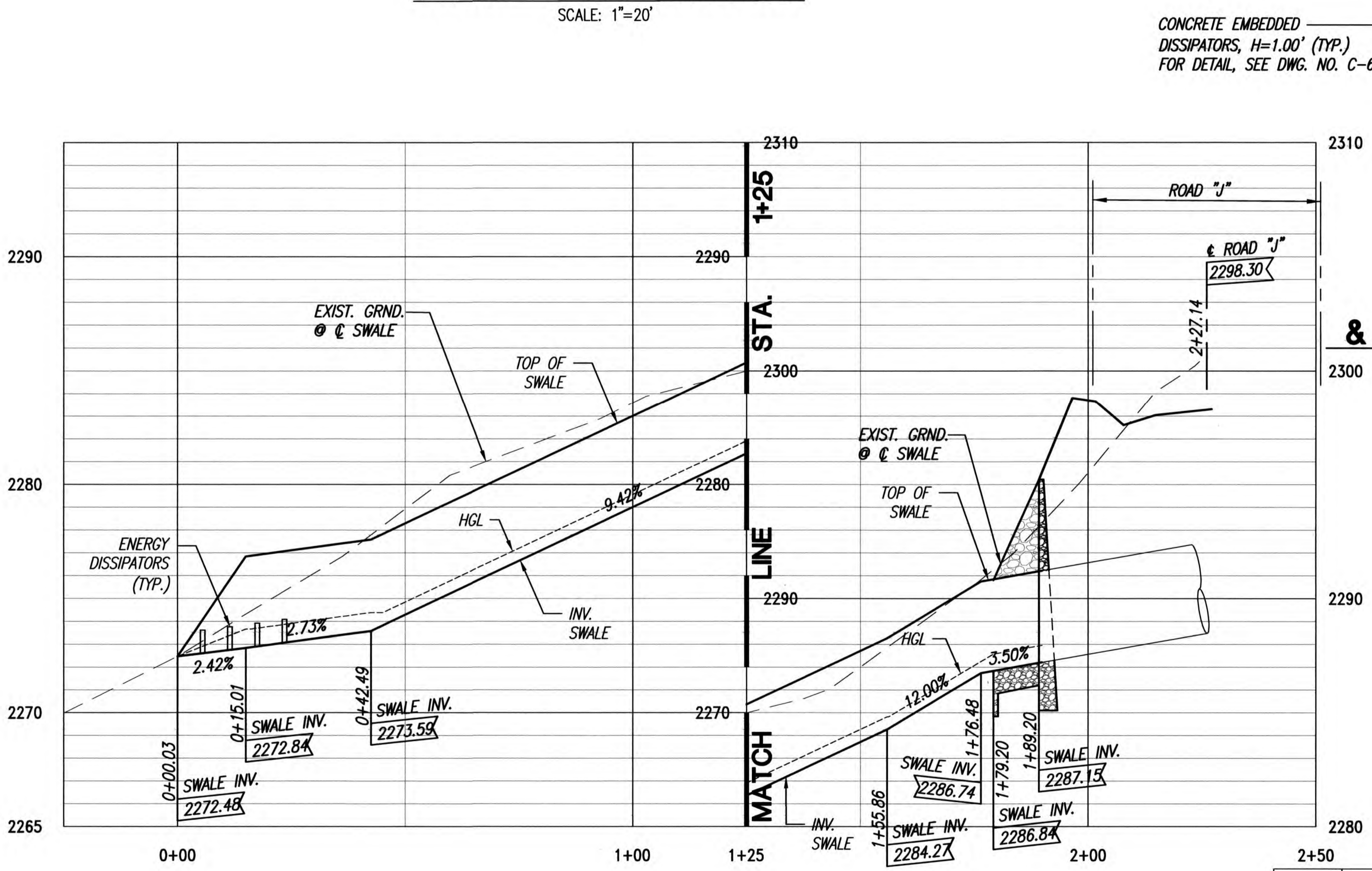
PLAN - SWALE NO. 257



SWALE NO. 255 & NO. 257 DISSIPATOR CONFIGURATION

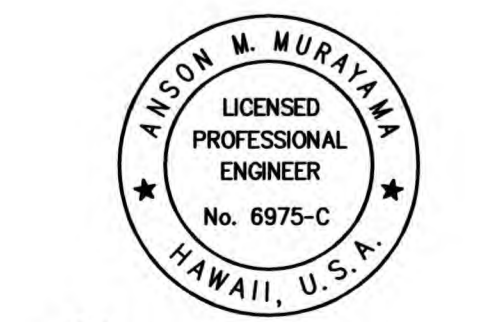
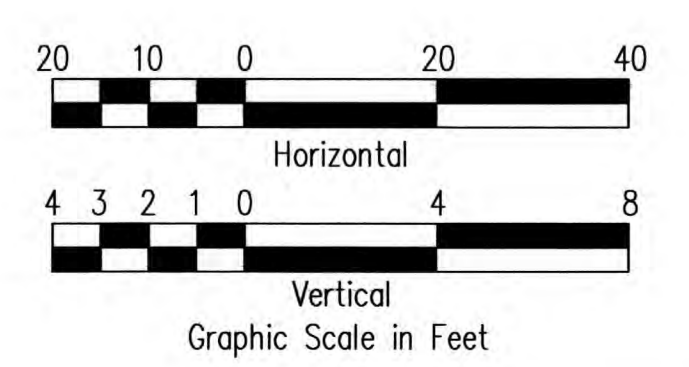
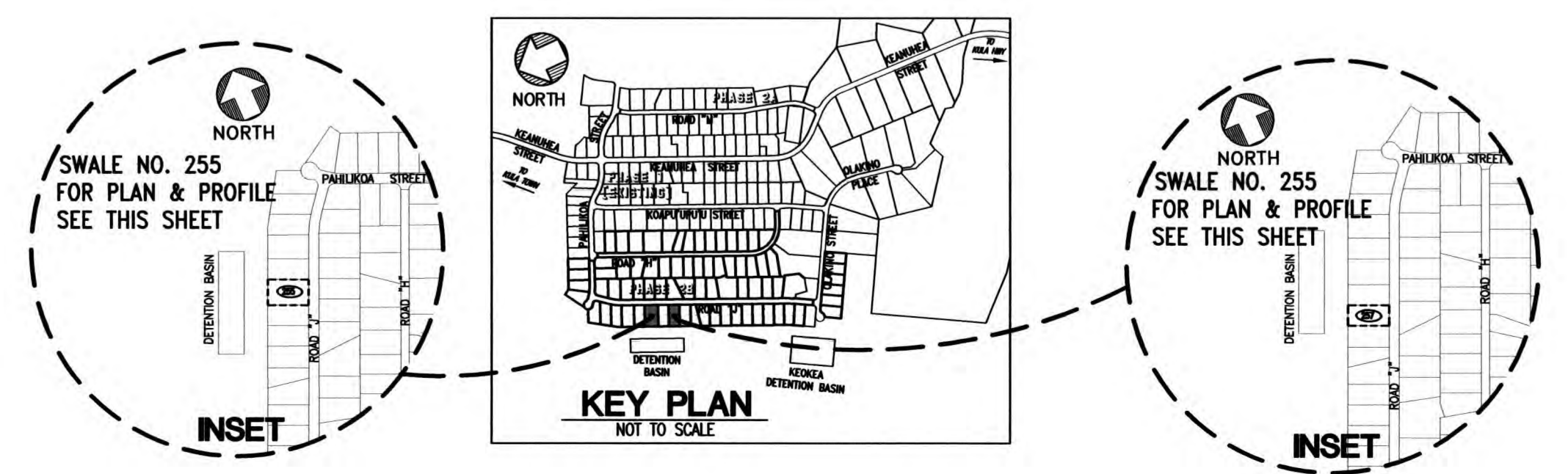


PROFILE - SWALE NO. 255



PROFILE - SWALE NO. 257

- LEGEND**
- LIMITS OF GRADING
  - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002-014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

Community Planning and Engineering, Inc.  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

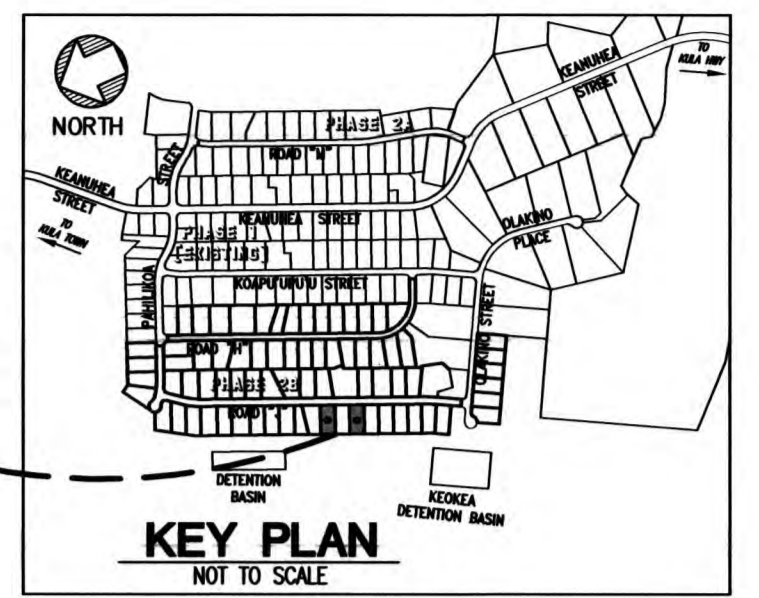
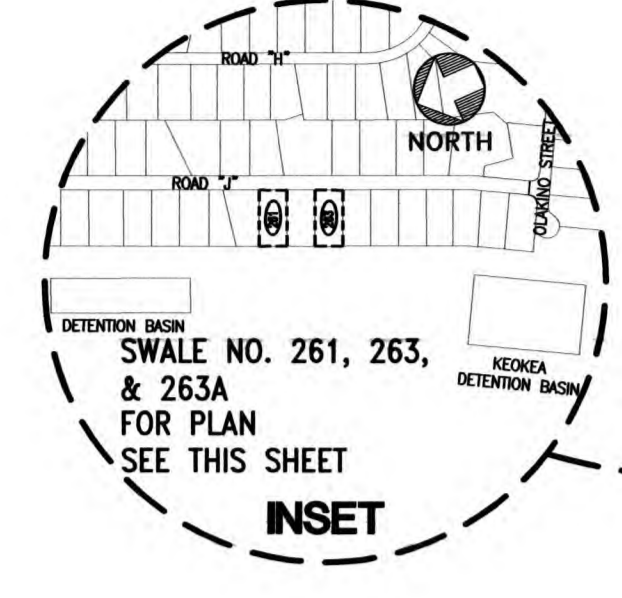
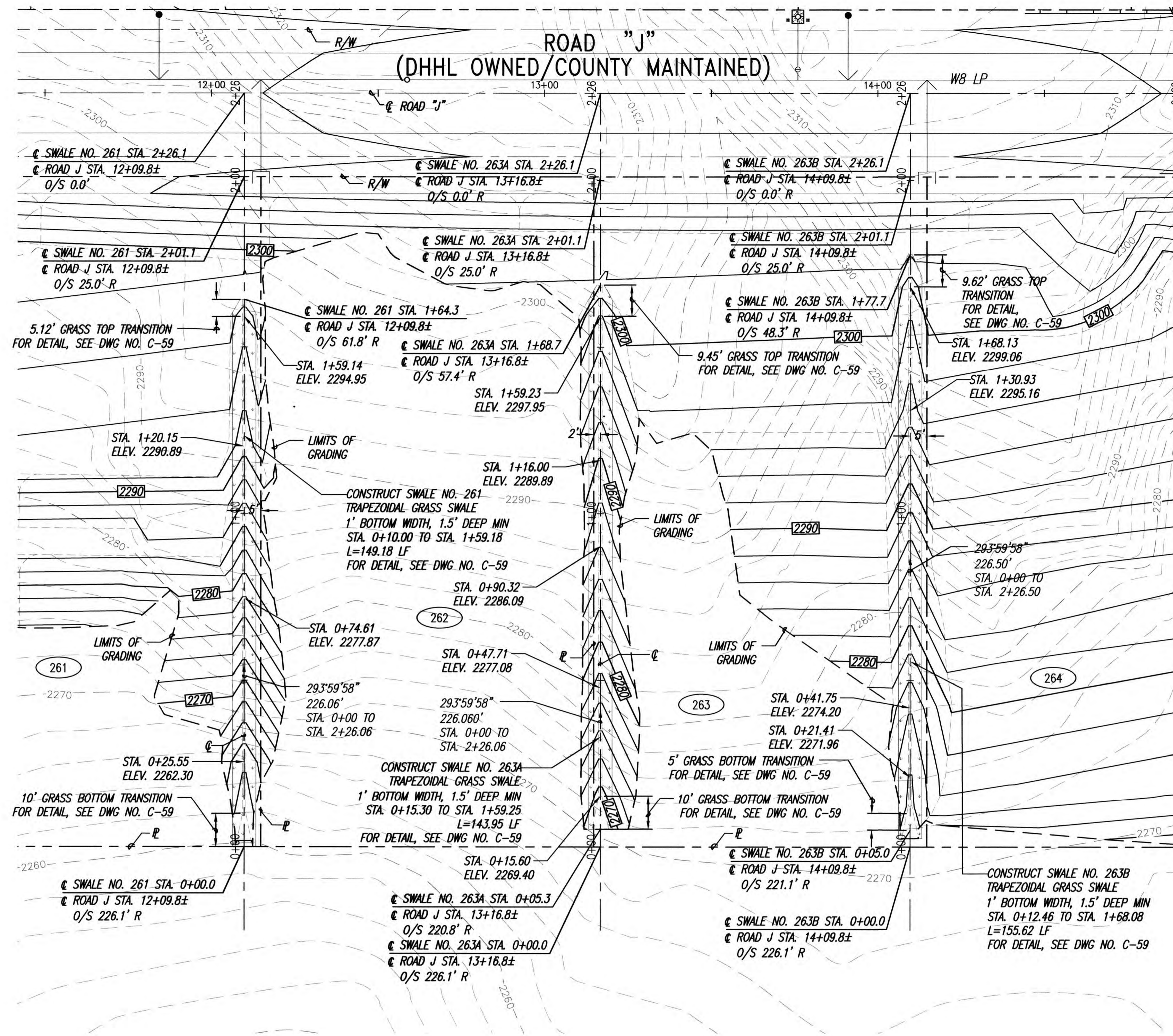
**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023

**PLAN AND PROFILE SWALE NO. 255 & 257**

DRAWN BY: HW1, CO ENGINEER: HW1, FJC CHECKED BY: AMM

REVISION DATE DESCRIPTION MADE BY APPROVED

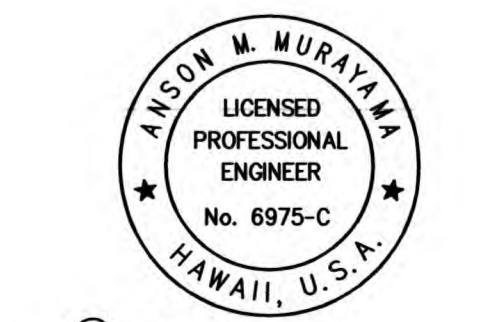
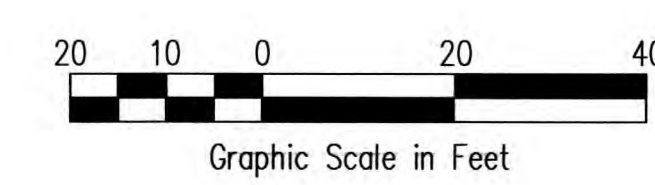




**PLAN - SWALE NO. 261, 263, & 263A**

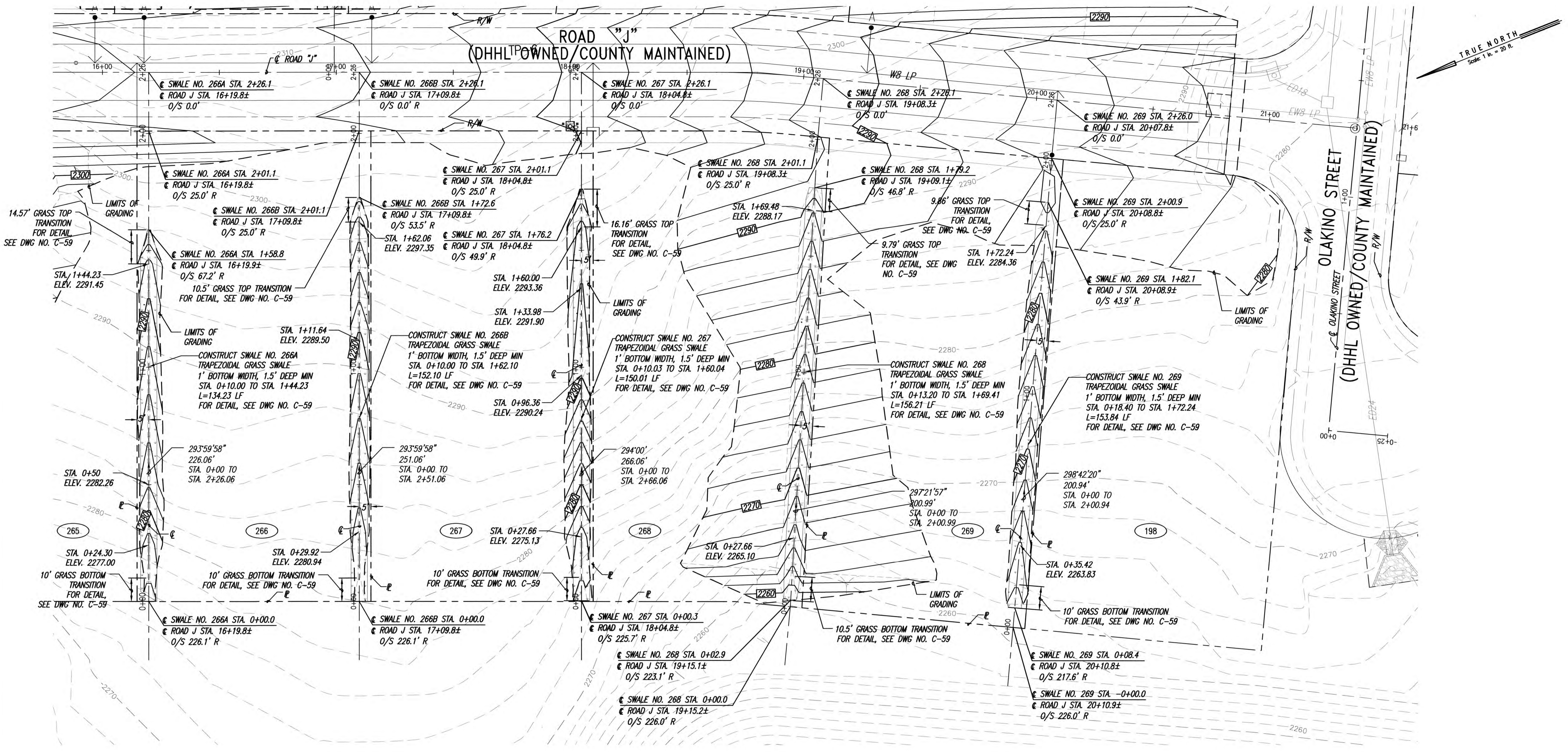
SCALE: 1"=20'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002:014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

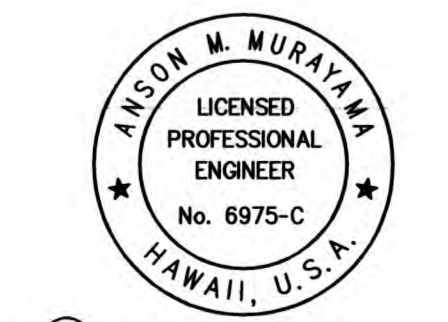
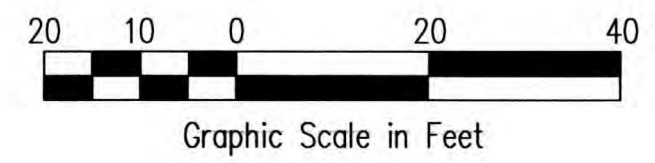
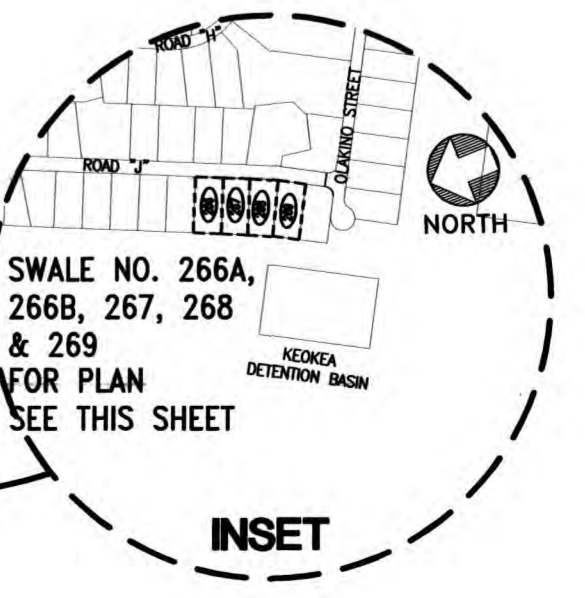
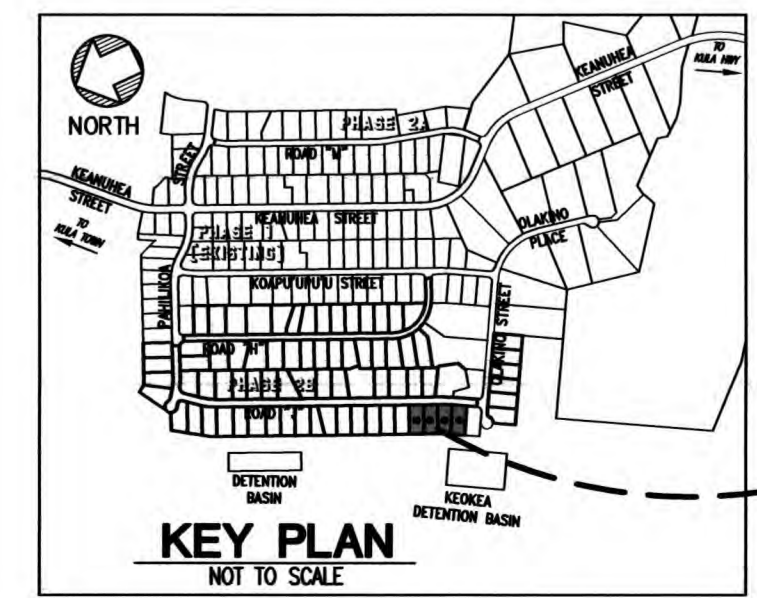
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor   Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>PLAN</b> <b>SWALE NO. 261, 263A &amp; 263B</b>			
DRAWN BY: HWH, CO	ENGINEER: HWH, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



**PLAN - SWALE NO. 266A, 266B, 267, 268 & 269**

SCALE: 1"=20'

- LEGEND**
- LIMITS OF GRADING
  - - - - - EXISTING GROUND CONTOUR
  - 2450 — FINISH GRADE CONTOUR
  - PROPERTY LINE
  - (140) LOT NUMBER
  - (165) EXISTING LOT NUMBER
  - TMK 2-2-002-014



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

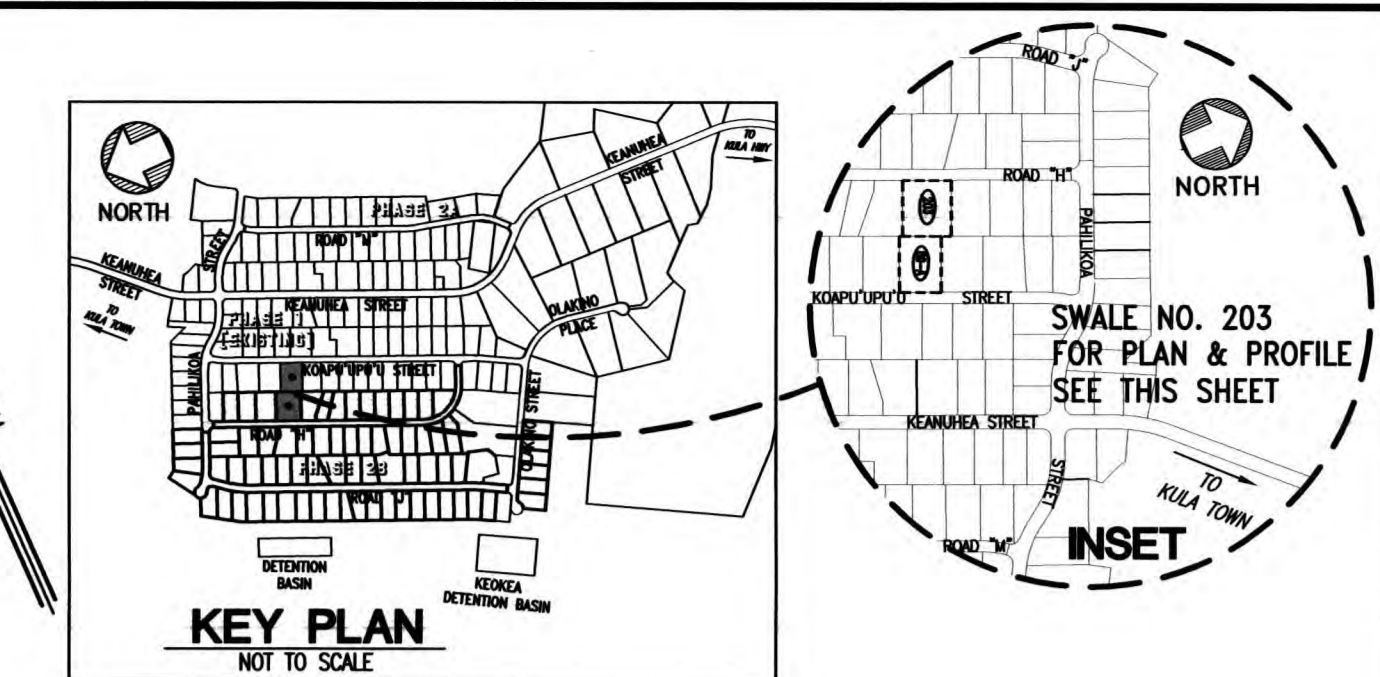
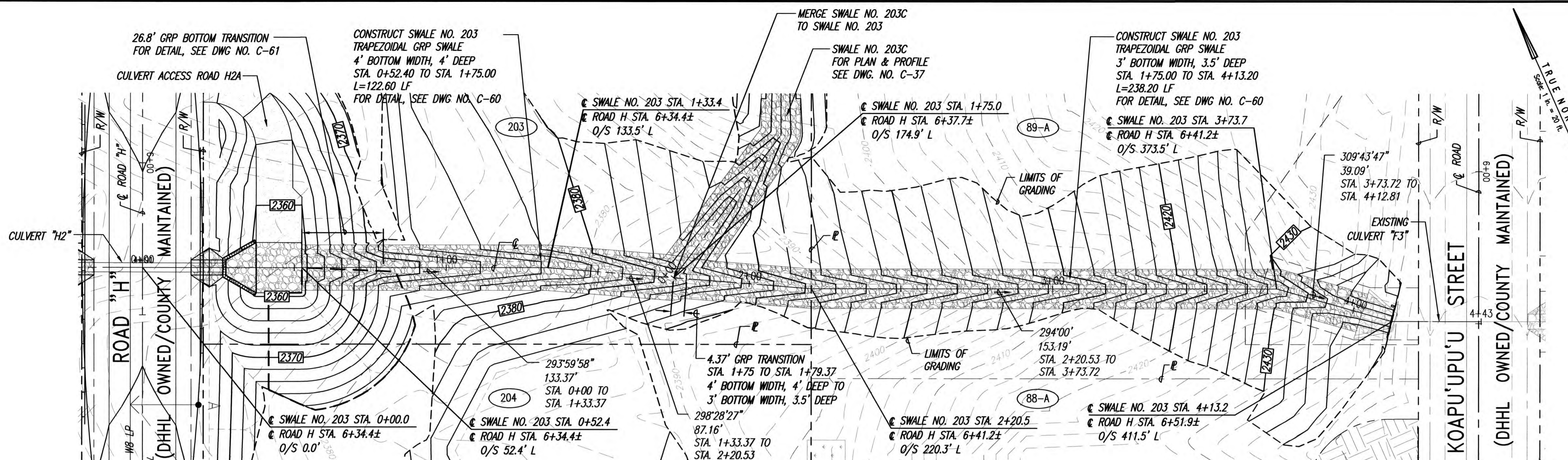
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023

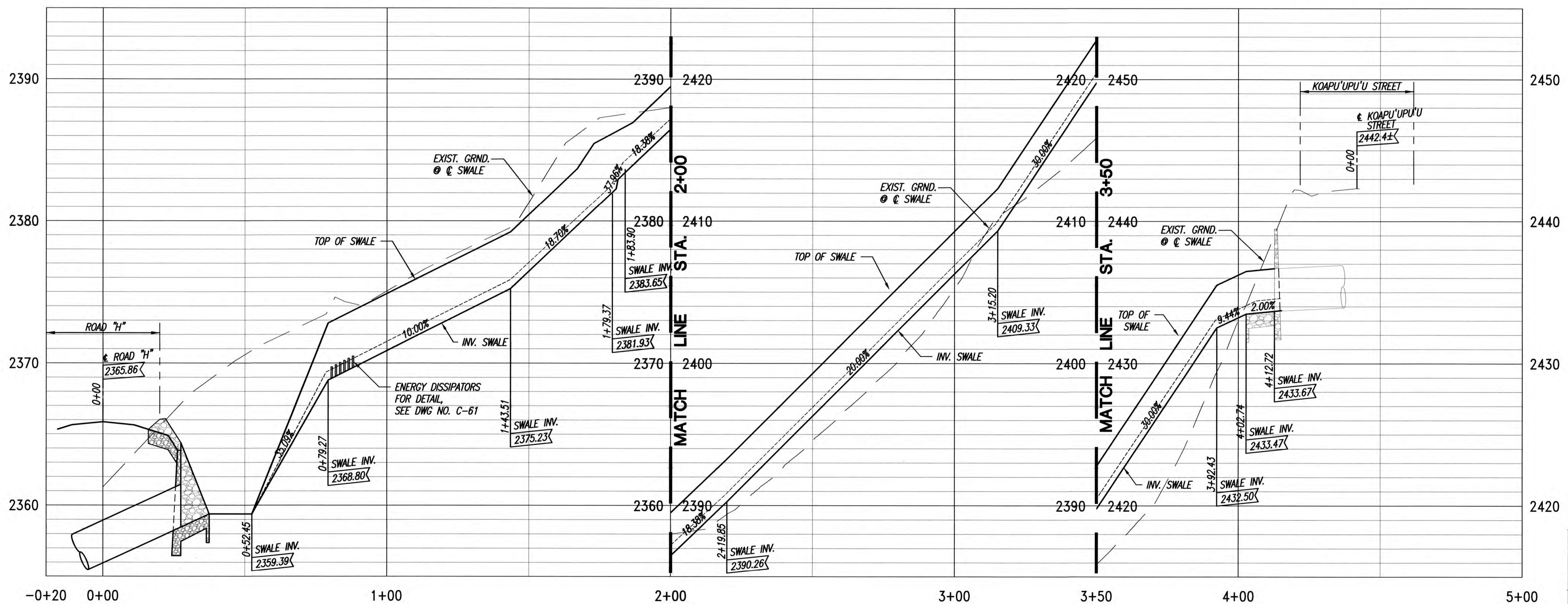
**PLAN SWALE NO. 266A, 266B, 267, 268 & 269**

DRAWN BY: HWH, CO    ENGINEER: HWH, FJC    CHECKED BY: AMM

DWG. NO. **C-53** SHEET 54 OF 79 SHEETS

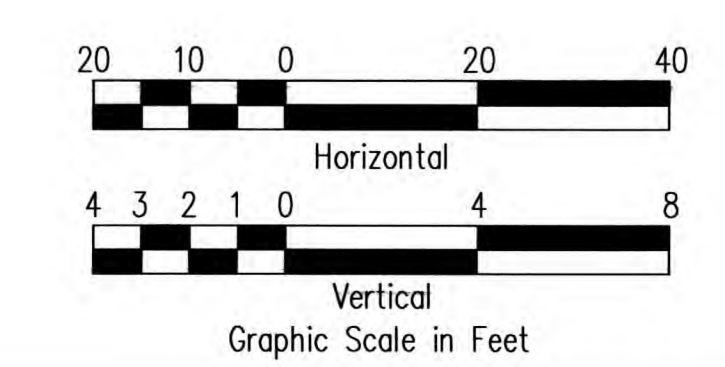


**PLAN - SWALE NO. 203**  
 SCALE: 1"=20'



**PROFILE - SWALE NO. 203**  
 SCALES: HORIZ. 1"=20'  
 VERT. 1"=4'

- LEGEND**
- LIMITS OF GRADING
  - EXISTING GROUND CONTOUR
  - FINISH GRADE CONTOUR
  - PROPERTY LINE
  - 140 LOT NUMBER
  - 165 EXISTING LOT NUMBER
  - TMK 2-2-002:014



ANSON M. MURAKAWA  
 LICENSED PROFESSIONAL ENGINEER  
 No. 6975-C  
 HAWAII, U.S.A.  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

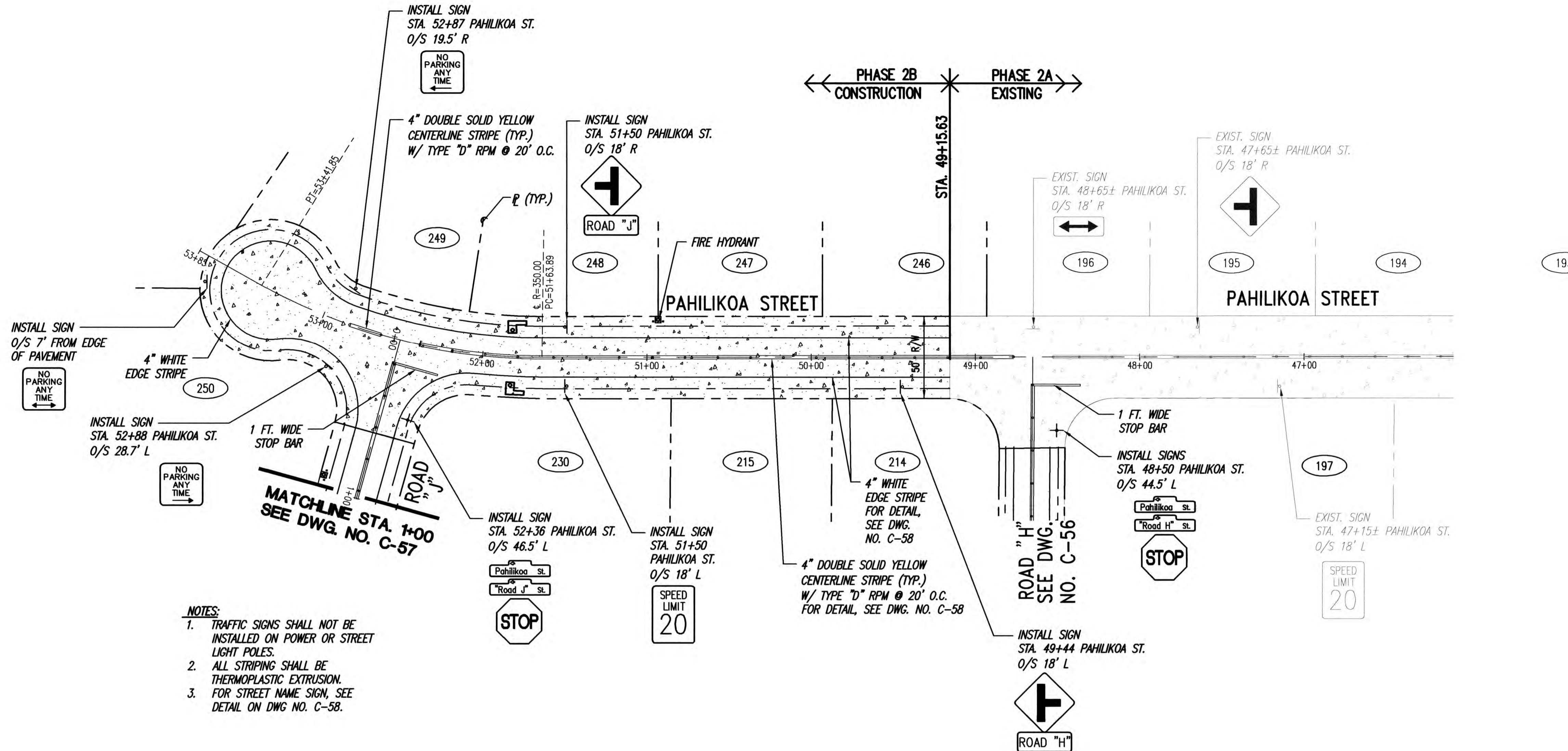
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

**PLAN AND PROFILE SWALE NO. 203**

DRAWN BY: HW1, CO ENGINEER: HW1, FJC CHECKED BY: AMM

FILE POCKET FOLDER NO.

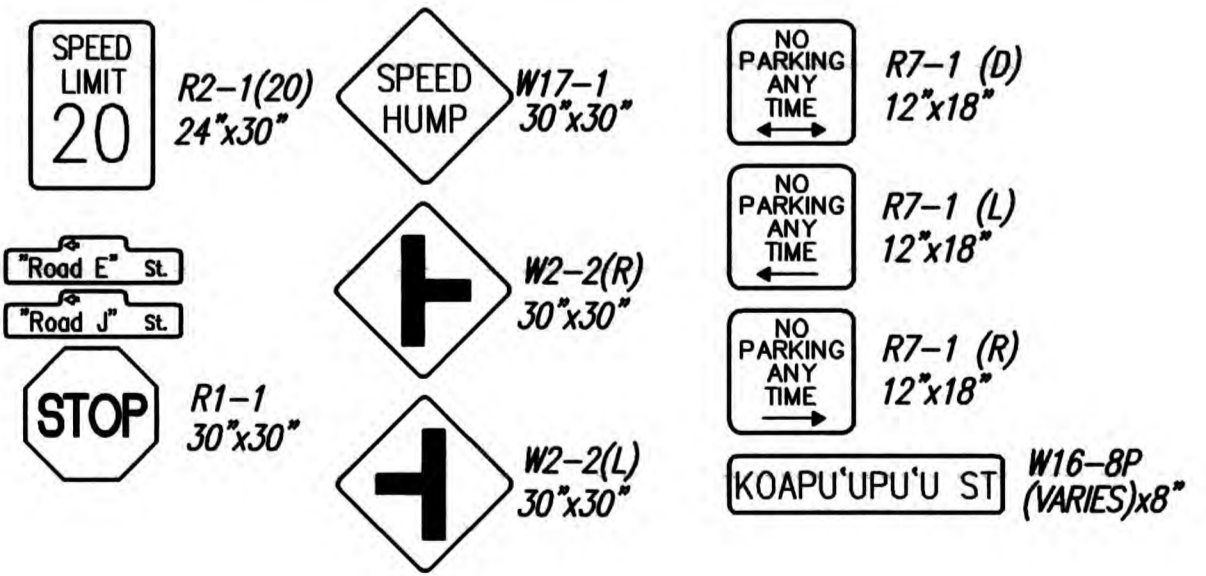


- NOTES:**
1. TRAFFIC SIGNS SHALL NOT BE INSTALLED ON POWER OR STREET LIGHT POLES.
  2. ALL STRIPING SHALL BE THERMOPLASTIC EXTRUSION.
  3. FOR STREET NAME SIGN, SEE DETAIL ON DWG NO. C-58.

**TRAFFIC SIGNS AND PAVEMENT MARKING PLAN**

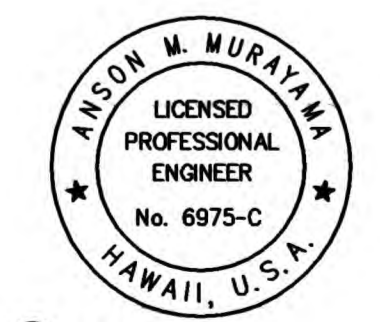
SCALE: 1" = 40'

**SIGN SCHEDULE**

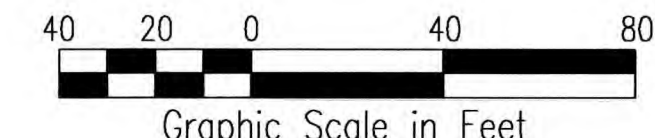


**LEGEND**

- PP POWER POLE
- SL STREET LIGHT
- ⊥ TRAFFIC SIGN W/ POST
- SIGN POST ONLY (AS NOTED)
- AC SPEED HUMPS



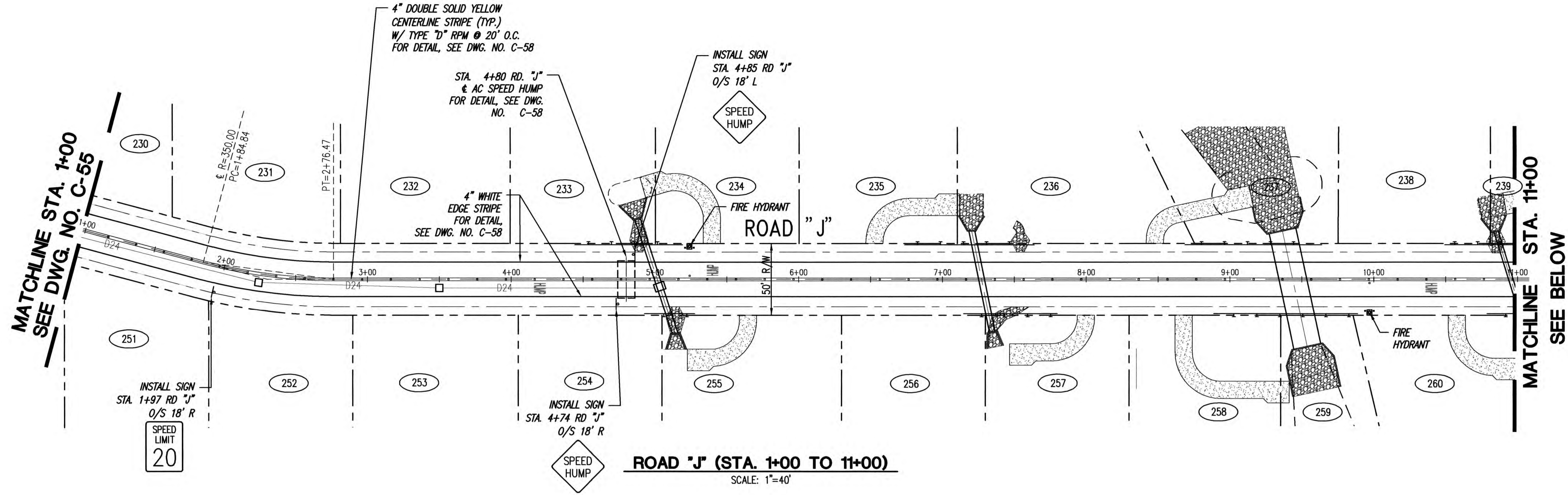
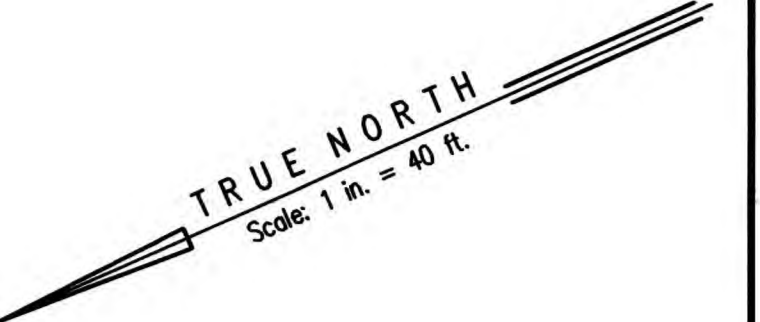
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26



REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor   Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>TRAFFIC SIGNS AND PAVEMENT MARKING PLAN-ROAD E</b>			
DRAWN BY: HWH, CD	ENGINEER: HWH, FJC	CHECKED BY: AMM	





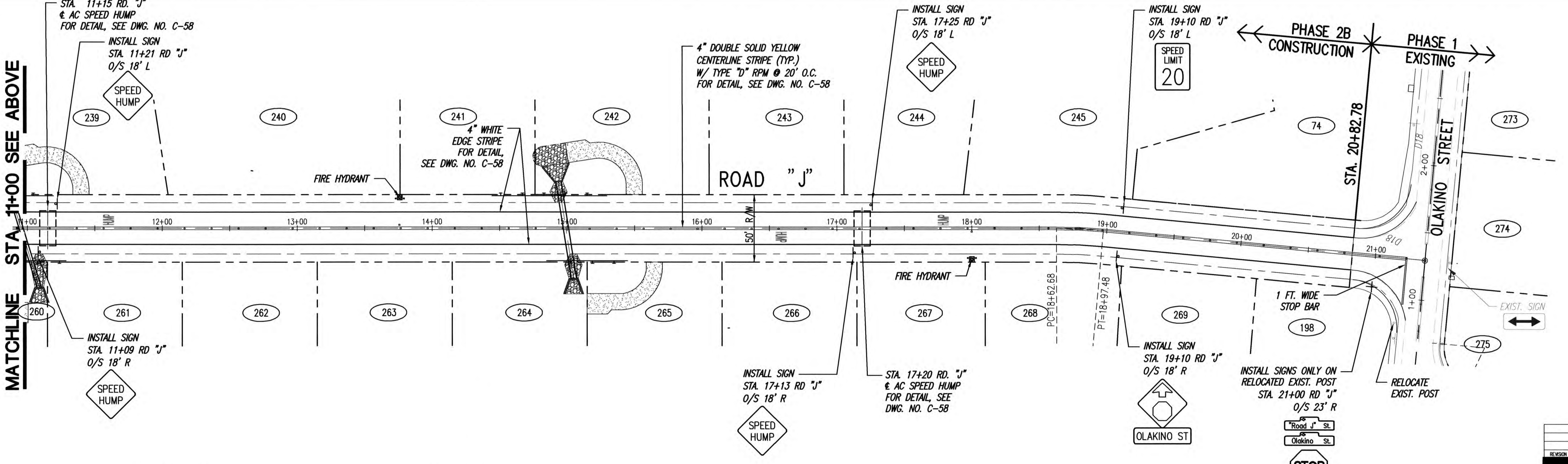
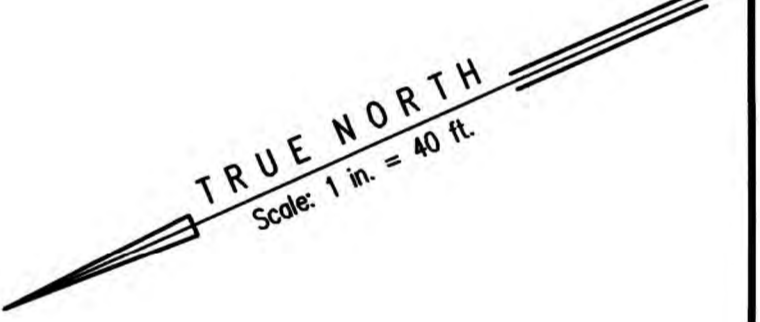


**ROAD "J" (STA. 1+00 TO 11+00)**  
SCALE: 1"=40'

MATCHLINE STA. 11+00  
SEE DWG. NO. C-55

MATCHLINE STA. 1+00  
SEE DWG. NO. C-55

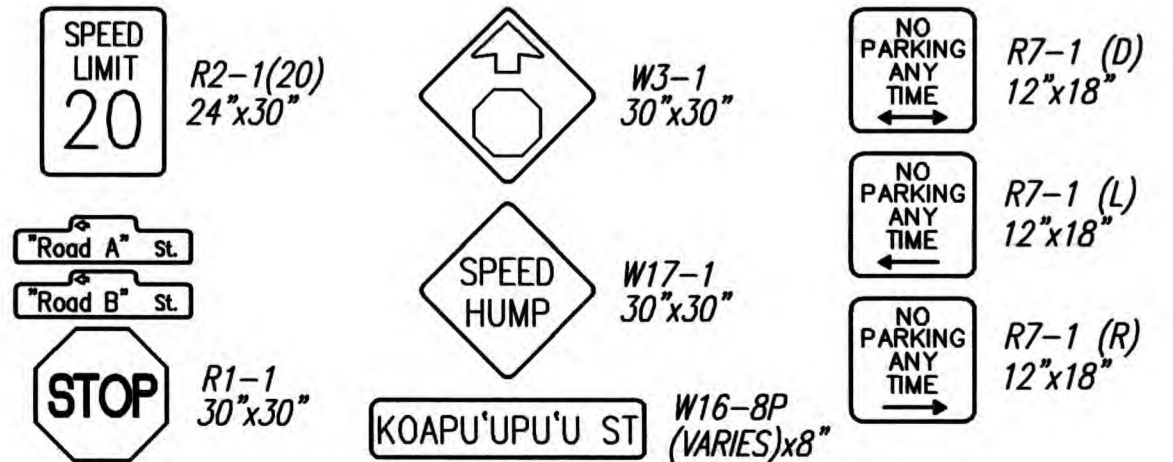
MATCHLINE STA. 11+00 SEE ABOVE



**ROAD "J" (STA. 11+00 TO END)**  
SCALE: 1"=40'

- NOTES:**
1. TRAFFIC SIGNS SHALL NOT BE INSTALLED ON POWER OR STREET LIGHT POLES.
  2. ALL STRIPING SHALL BE THERMOPLASTIC EXTRUSION.
  3. FOR STREET NAME SIGN, SEE DETAIL ON DWG. NO. C-58.

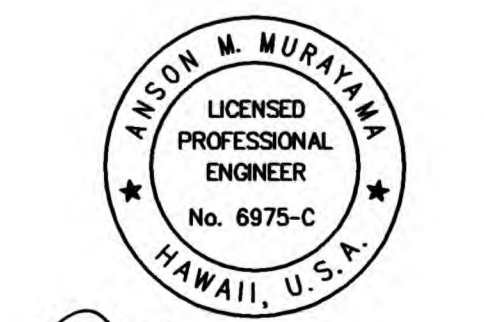
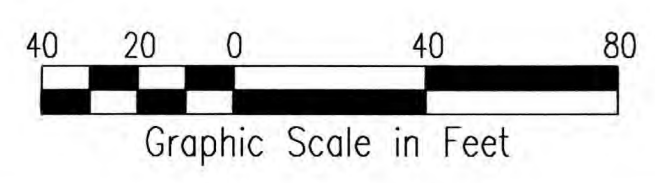
**SIGN SCHEDULE**



**LEGEND**

- PP POWER POLE
- SL STREET LIGHT
- T TRAFFIC SIGN W/ POST
- SIGN POST ONLY (AS NOTED)
- AC AC SPEED HUMP

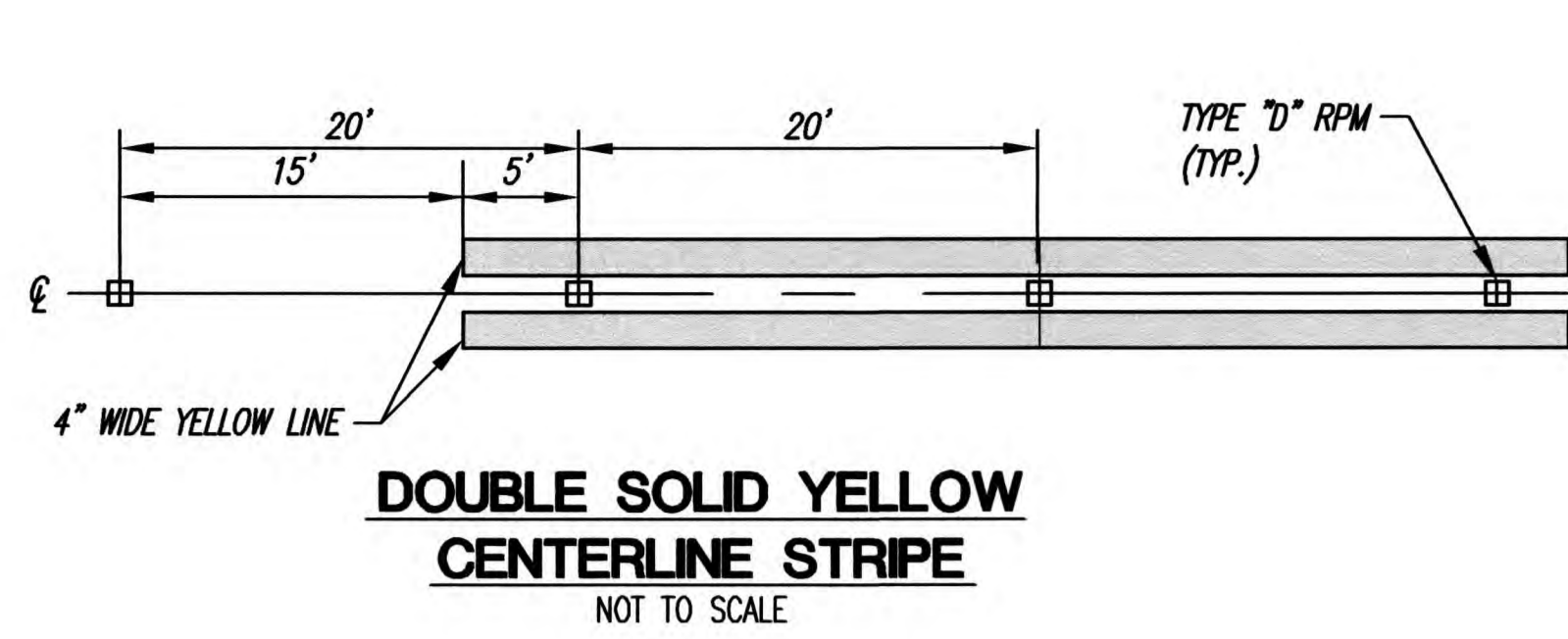
**TRAFFIC SIGNS AND PAVEMENT MARKING PLAN**



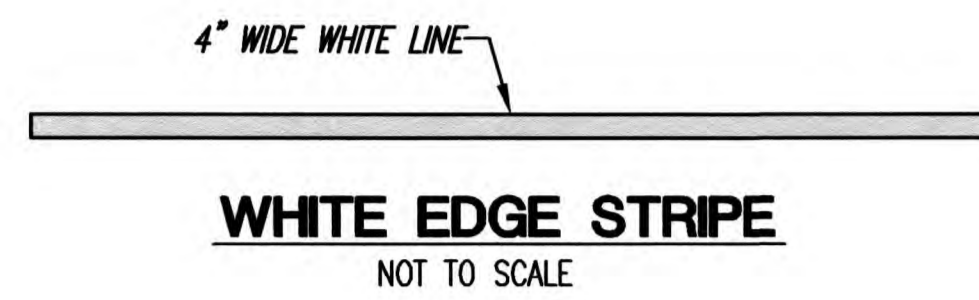
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p>			
<p><b>TRAFFIC SIGNS AND PAVEMENT MARKING PLAN - ROAD J</b></p>			
DRAWN BY: HW1, CO	ENGINEER: HW1, FJC	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.

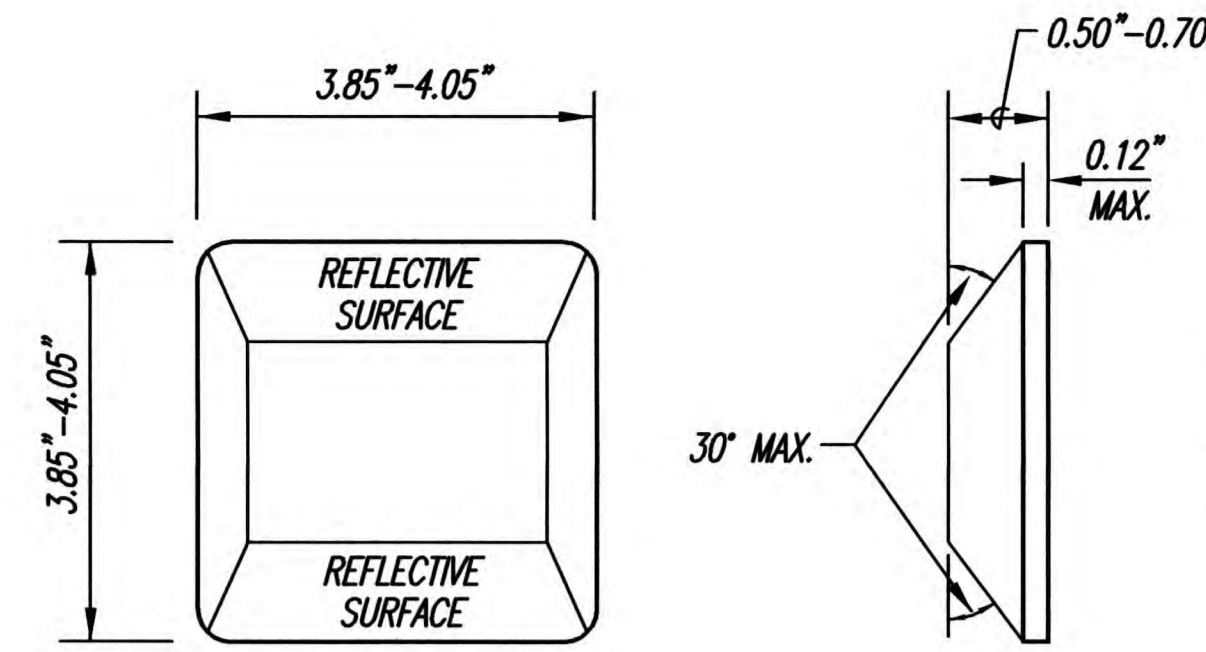
P:\Land Projects\DHHL\Keokea Ph. 1b, 2 & 2A\DWG\Phase 2B\Government Review 2\57 C-56 TSPM Plan Road J.dwg, 3/11/2024 3:08:42 PM



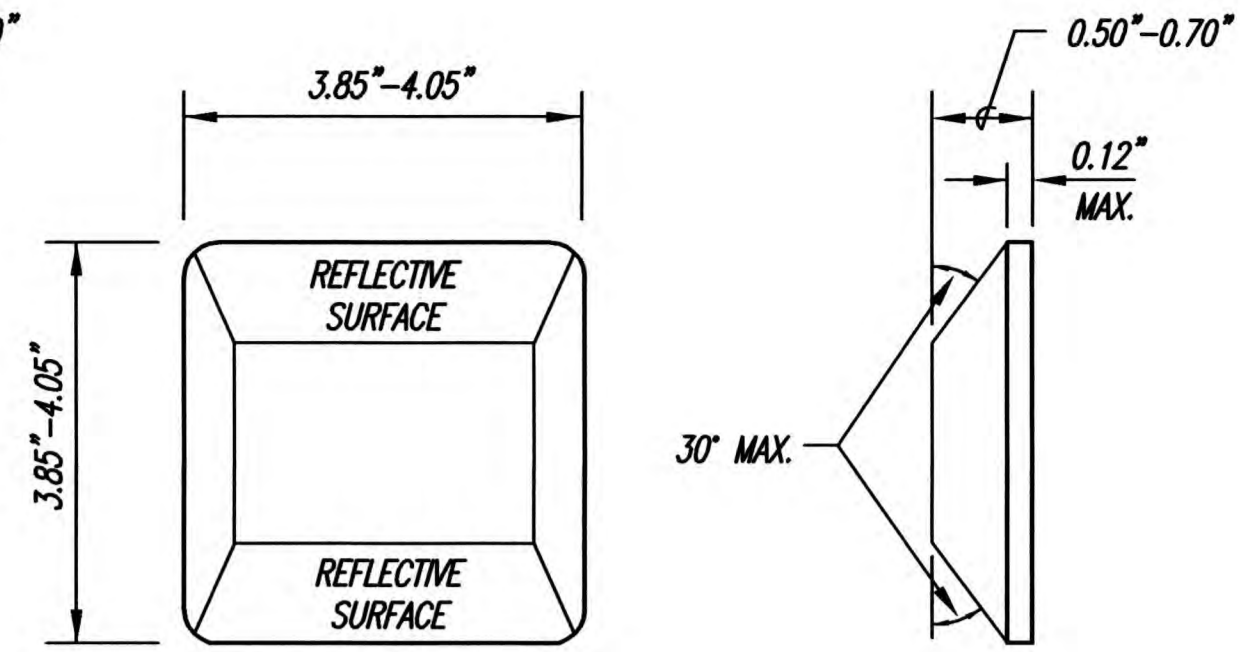
**DOUBLE SOLID YELLOW CENTERLINE STRIPE**  
NOT TO SCALE



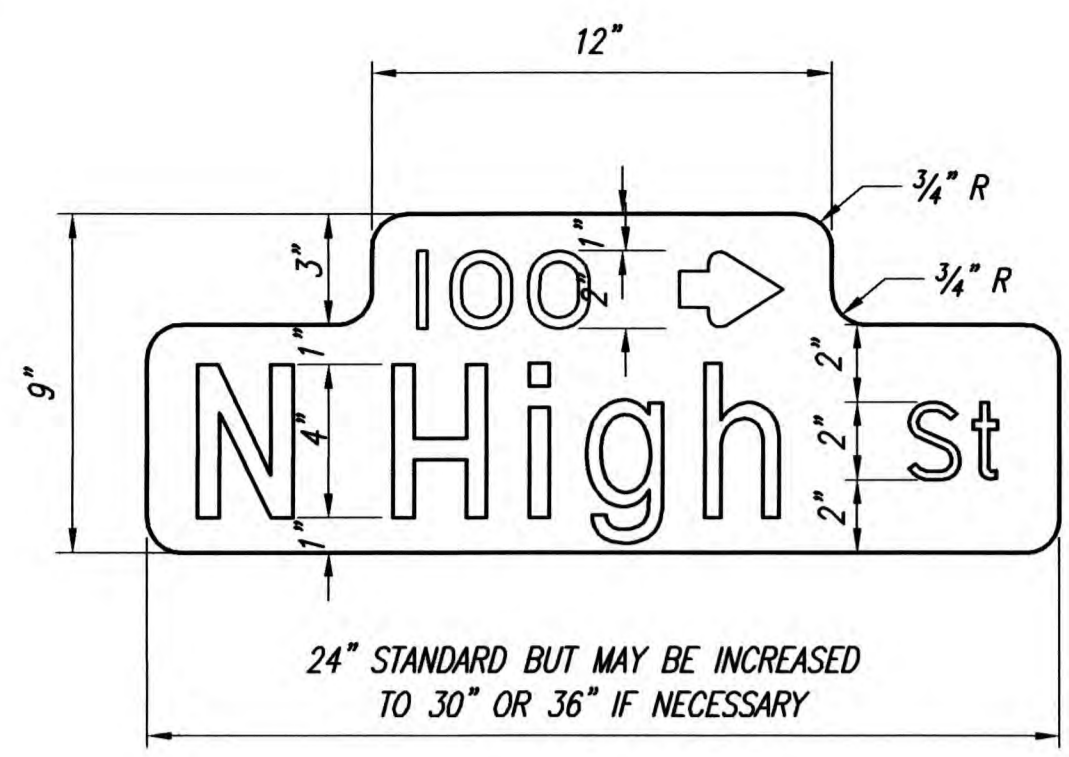
**WHITE EDGE STRIPE**  
NOT TO SCALE



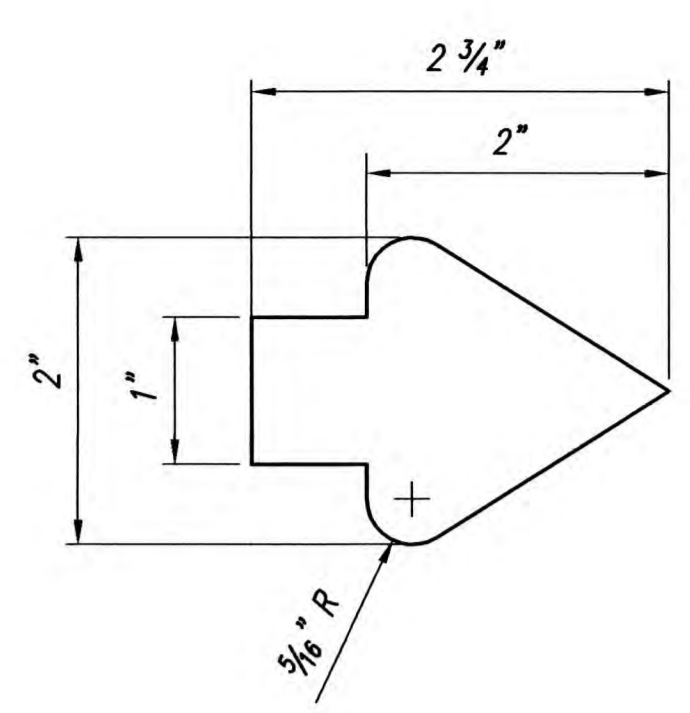
**TYPE DB**  
**TWO-WAY BLUE REFLECTIVE MARKER**  
NOT TO SCALE



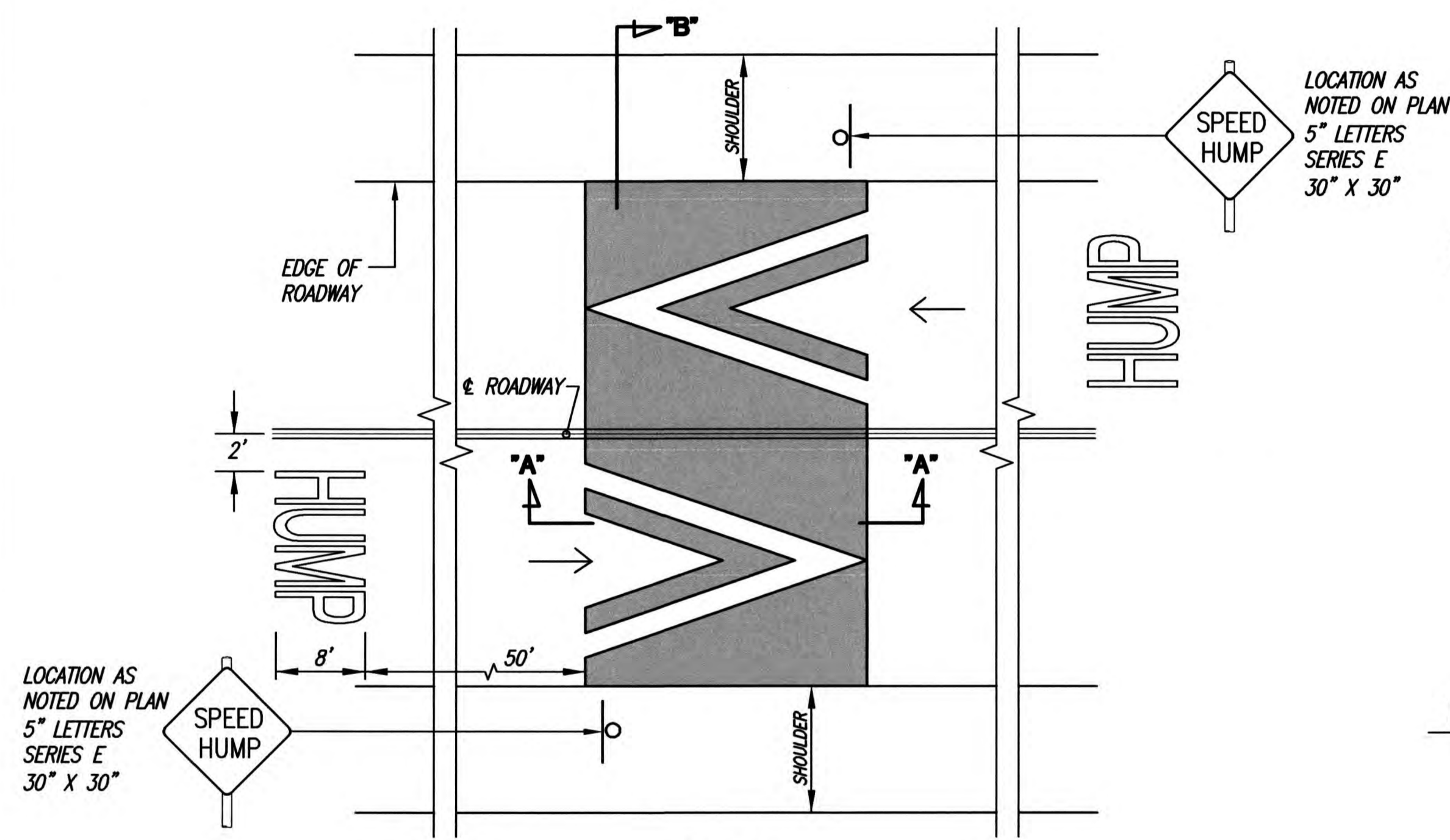
**TYPE D**  
**TWO-WAY YELLOW REFLECTIVE MARKER**  
NOT TO SCALE



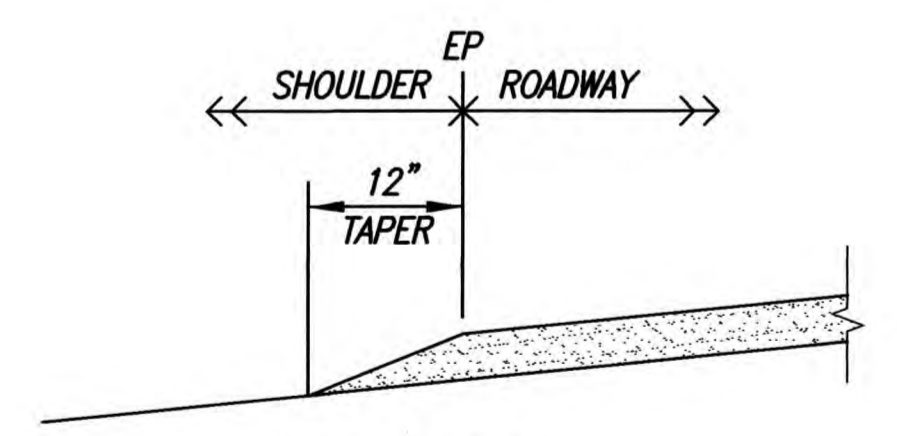
**STANDARD STREET NAME SIGN**  
NOT TO SCALE



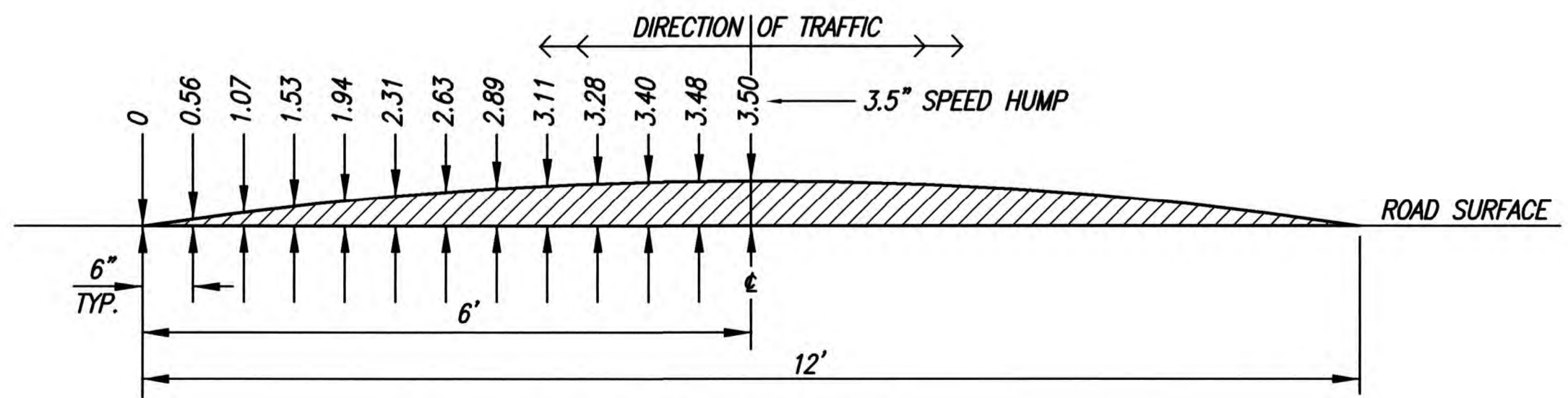
- NOTES:
- SIGNS SHALL BE 0.080" MIN. THICKNESS ALUM. SHEET (ASTM: B-209 ALLOY 6061-T6 AS AMENDED FLATSHEET).
  - REFLECTIVE SHEETS SHALL BE SCOTCHLITE SHEETING #3277 GREEN FOR FACE AND SCOTCHLITE #2270 SILVER FOR LETTERS AND NUMBERS OR EQUAL.



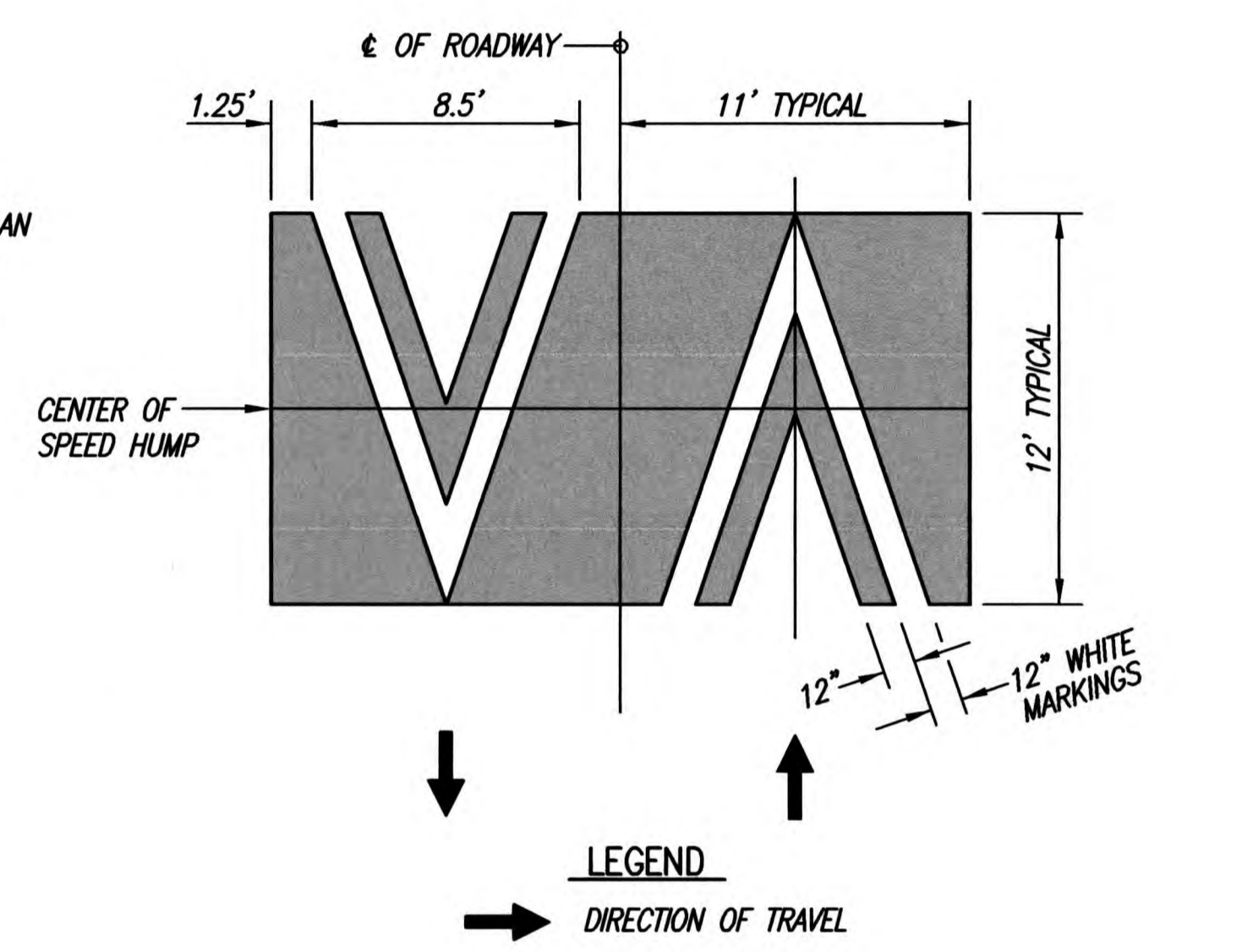
**PLAN**



**SECTION 'B'**



**SECTION 'A'-'A'**  
**SPEED HUMP DETAIL**  
NOT TO SCALE

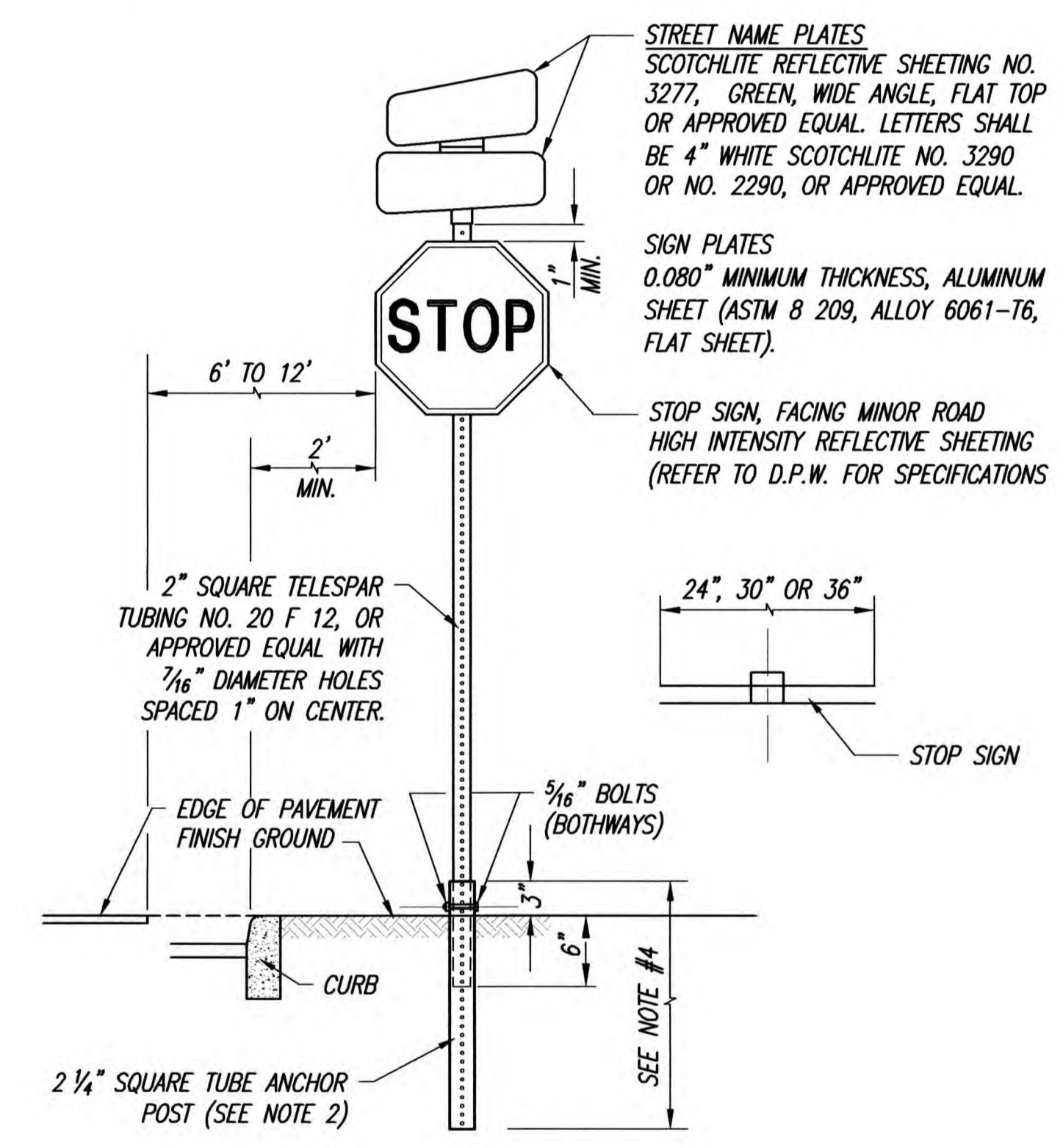


**PAVEMENT MARKINGS FOR SPEED HUMPS**  
NOT TO SCALE

**LEGEND**  
→ DIRECTION OF TRAVEL

**GENERAL NOTES**

- SIGNS SHALL CONFORM TO THE LATEST EDITIONS OF FHWA PUBLICATIONS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS," "STANDARD ALPHABETS FOR HIGHWAY SIGNS," AND "STANDARD HIGHWAY SIGNS," AND AS AMENDED.
- ALL SIGNS SHALL BE MADE OF HIGH INTENSITY REFLECTIVE SHEETING MATERIALS.
- INSTALL WARNING SIGNS AT EACH APPROACH OF A SPEED HUMP OR SERIES OF SPEED HUMPS WITHIN A STREET BLOCK. WORDING FOR SIGNS APPROACHING A SINGLE HUMP SHALL READ "SPEED HUMP" AND WORDING FOR A SERIES OF HUMPS SHALL READ IN THE PLURAL FORM "SPEED HUMPS".
- PAVEMENT WORK SHALL CONFORM TO, DOT STANDARD PLAN TE-35.
- ALL WORK AND MATERIALS REQUIRED TO COMPLETE THE AC PAVING, SIGNS, AND MARKINGS SHALL CONFORM TO THE REQUIREMENTS THE "HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND PUBLIC WORKS CONSTRUCTION 2005".
- PRIOR TO ACCEPTANCE, THE COUNTY INSPECTOR WILL TEST THE SURFACE OF THE HUMP USING A PARABOLIC TEMPLATE AT THE MIDPOINT. THE VARIATION OF THE SURFACE FROM THE TESTING EDGE BETWEEN TWO CONTACTS WITH THE SURFACE SHALL NOT EXCEED ONE-QUARTER (1/4) INCH.
- CONTACT ANY OTHER APPLICABLE UTILITY COMPANIES FOR THE LOCATION OF UNDERGROUND LINES PRIOR TO INSTALLING SIGNS IN THE SHOULDER AREAS.



**STREET NAME AND STOP SIGN DETAILS**  
NOT TO SCALE

- NOTES:
- THE INSIDE OF THE 2 1/4" ANCHOR POST MUST BE KEPT FREE OF IMPEDIMENTS TO ASSURE EASY INSERTS OF THE 2" SIGN POST.
  - SQUARE TUBE POSTS SHALL BE TELESCOPING PERFORATED TELESPAR TUBING OR APPROVED EQUAL.
  - THE EXACT SIGN DIMENSION WILL BE IN CONFORMANCE WITH THE CURRENT MUTCO, AS AMENDED, OR AS DESIGNATED ON THE PLANS OR BY THE MANAGER.
  - THE 2 1/4" ANCHOR POST SHALL BE 4' LONG FOR NORMAL OR POOR GROUND CONDITIONS AND 30" FOR ROCKY CONDITIONS.
  - FLANGED CHANNEL POST APPROVED BY THE STATE HIGHWAYS DIVISION IS ACCEPTABLE AS APPROVED EQUAL FOR 2" SQUARE TUBING.
  - SIGN POST MUST BE FIRM AND NOT SHAKY, OTHERWISE CONCRETE MUST BE USED TO STABILIZE THE ANCHOR POST.

P:\Land Projects\DHLL Keokea Ph. 1B, 2 & 3A\DWG\Phase 2B\Government Review 2\58 C-57 TSPM Details.dwg, 3/11/2024 3:10:33 PM

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023

**TSPM DETAILS**

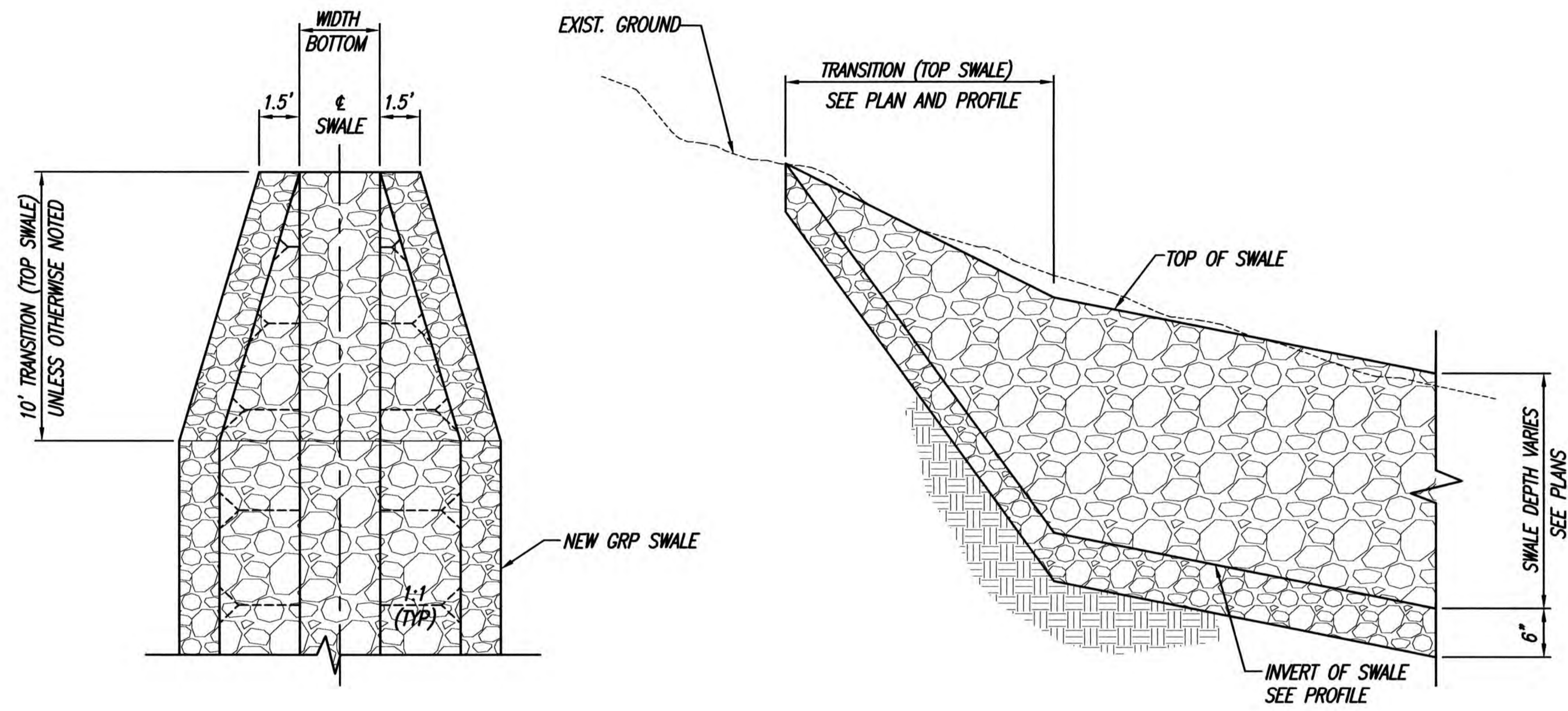
DRAWN BY: HWH ENGINEER: HWH, FJC CHECKED BY: AMM

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

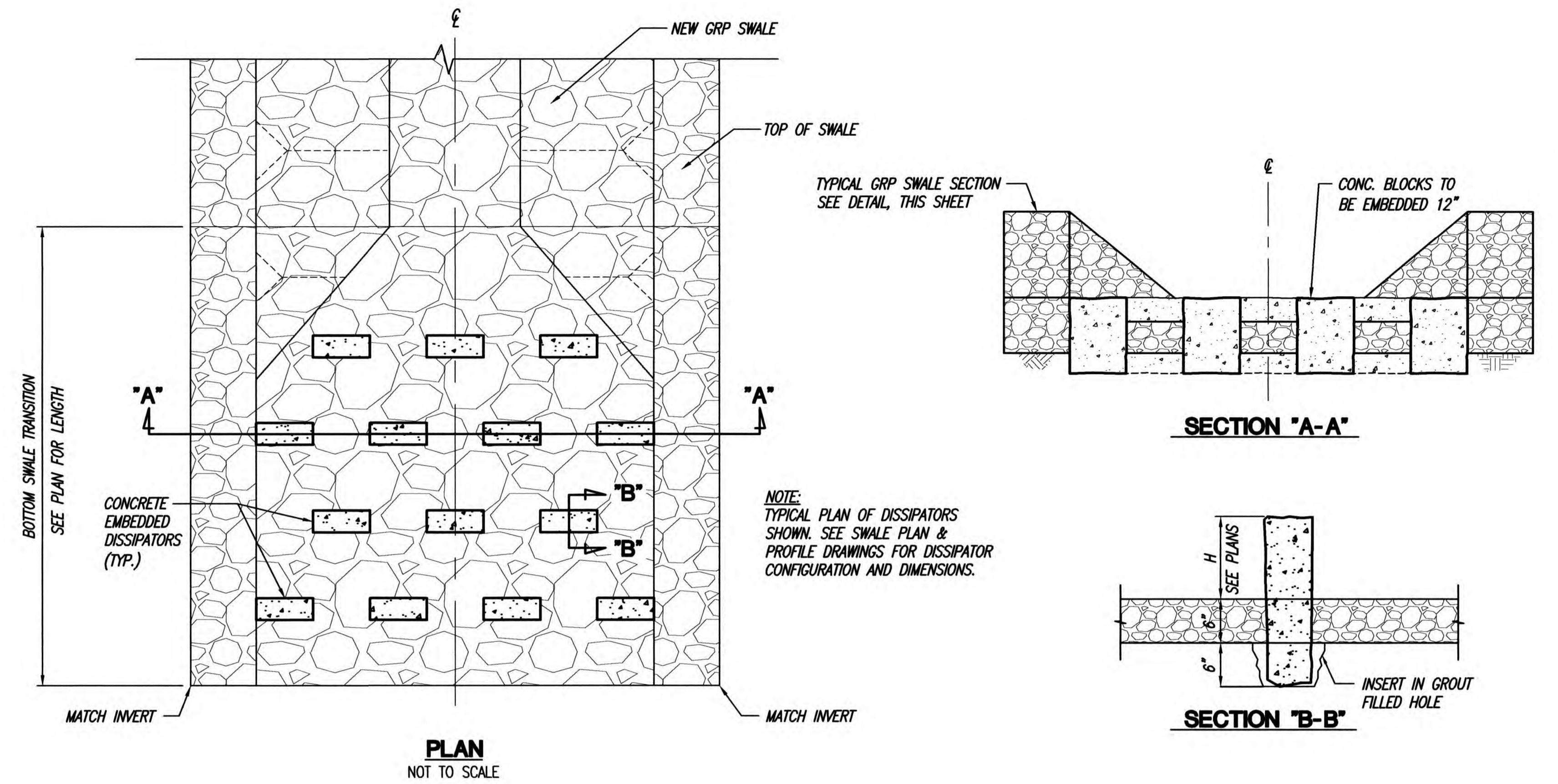


THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26





**GRP SWALE TOP TRANSITION DETAILS**  
NOT TO SCALE



**GRP SWALE BOTTOM DISSIPATORS TYPICAL DETAILS**  
NOT TO SCALE

P:\Land Projects\DHL\Keokea Ph 1B, 2 & 3A\DWG\Phase 2B\Government Review\2160 C-59 Swale Details - 2.dwg, 3/11/2024 3:14:01 PM



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

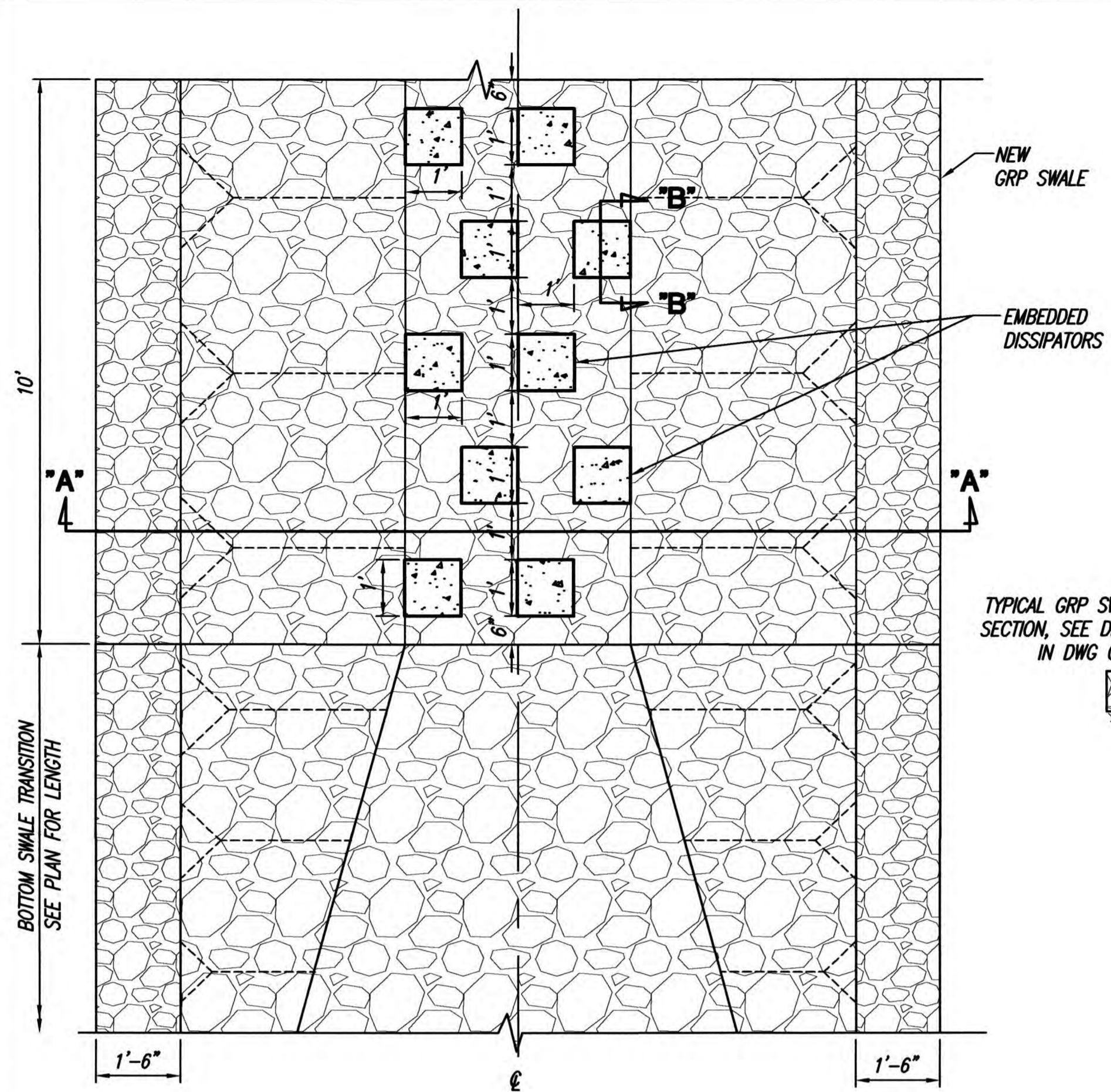
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1286 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

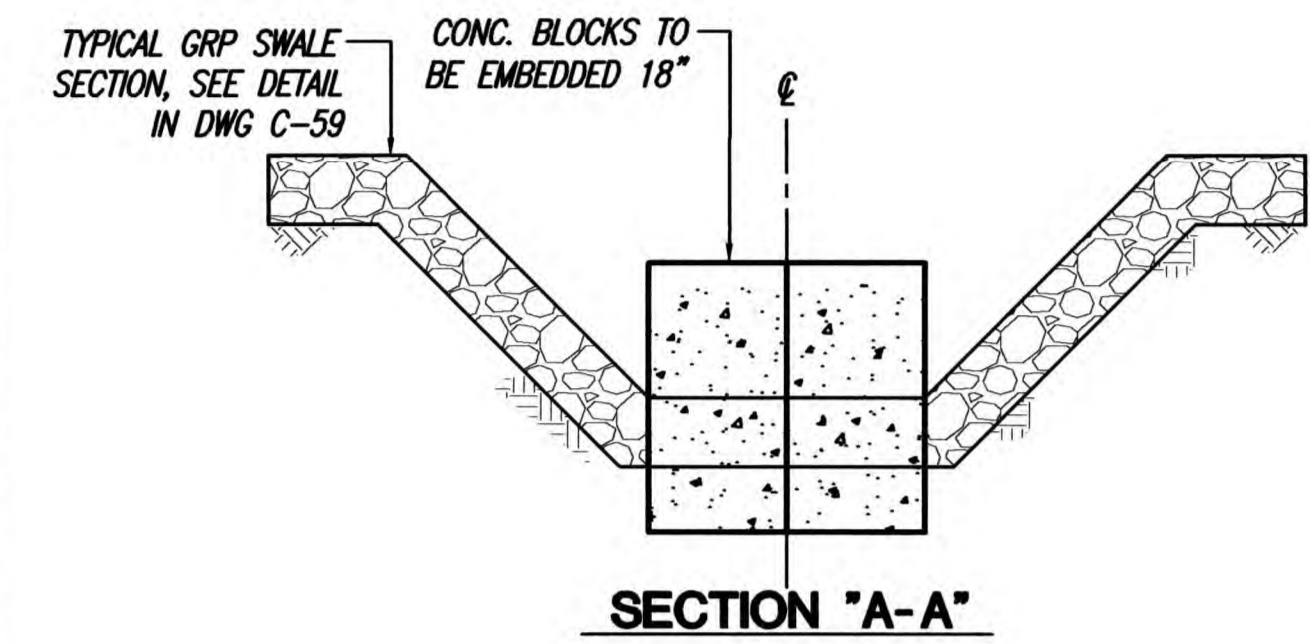
**SWALE DETAIL - 2**

DRAWN BY: CO	ENGINEER: CO	CHECKED BY: AMM
--------------	--------------	-----------------

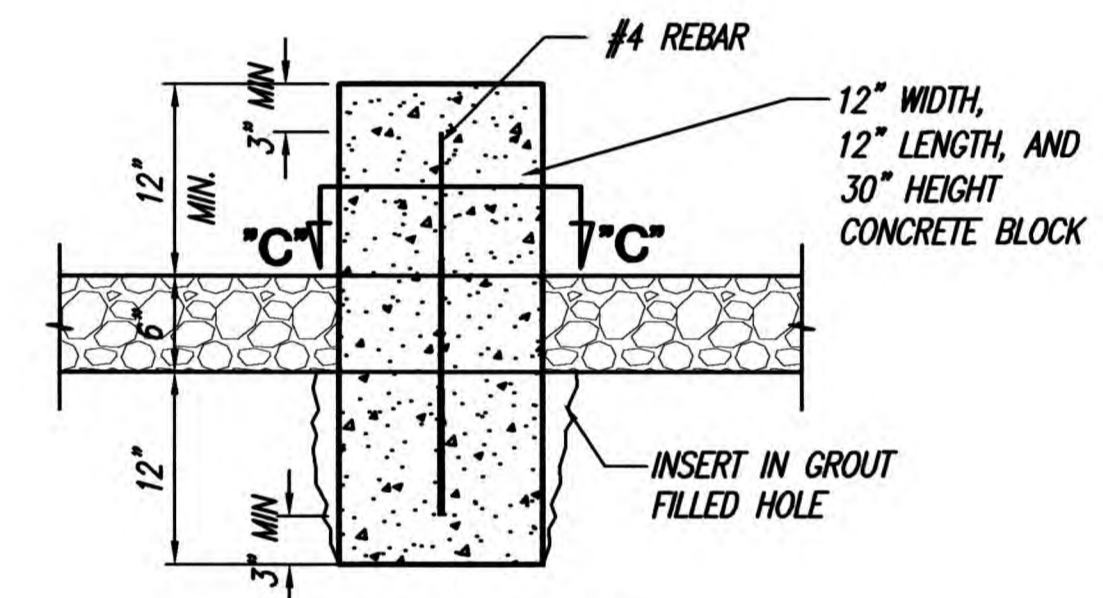
P:\Land Projects\DHHL\Keokea Ph 1B, 2 & 2A\DWG\Phase 2B\Government Review\2161 C-60 Swale Details - 3.dwg, 3/11/2024 3:24:52 PM



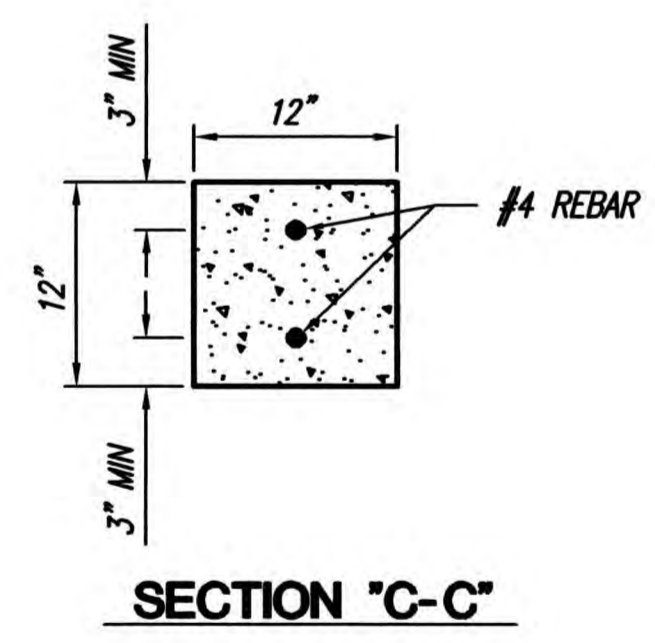
**PLAN**  
NOT TO SCALE



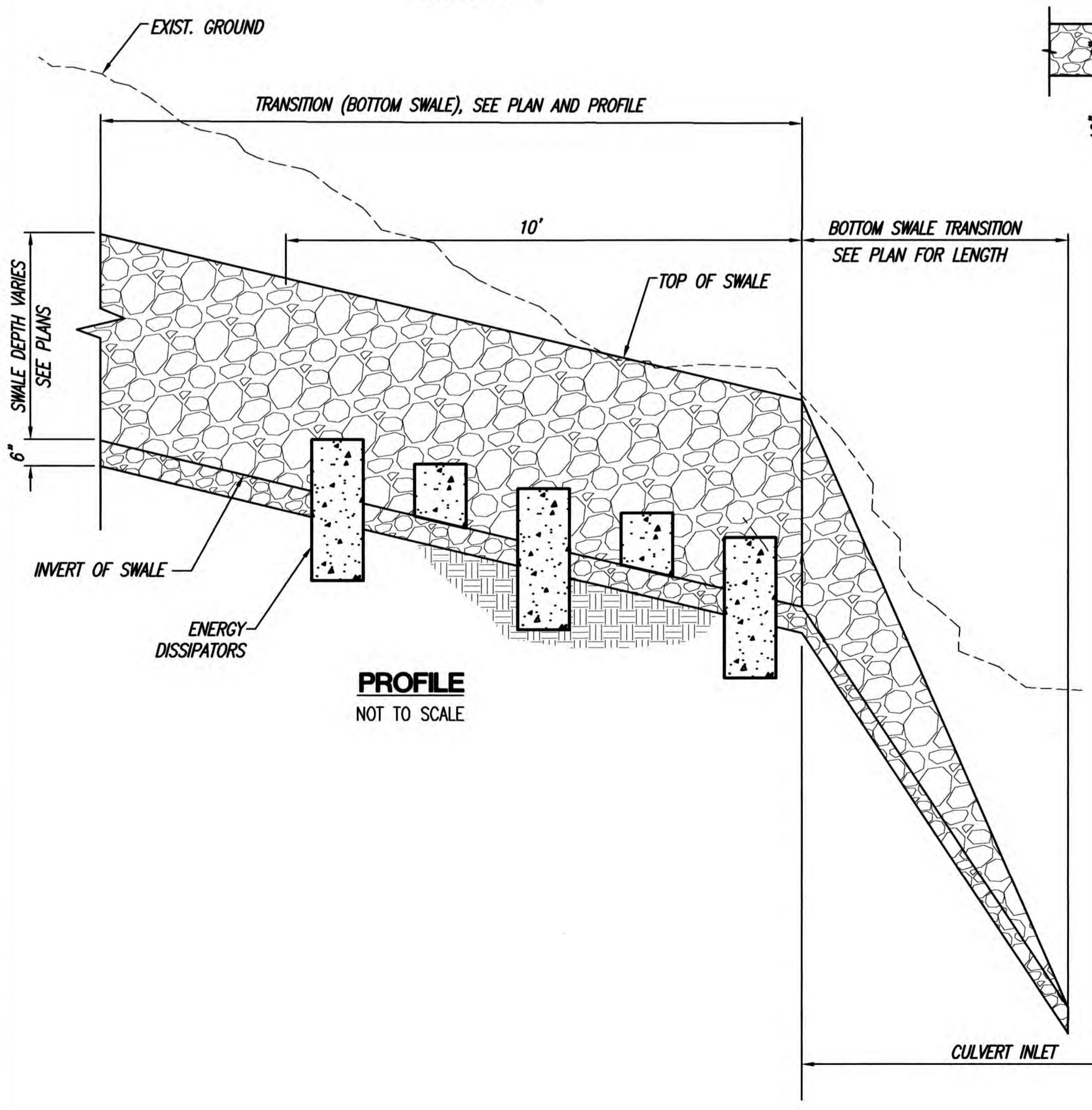
**SECTION "A-A"**



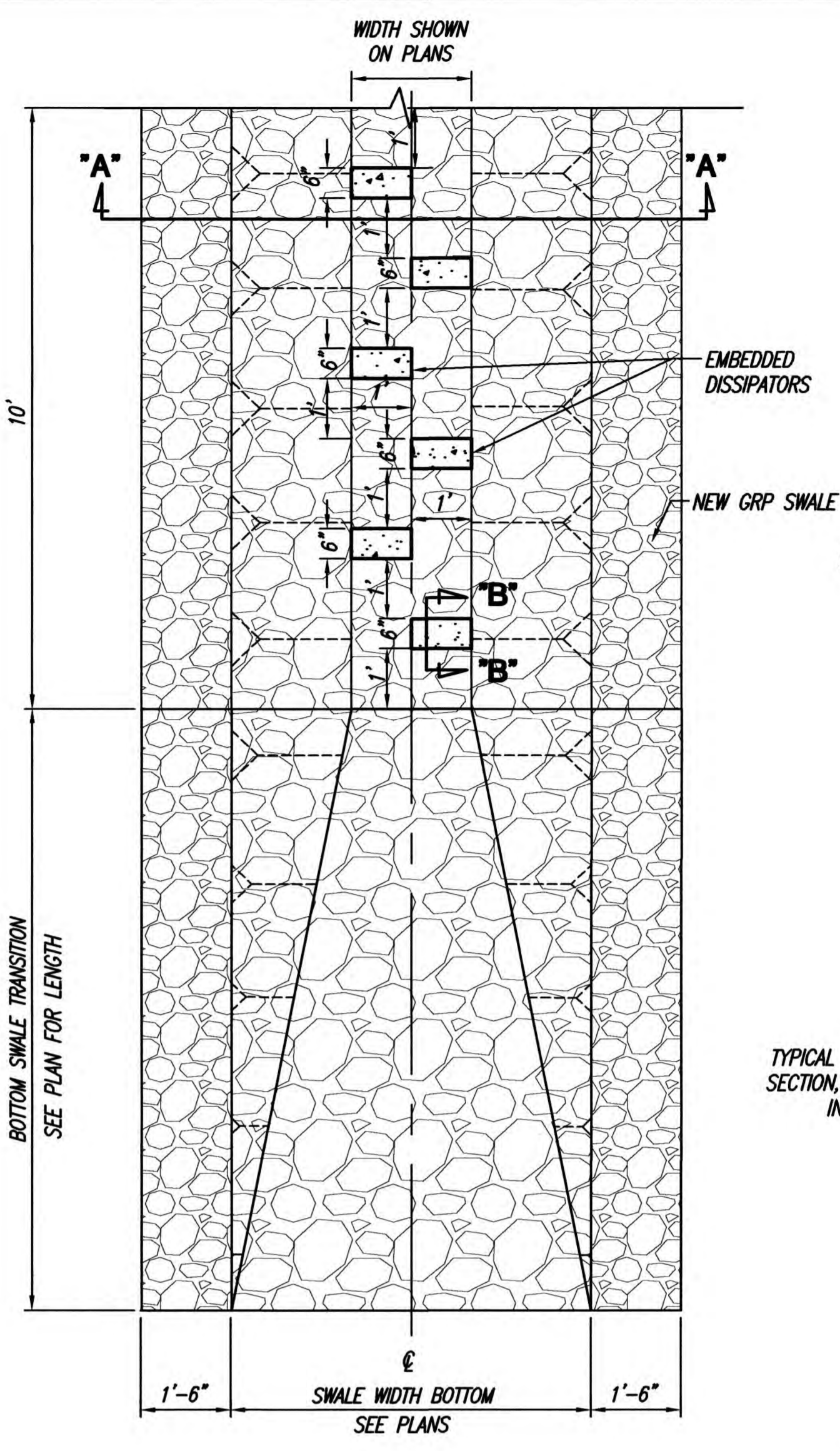
**SECTION "B-B"**



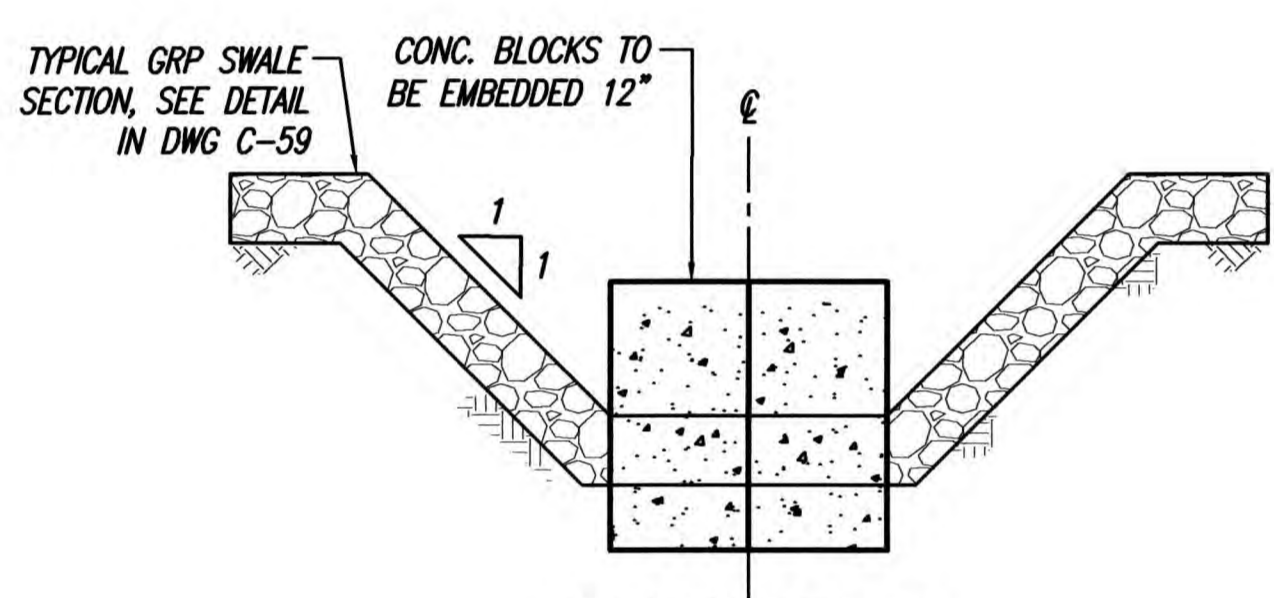
**SECTION "C-C"**



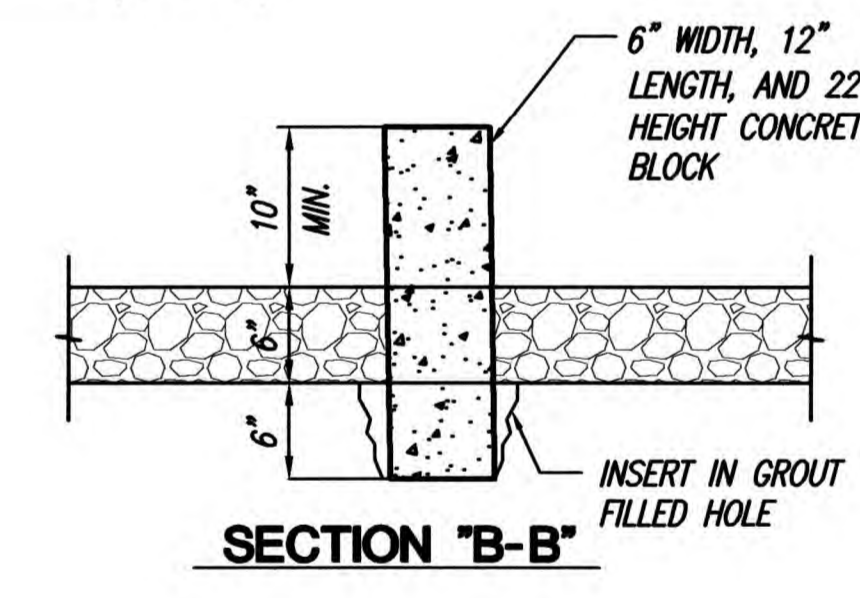
**PROFILE**  
NOT TO SCALE



**PLAN**  
NOT TO SCALE

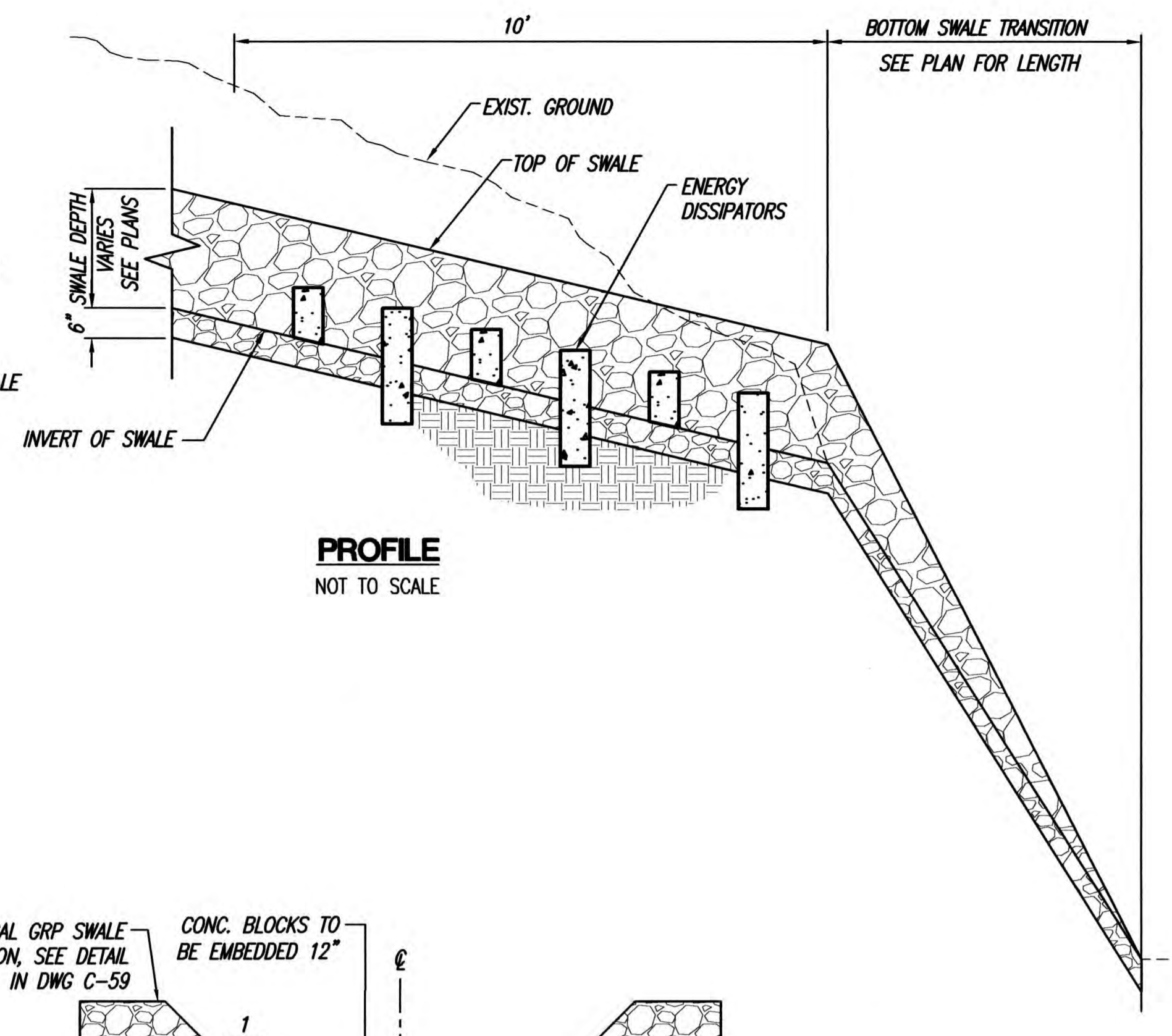


**SECTION "A-A"**



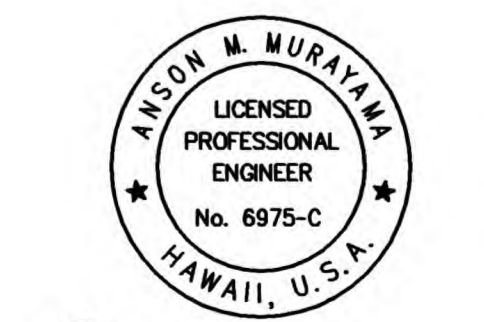
**SECTION "B-B"**

**GRP SWALE BOTTOM TRANSITION DETAILS (AT CULVERT INLET)**  
NOT TO SCALE



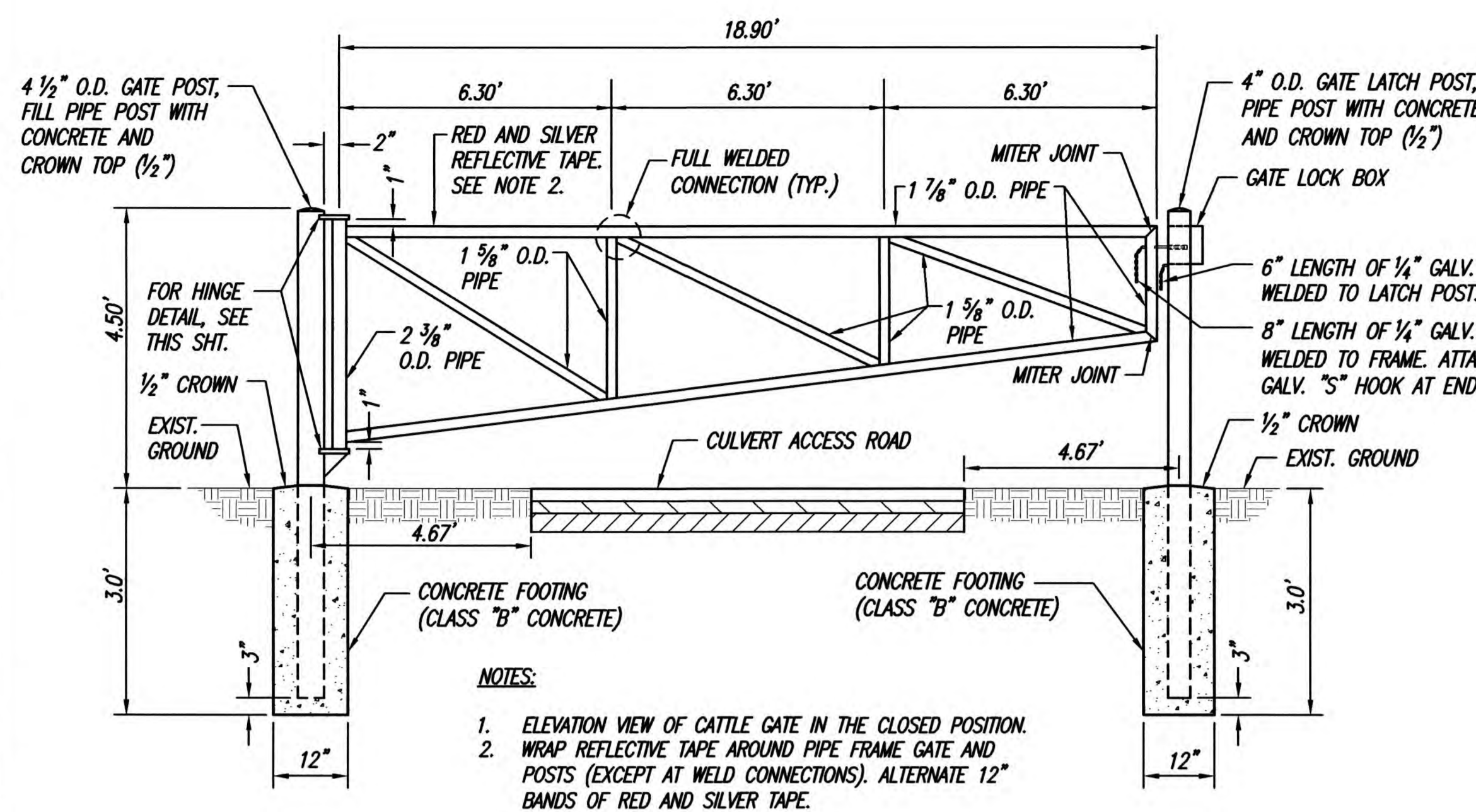
**PROFILE**  
NOT TO SCALE

**GRP SWALE BOTTOM TRANSITION DETAILS (AT CULVERT INLET)**  
**FOR SWALES WITH 4' DEPTH AND 4' BOTTOM WIDTH**  
NOT TO SCALE



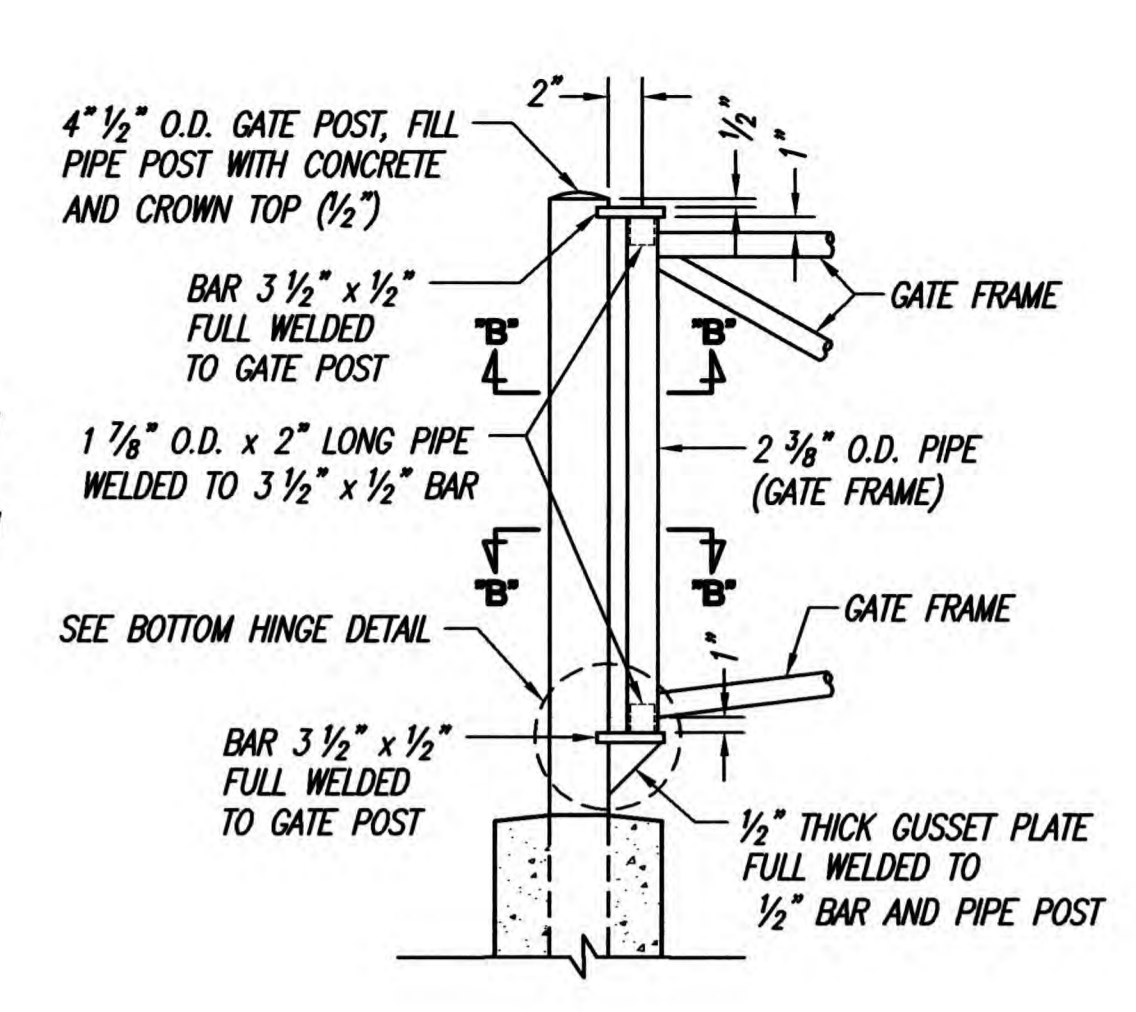
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
 <b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii			
<b>KEOKEA-WAIOHULI DEVELOPMENT</b> <b>PHASE 2B</b> KEOKEA & WAIOHULI, MAKAWAO, MAUI OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023			
<b>SWALE DETAIL - 3</b>			
DRAWN BY: CO	ENGINEER: CO	CHECKED BY: AMM	
FILE	POCKET	FOLDER	NO.



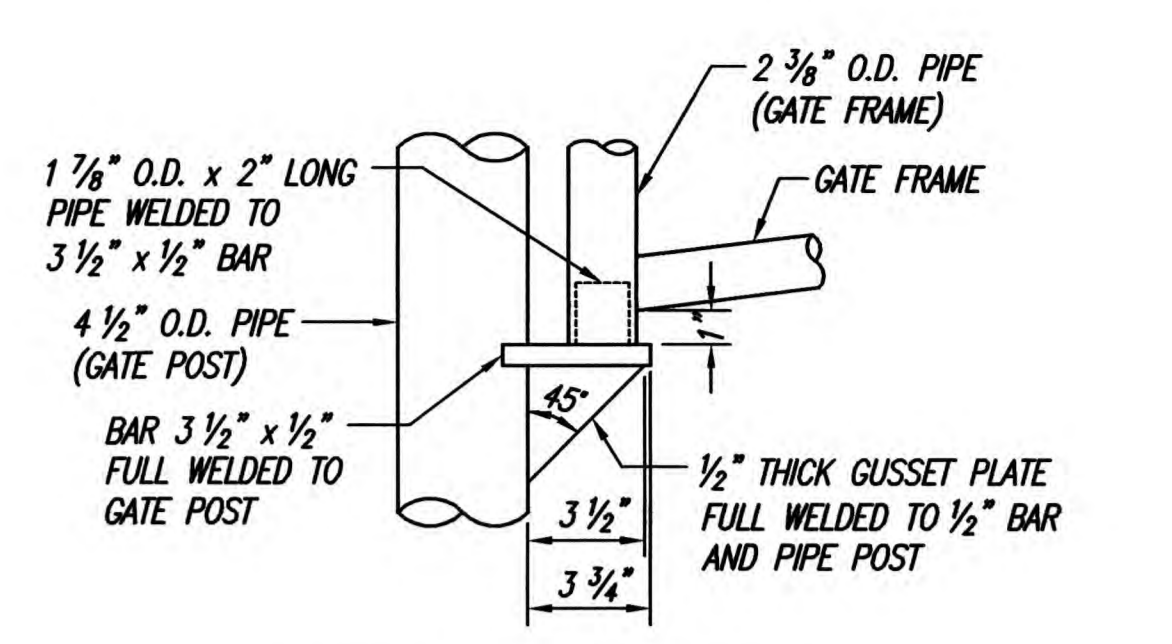
**NOTES:**  
 1. ELEVATION VIEW OF CATTLE GATE IN THE CLOSED POSITION.  
 2. WRAP REFLECTIVE TAPE AROUND PIPE FRAME GATE AND POSTS (EXCEPT AT WELD CONNECTIONS). ALTERNATE 12\"/>

**ELEVATION**  
NOT TO SCALE

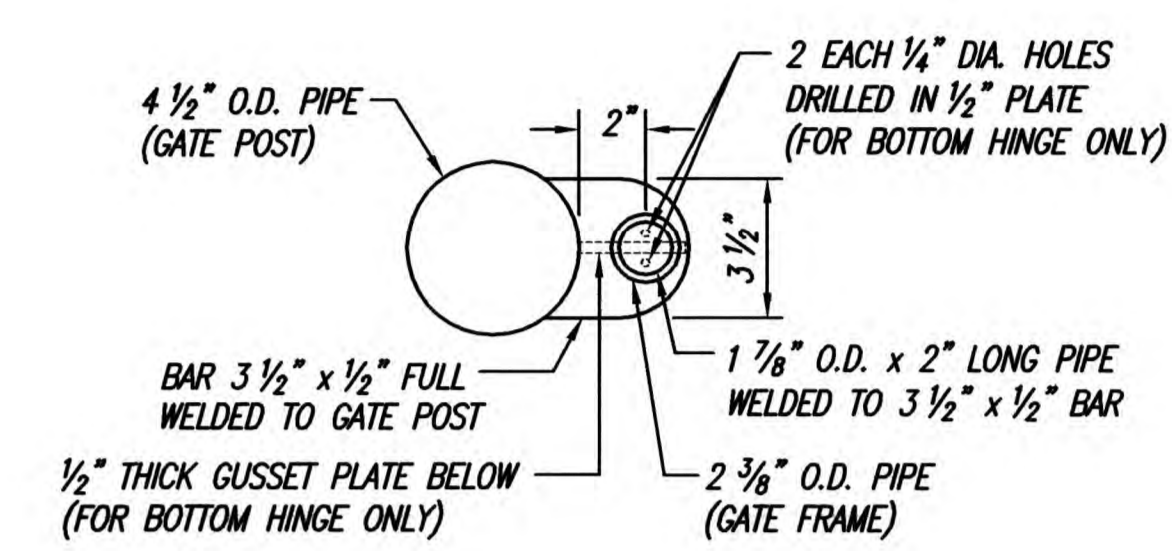


**HINGE DETAIL**  
NOT TO SCALE

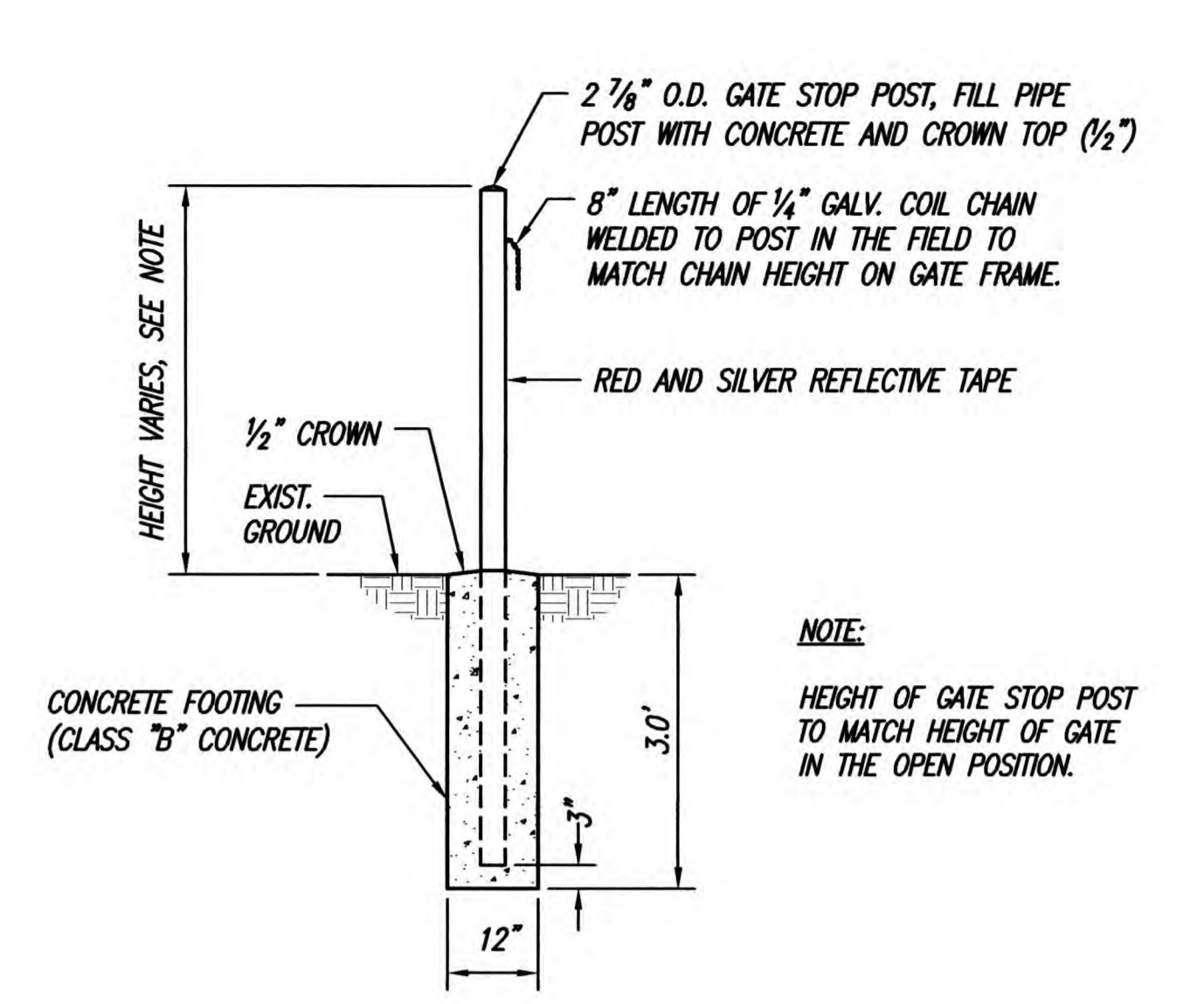
**CATTLE GATE DETAIL**  
NOT TO SCALE



**BOTTOM HINGE DETAIL**  
NOT TO SCALE

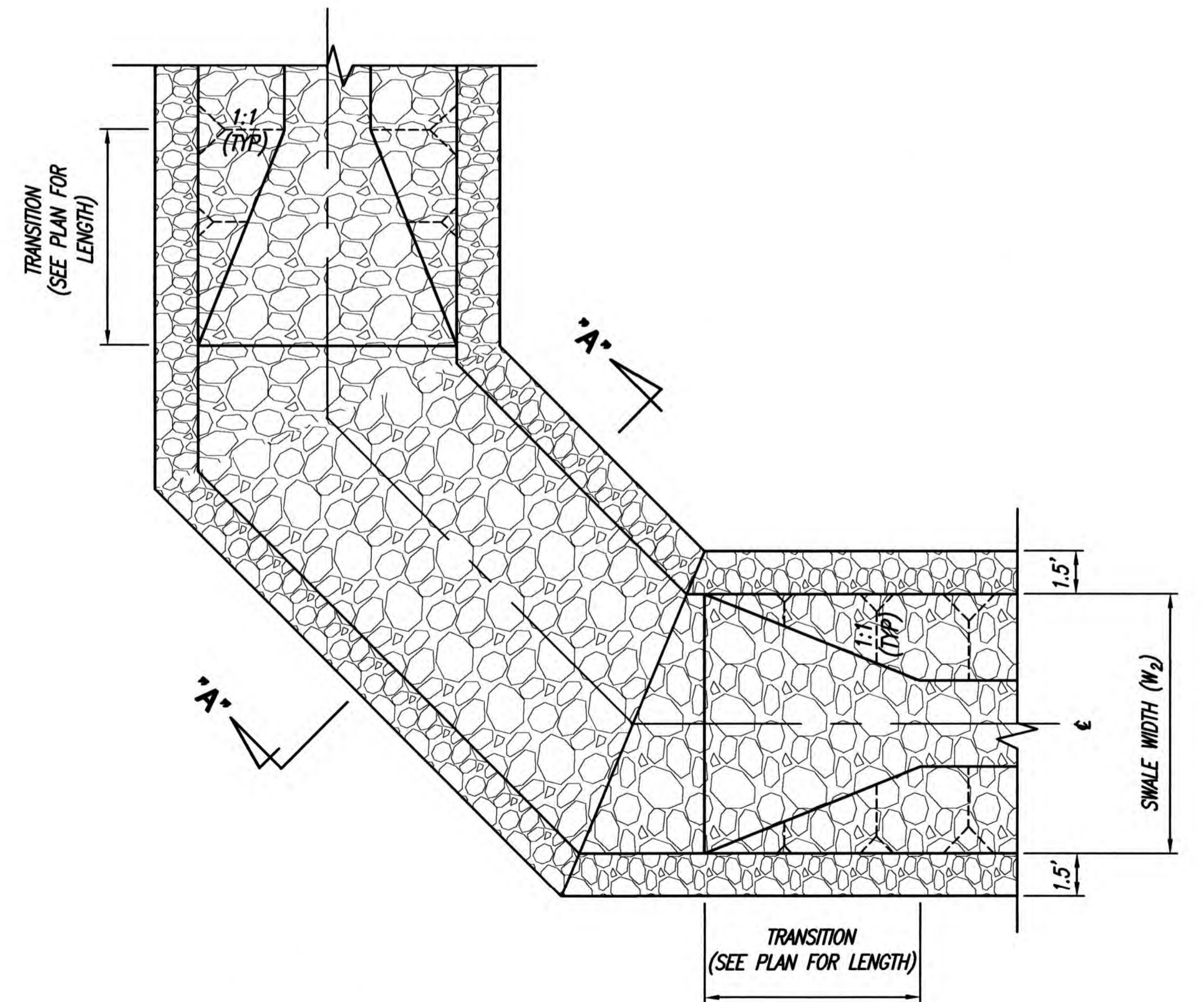


**SECTION 'B-B'**  
NOT TO SCALE

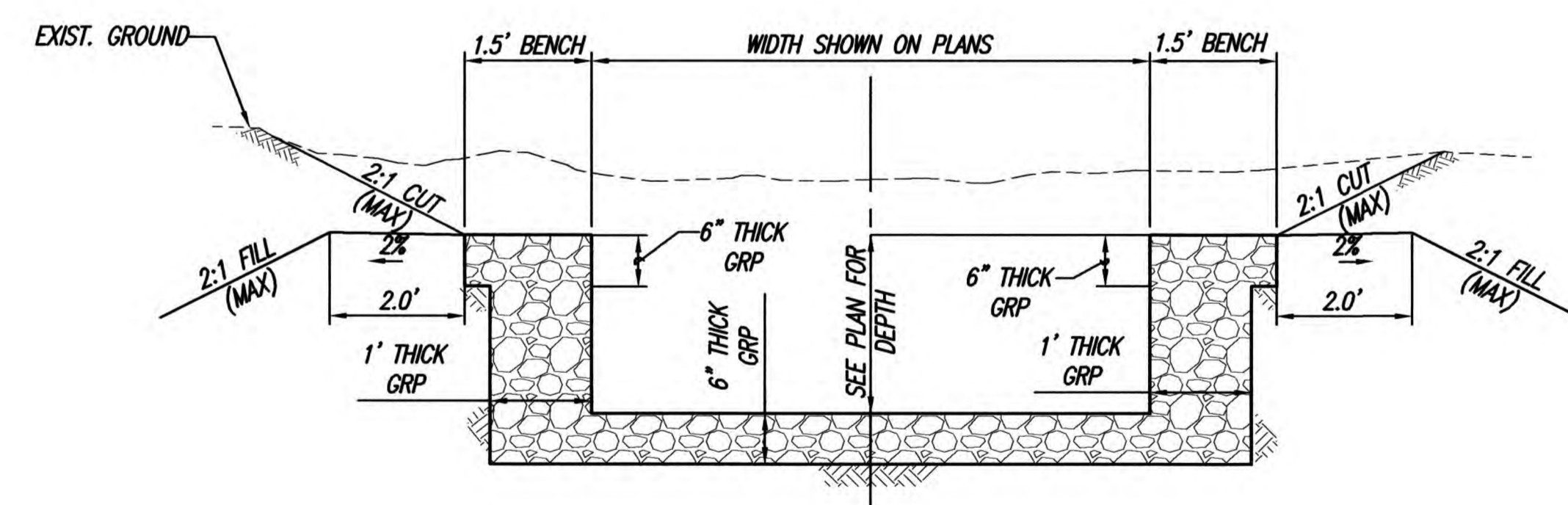


**TYPICAL GATE STOP POST**  
NOT TO SCALE

**NOTE:**  
HEIGHT OF GATE STOP POST TO MATCH HEIGHT OF GATE IN THE OPEN POSITION.

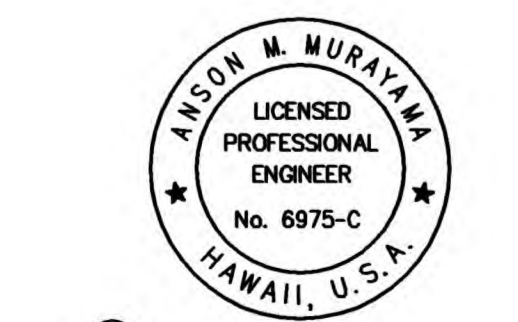


**GRP SWALE TRAPEZOIDAL TO RECTANGULAR TRANSITION**  
NOT TO SCALE



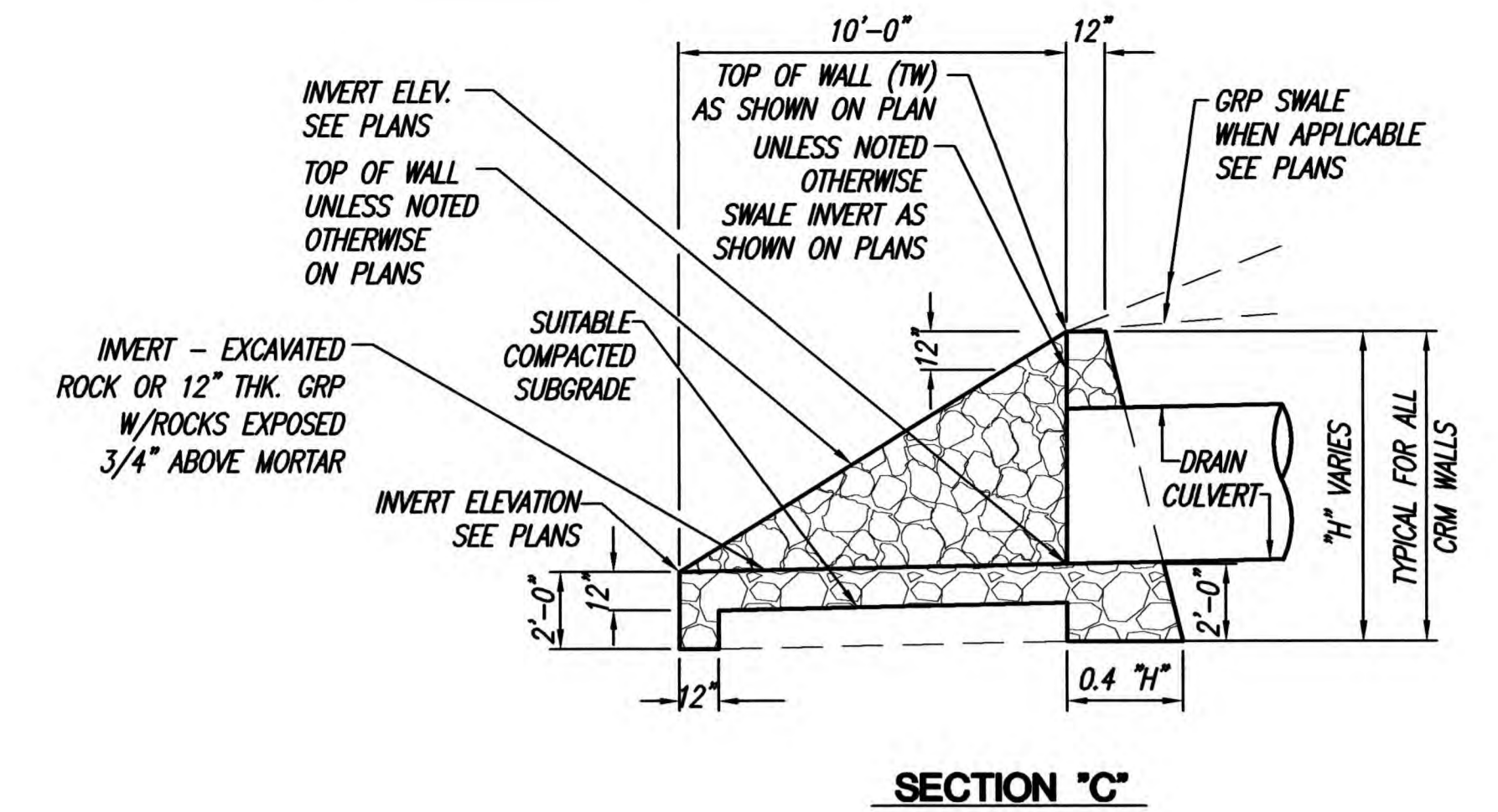
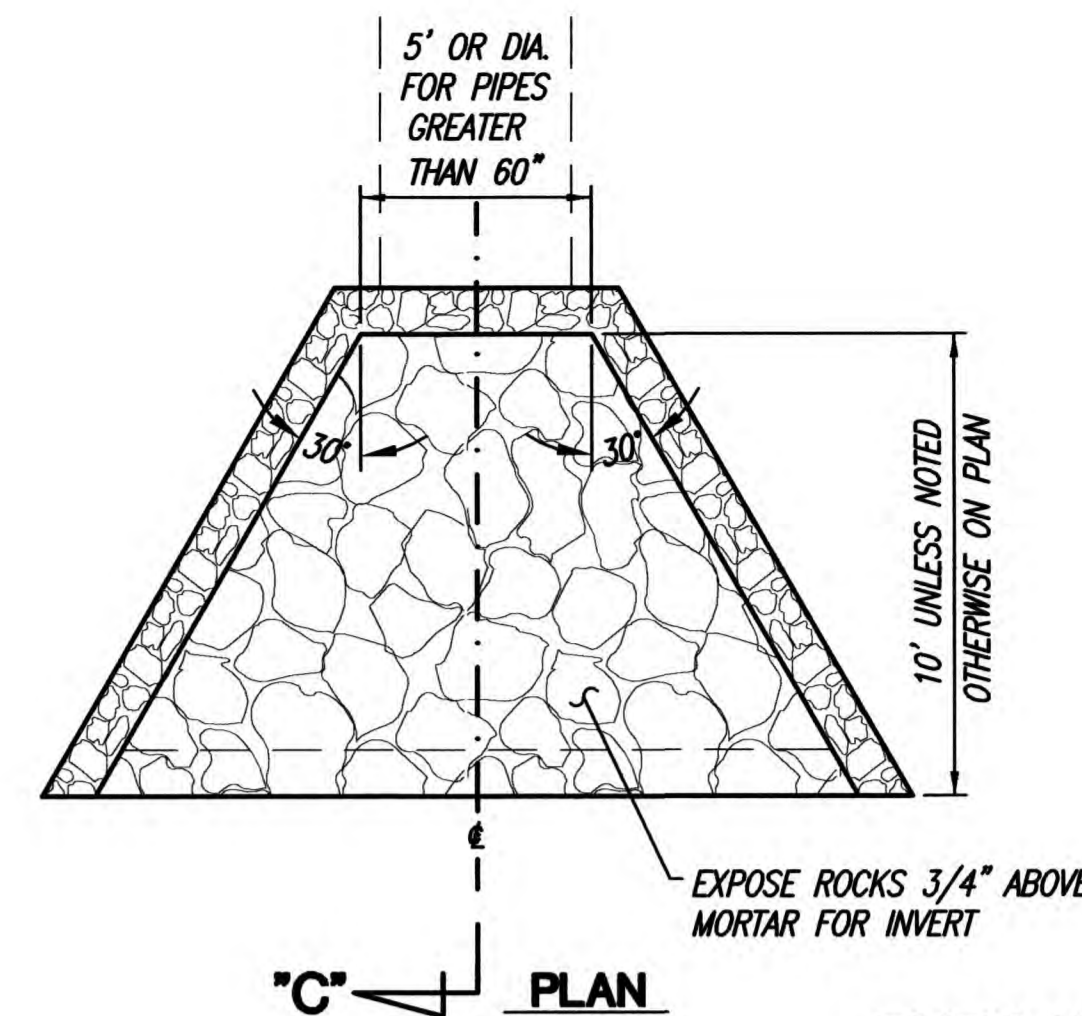
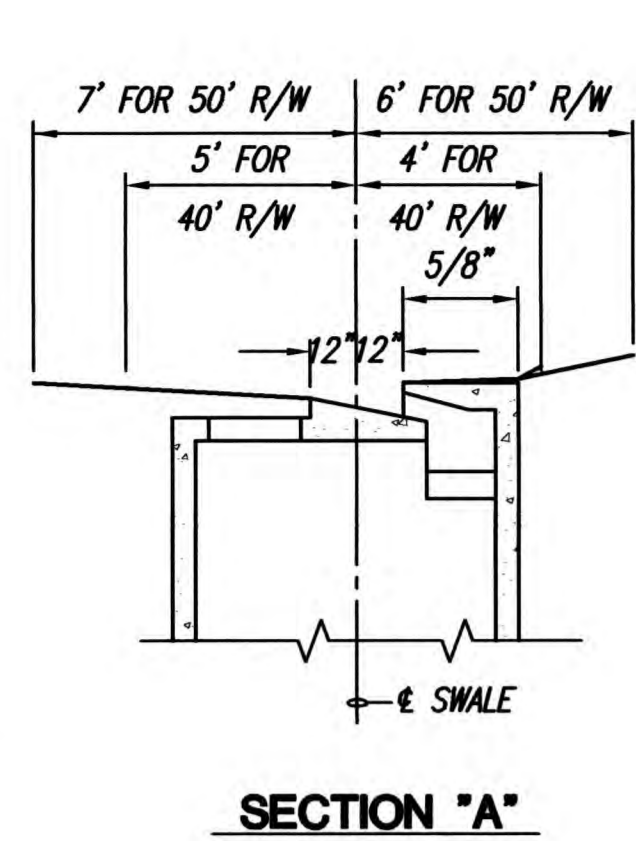
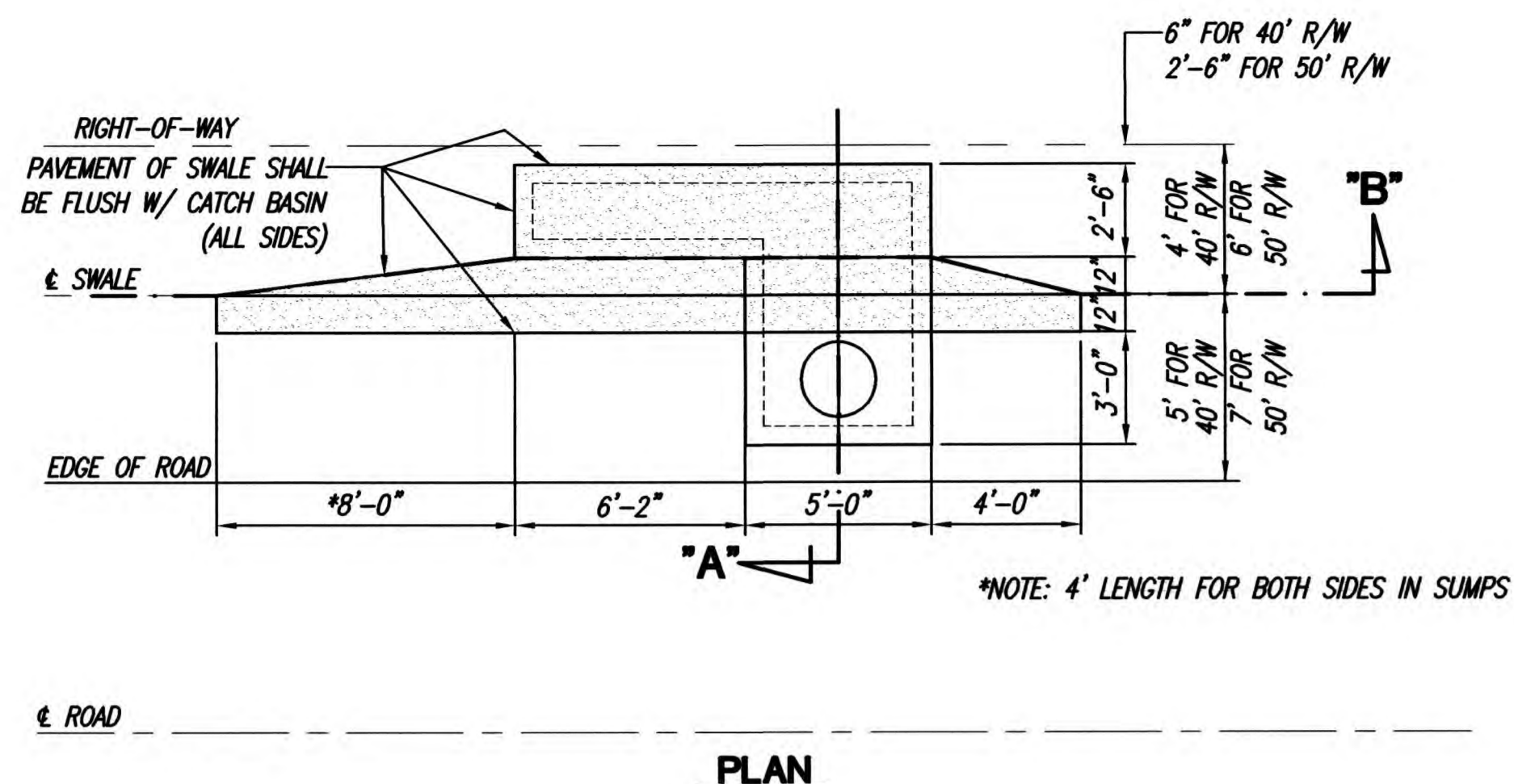
**SECTION 'A-A'**  
NOT TO SCALE

P:\Land Projects\DHLL - Keokea Ph 1B, 2 & 3A\DWG\Phase 2B\Government Review 2162\_C-61 Swale Details - 4.dwg, 3/11/2024 3:25:37 PM



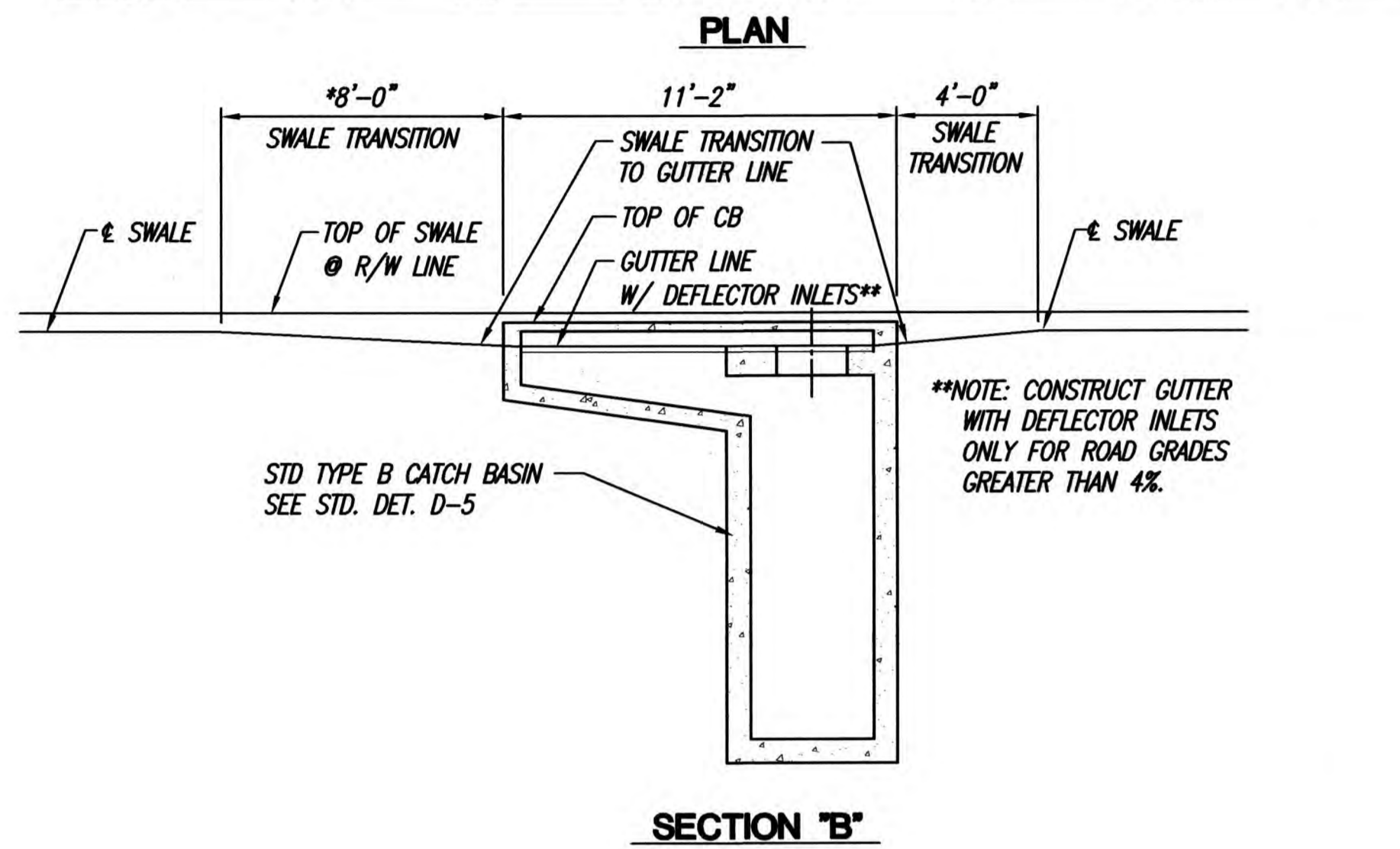
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/26

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b>            Engineering Design   Construction Management   Infrastructure Planning            1286 Queen Emma Street, Third Floor   Honolulu, Hawaii</p> <p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b>            KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI            OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS            TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023</p> <p><b>SWALE DETAIL - 4</b></p>			
DRAWN BY: JSO, CO		ENGINEER: JO, HWH	CHECKED BY: AMM



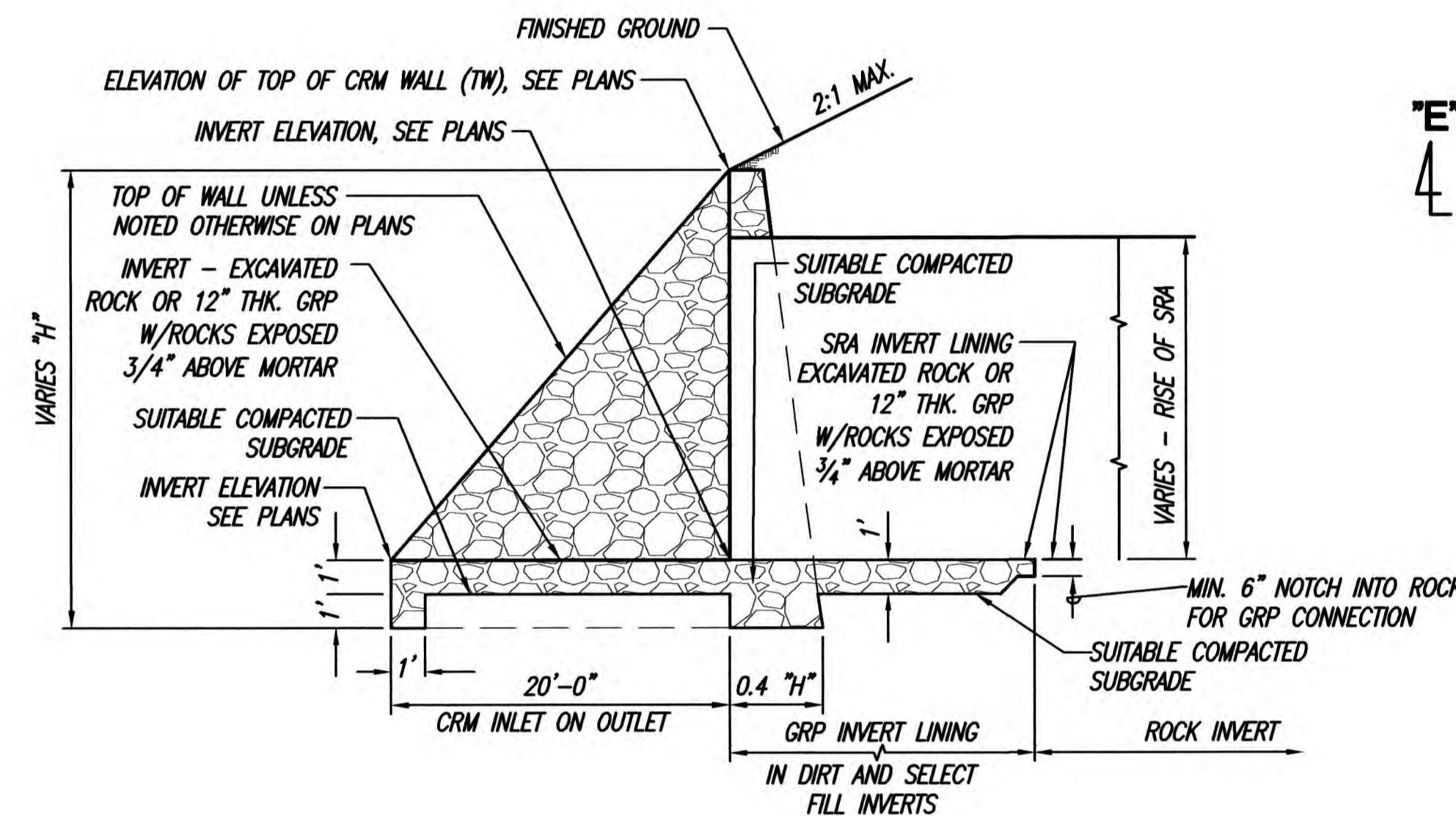
**TYPICAL DETAIL - CRM INLET AND OUTLET FOR CAP CULVERTS AND CRM WALL**

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

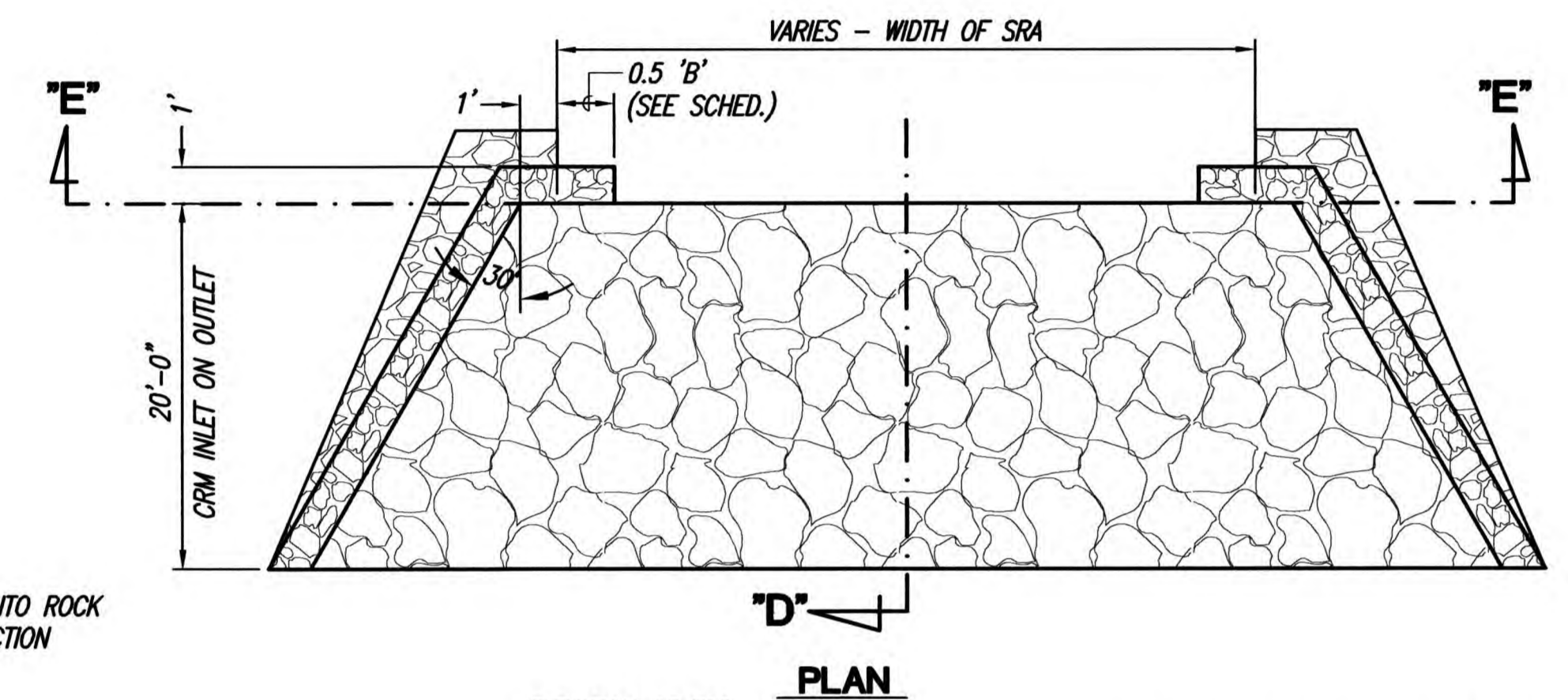


**DETAIL - TRANSITION GUTTER FOR CATCH BASINS**

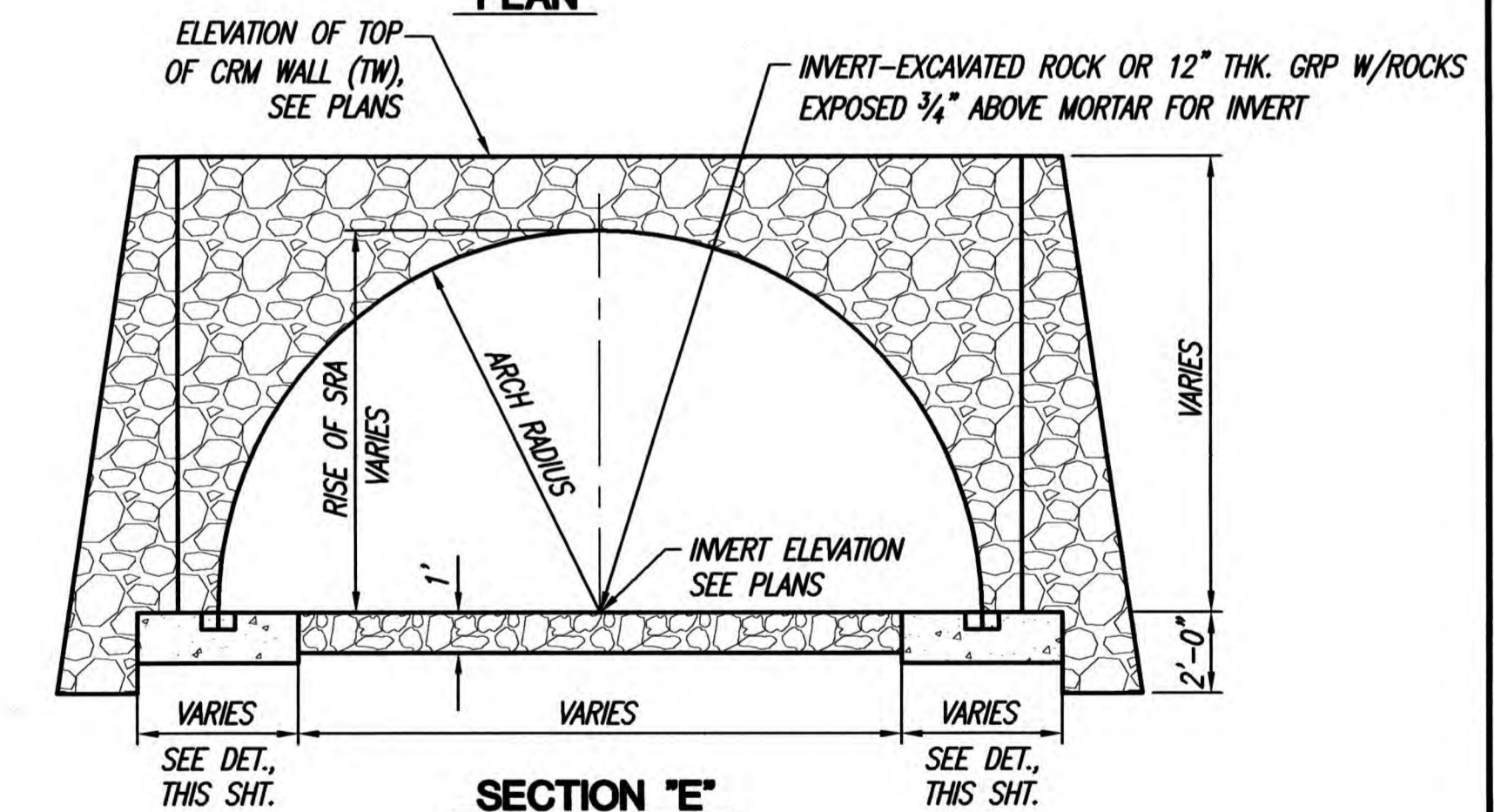
SCALE : 1/4" = 1'-0"



**SECTION 'D'**

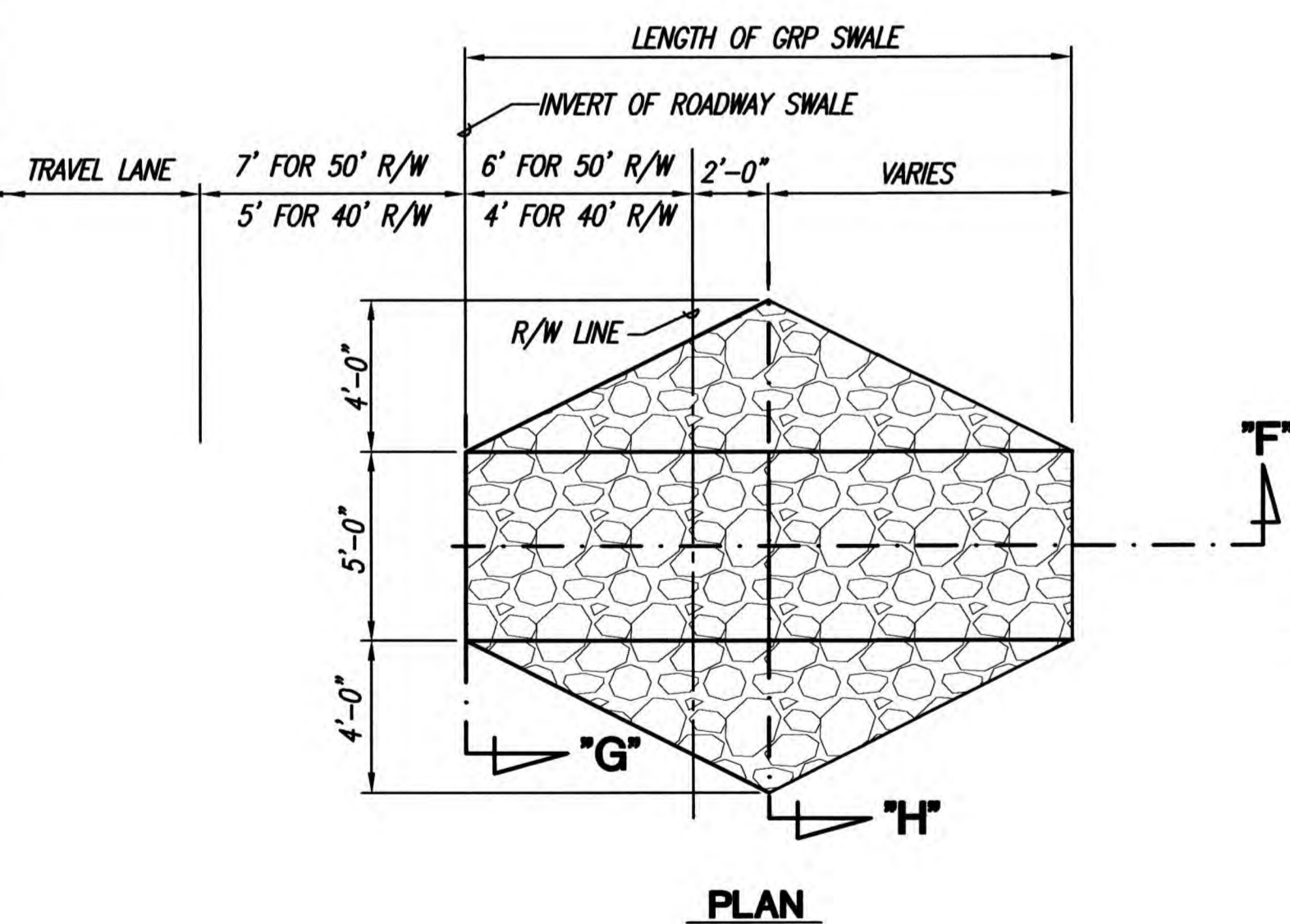


**PLAN**

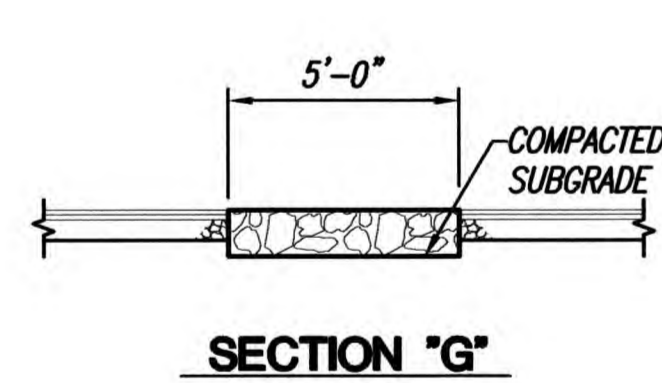


**TYPICAL DETAIL - CRM INLET AND OUTLET AND INVERT LINING FOR SRA CULVERTS**

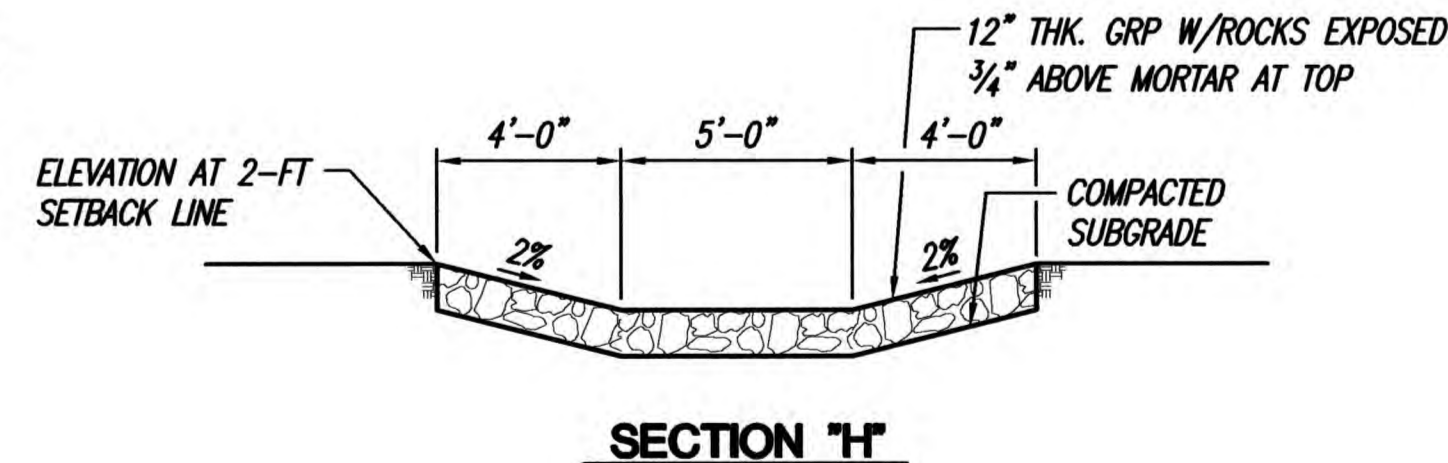
SCALE : 1/4" = 1'-0"



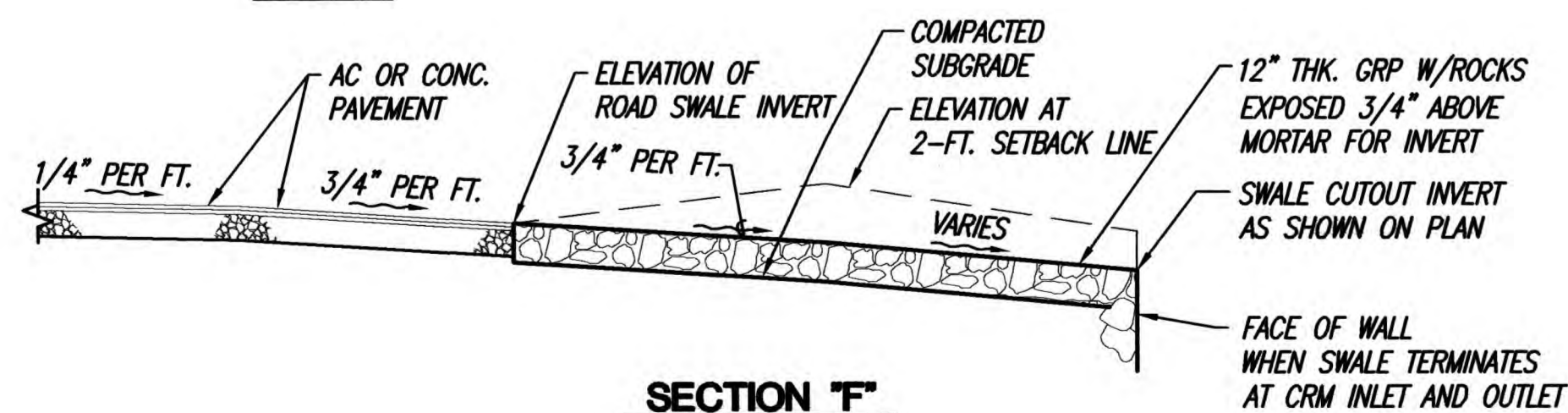
**PLAN**



**SECTION 'G'**



**SECTION 'H'**



**SECTION 'F'**

**TYPICAL DETAIL - SWALE CUTOUTS**

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

SPAN x RISE	FOOTING ON ENGINEERED FILL		FOOTING ON BASALTIC ROCK	
	B'	REINF.	B'	REINF.
19'-0" x 8'-3"	4'-6"	#5@12"O.C.	4'-#5 CONT.	2'-#5 CONT.

**SRA FOOTING DETAIL AND SCHEDULE**

NOT TO SCALE

**SINGLE RADIUS ARCH CULVERTS:**

1. ALL WORK SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION" (1986).
2. SINGLE RADIUS ARCH CULVERTS SHALL BE FURNISHED AND DESIGNED BY CONTECH CONSTRUCTION PRODUCTS, INC. OR APPROVED EQUAL.
3. METAL CULVERTS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH AASHTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES. CULVERTS SHALL BE DESIGNED FOR AN HS-20-44 TRUCK.
4. CONCRETE FOR FOOTINGS SHALL BE CLASS A, IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
5. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 GRADE 60.
6. MINIMUM COVER IN INCHES FOR REBARS FOR CAST-IN-PLACE CONCRETE: CONCRETE CAST AGAINST EARTH. . . . . 3" FORMED CONCRETE EXPOSED TO EARTH OR WEATHER. . . . . 2"
7. UNLESS OTHERWISE NOTED, SPLICES, LAPS, DWEL EXTENSIONS AND EMBEDMENTS SHALL BE 40 BAR DIAMETERS.



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/28

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

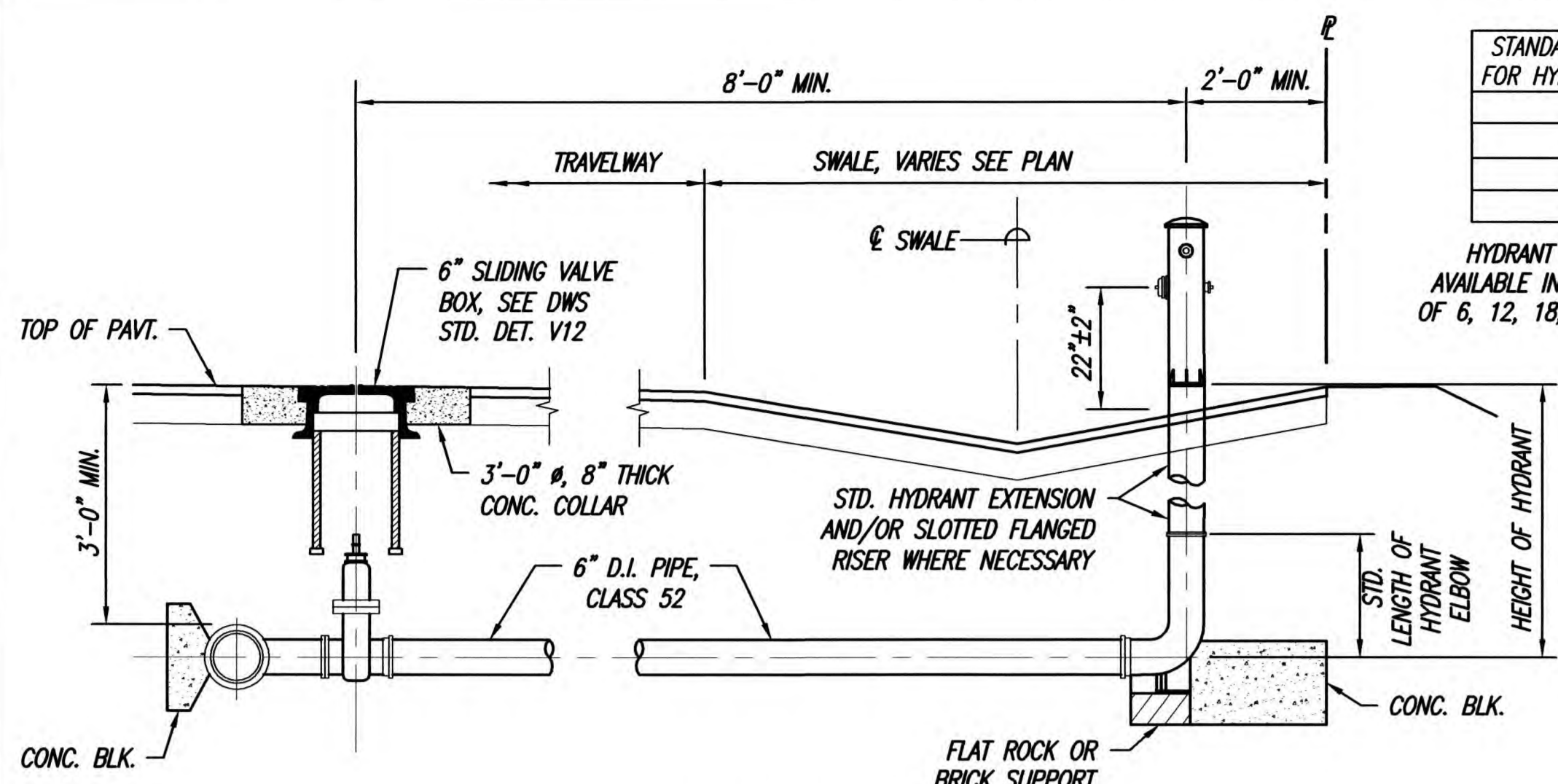
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1286 Queen Emma Street, Third Floor | Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014 AND (2) 2-2-033:023

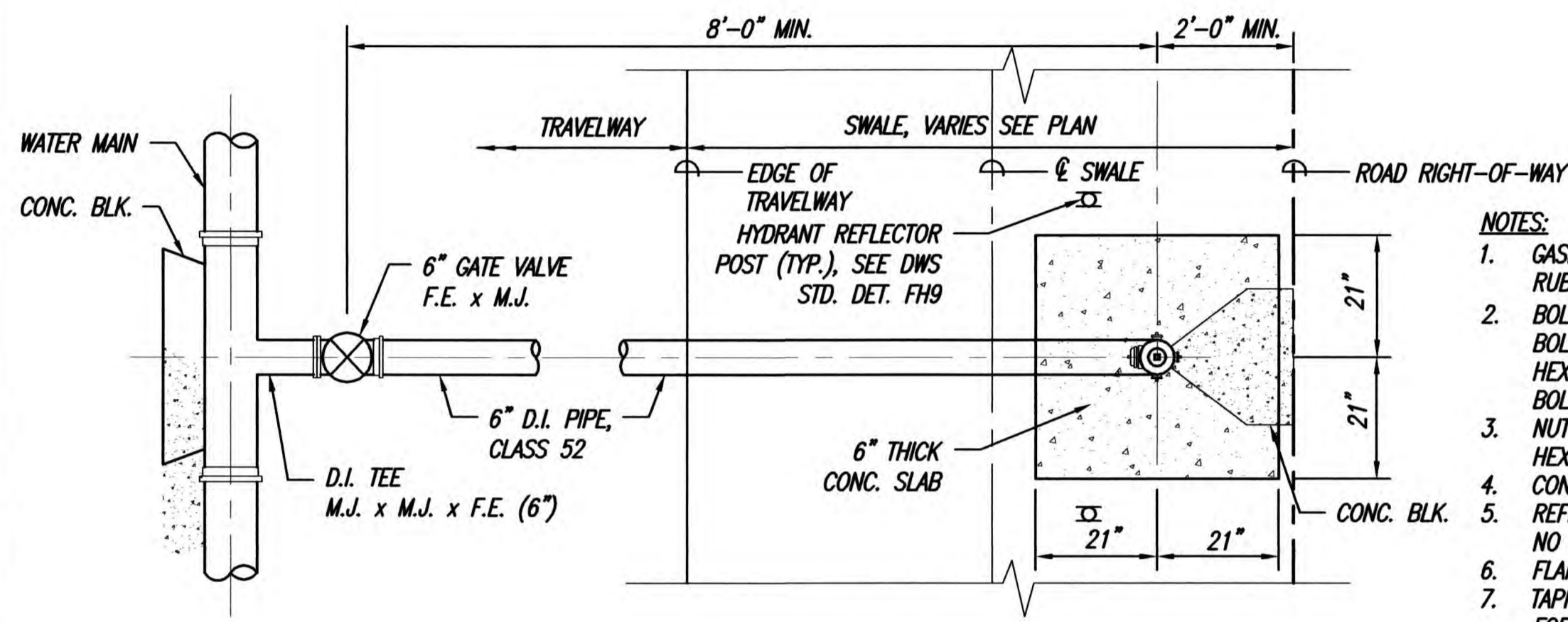
**DRAINAGE DETAILS**

DRAWN BY: CO    ENGINEER: FJC    CHECKED BY: ANM





**SECTION**  
NOT TO SCALE



**PLAN**  
NOT TO SCALE

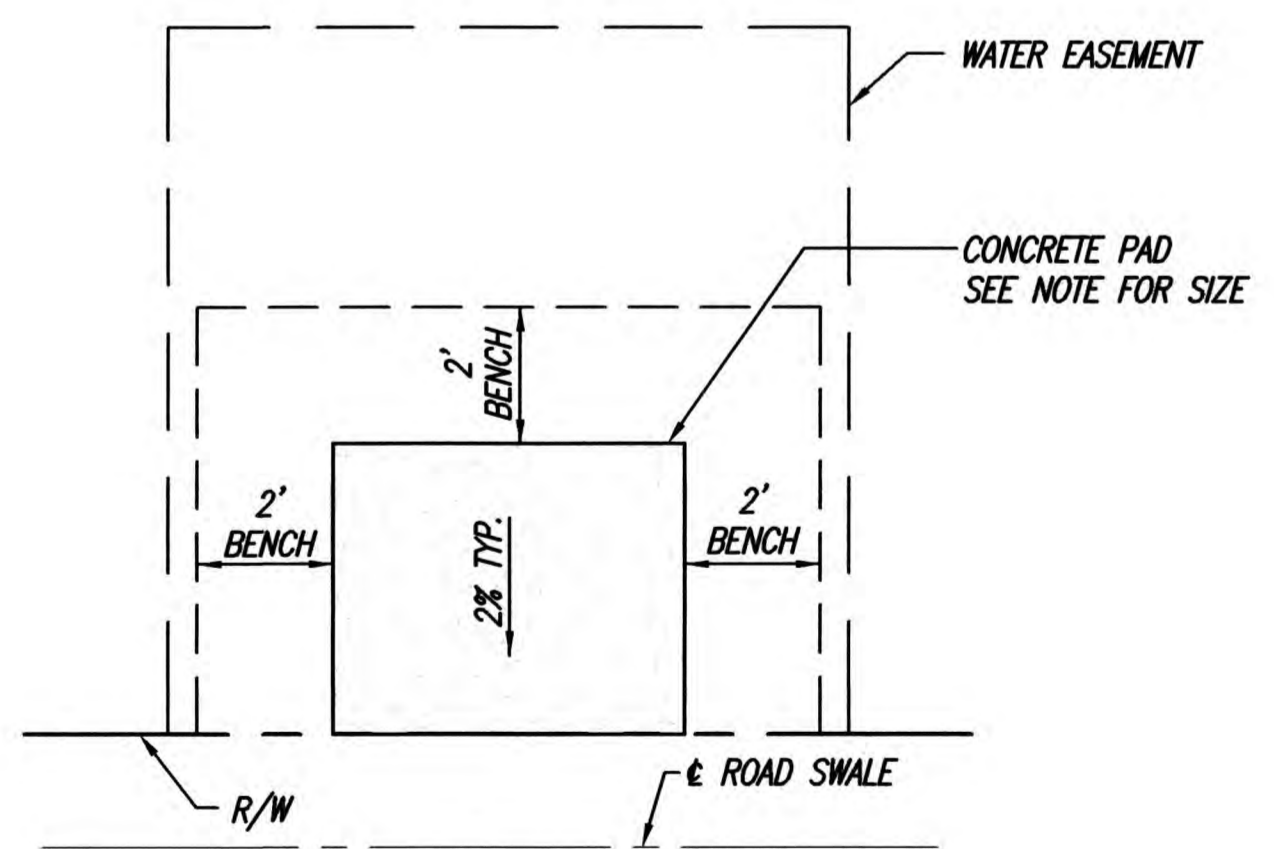
STANDARD LENGTHS FOR HYDRANT ELBOW
30"
36"
42"
48"

HYDRANT EXTENSIONS ARE AVAILABLE IN STANDARD LENGTHS OF 6, 12, 18, 24, AND 30 INCHES.

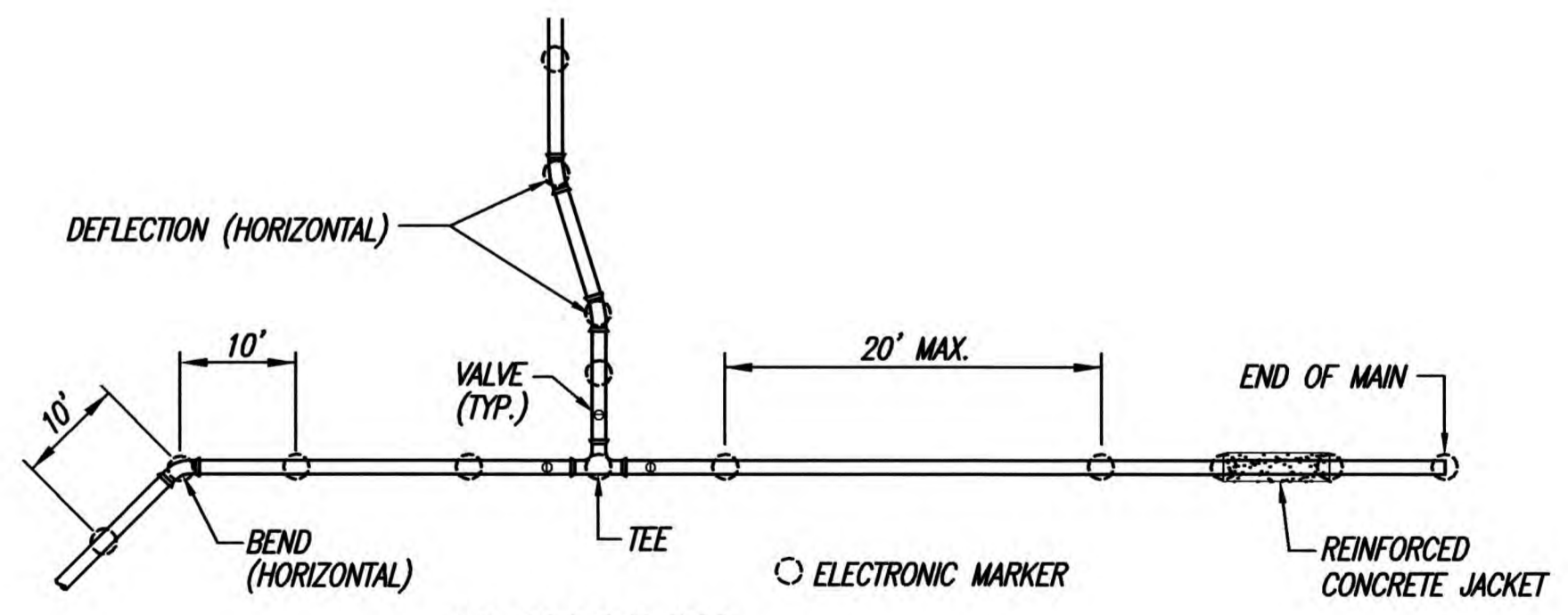
**NOTES:**

- GASKETS FOR FLANGED JOINTS SHALL BE 1/4" DUCK-INSERTED RUBBER PACKING GARLOCK NO. 19 OR APPROVED EQUAL.
- BOLTS SHALL BE BREAK-OFF TYPE, 3/8" DIA. x 3" LONG MACHINE BOLTS WITH CUT THREADS, AMERICAN STANDARD COARSE HEXAGON HEADS, STAINLESS STEEL OR SILICON BRONZE. INSTALL BOLT WITH THREADS FACING DOWN.
- NUTS SHALL BE AMERICAN STANDARD HEAVY COLD PUNCHED HEXAGON NUTS, STAINLESS STEEL OR SILICON BRONZE.
- CONCRETE SHALL BE DWS 2500.
- REFER TO PLATE FH9 FOR FIRE HYDRANT INSTALLATION WHERE NO STREET CURBING.
- FLANGED OUTLET FOR THE TEE IS MANDATORY FOR MAUI.
- TAPPING SLEEVE WITH TAPPING VALVE ASSEMBLY MAY BE USED FOR CONNECTION TO EXIST. MAIN.
- LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
- PROVIDE SLOTTED FLANGED RISER FOR HYDRANT AS NEEDED TO ALIGN 4-1/2" NOZZLE PERPENDICULAR TO CURB.
- INSTALL BLUE REFLECTIVE PAVEMENT HYDRANT MARKERS. SEE PLATES FH12 AND FH13. FOR DETAIL, SEE DWG. NO. C-58. FOR PAVEMENT MARKINGS PLAN, SEE DWG. NOS. C-55 TO C-57.

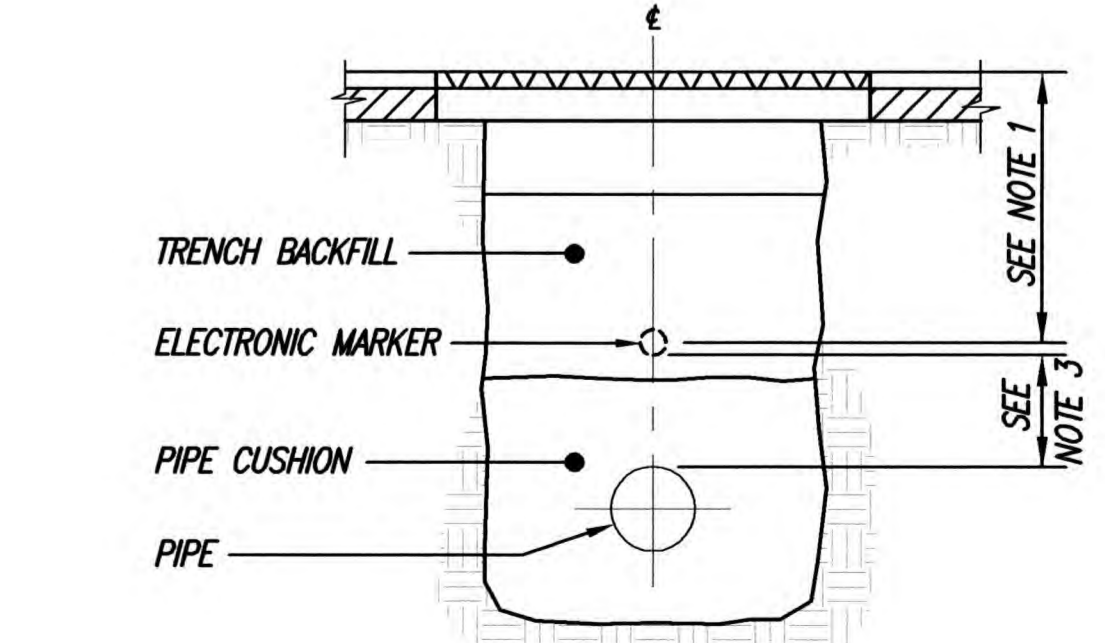
**HYDRANT CONNECTION DETAIL**  
NOT TO SCALE



**PLAN VIEW**



**PLAN VIEW**



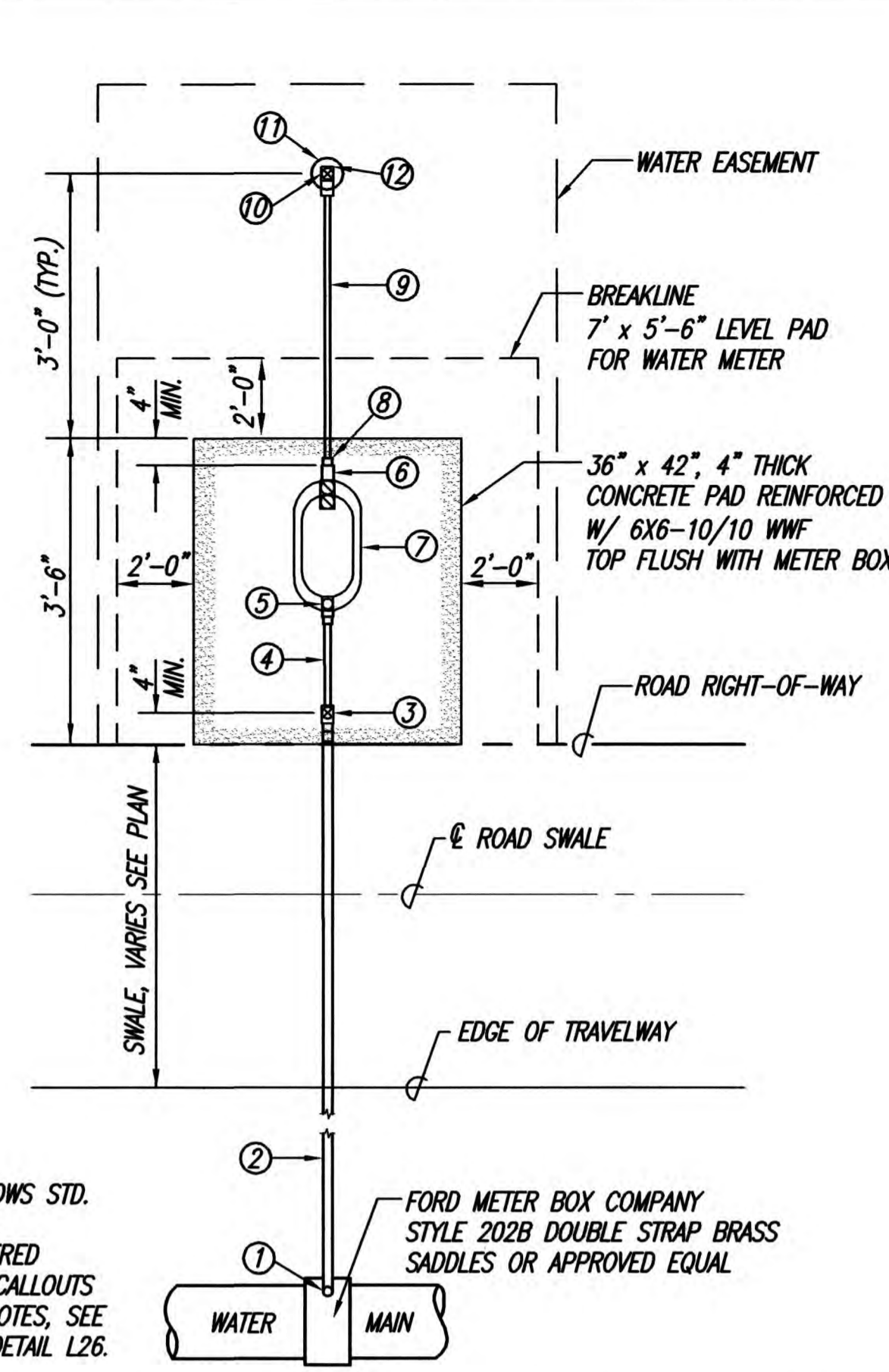
**SECTION VIEW**

**TYPICAL ELECTRONIC MARKER INSTALLATION**  
NOT TO SCALE

**NOTES:**

- INSTALL ELECTRONIC MARKER OVER CENTERLINE OF PIPE AT A MINIMUM DEPTH OF 2 FEET AND A MAXIMUM DEPTH OF 3 FEET FROM FINISH GRADE.
- INSTALL TRENCH BACKFILL AND PIPE CUSHION MATERIAL IN ACCORDANCE TO THE PLANS AND SPECIFICATIONS.
- INSTALL ELECTRONIC MARKER AT A MINIMUM CLEARANCE OF 6-INCHES ABOVE THE PIPE OR CONCRETE JACKET.

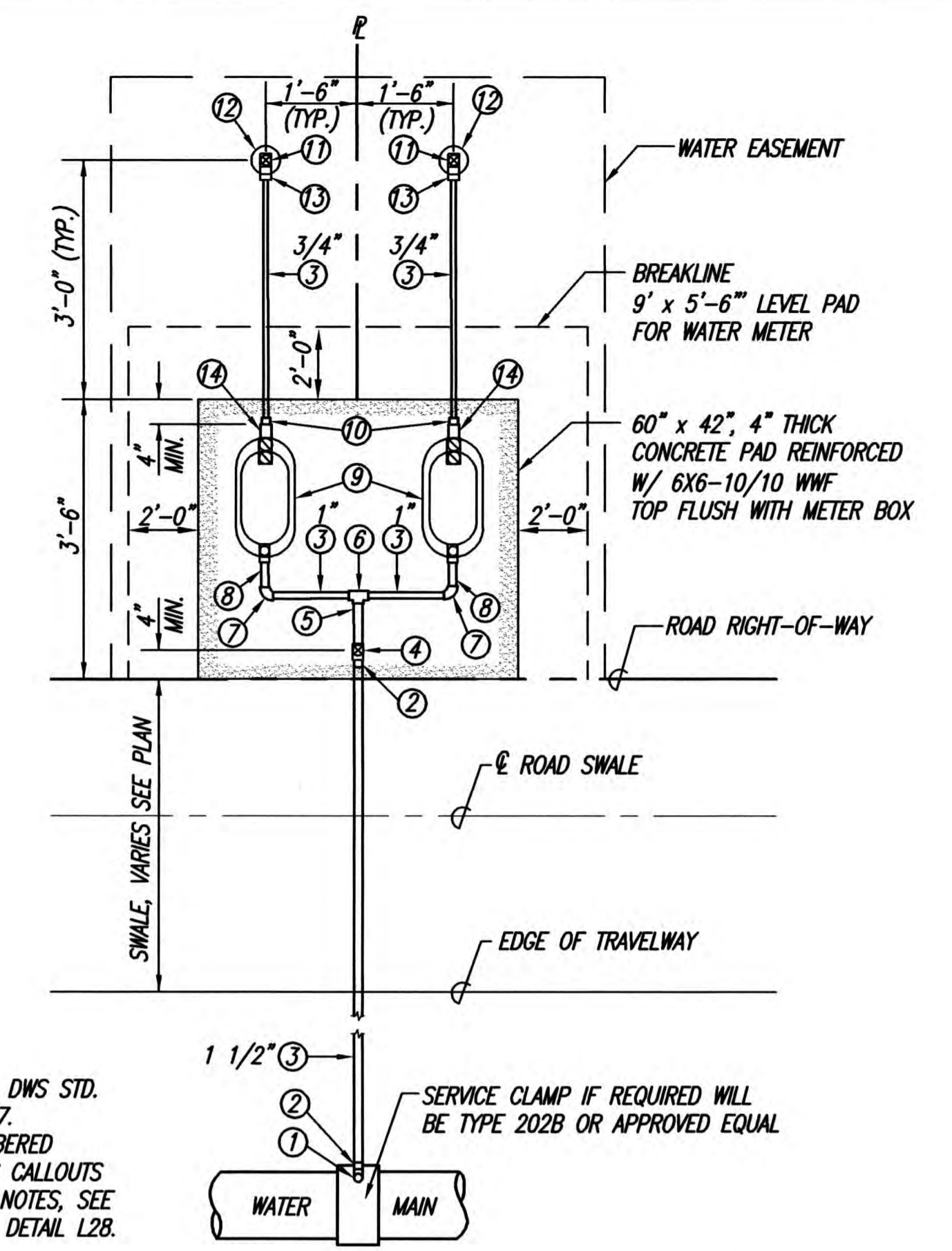
**SINGLE SERVICE LATERAL TYPE "A",  
5/8" & 3/4" METERS**  
NOT TO SCALE



**NOTES:**

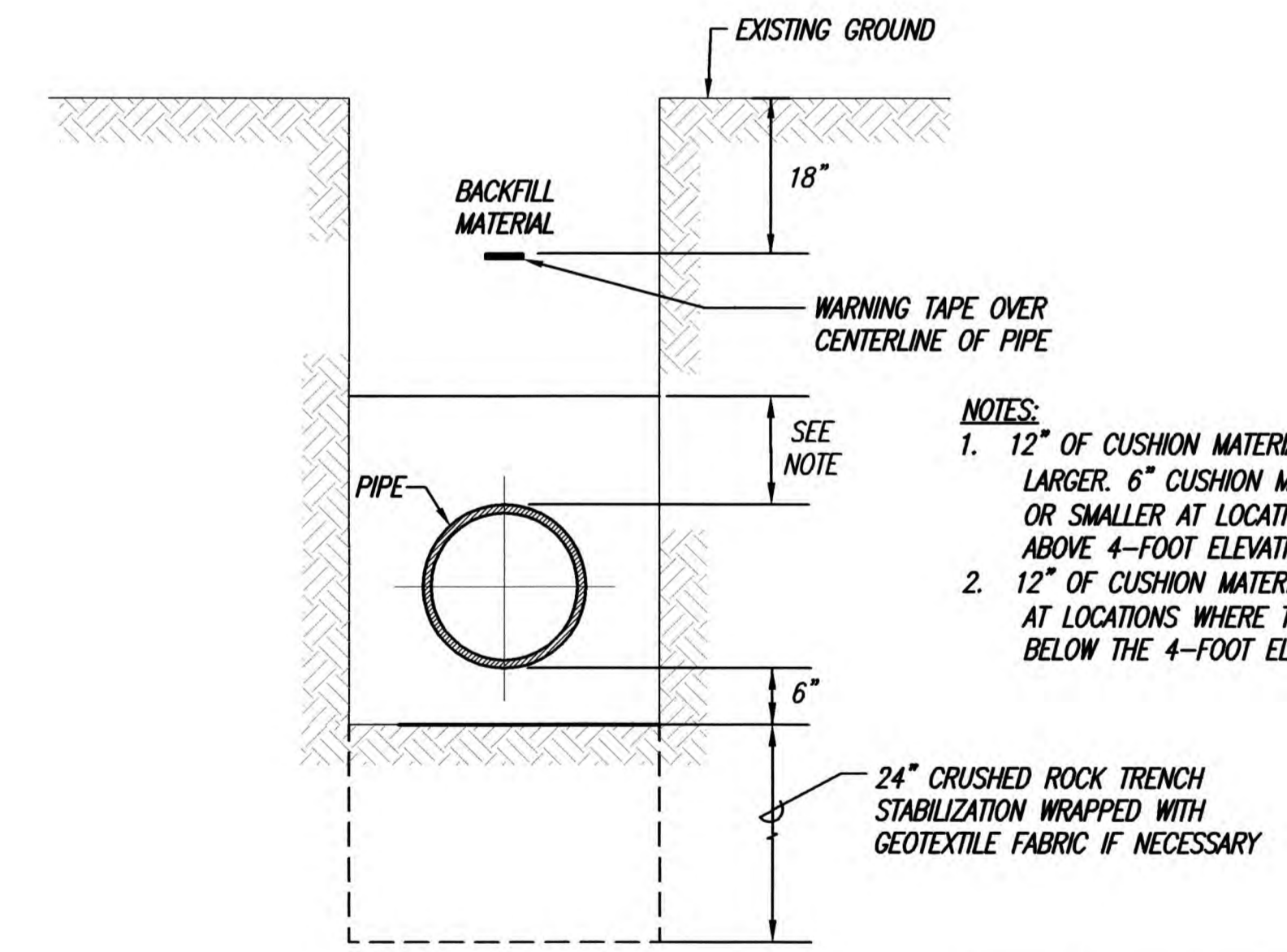
- REFER TO DWS STD. DETAIL L25.
- FOR NUMBERED MATERIALS CALLOUTS LIST AND NOTES, SEE DWS STD. DETAIL L26.

**DOUBLE SERVICE LATERAL TYPE "A-1",  
5/8" & 3/4" METERS**  
NOT TO SCALE



**NOTES:**

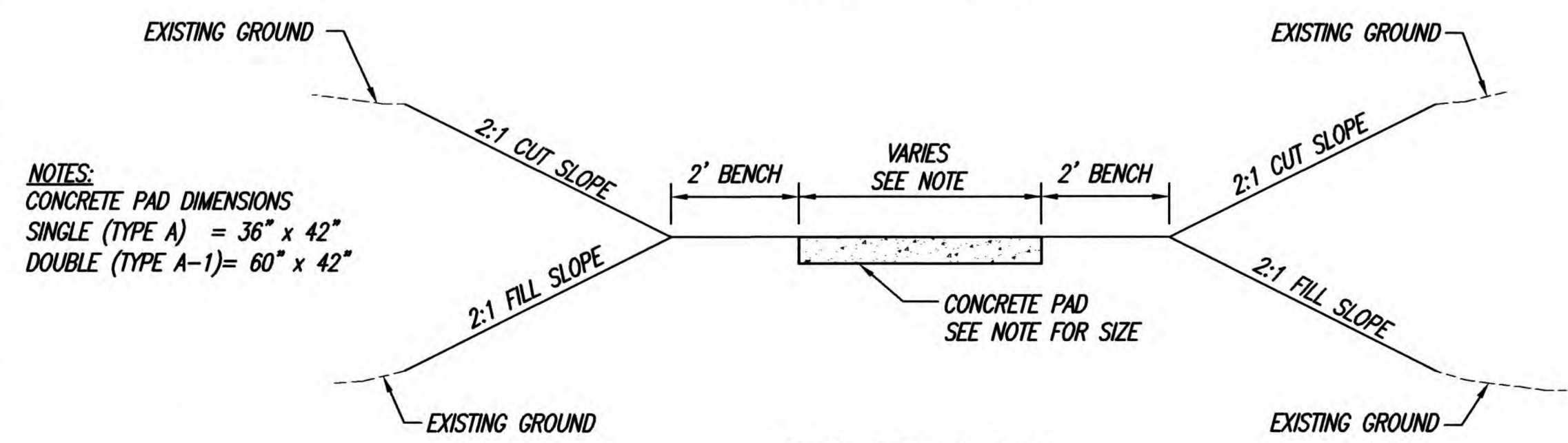
- REFER TO DWS STD. DETAIL L27.
- FOR NUMBERED MATERIALS CALLOUTS LIST AND NOTES, SEE DWS STD. DETAIL L28.



**TRENCH BACKFILL**  
NOT TO SCALE

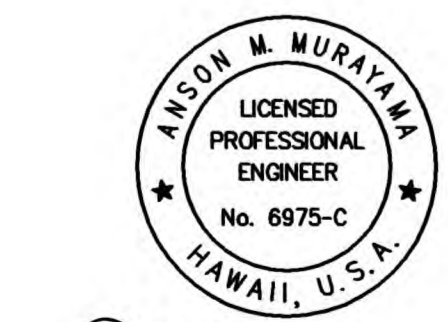
**NOTES:**

- 12" OF CUSHION MATERIAL FOR PIPES 16" OR LARGER. 6" CUSHION MATERIAL FOR PIPES 12" OR SMALLER AT LOCATIONS WHERE INVERT IS ABOVE 4-FOOT ELEVATION.
- 12" OF CUSHION MATERIAL FOR ALL PIPE SIZES AT LOCATIONS WHERE THE INVERT IS AT OR BELOW THE 4-FOOT ELEVATION.



**WATER METER CONCRETE PAD GRADING DETAILS**  
NOT TO SCALE

**NOTES:**  
CONCRETE PAD DIMENSIONS  
SINGLE (TYPE A) = 36" x 42"  
DOUBLE (TYPE A-1) = 60" x 42"



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/28

REVISOR DATE	DESCRIPTION	MADE BY	APPROVED
<p>Community Planning and Engineering, Inc. Engineering Design   Construction Management   Infrastructure Planning 1288 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEYS: (2) 2-2-002-014 AND (2) 2-2-033-023</p>			
<p><b>WATER DETAILS</b></p>			
DRAWN BY: JSD	ENGINEER: JSD	CHECKED BY: AMM	

BORING LOCATION: See Plate 3		DRILLER: Ed Gaynor		BORING TP-4				
BORING ELEVATION (ft):		LOGGED BY: DSC						
DATE (S) DRILLED: 03/08/13		TYPE RIG: Bobcat 325						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
		3.2			0-1		GM	Light brown, loamy, well-sorted GRAVEL with SILT and SAND, brown, boulders, cobbles, gray, strong, trace rootlets, trace red clay, dry
					1-2			BASALT
					2-8			Test pit terminated at about 1.75 ft (Refusal). Ground water was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
D&M - Dames & Moore	SPT - Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	NR - No Recovery	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea-Waiohuli Subdivision Phases 1, 2 and 4A Kula, Makawao, Maui, Hawaii						
PSC CONSULTANTS, LLC		DATE: April 2013		PROJECT NO.: 212302.20				

PLATE 8

BORING LOCATION: See Plate 3		DRILLER: Ed Gaynor		BORING TP-5				
BORING ELEVATION (ft):		LOGGED BY: DSC						
DATE (S) DRILLED: 03/08/13		TYPE RIG: Bobcat 325						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
		15.9			0-1			DRY GRASS VEGETATION
					1-2			Sandy SILT, brown, soft, with gravel cobbles and boulders, dry
					2-3			BASALT, vesiculate, strong, gray
					3-8			Test pit terminated at about 4.5 ft (Refusal). Ground water was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
D&M - Dames & Moore	SPT - Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	NR - No Recovery	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea-Waiohuli Subdivision Phases 1, 2 and 4A Kula, Makawao, Maui, Hawaii						
PSC CONSULTANTS, LLC		DATE: April 2013		PROJECT NO.: 212302.20				

PLATE 9

BORING LOCATION: See Plate 3		DRILLER: Ed Gaynor		BORING TP-6				
BORING ELEVATION (ft):		LOGGED BY: DSC						
DATE (S) DRILLED: 03/08/13		TYPE RIG: Bobcat 325						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
		37.0			0-1			DRY VEGETATION GRASS
					1-2			SILT, brown, stiff, trace rootlets and clay, with basalt cobbles and boulders, dry
					2-4			BASALT, strong, weathered, gray, dry
					4-8			Test pit terminated at about 4 ft (Refusal). Ground water was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
D&M - Dames & Moore	SPT - Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	NR - No Recovery	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea-Waiohuli Subdivision Phases 1, 2 and 4A Kula, Makawao, Maui, Hawaii						
PSC CONSULTANTS, LLC		DATE: April 2013		PROJECT NO.: 212302.20				

PLATE 10

BORING LOCATION: See Plate 3		DRILLER: Ed Gaynor		BORING TP-9				
BORING ELEVATION (ft):		LOGGED BY: DSC						
DATE (S) DRILLED: 03/08/13		TYPE RIG: Bobcat 325						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
					0-1			DRY VEGETATION GRASS
					1-2			Clayey SILT, brown, soft/stiff, trace rootlets, moist
					2-3			BASALT
					3-8			Test pit terminated at about 2 ft (Refusal). Ground water was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
D&M - Dames & Moore	SPT - Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	NR - No Recovery	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea-Waiohuli Subdivision Phases 1, 2 and 4A Kula, Makawao, Maui, Hawaii						
PSC CONSULTANTS, LLC		DATE: April 2013		PROJECT NO.: 212302.20				

PLATE 13

BORING LOCATION: See Site Plan		DRILLER: PSC		BORING NO. TP-24				
BORING ELEVATION:		LOGGED BY: JGN						
DATE (S) DRILLED: 6/04		TYPE RIG: Backhoe Excavator						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
		31.1			0-1			Silty GRAVEL, basic to brown, cobbles, and boulders with all matls, trace rootlets, brown, moist
					1-2			BASALT, dark gray, slightly to moderately weathered, strong, fractured
					2-8			Test pit terminated at about 1.75 ft. Groundwater was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
MC - Modified California SPT	Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	D&M - Dames & Moore	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea/Waiohuli Development Kula, Makawao, Maui, Hawaii						
Geotechnical & Environmental Consultants Construction Management, Testing & Inspection		DATE: March 2005		PROJECT NO.: 24304.10				

PLATE NO. 26

BORING LOCATION: See Site Plan		DRILLER: PSC		BORING NO. TP-25				
BORING ELEVATION:		LOGGED BY: JGN						
DATE (S) DRILLED: 7/04		TYPE RIG: Backhoe						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
					0-1			Silty GRAVEL, gray to brown, cobbles and boulders with all (volcanic ash), trace rootlets, brown, moist
					1-2			BASALT, dark gray, slightly to moderately weathered, strong
					2-8			Test pit terminated at about 1.75 ft. Groundwater was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
MC - Modified California SPT	Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	D&M - Dames & Moore	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea/Waiohuli Development Kula, Makawao, Maui, Hawaii						
Geotechnical & Environmental Consultants Construction Management, Testing & Inspection		DATE: March 2005		PROJECT NO.: 24304.10				

PLATE NO. 27

BORING LOCATION: See Site Plan		DRILLER: PSC		BORING NO. TP-28				
BORING ELEVATION:		LOGGED BY: JGN						
DATE (S) DRILLED: 6/04		TYPE RIG: Backhoe Excavator						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
		27.8			0-1			SILT, brown, medium stiff, moist with traces of gravel and rootlets.
					1-2			Gravelly SILT with basaltic cobbles and boulders, traces of clay and rootlets, dark brown, moist
					2-3			BASALT, dark gray, fresh to moderately weathered, strong, fractured
					3-8			Test pit terminated at about 5.25 ft. Groundwater was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
MC - Modified California SPT	Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	D&M - Dames & Moore	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea/Waiohuli Development Kula, Makawao, Maui, Hawaii						
Geotechnical & Environmental Consultants Construction Management, Testing & Inspection		DATE: March 2005		PROJECT NO.: 24304.10				

PLATE NO. 30

BORING LOCATION: See Site Plan		DRILLER: PSC		BORING NO. TP-29				
BORING ELEVATION:		LOGGED BY: JGN						
DATE (S) DRILLED: 7/04		TYPE RIG: Backhoe						
OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOSTURE CONTENT (%)	CORE RECOVERY (%)	R.O.D. (ft)	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
					0-1			Silty GRAVEL, gray to brown, cobbles and boulders with a clayey all matls, trace rootlets, brown, moist
					1-2			BASALT, dark gray, slightly to moderately weathered, strong to very strong.
					2-8			Test pit terminated at about 3.5 ft. Groundwater was not encountered.
SAMPLE TYPE		OTHER LABORATORY TESTS						
MC - Modified California SPT	Standard Penetration	MD - Moisture/Density	UC - Unconfined Compression					
CB - Core Barrel	SH - Shelby Tube	CON - Consolidation Test	SG - Specific Gravity					
AUG - Auger Cuttings	D&M - Dames & Moore	PI - Atterberg Limits	SA - Sieve Analysis					
LOG OF BORING		Keokea/Waiohuli Development Kula, Makawao, Maui, Hawaii						
Geotechnical & Environmental Consultants Construction Management, Testing & Inspection		DATE: March 2005		PROJECT NO.: 24304.10				

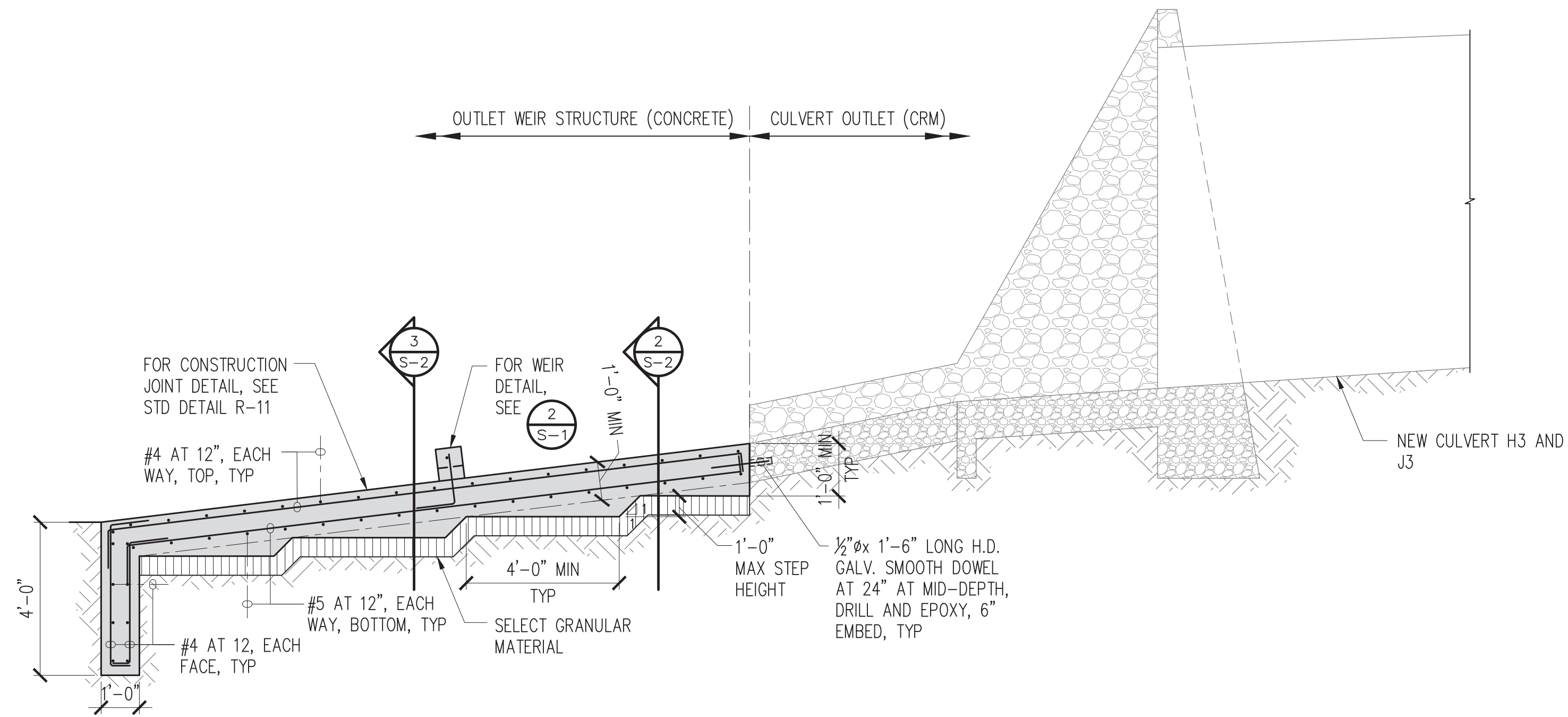
PLATE NO. 31

NOTE:  
BORING AND TEST PIT LOGS TAKEN FROM "PRELIMINARY GEOTECHNICAL EXPLORATION REPORT KEOKEA-WAIOHULI DEVELOPMENT PROJECT" PREPARED BY PSC CONSULTANTS, LLC, DATED MARCH 31, 2005 AND "PRELIMINARY GEOTECHNICAL EXPLORATION REPORT KEOKEA-WAIOHULI SUBDIVISION PHASES 1, 2, AND 4A" PREPARED BY PSC CONSULTANTS, LLC, DATED APRIL 05, 2013.

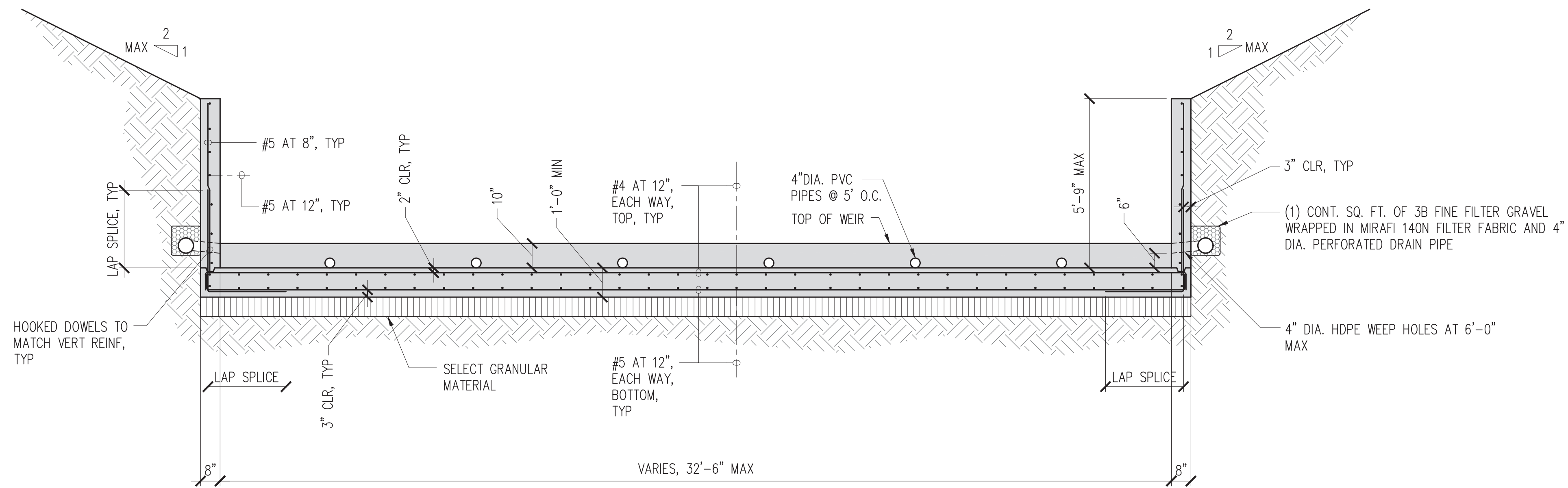
REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 1286 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEY: (2) 2-2-002-014 AND (2) 2-2-033-023</p>			
<p><b>BORING LOGS</b></p>			
DRAWN BY:		ENGINEER:	
CHECKED BY:			



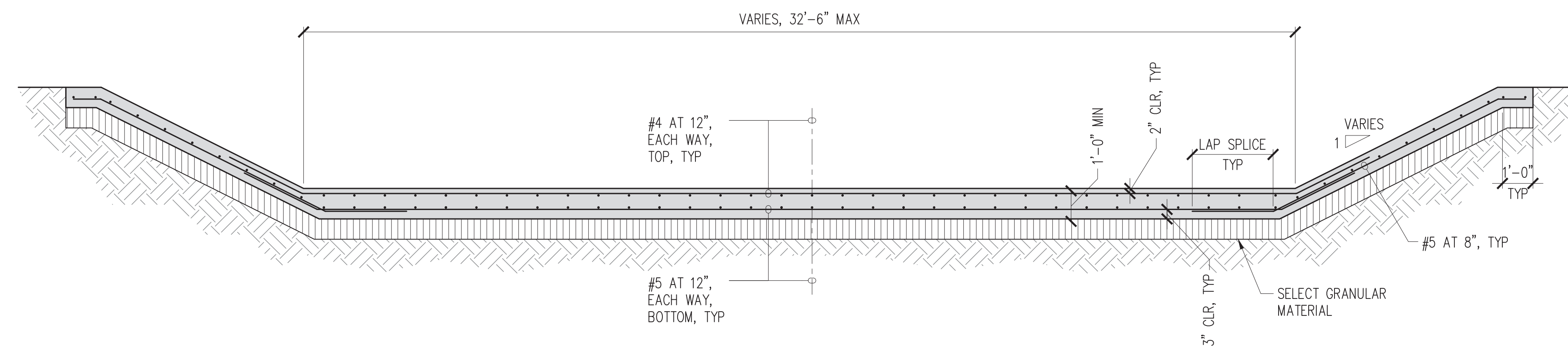
NOTE:  
 1. FOR OUTLET WEIR STRUCTURE DIMENSIONS AND LOCATIONS, SEE CIVIL DWGS  
 2. PROVIDE CONTRACTION JOINTS AT 15FT MAXIMUM. FOR DETAIL, SEE 3/S-1  
 3. CHAMFERS NOT REQUIRED AT SLAB CONTRACTION JOINTS



1  
 S-2  
**LONGITUDINAL SECTION**  
**OUTLET WEIR STRUCTURE - H3 AND J3**  
 NOT TO SCALE



2  
 S-2  
**SECTION**  
 SCALE: 3/8" = 1'-0"



3  
 S-2  
**SECTION**  
 SCALE: 3/8" = 1'-0"

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 4288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014, (2) 2-2-033: 007 TO 008, 009 TO 022, 025 TO 027, 038 TO 058, AND (2) 2-2-34: 016 TO 026

**WEIR STRUCTURE SECTIONS AND DETAILS**

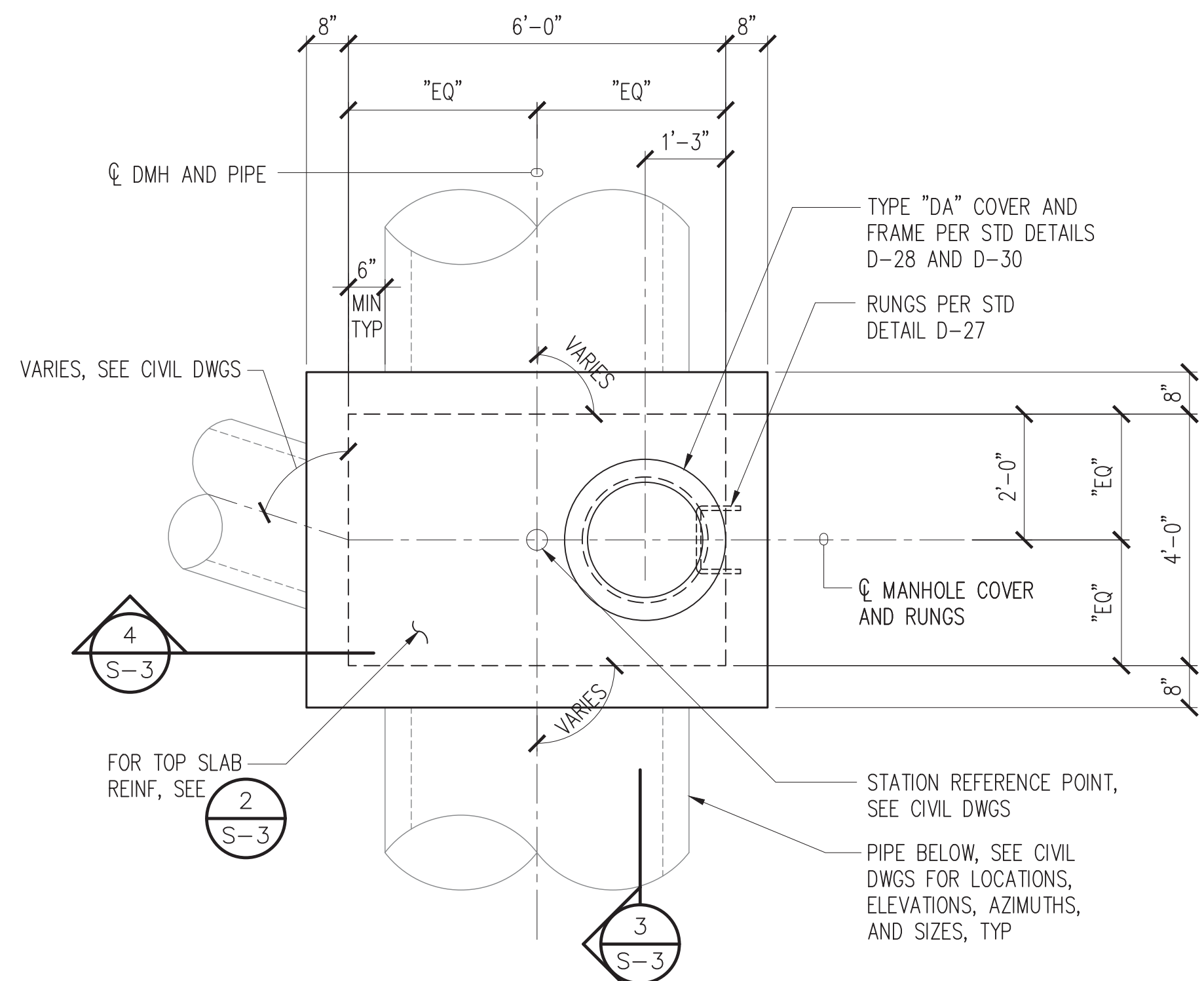
DRAWN BY: ENGINEER: CHECKED BY:

**JERRY S. FUJITA**  
 LICENSED PROFESSIONAL ENGINEER  
 No. 11573-S  
 HAWAII, U.S.A.

(EXPIRES 4/30/2024)  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

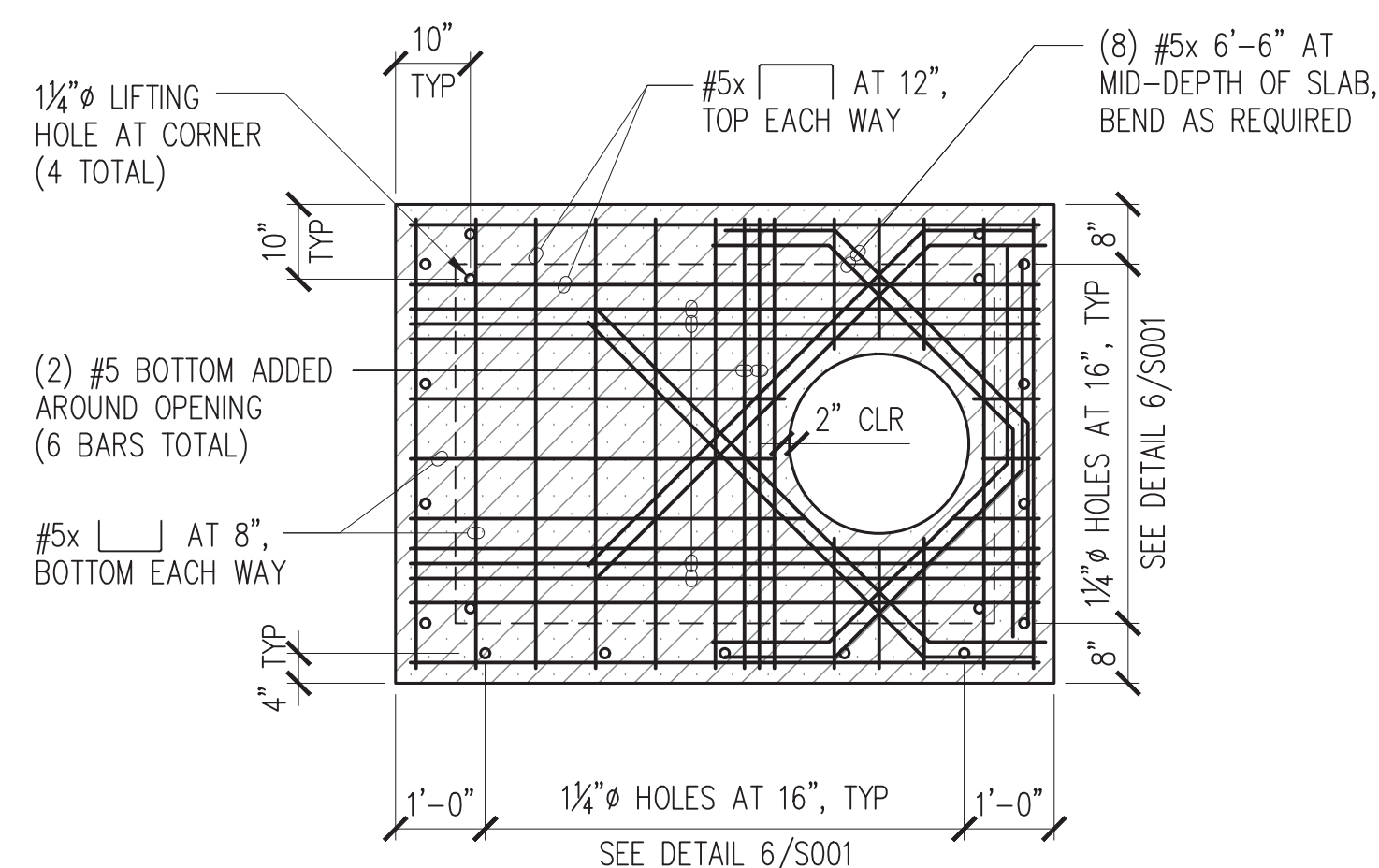
*Jerry S. Fujita*

P:\5801-5850\5832 DHHLL - Keokea-Waiohuli Development Phase 2A Weir Design\050 Drawings\Structural\AutoCAD\_format\2022-08-15 - Phase 2B\Keokea Ph 2B - S2.dwg, 032, 9/19/2022 12:26:51 PM



**1 PLAN VIEW - SPECIAL DRAIN MANHOLE DMH J1A**

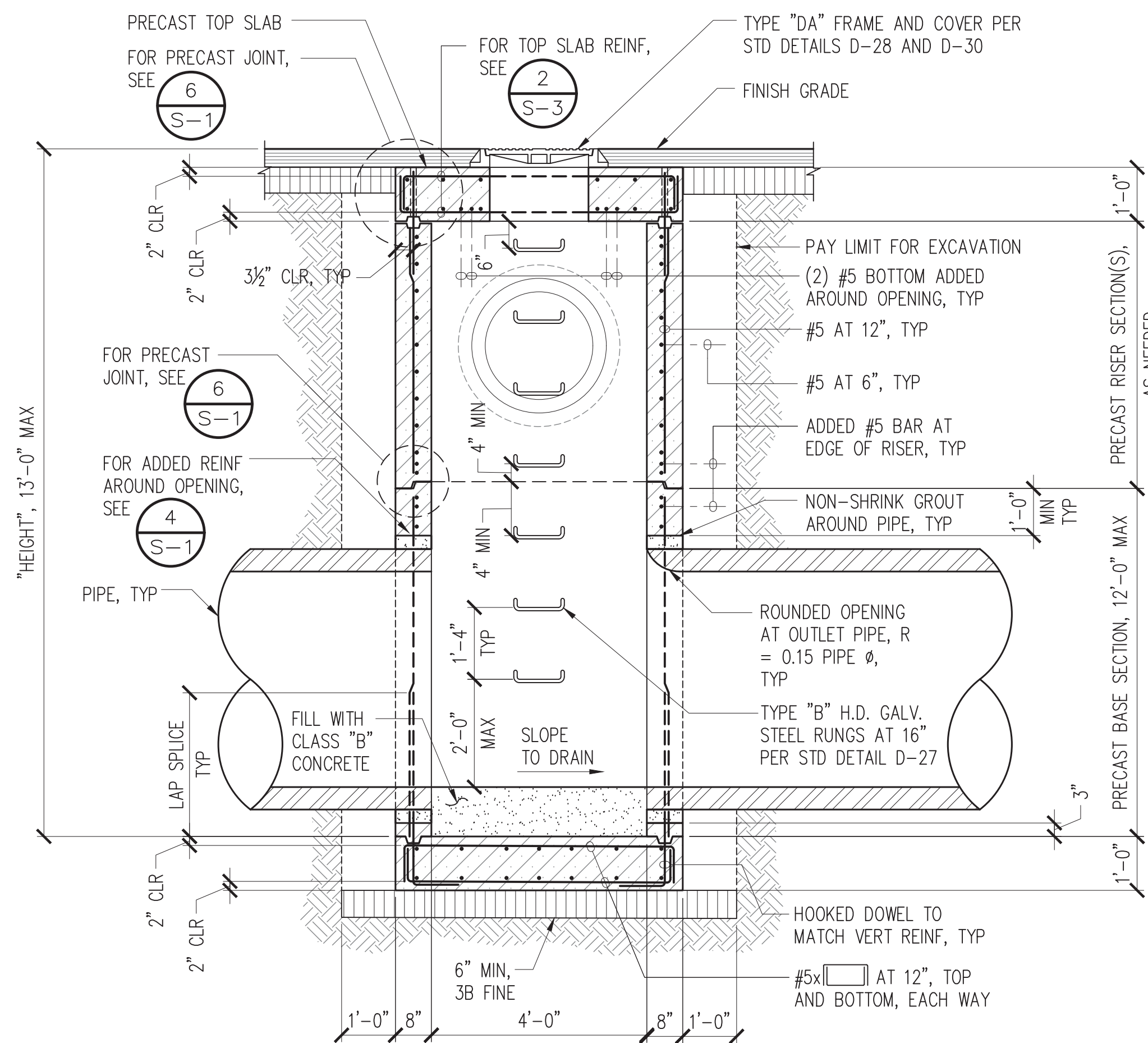
SCALE: 1/2" = 1'-0"



**2 PLAN - TOP SLAB REINFORCING STEEL**

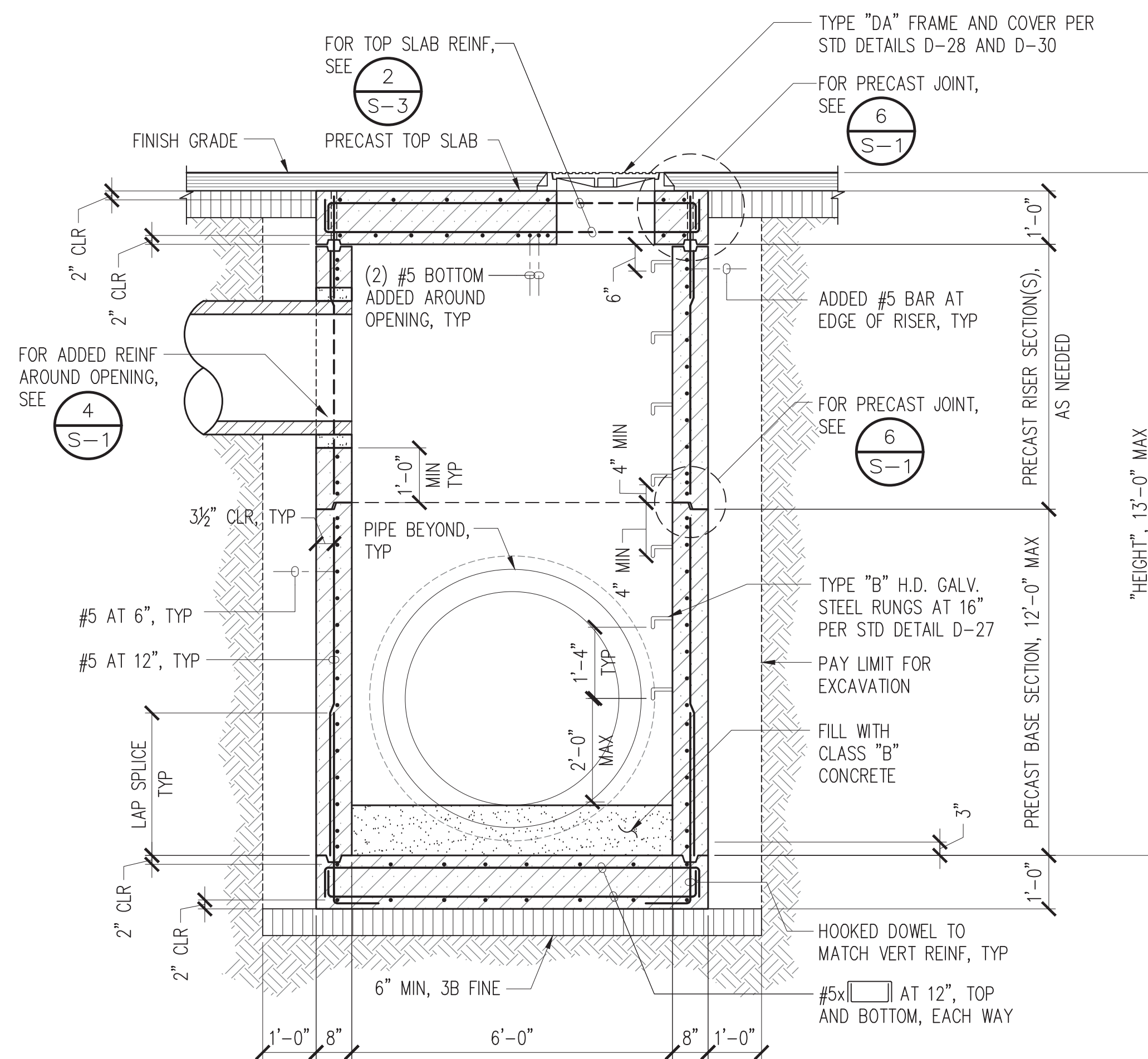
SCALE: 1/2" = 1'-0"

- NOTES:**
1. FOR DRAIN MANHOLE ELEVATIONS, SEE CIVIL DWGS
  2. TOP OF STRUCTURE ELEVATION IS BASED ON THE STATION REFERENCE POINT AT CENTER OF MANHOLE. THE CONTRACTOR SHALL SLOPE THE WALLS AND/OR THE TOP SLAB TO ADJUST TO THE ACTUAL SLOPE AS REQUIRED.
  3. WHERE RISER SECTIONS ARE NOT USED, THE BASE SECTIONS SHALL EXTEND UP TO THE BOTTOM OF THE TOP SLAB WITH THE TOP SLAB JOINT.
  4. ROUNDED OPENING AT OUTLET PIPE(S) MIN. RADIUS = 0.15 PIPE DIAM., TYP



**3 SECTION**

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



**4 SECTION**

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

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

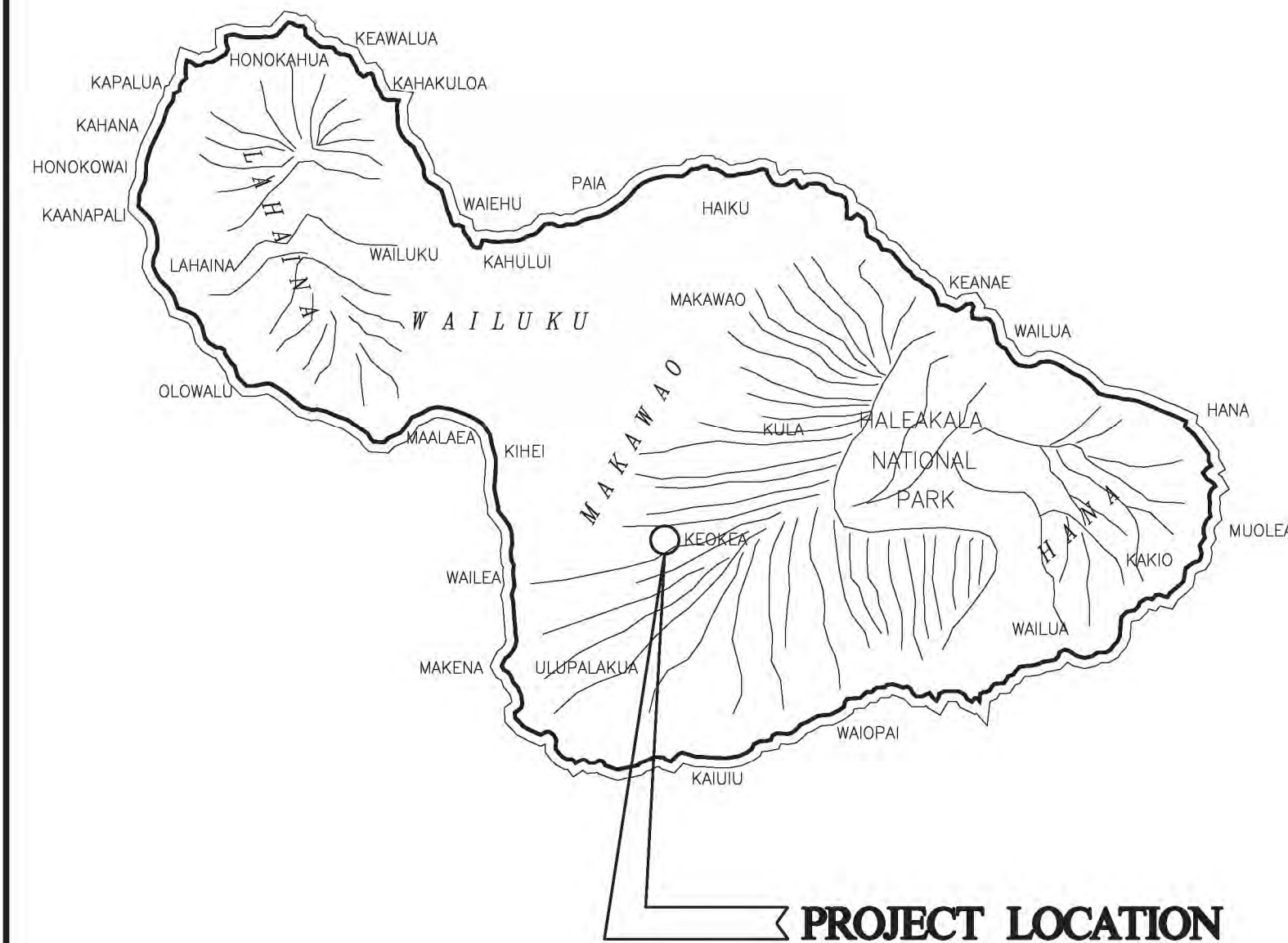
**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 2288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEYS: (2) 2-2-002:014, (2) 2-2-033: 007 TO 008, 009 TO 022, 025 TO 027, 038 TO 058, AND (2) 2-2-34: 016 TO 026

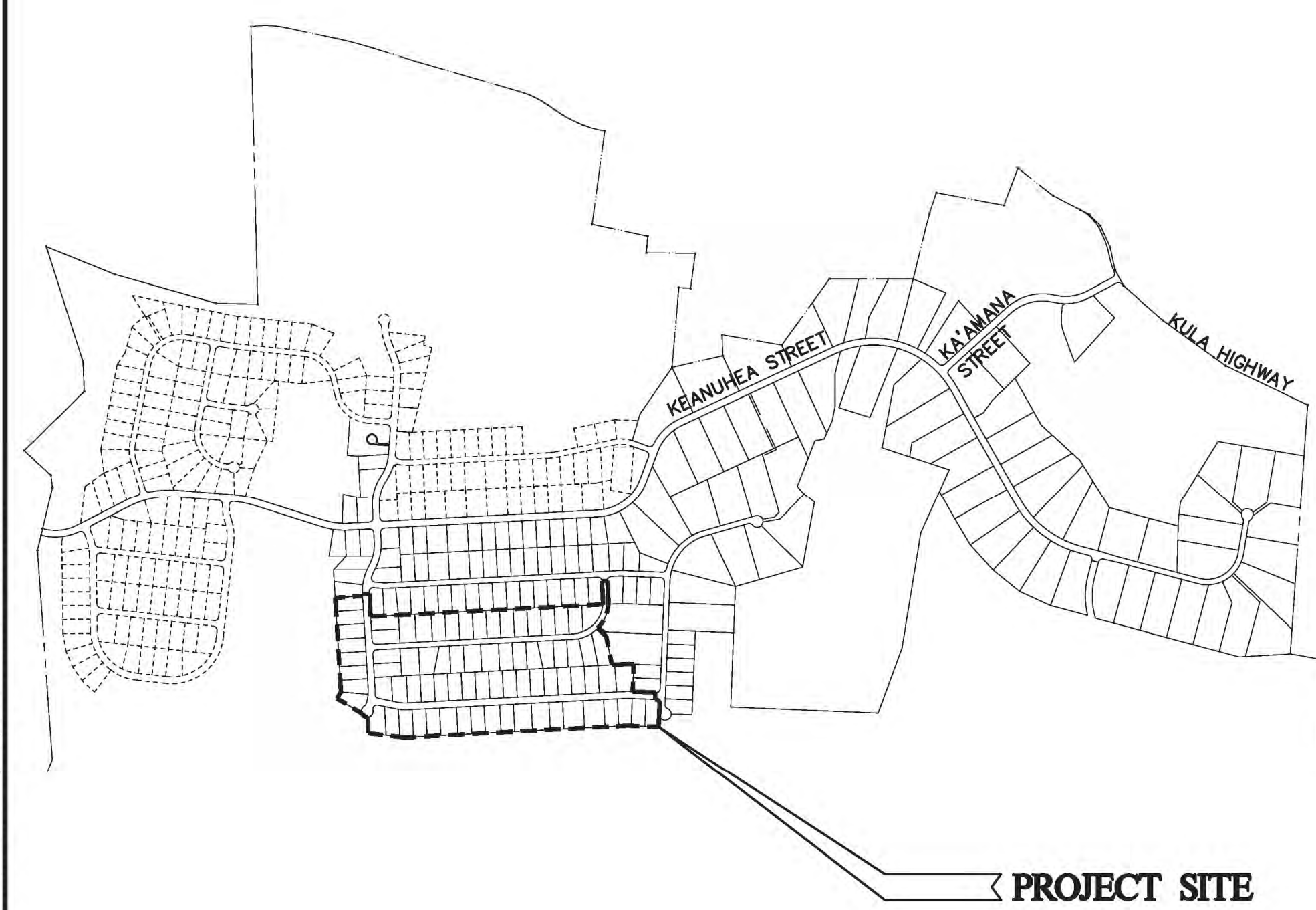
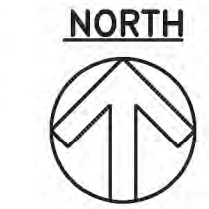
**PRECAST DRAIN MANHOLE PLANS AND SECTIONS**

DRAWN BY: ENGINEER: CHECKED BY:

*Jerry S. Fujita*  
 LICENSED PROFESSIONAL ENGINEER  
 No. 11573-S HAWAII, U.S.A.  
 (EXPIRES 4/30/2024)  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.



**VICINITY MAP**  
NOT TO SCALE



**LOCATION MAP**  
NOT TO SCALE

**GENERAL NOTES:**

1. PROVIDE 3' MINIMUM HORIZONTAL CLEAR & 6" VERTICAL CLEAR BETWEEN WATER LINES & ALL ELECTRICAL SYSTEMS.
2. CONTRACTOR SHALL BE RESPONSIBLE TO ARRANGE WITH THE GENERAL CONTRACTOR TO IDENTIFY THE LOCATIONS OF CIVIL SITE UTILITIES, DRIVEWAYS, ETC. PRIOR TO ELECTRICAL CONTRACTORS LAYOUT OF ELECTRIC, TELEPHONE, STREET LIGHT, TRAFFIC SIGNAL, AND CATV SYSTEMS.

**NOTES FOR CONSTRUCTION**

- a. THE LOCATION OF OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT UNDER ANY OVERHEAD LINES.
- b. THE CONTRACTOR IS TO COMPLY WITH THE DIRECTIONS OF THE STATE OF HAWAII OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
- c. WHEN TRENCH EXCAVATION IS ADJACENT TO EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER 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 IT FROM DAMAGE.
- d. WHERE PEDESTRIAN WALKWAYS EXIST, SUCH WALKWAYS SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
- e. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RIGHT-OF-WAYS ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
- f. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN BY THE ENGINEER TO EXIST FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.

**EQUIPMENT SCHEDULE**

THE MAUI ELECTRIC Co., SANDWICH ISLES COMMUNICATIONS, INC., COMMUNITY ANTENNA TELEVISION & STREET LIGHTING PULLBOXES, HANDHOLE, TRANSFORMER PAD LOTS & SWITCHING EQUIPMENT PAD LOTS SHALL BE CONSTRUCTED BY THE CONTRACTOR AS SHOWN IN THESE DRAWINGS & IN ACCORDANCE WITH THE FOLLOWING STANDARD DRAWINGS:

TYPE	DESCRIPTION
13" X 24" COMMUNICATION PULLBOX	13" X 24" X 30" POLYMER CONCRETE BOX WITH NON-SKID SURFACE POLYMER CONCRETE 20K "TRAFFIC" RATED COVER, "SIC" INSCRIBED ON COVER. PROVIDED IN ACCORDANCE WITH SANDWICH ISLES COMMUNICATIONS REQUIREMENTS, TYPE UHC 13x24
30" X 48" COMMUNICATION HANDHOLE	2'-6" X 4'-0" X 33" FIBRE REINFORCED PLASTIC HANDHOLE WITH NON-SKID SURFACE POLYMER CONCRETE 20K "TRAFFIC" RATED COVERS, "SIC" INSCRIBED ON COVERS. PROVIDED IN ACCORDANCE WITH SANDWICH ISLES COMMUNICATIONS REQUIREMENTS, TYPE UHC 30x48. VERIFY DEPTH OF HANDHOLE.
3' X 5' COMMUNICATION HANDHOLE	3'-9" X 5'-9" X 3'-7" REINFORCED CONCRETE HANDHOLE WITH TRAFFIC RATED FRAME AND COVERS, PROVIDED IN ACCORDANCE WITH SANDWICH ISLES COMMUNICATIONS REQUIREMENTS, TYPE UHC-35. VERIFY DEPTH OF HANDHOLE.
2' X 4' CATV PULLBOX	2'-0" X 4'-0" PRECAST CONCRETE PULLBOX WITH TWO PIECE POLYMER CONCRETE "SLIP-NOT" COVERS SIMILAR TO HTCO 2' X 4' PULLBOX, HTCO DRAWING NO. 34056, EXCEPT WITH "CATV" INSCRIBED ON COVER.
2' X 4' MECO HANDHOLE	2' X 4' PRECAST CONCRETE HANDHOLE WITH PRECAST CONCRETE COVER, PROVIDED IN ACCORDANCE WITH MECO STANDARD DRAWING NO. 30-2005

**ELECTRICAL SYMBOLS**

SYMBOL	DESCRIPTION
○	STREET LIGHT, 100W HIGH PRESSURE SODIUM LUMINAIRE & GALVANIZED STEEL BRACKET ARM PROVIDED BY MECO ON UTILITY POLE
○	EXISTING STREET LIGHT & BRACKET ARM TO REMAIN
⊗	REMOVE & RELOCATE EXISTING STREET LIGHT & BRACKET ARM, DEMOLISH EXST. CONC. BASE 2 FT. BELOW FINISH GRADE
○	UTILITY POLE PROVIDED BY MECO
⊙	FUTURE/EXISTING UTILITY POLE
←	ANCHOR GUYING, PROVIDED BY RESPECTIVE UTILITY COMPANY
←-----	FUTURE/EXISTING ANCHOR GUYING
[ 1 ]	NOTE SYMBOL, SEE PLAN FOR NOTES
⊥	GROUND ROD, 5/8" DIA. X 8'-0" (BMZ)
--- ---	BREAKLINE TO BEGIN & END DUCT SECTION TYPE
--- ---	ELECTRIC/COMM DUCTLINE WITH DESIGNATORS; INDICATES TYPE "A" DUCT SECTION WITH "2-4S" DUCTS. SEE SHEET E-8 FOR DUCT SECTIONS AND CONDUIT SCHEDULES
--- ---	STUB, CAP, & MARK CONDUIT(S) WITH CONCRETE MARKER
--- ---	SAWCUT EXST. A.C. PAVEMENT, CONC. SIDEWALK, CURB & GUTTER PRIOR TO TRENCH EXCAVATION. RESTORE SUBBASE, BASECOURSE, PAVEMENT, CONC. SIDEWALK, CURB & GUTTER PER COUNTY REQUIREMENTS, THICKNESS SHALL MATCH EXST ROAD DESIGN
--- ---	ELEC OVERHEAD LINES PROVIDED BY MECO
---f-oh---	FUTURE ELEC OVERHEAD LINE
---e---	EXST. UNDERGROUND DUCTLINE & WIRING
---t---	EXST. UNDERGROUND TEL. CABLES
---et-oh---	EXISTING ELEC/COMM OVERHEAD LINE
-x-et-oh-x-	EXISTING ELEC/COMM OVERHEAD LINE TO BE REMOVED BY RESPECTIVE UTILITY CO.
□	SIC COM 13" X 24" PULLBOX
■	SIC COM 30" X 48" HANDHOLE
▣	SIC COM 3' X 5' HANDHOLE
□	CATV 2' X 4' PULL BOX
⊗	MECO 2' X 4' HANDHOLE
⊥	CATV POWER SUPPLY EQUIP., 6' X 6' EASEMENT, SEE DETAIL A/E-11

Z:\ACAD\PROJECTS\218107B\ED1\_218107B\_SYMBO1 6/28/2021 2:32PM Glenmtn



THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

Community Planning and Engineering, Inc.  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEY: (2) 2-2-002:014

**ELEC SYMBOLS, LOCATION MAP, VICINITY MAP, EQUIPMENT SCHEDULE AND NOTES**

DRAWN BY: CAD ENGINEER: GTN CHECKED BY: SS  
APPROVED:

Z:\ACAD\PROJECTS\218107B\OVERALL-SITE01\_7/5/2021\_8:53AM\_Glemtn



ELECTRICAL DISTRIBUTION  
PARTIAL PLAN I  
SEE SHEET E-5

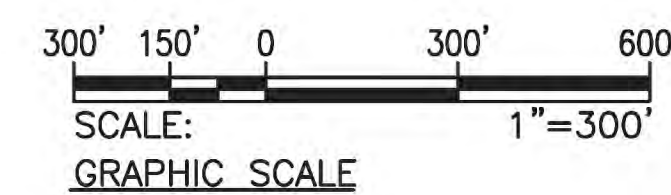
ELECTRICAL DISTRIBUTION  
PARTIAL PLAN II  
SEE SHEET E-6

ELECTRICAL DISTRIBUTION  
PARTIAL PLAN III  
SEE SHEET E-7



### ELECTRICAL SITE PLAN

SCALE: 1" = 300'



*Steven H. Sakai*  
THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION.  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1208 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT  
PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEY: (2) 2-2-002:014

**ELECTRICAL SITE PLAN**

DRAWN BY: CAD    ENGINEER: GTN    CHECKED BY: SS

APPROVED: \_\_\_\_\_

**MAUI ELECTRIC COMPANY (MECO) NOTES**

**1. LOCATION OF MECO FACILITIES**

THE LOCATION OF MECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATIONS OF THE FACILITIES AND SHALL EXERCISE PROPER CARE IN EXCAVATING AND WORKING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES TO EXISTING UTILITIES AND UTILITY CROSSINGS ARE SHOWN, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS AND CROSSINGS TO VERIFY THE DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO MECO'S FACILITIES WHETHER SHOWN OR NOT SHOWN ON THE PLANS.

**2. COMPLIANCE WITH HAWAII OCCUPATIONAL SAFETY AND HEALTH LAWS**

THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAWS AND REGULATIONS, INCLUDING WITHOUT LIMITATION, THOSE RELATED TO WORKING ON OR NEAR EXPOSED OR ENERGIZED ELECTRICAL LINES AND EQUIPMENT.

**3. EXCAVATION PERMIT**

THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM MECO TWO WEEKS PRIOR TO STARTING CONSTRUCTION. PLEASE REFER TO OUR REQUEST NUMBER AT THAT TIME.

**4. CAUTION!!! ELECTRICAL HAZARD!!!**

EXISTING MECO OVERHEAD AND UNDERGROUND LINES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION UNLESS PRIOR SPECIAL ARRANGEMENTS HAVE BEEN MADE WITH MECO. ONLY MECO PERSONNEL ARE TO HANDLE THESE ENERGIZED LINES AND ERECT TEMPORARY GUARDS TO PROTECT THESE LINES FROM DAMAGE. THE CONTRACTOR SHALL WORK CAUTIOUSLY AT ALL TIMES TO AVOID ACCIDENTS AND DAMAGE TO EXISTING MECO FACILITIES, WHICH CAN RESULT IN ELECTROCUTION.

**5. OVERHEAD LINES**

STATE LAW REQUIRES THAT A WORKER AND THE LONGEST OBJECT HE OR SHE MAY CONTACT CANNOT COME CLOSER THAN A MINIMUM RADIAL CLEARANCE OF 10 FEET WHEN WORKING CLOSE TO OR UNDER ANY OVERHEAD LINES RATED 50KV AND BELOW. FOR EACH ADDITIONAL 1KV ABOVE 50KV, AN ADDITIONAL 0.4 INCH SHALL BE ADDED TO THE 10- FOOT CLEARANCE REQUIREMENT. THE PRECEDING INFORMATION ON LINE CLEARANCE REQUIREMENTS IS PROVIDED AS A CONVENIENCE AND IT IS THE CONTRACTOR'S RESPONSIBILITY TO BE INFORMED OF AND COMPLY WITH ANY REVISIONS OR AMENDMENTS TO THE LAW.

SHOULD THE CONTRACTOR ANTICIPATE THAT HIS WORK WILL RESULT IN THE NEED TO ENCRoACH WITHIN THE MINIMUM REQUIRED CLEARANCE AT ANY TIME, THE CONTRACTOR SHALL NOTIFY MECO AT LEAST FOUR (4) WEEKS PRIOR TO THE PLANNED ENCRoACHMENT SO THAT, IF FEASIBLE, THE NECESSARY PROTECTIONS (E.G. RELOCATE, DE- ENERGIZE, OR BLANKET MECO LINES) CAN BE PUT IN PLACE. MECO'S COST OF SAFEGUARDING ITS LINES WILL BE CHARGED TO THE CONTRACTOR.

CONTACT MECO'S CUSTOMER INSTALLATIONS DEPARTMENT AT FOR ASSISTANCE IN IDENTIFYING AND SAFEGUARDING OVERHEAD POWER LINES.

REFER TO SECTION X OF MECO'S ELECTRIC SERVICE INSTALLATION MANUAL FOR ADDITIONAL GUIDELINES WHEN WORKING AROUND MECO'S FACILITIES. A COPY MAY BE OBTAINED FROM MECO'S CUSTOMER INSTALLATIONS DEPARTMENT.

**6. POLE BRACING**

A MINIMUM CLEARANCE OF 10 FEET MUST BE MAINTAINED WHEN EXCAVATING AROUND UTILITY POLES AND/OR THEIR ANCHOR SYSTEM TO PREVENT WEAKENING OR POLE SUPPORT FAILURE. SHOULD WORK REQUIRE EXCAVATING WITHIN 10 FEET OF A POLE AND/OR ITS ANCHOR SYSTEM, THE CONTRACTOR SHALL PROTECT, SUPPORT, SECURE, AND TAKE ALL OTHER PRECAUTIONS TO PREVENT DAMAGE TO OR LEANING OF THESE POLES. THE CONTRACTOR IS RESPONSIBLE FOR ALL ASSOCIATED COSTS TO BRACE, REPAIR, OR STRAIGHTEN POLES. ALL MEANS OF STRUCTURAL SUPPORT FOR THE POLE PROPOSED BY THE CONTRACTOR SHALL FIRST BE REVIEWED BY MECO BEFORE IMPLEMENTATION. FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE MECO CONSTRUCTION AND MAINTENANCE DEPT., CUSTOMER & SYSTEM SUPERINTENDENT A MINIMUM OF TWO (2) WEEKS IN ADVANCE.

**7. UNDERGROUND LINES**

THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES. MECO'S EXISTING ELECTRICAL CABLES ARE ENERGIZED AND WILL REMAIN ENERGIZED DURING CONSTRUCTION. ONLY MECO PERSONNEL ARE TO BREAK INTO EXISTING MECO FACILITIES, HANDLE THESE CABLES, AND ERECT TEMPORARY GUARDS TO PROTECT THESE CABLES FROM DAMAGE. THE COST OF MECO'S ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF ITS UNDERGROUND LINES WILL BE CHARGED TO THE CONTRACTOR.

FOR VERIFICATION OF UNDERGROUND LINES, THE CONTRACTOR SHALL CALL MECO'S UNDERGROUND DIVISION A MINIMUM OF 72 HOURS IN ADVANCE.

FOR ASSISTANCE IN PROVIDING PROPER SUPPORT AND PROTECTION OF THESE LINES, THE CONTRACTOR SHALL CALL MECO'S CONSTRUCTION & MAINTENANCE DEPT., CUSTOMER & SYSTEM SUPERINTENDENT A MINIMUM OF TWO (2) WEEKS IN ADVANCE.

**8. EXCAVATIONS**

WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH MECO'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:

- a) SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE AND TO PREVENT POSSIBLE SLIDES, CAVE-INS, AND SETTLEMENTS.
- b) PROPERLY SUPPORTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNINGS TO FULLY PROTECT IT FROM DAMAGE.
- c) BACKFILLING WITH PROPER BACKFILL MATERIAL INCLUDING SPECIAL THERMAL BACKFILL WHERE EXISTING (REFER TO ENGINEERING DEPARTMENT FOR THERMAL BACKFILL SPECIFICATIONS).

**9. RELOCATION OF MECO FACILITIES**

ANY WORK REQUIRED TO RELOCATE OR MODIFY MECO FACILITIES SHALL BE DONE BY MECO, OR BY THE CONTRACTOR UNDER MECO'S SUPERVISION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND SHALL PROVIDE NECESSARY SUPPORT FOR MECO'S WORK, WHICH MAY INCLUDE, BUT NOT BE LIMITED TO, EXCAVATION AND BACKFILL, PERMITS AND TRAFFIC CONTROL, BARRICADING, AND RESTORATION OF PAVEMENT, SIDEWALKS, AND OTHER FACILITIES.

ALL COSTS ASSOCIATED WITH ANY RELOCATION OR MODIFICATION (EITHER TEMPORARY OR PERMANENT) FOR THE CONVENIENCE OF THE CONTRACTOR, OR TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS SHALL BE BORNE BY THE CONTRACTOR.

**10. CONFLICTS**

ANY REDESIGN OR RELOCATION OF MECO'S FACILITIES NOT SHOWN ON THE PLANS MAY BE CAUSE FOR LENGTHY DELAYS. THE CONTRACTOR ACKNOWLEDGES THAT MECO IS NOT RESPONSIBLE FOR ANY DELAY OR DAMAGE THAT MAY ARISE AS A RESULT OF ANY CONFLICTS DISCOVERED OR IDENTIFIED WITH RESPECT TO THE LOCATION OR CONSTRUCTION OF MECO'S ELECTRICAL FACILITIES IN THE FIELD, REGARDLESS OF WHETHER THE CONTRACTOR HAS MET THE REQUESTED MINIMUM ADVANCE NOTICES. IN ORDER TO MINIMIZE ANY DELAY OR IMPACT ARISING FROM SUCH CONFLICTS, MECO SHOULD BE NOTIFIED IMMEDIATELY UPON DISCOVERY OR IDENTIFICATION OF SUCH CONFLICT.

**11. DAMAGE TO MECO FACILITIES**

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL MECO SURFACE AND SUBSURFACE UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGES TO MECO'S FACILITIES AS A RESULT OF HIS OPERATIONS. THE CONTRACTOR SHALL IMMEDIATELY REPORT SUCH DAMAGES TO MECO'S TROUBLE DISPATCHER. REPAIR WORK SHALL BE DONE BY MECO OR BY THE CONTRACTOR UNDER MECO'S SUPERVISION COSTS FOR DAMAGES TO MECO'S FACILITIES SHALL BE BORNE BY THE CONTRACTOR.

**12. MECO STAND-BY PERSONNEL**

THE CONTRACTOR MAY REQUEST MECO TO PROVIDE AN INSPECTOR TO STAND-BY DURING CONSTRUCTION NEAR MECO'S FACILITIES. THE COST OF SUCH INSPECTION WILL BE CHARGED TO THE CONTRACTOR.

THE CONTRACTOR SHALL CALL THE MECO CONSTRUCTION AND MAINTENANCE DEPT., CUSTOMER & SYSTEM SUPERINTENDENT A MINIMUM OF 5 WORKING DAYS IN ADVANCE TO ARRANGE FOR MECO STAND-BY PERSONNEL.

**13. CLEARANCES**

THE FOLLOWING CLEARANCES SHALL BE MAINTAINED BETWEEN MECO'S DUCTLINE AND ALL ADJACENT STRUCTURES (CHARTED AND UNCHARTED) IN THE TRENCH:

STRUCTURE TYPE	MINIMUM CLEARANCE(INCHES)
WATER LINES, PARALLEL	36 (A)
WATER LINES, CROSSING	12 (B)
SEWER LINES, PARALLEL	36 (C)
SEWER LINES, CROSSING	24 (D)
DRAIN LINES, PARALLEL	12
DRAIN LINES, CROSSING	6 (E)
ELECTRICAL AND GAS LINES, PARALLEL	12
ELECTRICAL AND GAS LINES, CROSSING	12
TELEPHONE LINES, PARALLEL	6 (E)
TELEPHONE LINES, CROSSING	6 (E)
CHEVRON OIL LINES, PARALLEL	36
CHEVRON OIL LINES, CROSSING	48 BELOW OIL LINE (F)

- A. THE MINIMUM HORIZONTAL CLEARANCES TO WATER LINES PARALLEL TO ELECTRICAL DUCTLINES MUST BE INCREASED TO 60 INCHES IF THE WATER LINE IS GREATER THAN 16 INCHES IN DIAMETER
- B. THE MINIMUM VERTICAL CLEARANCES TO WATER LINES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 6 INCHES IF THE ELECTRICAL DUCTLINE STRUCTURE IS CONCRETE ENCASED AND IS BELOW THE WATER LINE AND THE WATER LINE IS LESS THAN 16 INCHES IN DIAMETER.
- C. A MINIMUM HORIZONTAL CLERANCE OF 36 INCHES IS REQUIRED BETWEEN NEW HANDHOLES AND EXISTING SEWER LATERALS.
- D. THE MINIMUM VERTICAL CLEARANCES TO SEWER PIPES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 12 INCHES IF THE SEWER PIPE IS JACKETED IN CONCRETE.
- E. THE MINIMUM CLEARANCES SHALL BE INCREASED TO 12 INCHES IF THE ELECTRICAL DUCTLINE IS DIRECT BURIED.
- F. THE MINIMUM VERTICAL CLEARANCES TO OIL LINES CROSSING ELECTRICAL DUCTLINES CAN BE REDUCED TO 24 INCHES BELOW OIL LINES IF THE CROSSINGS ARE ENCASED IN 6 INCHES OF CONCRETE.
- G. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER & MECO OF ANY HEAT SOURCES (POWER CABLE DUCT BANK, STEAMLINE, ETC.) ENCOUNTERED THAT ARE NOT PROPERLY IDENTIFIED ON THE DRAWING.

**14. INDEMNITY**

THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS MECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS, AND ACTIONS, INCLUDING BUT NOT LIMITED TO REASONABLE ATTORNEY'S FEES AND COSTS BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTION OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY BASED UPON THE SOLE NEGLIGENCE OF MECO.

**15. SCHEDULE**

CONTRACTOR SHALL FURNISH HIS CONSTRUCTION SCHEDULE \_\_\_ WORKING DAYS PRIOR TO STARTING WORK ON MECO FACILITIES. CONTRACTOR SHALL GIVE MECO, IN WRITING \_\_\_ WORKING DAYS NOTICE TO PROCEED WITH MECO'S PORTION OF WORK.

**16. AUTHORITY**

ALL CONSTRUCTION, RESTORATION WORK, AND INSPECTION SHALL BE SUBJECT TO WHICHEVER GOVERNMENTAL AGENCY HAS AUTHORITY OVER THE WORK.

**17. SPECIFICATIONS**

CONSTRUCTION OF MECO'S UNDERGROUND FACILITIES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISIONS OF MECO SPECIFICATIONS CS7001, CS7003, CS7202, CS9301, AND CS9401 AND APPLICABLE MECO STANDARDS.

**18. CONSTRUCTION**

CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, AND SERVICES TO PROPERLY PERFORM AND FULLY COMPLETE ALL WORK SHOWN ON THE CONTRACT, DRAWINGS, AND SPECIFICATIONS. ALL MATERIALS SHALL BE NEW AND MANUFACTURED IN THE UNITED STATES OF AMERICA. ALL MANHOLE, HANDHOLE, AND DUCTLINE INSTALLATIONS SHALL BE INSPECTED AND APPROVED BY MECO PRIOR TO EXCAVATION AND PRIOR TO PLACING CONCRETE. CONTRACTOR SHALL NOTIFY MECO'S INSPECTION DIVISION AT 543-4356 AT LEAST 48 HOURS PRIOR TO PLACING CONCRETE.

CONTRACTOR TO COORDINATE WORK TO BREAK INTO MECO'S EXISTING ELECTRICAL FACILITIES WITH MECO'S UNDERGROUND DIVISION AT 543-7871 AT LEAST 10 WORKING DAYS IN ADVANCE.

**19. STAKEOUT**

THE CONTRACTOR SHALL ARRANGE FOR TONEOUTS OF ALL UNDERGROUND FACILITIES AND SHALL STAKEOUT ALL PROPOSED MECO FACILITIES WITHIN THE PROJECT AREA SO AS TO NOT CONFLICT WITH ANY UTILITY (EXISTING OR PROPOSED) AND ANY PROPOSED CONSTRUCTION OR IMPROVEMENT WORK FOR VERIFICATION BY MECO BEFORE PROCEEDING WITH MECO WORK.

**21. DUCTLINES**

ALL DUCTLINE INSTALLATIONS SHALL BE PVC SCHEDULE 40 ENCASED IN CONCRETE, UNLESS OTHERWISE NOTED. ALL COMPLETED DUCTLINES SHALL BE MANDREL TESTED BY THE CONTRACTOR IN THE PRESENCE OF MECO'S INSPECTOR USING MECO'S STANDARD PRACTICE. THE CONTRACTOR SHALL INSTALL A 1/8" POLYOLEFIN PULL LINE IN ALL COMPLETED DUCTLINES AFTER MANDREL TESTING IS COMPLETE.

**22. JOINT POLE REMOVAL**

THE LAST JOINT POLE OCCUPANT OFF THE POLES SHALL REMOVE THE POLES.

**23. AS-BUILT PLANS**

THE CONTRACTOR SHALL PROVIDE MECO WITH TWO SETS OF AS-BUILT REPRODUCIBLE TRACINGS SHOWING THE OFFSETS, STATIONING, AND VERTICAL ELEVATION OF THE DUCT LINE(S) CONSTRUCTED.

Z:\ACAD\PROJECTS\218107B\MECO-NOT01 6/28/2021 2:16PM GlennH



*Steven H. Sakai*  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b>                  Engineering Design   Construction Management   Infrastructure Planning                  1208 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b>                  KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI                  OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS                  TAX MAP KEY: (2) 2-2-002-014</p>			
<p><b>MECO NOTES</b></p>			
DRAWN BY: CAD	ENGINEER: GTN	CHECKED BY: SS	
APPROVED:			



**SANDWICH ISLES COMMUNICATIONS CONSTRUCTION NOTES**  
(REVISED 01/17/19)

**GENERAL**

- ALL WORK SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF THE RURAL UTILITIES SERVICES (RUS) AND SANDWICH ISLES COMMUNICATIONS (SIC), WHICH COMPLIES WITH ALL APPLICABLE CITY, COUNTY, STATE AND FEDERAL REQUIREMENTS.
- ALL MATERIALS USED MUST BE APPROVED AND (OR) ACCEPTED BY SANDWICH ISLES COMMUNICATIONS, INC.
- CONTRACTOR MAY REFER TO THE RUS WEBSITE (HTTPS://WWW.RD.USDA.GOV/PUBLICATIONS/REGULATIONS-GUIDELINES) FOR REGULATIONS, BULLETINS, FORMS, ETC.
- CONTACT THE HAWAII ONE CALL CENTER AT (866) 423-7287 FOR LOCATING EXISTING UNDERGROUND FACILITIES PRIOR TO BEGINNING ANY EXCAVATION.
- THE CONTRACTOR SHALL PROCURE AND PAY FOR ALL LICENSES AND PERMITS AND SHALL GIVE ALL NOTICES NECESSARY FOR PROSECUTION OF THE WORK.
- IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WORK SCHEDULES WITH ALL UTILITY COMPANIES, COUNTY, OR STATE AGENCIES REQUIRED FOR THIS PROJECT. THIS IS TO INCLUDE COORDINATION OF ANY INSPECTION AND SPECIFICATIONS BY THOSE UTILITY COMPANIES, COUNTY, OR STATE AGENCIES.
- THE CONTRACTOR SHALL VERIFY ALL CONDITIONS AND DIMENSIONS RELATING TO THIS PROJECT BEFORE COMMENCING THE REQUIRED WORK.
- THE CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER OF ANY DISCREPANCIES AND/OR CONDITIONS WHICH WOULD PREVENT HIM FROM FULFILLING THE TERMS OF THIS CONTRACT.
- ALL SIC PULLBOXES THAT THE CONTRACTOR ENTERS FOR INSTALLATION OF FACILITIES MUST BE CLEARED OF STANDING WATER AND DEBRIS. CONTRACTOR SHALL ORGANIZE EXISTING CABLE FACILITIES, TO INCLUDE ADDING CABLE RACKS AND TYING DOWN EXISTING CABLE, IN ORDER TO ACCOMMODATE NEW FACILITIES BEING PLACED. CLEANING AND ORGANIZING OF PULLBOXES SHALL BE DONE TO THE SATISFACTION OF THE PROJECT MANAGER.
- THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE OWNER AT COMPLETION OF THE PROJECT. AS-BUILT DRAWINGS REFER TO DOCUMENTS MAINTAINED AND ANNOTATED BY THE CONTRACTOR DURING CONSTRUCTION AND INCLUDE ANY CHANGES OR NEW INFORMATION FOUND OR ADDED THROUGHOUT CONSTRUCTION OF THE PROJECT.

**CONDUITS**

- ALL UNDERGROUND PVC CONDUITS, SWEEPS, COUPLINGS, ADAPTERS AND BELL ENDS SHALL BE SCHEDULE 40, UNLESS OTHERWISE SPECIFIED.
- ALL HIGH DENSITY POLYETHYLENE CONDUITS SHALL BE SDR 11. TYPICAL 3-PACK UNIT INCLUDES THREE 1.5-INCH SDR 11 RATED CONDUITS IN THE COLORS OF BLACK, RED, AND ORANGE, UNLESS OTHERWISE SPECIFIED. ALL CONDUITS TO BE PRESSURE TESTED AT 120 PSI FOR TWO MINUTES EACH. FUSION SPLICING OF THE CONDUIT SHALL BE ACCEPTABLE ONLY WHEN PULLING JOINTS THROUGH BORES. ALL COUPLINGS SHALL BE DOUBLE "E-LOC" MANUFACTURED BY ETOC SPECIALTY PRODUCTS, INC.
- MAIN CONDUIT RUNS, EXCEPT RISER CONDUITS, SHALL BE CONSTRUCTED WITH MINIMUM 6-FOOT RADIUS CURVES, UNLESS OTHERWISE APPROVED BY THE PROJECT MANAGER.
- AFTER THE CONDUITS ARE INSTALLED, A ROUND SOLID MANDREL NOT LESS THAN 12-INCHES IN LENGTH AND HAVING A DIAMETER OF 1/4-INCH LESS THAN THE INSIDE DIAMETER OF THE CONDUIT SHALL BE PULLED THROUGH EACH CONDUIT. THE SIC PROJECT MANAGER SHALL BE PRESENT DURING ALL MANDREL TESTING. SUFFIXES USED IN RUS 515B FOR CONDUITS ARE ACCEPTABLE.
- INSTALL MULETAPE IN ALL PVC CONDUITS TWO (2) INCH DIAMETER AND LARGER. THE NEPTCO MULETAPE (OR APPROVED EQUAL) IS AVAILABLE IN 3000 FT., 6500 FT., AND 10,000 FT. REELS FROM WESTINGHOUSE ELECTRIC SUPPLY COMPANY (WESCO), THE NEPTCO MULETAPE IS PRE-LUBRICATED AND PRINTED WITH SEQUENTIAL FOOTAGE MARKINGS. PVC CONDUITS WITH A DIAMETER OF 1.5-INCH OR LESS SHALL HAVE A POLY-LINE (P-LINE) INSTALLED. ALL DUCTS SHALL BE SEALED AFTER MULETAPE/P-LINE HAS BEEN INSTALLED, FOLLOWING THE SPECIFICATIONS BELOW.
- ALL CONDUITS AND DUCTS SHALL BE PROPERLY SEALED USING COMMSCOPE, JACKMOON DUCT SEALS, APPLICABLE BUSHING SLEEVES AND BLANK DUCT PLUGS. THE CONDUIT DIAMETER, INSIDE DIAMETER AND CABLE SIZE(S) SHALL BE TAKEN INTO CONSIDERATION WHEN ORDERING AND INSTALLING "JACKMOON" DUCT SEALS.  
COMMSCOPE JACKMOON SEALS SHALL BE:  

2-INCH CONDUIT	TRIPLEX DUCT SEALS SERIES 70
3-INCH CONDUIT	TRIPLEX DUCT SEALS SERIES 136
3.5-INCH AND LARGER CONDUIT	QUADRUPLIX DUCT SEALS, SERIES 136

ALL OTHER DUCTS SHALL HAVE COMMSCOPE, BLANK JACKMOON PLUGS TO KEEP THEM FREE OF WATER AND DEBRIS.
- CONDUIT STUBS FROM HANDHOLES TO INDIVIDUAL RESIDENTIAL LOTS SHALL BE SCHEDULE 40 PVC, 1-INCH DIAMETER AND EXTENDED 5-FEET BEYOND PROPERTY LINE. CAP AND SEAL END AND MARK LOCATIONS WITH ABOVE GROUND MARKER.
- ALL CONDUITS SHALL ENTER MANHOLES AT 90 DEGREE ANGLE AND SHALL EXTEND INTO THE MANHOLE AS FOLLOWS: CONDUITS DESIGNATED FOR FIBER SHALL EXTEND 12-INCHES INTO THE MANHOLE. ALL OTHER CONDUITS SHALL BE FLUSH WITH THE INSIDE WALL AND INCLUDE BELL ENDS. ANY EXCEPTIONS SHALL ONLY BE PERMITTED WHEN SPECIFIED BY THE PROJECT MANAGER.
- ALL CONDUITS ENTERING MANHOLES OR HANDHOLES SHALL BE GROUTED BETWEEN THE CONDUITS AND SIDEWALL, INSIDE AND OUT. ALL CONDUITS WILL ENTER THE MANHOLES AND HANDHOLES ON THE PROPERTY SIDE AT ALL TIMES UNLESS OTHERWISE SPECIFIED BY THE PROJECT MANAGER.
- BACKFILL AND COMPACTION FOR DUCTLINE TRENCHES, MANHOLES AND HANDHOLES SHALL BE IN ACCORDANCE WITH:
  - STATE HIGHWAY DEPARTMENT'S STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION WITH LATEST AMENDMENTS, IF CONSTRUCTION IS LOCATED UNDER A STATE STREET OR ROAD, OR LOCATED IN PRIVATE PROPERTY.
  - THE STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, DATED 1994, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, WITH LATEST AMENDMENTS; COUNTY OF KAUAI, MAUI, OR HAWAII, AS THE CASE MAY BE, IF CONSTRUCTION IS LOCATED UNDER COUNTY STREETS AND ROADS.

- BACKFILLING SHALL BE SUBJECT TO THE APPROVAL OF THE SIC PROJECT MANAGER, THE AUTHORIZED REPRESENTATIVE OF THE DEPARTMENT OF TRANSPORTATION, STATE OF HAWAII AND/OR DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, COUNTY OF KAUAI, HONOLULU, COUNTY OF KAUAI, MAUI OR HAWAII, AS THE CASE MAY BE.
- A THIRD PARTY GEOTECHNICAL ENGINEER, LICENSED AND INSURED IN THE STATE OF HAWAII MUST CERTIFY THAT THE EXCAVATED AREA MEETS THE GOVERNING AGENCIES AND/OR OWNERS STANDARDS FOR BACKFILL AND COMPACTION.
- EXCAVATED MATERIAL MAY BE REUSED AS BACKFILL, PROVIDING THAT IT CONFORMS TO REQUIREMENTS OF TYPE "A" AND TYPE "B" BACKFILL, AS REQUIRED WITHIN THE STANDARD SPECIFICATIONS. A WRITTEN SOILS REPORT OF CONFORMANCE BY A LICENSED THIRD PARTY GEOTECHNICAL ENGINEER IS NEEDED PRIOR TO BACKFILL USING THE EXCAVATED MATERIAL.
  - TYPE A BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1-INCH AND MIXTURE SHALL NOT CONTAIN MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
  - TYPE B BACKFILL IS DEFINED AS BEACH SAND, EARTH OR EARTH AND GRAVEL. MAXIMUM PARTICLE SIZE SHALL BE 1/2-INCH AND MIXTURE SHALL NOT CONTAIN MORE THAN 20% BY VOLUME OF ROCK PARTICLES.
- ALL CONDUIT RUNS SHALL HAVE A 3-INCH NON-METALLIC WARNING TAPE PLACED 12-INCHES ABOVE THE CONDUIT RUN. THE TAPE SHALL READ "CAUTION BURIED FIBER OPTIC CABLE BELOW".

**MANHOLES AND HANDHOLES:**

- ALL MANHOLES SHALL HAVE HS20-44 TRAFFIC LOADING COVERS (UNLESS OTHERWISE NOTED). HANDHOLES SHALL HAVE 20K TRAFFIC LOAD RATED COVERS.
- ALL MANHOLE AND HANDHOLE COVERS SHALL HAVE COVER LOGO TO READ "SIC".
- ALL HANDHOLE AND MANHOLE COVER BOLTS SHALL BE STAINLESS STEEL 3/4-INCH PENTAHEAD, UNLESS OTHERWISE NOTED.
- ALL MANHOLES AND HANDHOLES ARE SPECIFIED AS FOLLOWS:
  - UM35 AND UM46 MANHOLE - CONSISTS OF A REINFORCED CONCRETE MANHOLE WITH CAST IRON LID AND RISERS (IF REQUIRED). ALL MANHOLES ARE UNDER MASTER PURCHASE AGREEMENT WITH HAWAII PRECAST, INC. LOCATED IN CAPTAIN COOK, HAWAII (808 326-7730)
  - UH35 AND UH46 HANDHOLE - CONSISTS OF A REINFORCED CONCRETE HANDHOLE WITH TRAFFIC RATED HINGED COVERS (UH35) OR SIX TRAFFIC RATED SLIP-NOT COVERS (UH46) AND RISERS (IF REQUIRED). ALL HANDHOLES ARE UNDER MASTER PURCHASE AGREEMENT WITH HAWAIIAN PRECAST, INC. LOCATED IN CAPTAIN COOK, HAWAII (808 326-7730).
  - UHC30X48X33 HANDHOLE (PULLBOX) - CONSISTS OF A TWO-TIER ARMORCAST POLYMER CONCRETE BOX & COVER ASSEMBLY. PART NUMBER (A6001430TA-SIC4).
  - UHC13X24X30 HANDHOLE (PULLBOX) - CONSISTS OF AN ARMORCAST POLYMER CONCRETE BOX AND COVER ASSEMBLY. PART NUMBER (A6001946TA-SIC1).
- ALL MANHOLES AND HANDHOLES TO BE ORDERED WITH ALL HARDWARE, INCLUDING CABLE RACKS, STEPS AND LOCKS.
- SET MANHOLE OR HANDHOLE ON A LEVEL AREA, IN THE BOTTOM OF THE EXCAVATION, ON A 4-INCH LAYER OF CRUSHED ROCK, FOR DRAINAGE PURPOSES.
- THE BASE OF ALL MANHOLES AND HANDHOLES WILL BE PLACED LEVEL. SOME MANHOLES HAVE ADJUSTABLE FRAMES. ALL VOIDS CREATED DURING INSTALLATION MUST BE FILLED WITH MORTAR MIX OR CONCRETE. THIS IS ESPECIALLY TRUE FOR MANHOLES AND HANDHOLES SET IN ROADWAYS.
- BEFORE BACKFILLING AND COMPACTION, MAKE SURE COVERS ARE IN PLACE AND SECURE. LAYER 6-INCHES TO 8-INCHES OF BACKFILL MATERIAL AROUND THE MANHOLE OR HANDHOLE. TAMP EACH INDIVIDUAL LAYER OF BACKFILL MATERIAL. CONTINUE THE LAYERING AND "TAMPING" UNTIL FINAL GRADE IS ACHIEVED.
- THE TOPS OF ALL MANHOLES AND HANDHOLES SHALL BE FLUSH TO GRADE IN PAVED AREAS OR 1-INCH ABOVE FINISH GRADE IN NON-PAVED AREAS, UNLESS OTHERWISE SPECIFIED BY PROJECT MANAGER.
- PROVIDE A 5/8-INCH DIAMETER X 8-FOOT COPPER CLAD GROUND ROD AT HANDHOLES AND MANHOLES AS SPECIFIED ON THE DRAWINGS OR AS DIRECTED BY THE PROJECT MANAGER.
- FIELD MODIFICATIONS ARE ACCOMPLISHED BY USING A FINE TOOTHED SAW RACKS OR OR OTHER EQUIPMENT MAY BE SECURED TO THE SIDE OF THE VAULT BY USE OF TOGGLE BOLTS, MOLLY BOLTS, ETC. AND MUST BE APPROVED BY THE PROJECT MANAGER.

**UTILITY POLE INSTALLATION:**

- ALL AERIAL WORK SHALL BE IN STRICT ACCORDANCE WITH SPECIFICATIONS AND REQUIREMENTS OF THE RURAL UTILITIES SERVICES (RUS) BULLETIN 1753F-152.
- UTILITY POLES SHALL BE PRESERVED UTILIZING THE PENTACHLOROPHENOL (PENTA) TYPE TREATMENT.
- UTILITY POLES SHALL BE TERMITE PROTECTED UTILIZING TERMIMESH POLESOCKS OR EQUIVALENT. POLESOCKS SHALL EXTEND NO MORE THAN EIGHT INCHES ABOVE GROUND AND BE SECURED WITH STAINLESS STRAPPING. FOLLOW THE MANUFACTURER'S RECOMMENDATIONS FOR INSTALLATION.
- THE POLE HOLE SHALL BE OF SUFFICIENT DIAMETER TO PERMIT THE POLE TO SETTLE FREELY TO THE BOTTOM OF THE HOLE WITHOUT TRIMMING THE BUTT AND STILL HAVE SUFFICIENT SPACE BETWEEN THE POLE AND THE SIDE OF THE HOLE TO PERMIT PROPER TAMPING OF THE BACKFILL AT EVERY POINT AROUND THE POLE, AND THROUGHOUT THE ENTIRE DEPTH OF THE HOLE.
- THE POLE HOLE SHALL NOT EXCEED TWO TIMES THE DIAMETER OF THE POLES BUTT DIAMETER.
- BACKFILL SHALL BE THOROUGHLY TAMPED THE FULL DEPTH OF THE POLE HOLE. EARTH MUST BE BANKED AROUND THE POLE TO A MINIMUM HEIGHT OF SIX INCHES ABOVE GROUND LEVEL.

- POLES SHALL BE SET PLUMB EXCEPT AT CORNERS WHERE THEY SHALL BE SET AND RAKED AGAINST THE LOAD SO THAT THE POLE TOP WILL BE IN LINE AFTER THE LOAD IS APPLIED. THE RAKE POLE SHALL NOT EXCEED SIX INCHES FOR EACH TEN FEET TO POLE LENGTH AFTER THE CONDUCTORS ARE INSTALLED AT THE REQUIRED TENSION. DEADEND SHALL BE SET SO AS TO BE PLUMB AND IN LINE AFTER THE LOAD IS APPLIED.
- POLE LIGHTNING PROTECTION SHALL BE A #6 AWG BARE COPPER WIRE IN ACCORDANCE WITH SIC/RUS CONSTRUCTION PRACTICES.
- SUSPENSION STRAND/HARDWARE SHALL BE CLASS C GALVANIZED STEEL UTILITY GRADE FOR CORROSION AREAS.
- GUY GUARDS YELLOW IN COLOR SHALL BE PLACED ON ALL DOWN GUYS.

Z:\CAD\PROJECTS\218107B\E04\_218107B\_SIC-NOTES 6/28/2021 2:28PM GlennH



*Steven H. Sakai*  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEY: (2) 2-2-002:014

**SANDWICH ISLES COMMUNICATIONS NOTES**

DRAWN BY: CAD	ENGINEER: GTN	CHECKED BY: SS
---------------	---------------	----------------

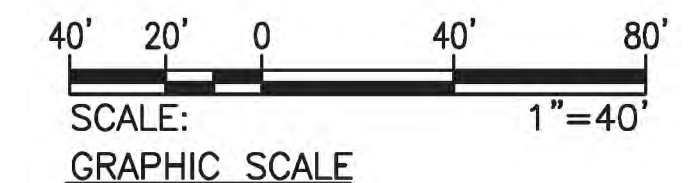
APPROVED:

FILE	POCKET	FOLDER	NO.
------	--------	--------	-----

Z:\ACAD\PROJECTS\218107B\EDS\_218107B\_PLAN01 9/14/2021 10:44AM Glenrth



**ELECTRICAL DISTRIBUTION PLAN I**  
 SCALE: 1" = 40'



STEVEN H. SAKAI  
 LICENSED PROFESSIONAL ENGINEER  
 No. 7637-E  
 HAWAII, U.S.A.

*Steven H. Sakai*  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1255 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEY: (2) 2-2-002:014

**ELECTRICAL DISTRIBUTION PARTIAL PLAN I**

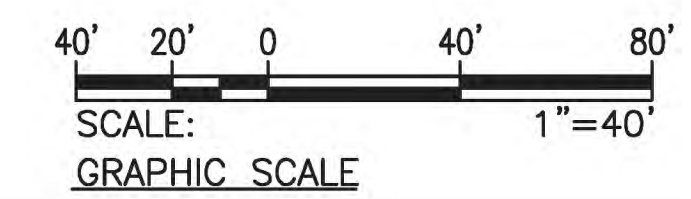
DRAWN BY: CAD    ENGINEER: GF    CHECKED BY: SS

APPROVED:

Z:\ACAD\PROJECTS\218107B\E06\_218107B\_PLAN02\_1/23/2024 9:24AM Glenm



**ELECTRICAL DISTRIBUTION PLAN II**  
 SCALE: 1" = 40'



STEVEN H. SAKAI  
 LICENSED PROFESSIONAL ENGINEER  
 No. 7637-E  
 HAWAII, U.S.A.  
*Steven H. Sakai*  
 THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

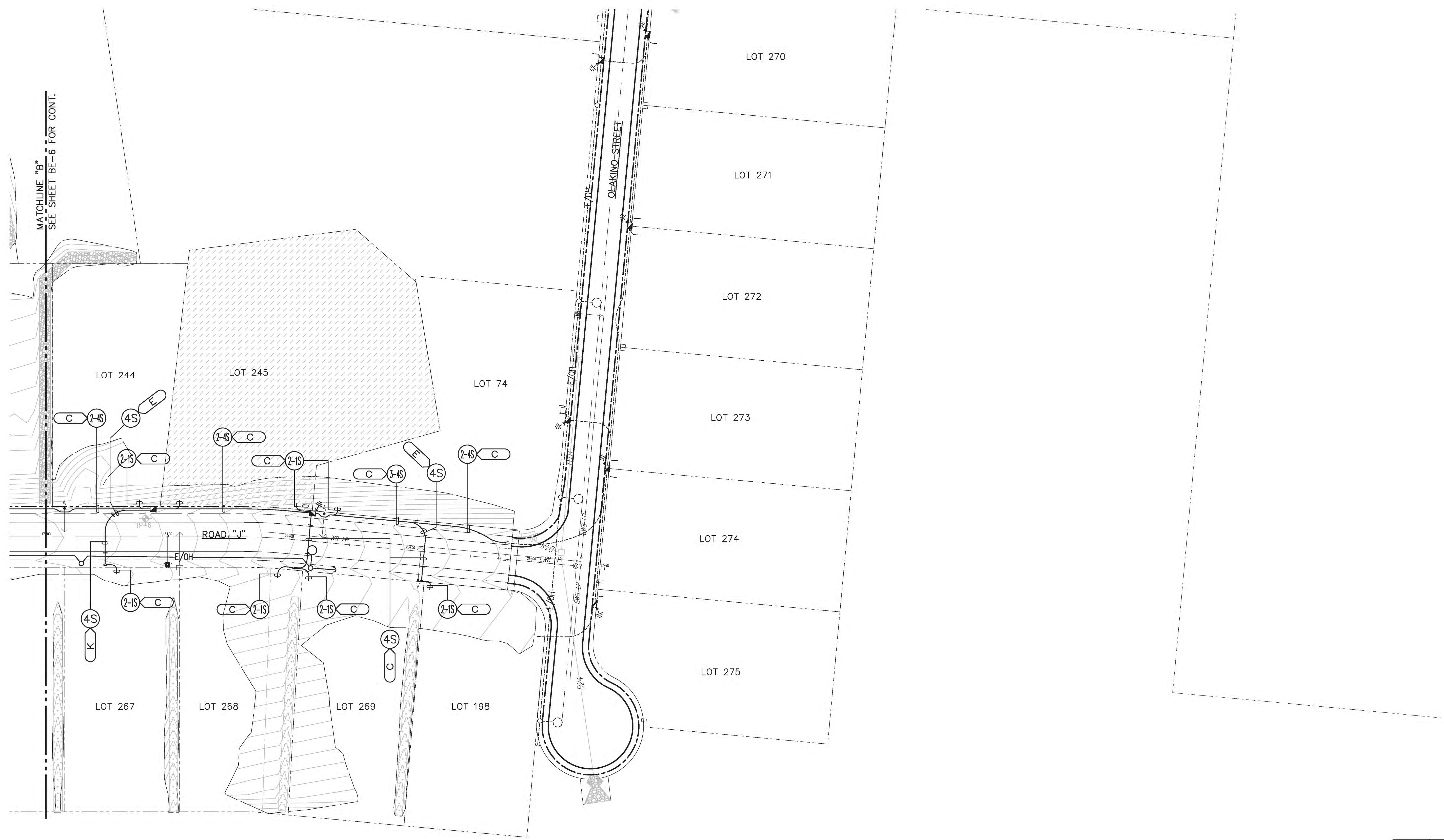
REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
 Engineering Design | Construction Management | Infrastructure Planning  
 1258 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
 KEOKEA & WAIOHULI, MAKAWAO, MAUI  
 OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
 TAX MAP KEY: (2) 2-2-002:014

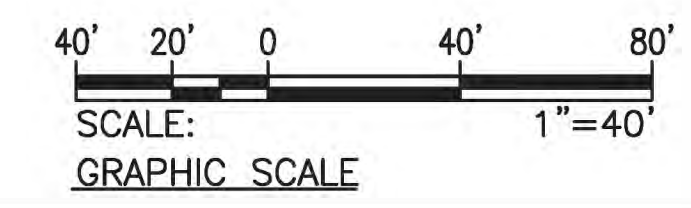
**ELECTRICAL DISTRIBUTION PARTIAL PLAN II**

DRAWN BY: CAD    ENGINEER: GF    CHECKED BY: SS  
 APPROVED:



MATCHLINE "B"  
SEE SHEET BE-6 FOR CONT.

**ELECTRICAL DISTRIBUTION PLAN III**  
SCALE: 1" = 40'



*Steven H. Sakai*  
THIS WORK WAS PREPARED BY  
ME OR UNDER MY SUPERVISION.  
CONSTRUCTION OF THIS PROJECT  
WILL BE UNDER MY OBSERVATION.  
LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

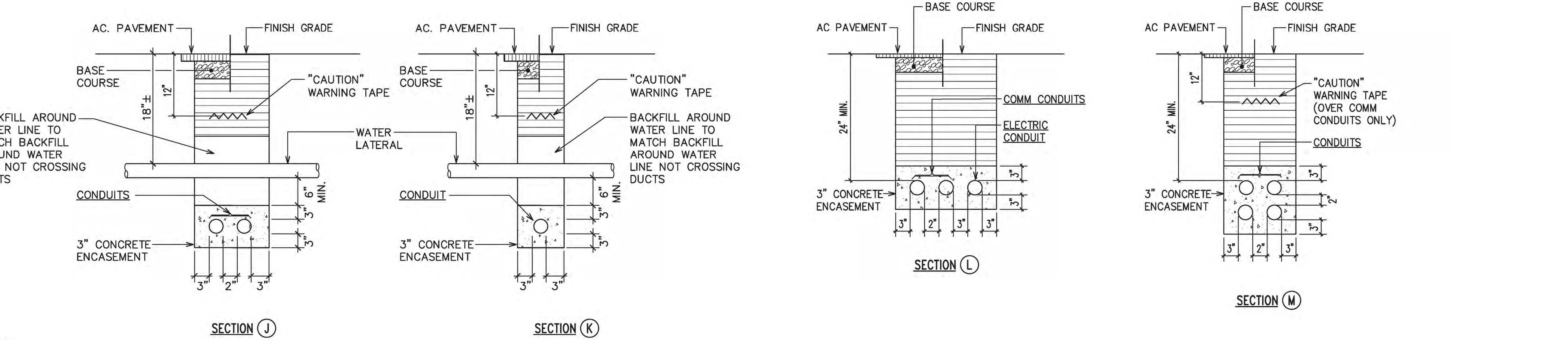
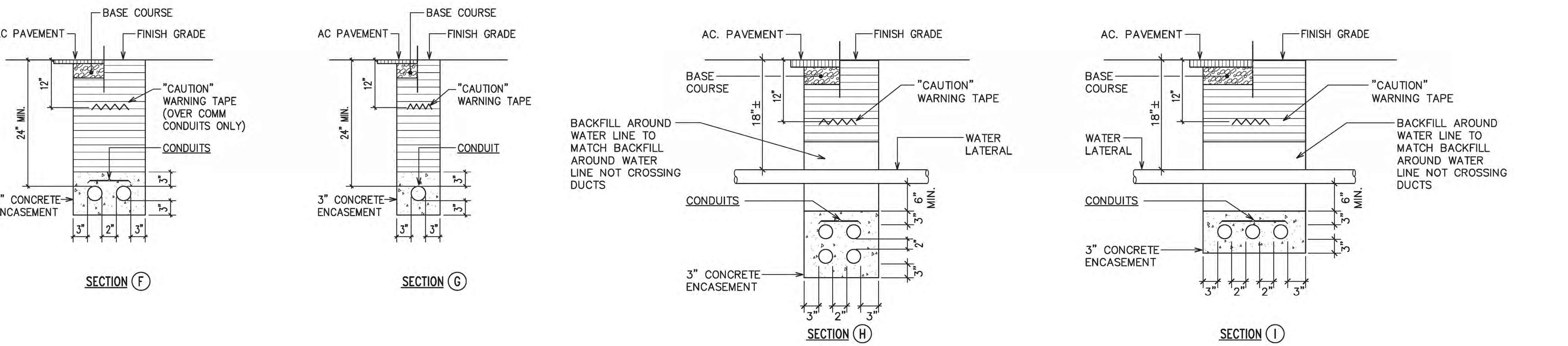
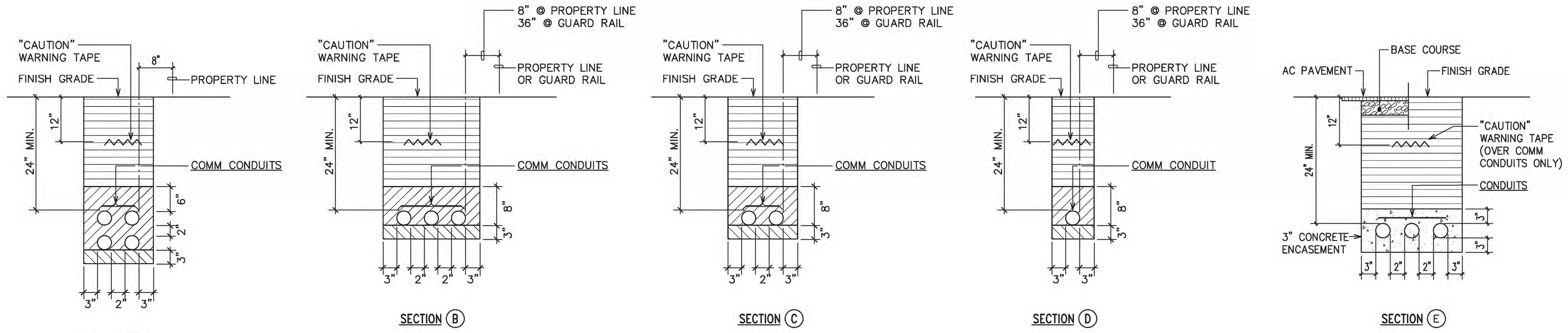
**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
1288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT  
PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEY: (2) 2-2-002:014

**ELECTRICAL DISTRIBUTION  
PARTIAL PLAN III**

DRAWN BY: CAD    ENGINEER: GF    CHECKED BY: SS

APPROVED:



- NOTES:**
1. ELECTRIC WARNING TAPE—HEAVY GAUGE 4 MIL, RED WITH BLACK LETTERING, 3" WIDE, "BURIED ELECTRIC LINE BELOW—CAUTION" @ DIRECT BURIED CONDUITS.
  2. "CAUTION" WARNING TAPE REQUIRED OVER ENTIRE LENGTH OF ALL CONDUITS.
  3. 3" SEPARATION REQUIRED BETWEEN ELECTRICAL AND COMM. CONDUITS WITHIN CONCRETE ENCASEMENT.

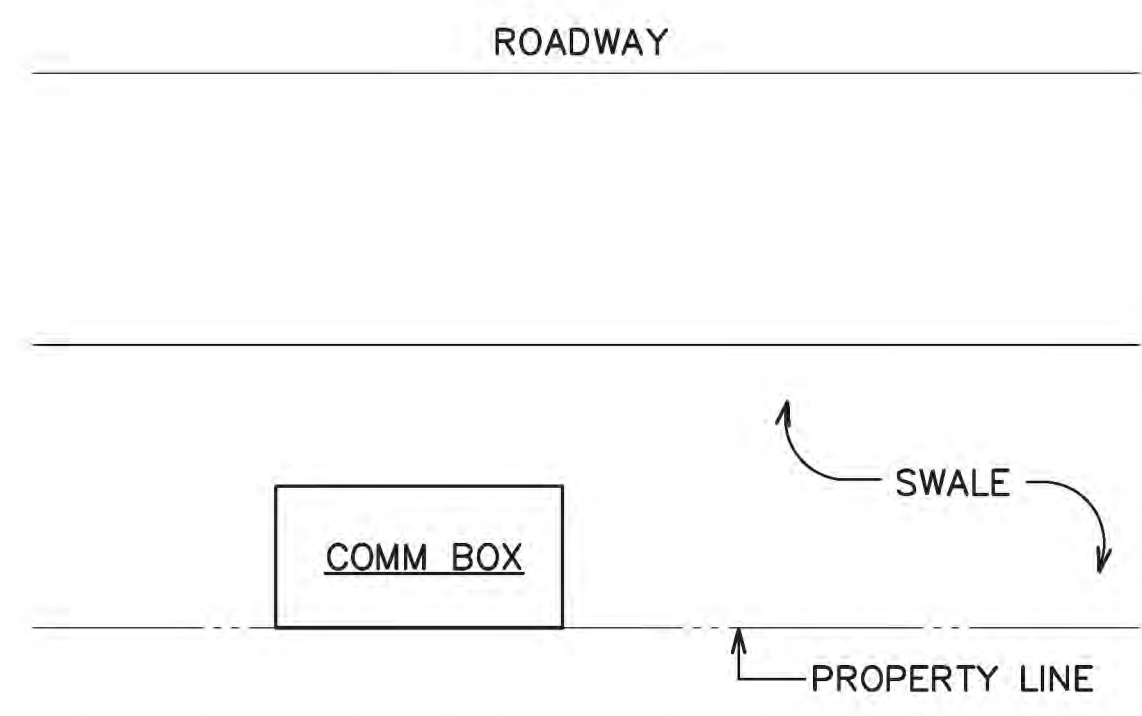
**TYPICAL DUCT SECTIONS**  
NOT TO SCALE

CONDUIT SCHEDULE	
ITEM	DESCRIPTION
(2E)	MAUI ELECTRIC CO. 1-2"C
(2-2E)	MAUI ELECTRIC CO. 2-2"C
(3-2E)	MAUI ELECTRIC CO. 3-2"C
(3E)	MAUI ELECTRIC CO. 1-3"C
(2-3E)	MAUI ELECTRIC CO. 2-3"C
(2-1S)	SANDWICH ISLES COMM UD(2x1-1")
(2S)	SANDWICH ISLES COMM UD(1x1-2")
(4S)	SANDWICH ISLES COMM UD(1x1-4")
(2-4S)	SANDWICH ISLES COMM UD(2x1-4")
(3-4S)	SANDWICH ISLES COMM UD(3x1-4")
(4-4S)	SANDWICH ISLES COMM UD(2x2-4")
(4V)	CATV 4"C

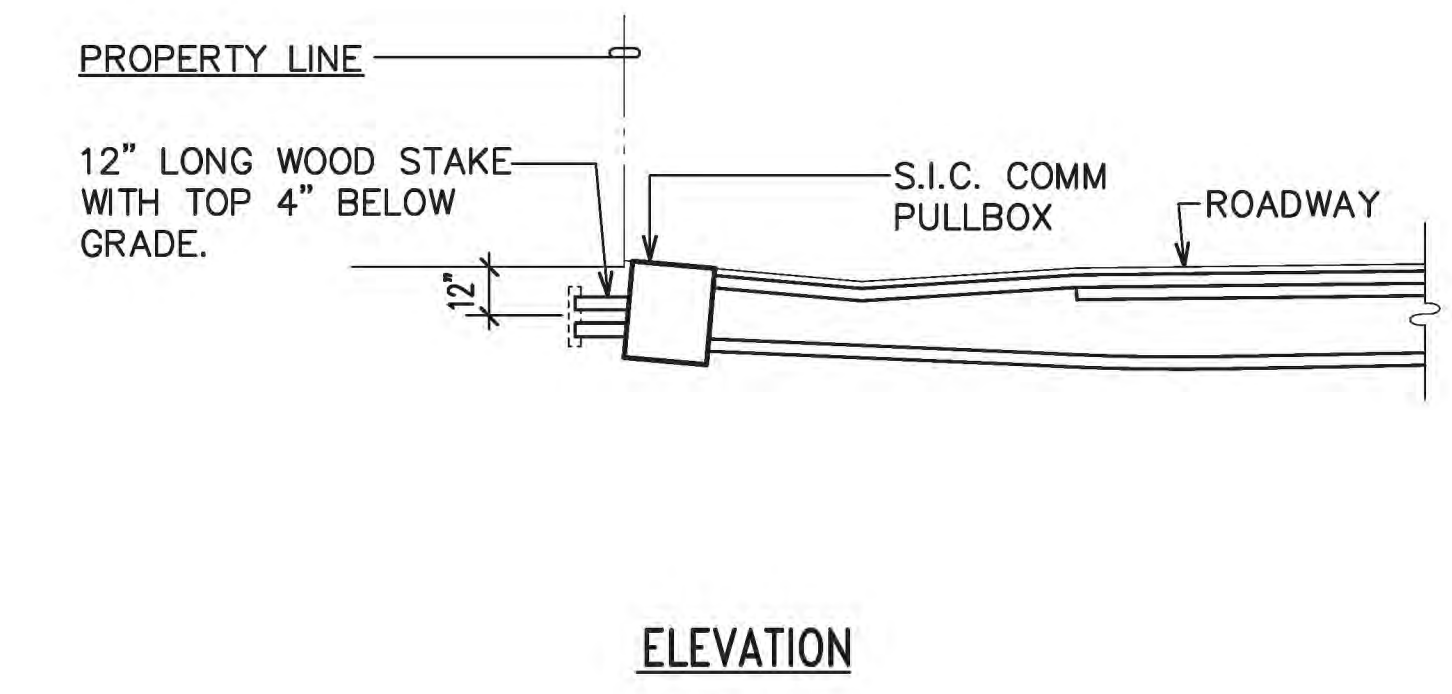
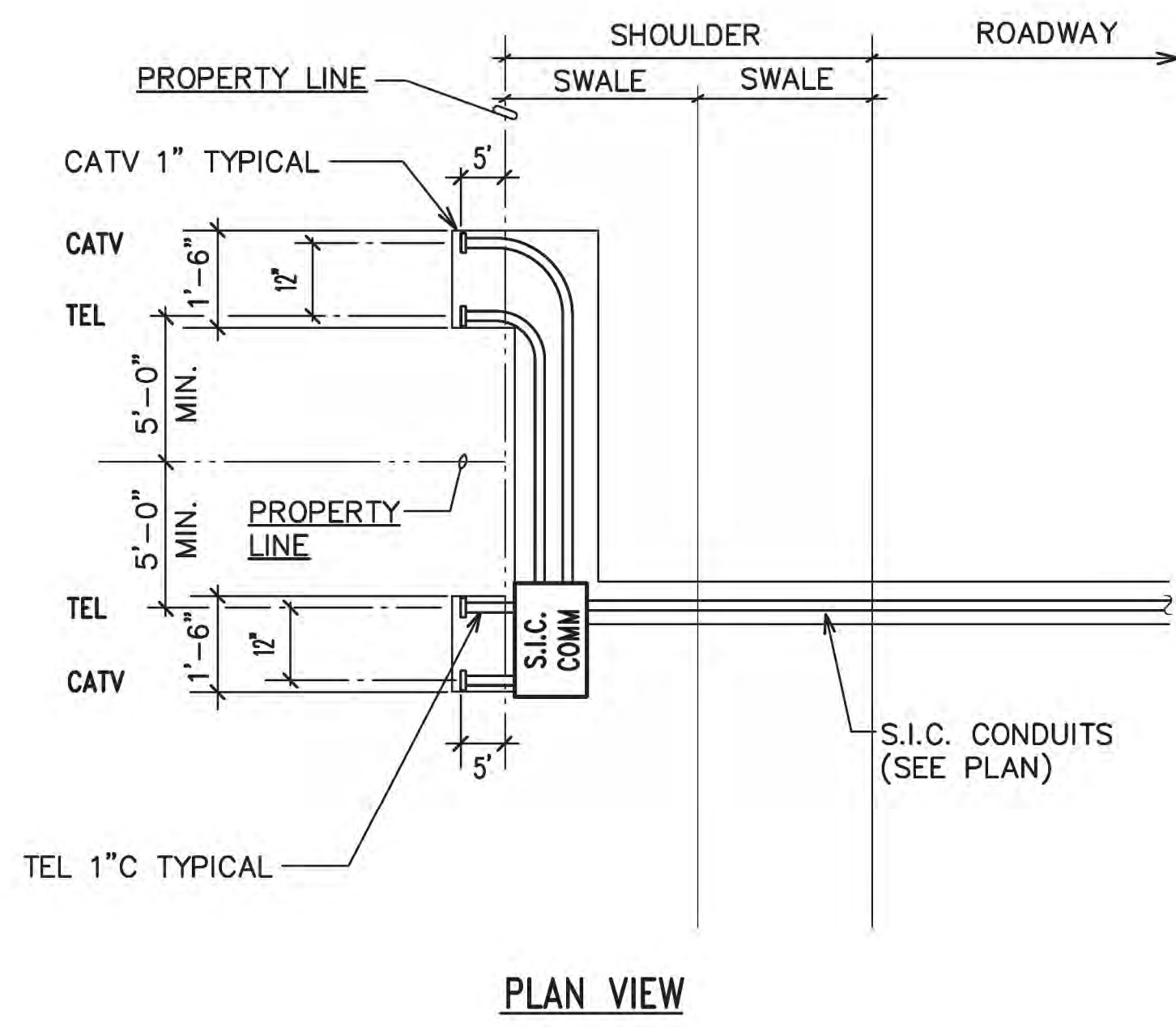
- BACKFILL NOTES:**
- TYPE "A" BACKFILL - EARTH & GRAVEL. ROCK SIZE TO BE 1" MAX & THE MIXTURE TO CONTAIN NOT MORE THAN 50% BY VOLUME OF ROCK PARTICLES. THE MATERIAL SHALL BE NONEXPANSIVE. 95% COMPACTION.
  - TYPE "B" BACKFILL - EARTH & GRAVEL. MIXTURE MUST PASS A 1/2" MESH SCREEN & CONTAIN NOT MORE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

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p><b>Community Planning and Engineering, Inc.</b> Engineering Design   Construction Management   Infrastructure Planning 2500 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT</b> <b>PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEY: (2) 2-2-002:014</p>			
<p><b>TYPICAL DUCT SECTIONS</b></p>			
DRAWN BY: CAD	ENGINEER: GTN	CHECKED BY: SS	APPROVED:
<p>APPROVED:  <b>STEVEN H. SAKAI</b> LICENSED PROFESSIONAL ENGINEER No. 7637-E HAWAII, U.S.A.</p>			
<p>THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24</p>			

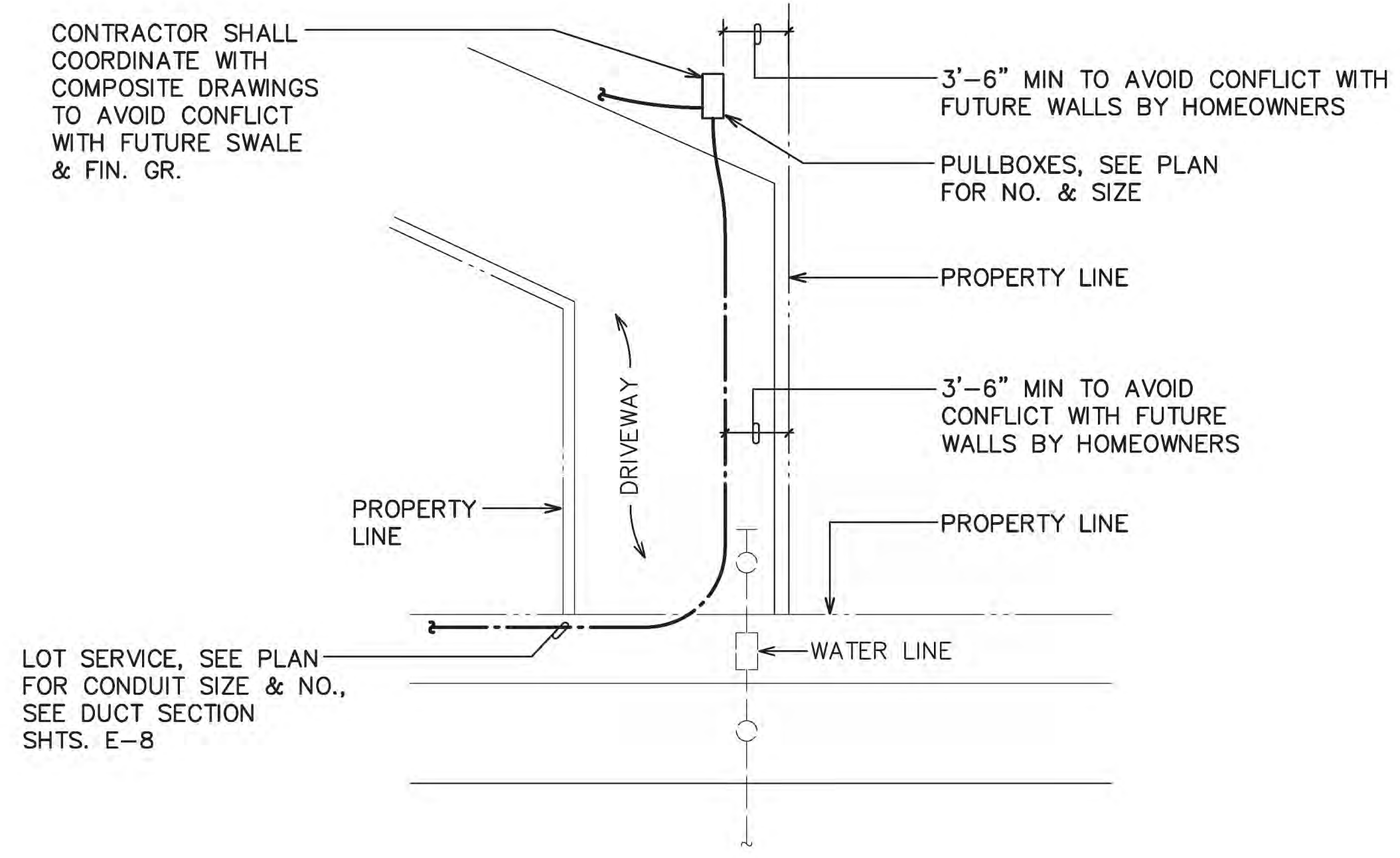
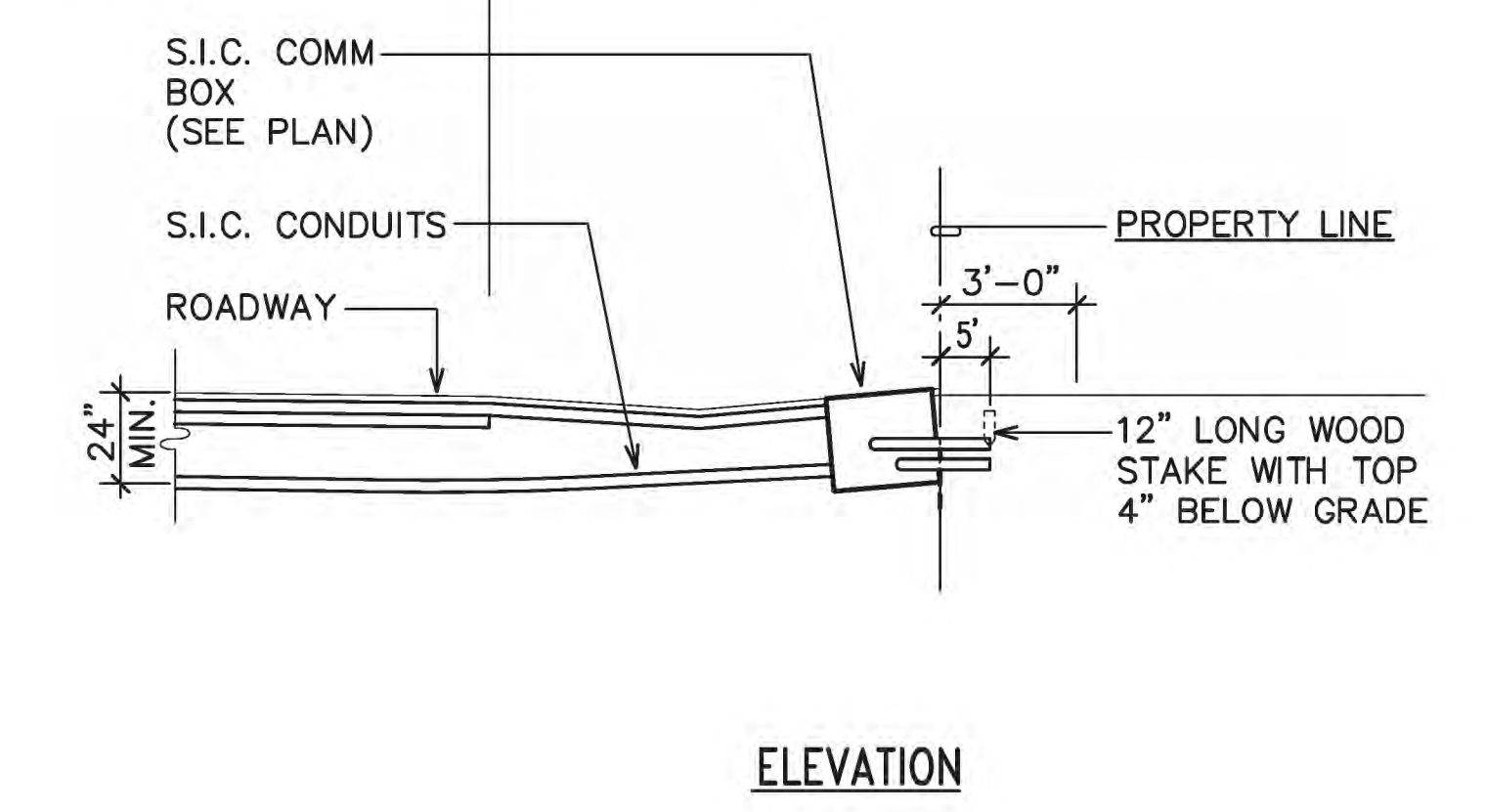
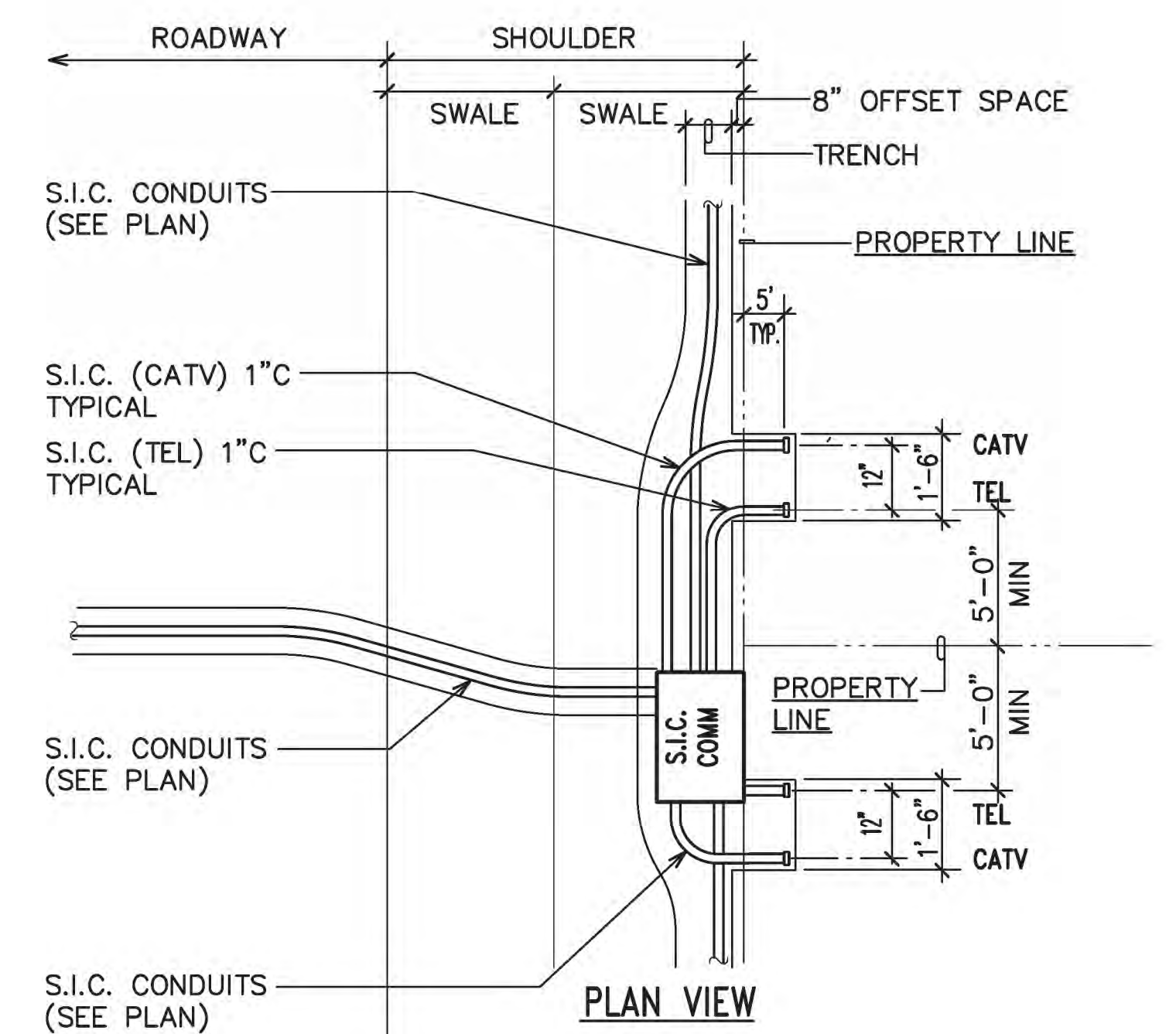
Z:\ACAD\PROJECTS\218107B\E08\_218107B\_DUCT01 1/23/2024 9:20AM Glenmtn



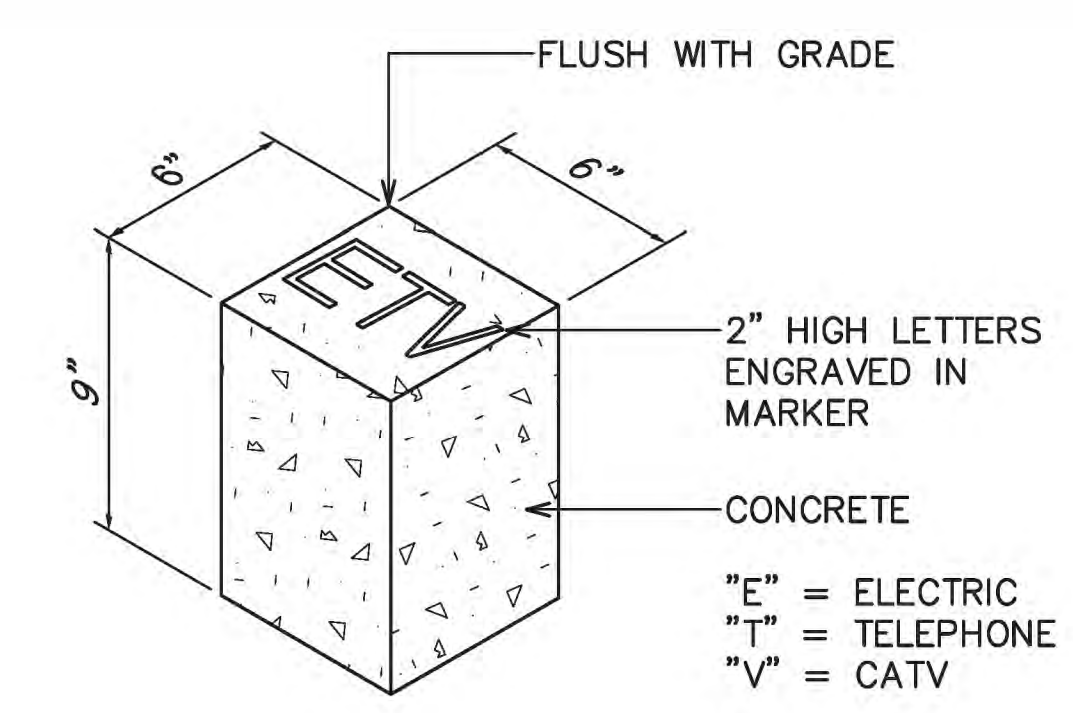
**A** TYPICAL HANDHOLE GROUP ARRANGEMENT  
E-9 NOT TO SCALE



**D** TYPICAL LOT SERVICE  
E-9 NOT TO SCALE



**B** SERVICE CONDUITS @ FLAGLOTS  
E-9 NOT TO SCALE



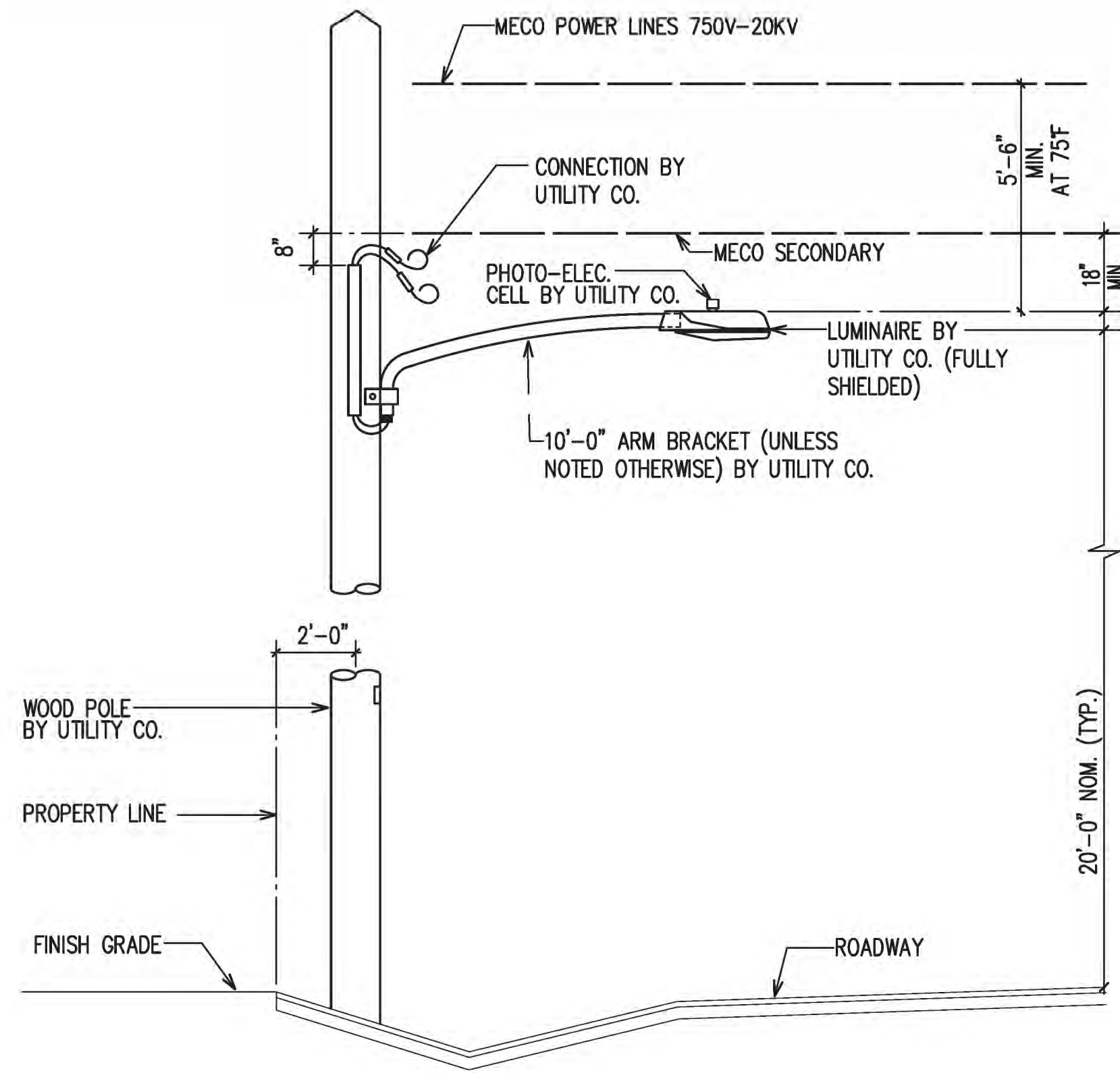
**C** CONCRETE CONDUIT STUB-OUT MARKER  
E-9 NOT TO SCALE



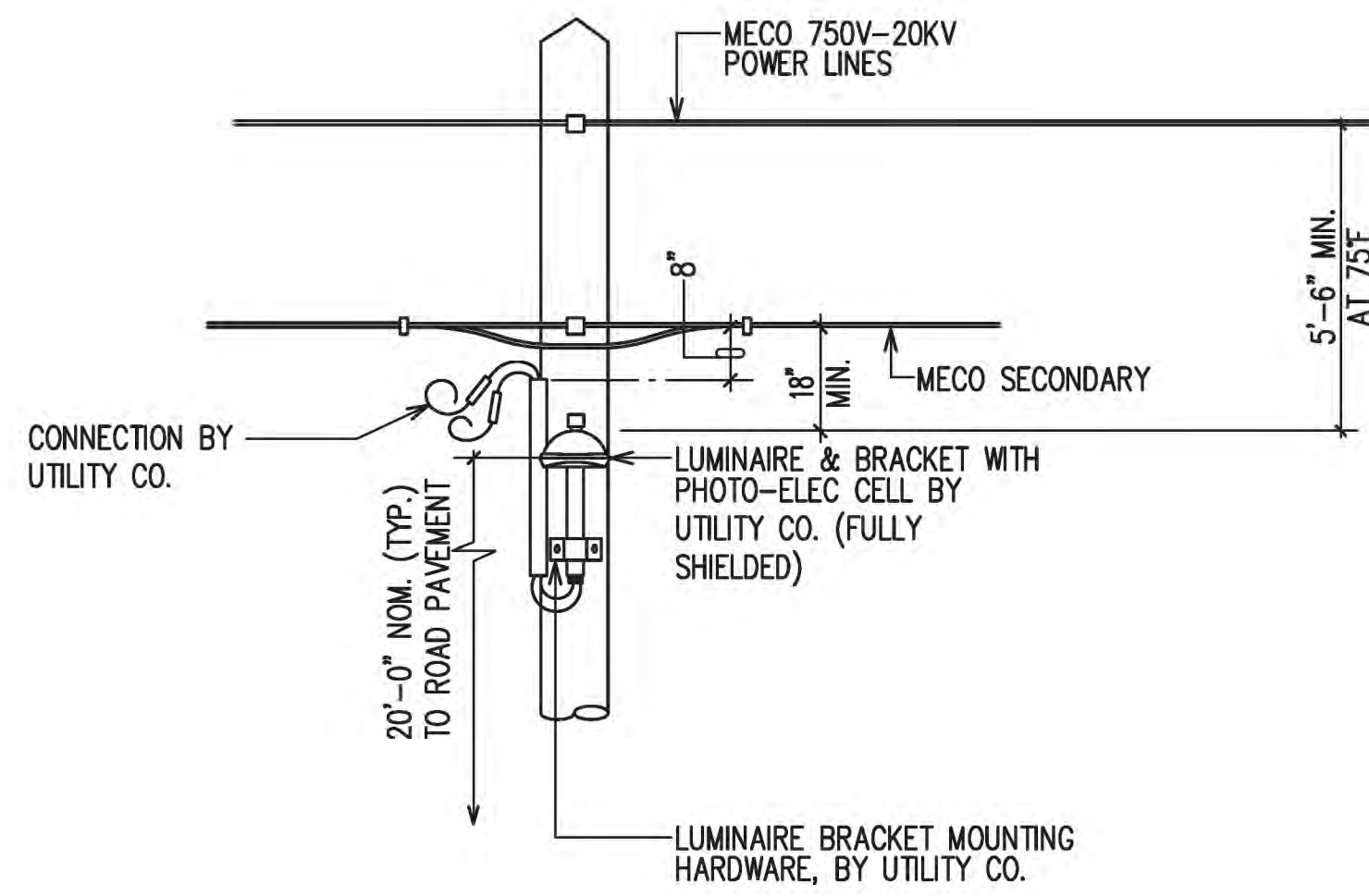
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED
<p>Engineering Design   Construction Management   Infrastructure Planning 288 Queen Emma Street, Third Floor Honolulu, Hawaii</p>			
<p><b>KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B</b> KEOKEA &amp; WAIOHULI, MAKAWAO, MAUI OWNER &amp; DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS TAX MAP KEY: (2) 2-2-002:014</p>			
<p><b>TYPICAL LOT SERVICE DETAILS</b></p>			
DRAWN BY: CAD	ENGINEER: GTN	CHECKED BY: SS	
APPROVED:			

Z:\ACAD\PROJECTS\218107B\E09\_218107B\_LOTSVC01 7/2/2021 11:09AM Glenmtr

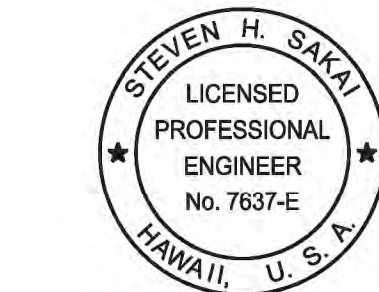


**A** STREET LIGHT DEAD END INSTALLATION  
E-10 NOT TO SCALE



**B** STREET LIGHT TANGENT INSTALLATION  
E-10 NOT TO SCALE

Z:\ACAD\PROJECTS\218107B\E10\_218107B\_S1L1D1E101 6/28/2021 3:07PM Glennm



*Steven H. Sakai*  
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. CONSTRUCTION OF THIS PROJECT WILL BE UNDER MY OBSERVATION. LICENSE EXPIRATION DATE: 04/30/24

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

**Community Planning and Engineering, Inc.**  
Engineering Design | Construction Management | Infrastructure Planning  
2288 Queen Emma Street, Third Floor Honolulu, Hawaii

**KEOKEA-WAIOHULI DEVELOPMENT PHASE 2B**  
KEOKEA & WAIOHULI, MAKAWAO, MAUI  
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS  
TAX MAP KEY: (2) 2-2-002:014

**MISCELLANEOUS DETAILS**

DRAWN BY: CAD    ENGINEER: GTN    CHECKED BY: SS

APPROVED: