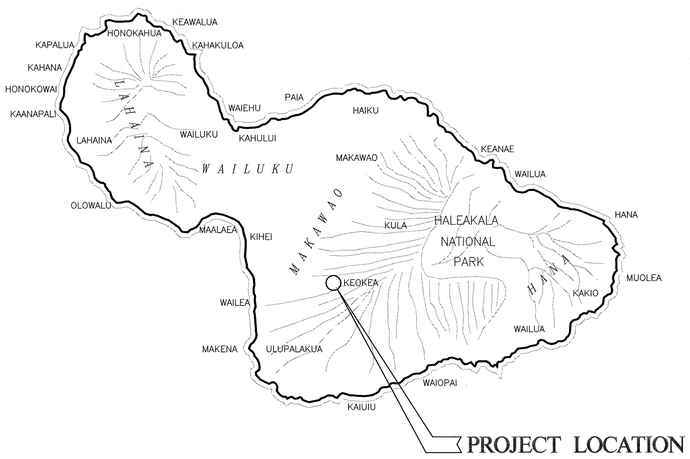
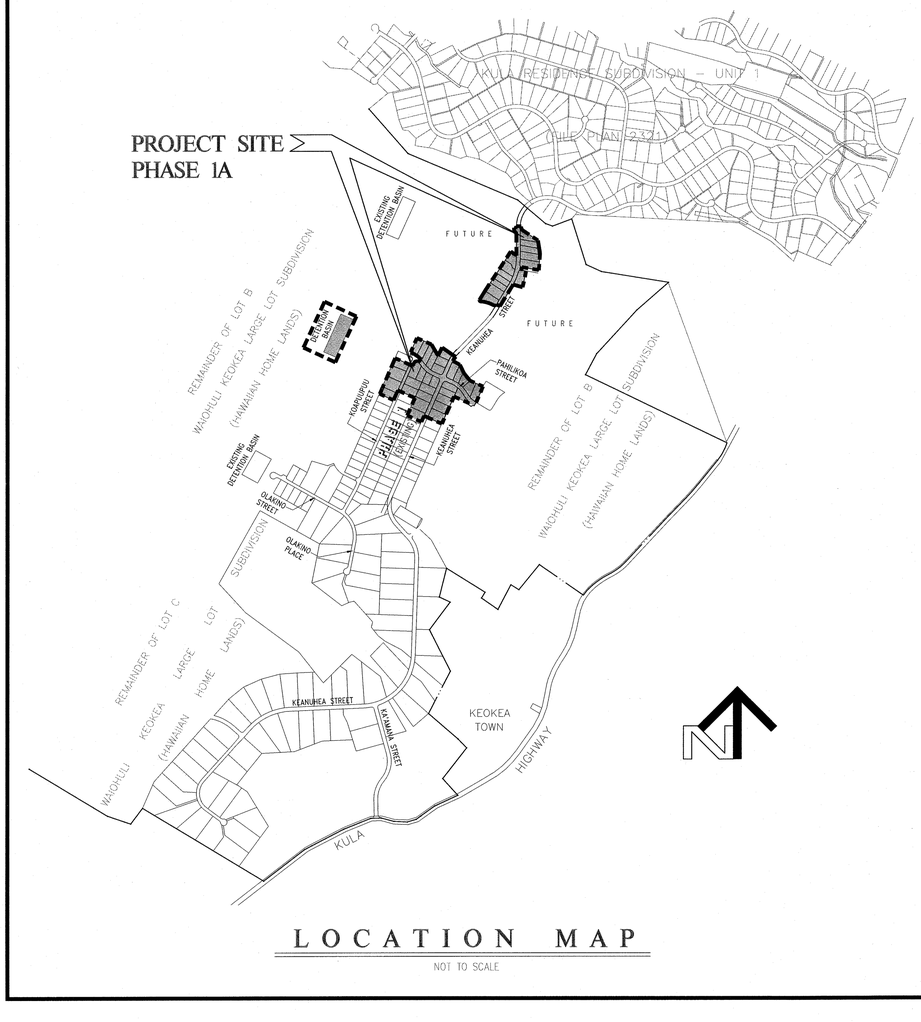


VICINITY MAP

NOT TO SCALE



LOCATION MAP

NOT TO SCALE

CONSTRUCTION PLANS

FOR

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI

OWNER AND DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS

TAX MAP KEYS: (2) 2-2-033: 021 TO 38, & 058-74 AND (2) 2-2-34: 001 TO 016, 026 & 029

DSA SUBDIVISION FILE NOS. 2.3242, 2.3243, 2.3245, 2.3246 & 2.3248

DWS FILE NO. 14-013, 14-014, 14-015, 14-016, 14-017, 14-018, 14-026 & 14-027

CONSULTANTS

CIVIL ENGINEER:

COMMUNITY PLANNING AND ENGINEERING, INC.

STRUCTURAL ENGINEER:

TANIMURA AND ASSOCIATES, INC.

SOILS ENGINEER:

PSC CONSULTANTS, LLC

APPROVED

CHAIRMAN, HAWAIIAN HOMES COMMISSION
DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII — DATE 3/9/15

DIRECTOR, DEPARTMENT OF PUBLIC WORKS
COUNTY OF MAUI — DATE

CHIEF, ENVIRONMENTAL MANAGEMENT DIVISION
DEPARTMENT OF HEALTH, STATE OF HAWAII — DATE 01-06-2015

for DIRECTOR, DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
(APPROVAL LIMITED TO IMPROVEMENTS WHICH WILL BE DEDICATED TO THE DEPARTMENT OF WATER SUPPLY) — DATE 1/22/2015

CONSOLIDATION / RE-SUBDIVISION KEOKEA - WAIOHULI DEVELOPMENT PHASE 1A

FILE	POCKET	FOLDER	NO.

INDEX OF DRAWINGS

SHEET NO.	TITLE
	GENERAL
01	TITLE SHEET
02	INDEX OF DRAWINGS
03	GENERAL NOTES – 1
04	GENERAL NOTES – 2
05	GENERAL NOTES – 3
06	GENERAL LAYOUT PLAN
07	EROSION CONTROL PLAN & DETAILS
08	BORING LOGS – 1
09	BORING LOGS – 2
	CIVIL
10	GENERAL GRADING PLAN
11	GRADING PLAN – 1
12	GRADING PLAN – 2
13	GRADING PLAN – 3
14	GRADING PLAN – 4
15	GRADING PLAN – 5
16	DEMOLITION PLAN – 1
17	DEMOLITION PLAN – 2
18	DEMOLITION PLAN – 3
19	DETENTION BASIN PLAN AND DETAILS
20	PLAN AND PROFILE – SWALE NO. 1
21	PLAN AND PROFILE – SWALE NO. 2 & SWALE NO. 3
22	PLAN AND PROFILE – SWALE NO. 4
23	PLAN AND PROFILE – SWALE NO. 5
24	PLAN AND PROFILE – SWALE NO. 6
25	PLAN AND PROFILE – SWALE NO. 7 & SWALE NO. 8
26	PLAN AND PROFILE – SWALE NO. 9
27	PLAN AND PROFILE – SWALE NO. 10 & SWALE NO. 11
28	PLAN AND PROFILE – SWALE NO. 12 & SWALE NO. 13
29	PLAN AND PROFILE – SWALE NO. 14 & SWALE NO. 15
30	PLAN AND PROFILE – SWALE NO. 16 & SWALE NO. 17
31	PLAN AND PROFILE – SWALE NO. 18 & SWALE NO. 19
32	PLAN AND PROFILE – SWALE NO. 20
33	PLAN AND PROFILE – SWALE NO. 21
34	PLAN AND PROFILE – SWALE NO. 22
35	PLAN AND PROFILE – SWALE NO. 23
36	PLAN AND PROFILE – SWALE NO. 24 & SWALE NO. 25
37	PLAN AND PROFILE – SWALE NO. 26 & SWALE NO. 27
38	PLAN AND PROFILE – SWALE NO. 28
39	PLAN AND PROFILE – SWALE NO. 29 & SWALE NO. 30
40	PLAN AND PROFILE – SWALE NO. 31
41	PLAN AND PROFILE – SWALE NO. 32
42	PLAN AND PROFILE – SWALE NO. 33
43	PLAN AND PROFILE – SWALE NO. 34 & SWALE NO. 35
44	PLAN AND PROFILE – SWALE NO. 36
45	PLAN AND PROFILE – SWALE NO. 37
46	PLAN AND PROFILE – SWALE NO. 38 & SWALE NO. 39
47	PLAN AND PROFILE – SWALE NO. 40
48	PLAN AND PROFILE – SWALE NO. 41
49	PLAN AND PROFILE – SWALE NO. 42 & SWALE NO. 43
50	PLAN AND PROFILE – SWALE NO. 44 & SWALE NO. 45
51	PLAN AND PROFILE – OFFSITE DIVERSION SWALE
52	PLAN AND PROFILE – BERM NO. 1
53	SWALES AND BERM DETAILS – 1
54	SWALES AND BERM DETAILS – 2
55	PLAN AND PROFILE DRIVEWAY – LOT 88–A
56	PLAN AND PROFILE DRIVEWAY – LOT 90 & LOT 91
57	PLAN AND PROFILE DRIVEWAY – LOT 92 & LOT 97–A
58	PLAN AND PROFILE DRIVEWAY – LOT 127–A & LOT 131–A
59	PLAN AND PROFILE DRIVEWAY – LOT 140–A & LOT 141–A
60	PLAN AND PROFILE DRIVEWAY – LOT 144 & LOT 145–A
61	PLAN AND PROFILE DRIVEWAY – LOT 146–A & LOT 150–A
62	PLAN AND PROFILE DRIVEWAY – LOT 150–B & LOT 151–A
63	TYPICAL DRIVEWAY SECTION DETAILS
64	PLAN AND PROFILE – ACCESS ROAD CULVERT A2a & A2b
65	PLAN AND PROFILE – ACCESS ROAD CULVERT A3a & A3b
66	PLAN AND PROFILE – ACCESS ROAD CULVERT A4a & A4b
67	PLAN AND PROFILE – ACCESS ROAD CULVERT A5a & A5b
68	PLAN AND PROFILE – ACCESS ROAD CULVERT A7a & A7b
69	PLAN AND PROFILE – ACCESS ROAD CULVERT A8b & A9b
70	PLAN AND PROFILE – ACCESS ROAD CULVERT A10a & A10b
71	PLAN AND PROFILE – ACCESS ROAD CULVERT A11a & A11b
72	PLAN AND PROFILE – ACCESS ROAD CULVERT F1b
73	PLAN AND PROFILE – ACCESS ROAD CULVERT F3a & F3b
74	PLAN AND PROFILE – ACCESS ROAD CULVERT F4a & F4b
75	TYPICAL ACCESS ROAD CROSS SECTION DETAILS – 1
76	TYPICAL ACCESS ROAD CROSS SECTION DETAILS – 2
77	WATER METER RELOCATION PLAN KEANUHEA STREET STA 4+50 TO STA 16+50
78	WATER METER RELOCATION PLAN KEANUHEA STREET STA 16+50 TO STA 28+50
79	WATER METER RELOCATION PLAN KEANUHEA STREET STA 28+50 TO END
80	WATER METER RELOCATION PLAN KOAPUUPUU STREET
81	WATER METER RELOCATION PLAN PAHILIKOA STREET
82	WATER METER RELOCATION DETAILS
83	MISCELLANEOUS DETAILS
84	TRAFFIC CONTROL PLAN

RICHARD Y. SAKIO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

cp&e
Community Planning and Engineering, Inc.
Engineering Design | Construction Management | Infrastructure Planning
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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

INDEX OF DRAWINGS

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

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 FARM LOTS" PREPARED BY AUSTIN TSUTSUMI & ASSOCIATES, INC. DATED MAY 18, 2001.
3. ELEVATIONS SHOWN ARE BASED ON PROJECT BENCHMARK - 1/2-INCH PIPE FOUND ON SOUTH SIDE OF KULA HIGHWAY AND SOUTHERLY SIDE OF PROJECT SITE. ELEVATION = 2,752.73 FEET.
4. EXISTING GRADES SHALL BE VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH GRADING WORK. SHOULD ANY DISCREPANCIES BE DISCOVERED IN 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.
5. 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.
6. 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.
7. 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. THE FOLLOWING DETAILS SHOWN IN "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION," DATED SEPTEMBER 1984, AS AMENDED, SHALL BE APPLICABLE TO THIS PROJECT:
   - R-9 CONCRETE PAVEMENT
   - R-10 CONCRETE PAVEMENT JOINT DETAILS
   - R-11 CONCRETE PAVEMENT JOINT DETAILS
   - R-19 6' CHAIN LINK FENCE
   - R-21A TYPICAL DOUBLE GATE
   - R-55 ROADWAY SWALE
8. 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 (587-0013), WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND MITIGATION MEASURES, IF NECESSARY.
9. 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: 587-0047), THE APPROPRIATE MEDICAL EXAMINER OR CORONER, AND THE POLICE DEPARTMENT (TELEPHONE: 244-6400), SHALL BE CONTACTED.
10. 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.
11. 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. 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 STANDARD DETAILS BEFORE COMMENCING CONSTRUCTION.
3. ALL WATER SYSTEM WORK SHALL BE PERFORMED BY CONTRACTORS POSSESSING VALID STATE OF HAWAII CONTRACTOR'S LICENSES, REGARDLESS OF THE VALUE OF THE WORK.
4. 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 OTHER UTILITIES SHALL BE CONSIDERED INCIDENTAL TO THE COST OF THE NEW WATERLINE, UNLESS NOTED OTHERWISE, AND WILL NOT BE PAID FOR SEPARATELY.
5. CONCRETE FOR REACTION BLOCKS AND ANCHOR BLOCKS SHALL BE DWS CLASS 2500.
6. THE MAXIMUM DISTANCE BETWEEN VALVE NUT AND TOP OF VALVE MANHOLE COVER SHALL BE THREE (3) FEET.
7. THE CONTRACTOR SHALL SUBMIT A MATERIALS LIST TO DWS FOR APPROVAL PRIOR TO CONSTRUCTION.
8. CONNECTION TO DWS SYSTEM:
   A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FURNISHING ALL NECESSARY FITTINGS AND OTHER MATERIALS AND EQUIPMENT REQUIRED FOR THE HOOK-UP. HE SHALL VERIFY THE EXACT LOCATION, DEPTH, TYPE, AND CONDITION OF THE EXISTING LINE BEFORE ORDERING MATERIALS FOR THE HOOK-UP. HE SHALL, HOWEVER, CHECK WITH DWS BEFORE EXCAVATING FOR VERIFICATION PURPOSES.

DEPARTMENT OF WATER SUPPLY NOTES: CON'T.

   B. WHENEVER FEASIBLE, MECHANICAL JOINT FITTINGS SHALL BE USED FOR BURIED APPLICATIONS, AND FLANGED JOINT FITTINGS SHALL BE USED FOR EXPOSED APPLICATIONS.
   C. AUTHORIZED DWS PERSONNEL MAY BE REQUIRED TO MAKE THE FINAL CONNECTION TO THE EXISTING LINE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS INCURRED BY DWS FOR SAID WORK, INCLUDING THE COST OF PRESSURE TESTING AND DISINFECTION.
   D. IF THE DWS PROVIDES ONLY INSPECTION AND SUPERVISING OPERATORS, AND DOES NOT PROVIDE PERSONNEL FOR THE ACTUAL CONNECTION, THE CONTRACTOR SHALL PROVIDE ALL PIPE-FITTERS AND LABORS TO MAKE THE CONNECTION.
   E. 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.
9. 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".
10. 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.
11. 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.
12. LUBRICATE HYDRANT NOZZLE THREADS WITH NON-TOXIC GREASE.
13. THE CONTRACTOR SHALL PAINT AND NUMBER THE FIRE HYDRANT. NUMBERING TO BE FURNISHED BY DWS.
14. 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.
15. THE DEVELOPER SHALL SUBMIT A COST LIST ALONG WITH AN AFFIDAVIT FOR THE WATER SYSTEM PRIOR TO ACCEPTANCE.
16. THE CONTRACTOR SHALL SUBMIT TWO SETS OF RECORD DRAWINGS VIA A CONSULTANT PRIOR TO ACCEPTANCE OF THE WATER SYSTEM. AN ELECTRONIC IMAGE FILE IN TIF FORMAT 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.

REVISED: NOV. 22, 2000

NOTES FOR CONSTRUCTION WITHIN COUNTY RIGHT-OF-WAY

1. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK ON COUNTY HIGHWAYS 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 APPLICABLE SECTIONS OF THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND 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 OF NOT SHOWN ON PLANS, ARE DAMAGED DURING CONSTRUCTION, THE CONTRACTOR SHALL AT HIS OWN EXPENSE BE REQUIRED TO REPAIR SUCH UTILITIES.
5. 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, ACCORDING TO THE LATEST VERSIONS OF "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICE FOR STREETS AND HIGHWAYS", AND TO THE RULES AND REGULATIONS GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORKSITES AND/OR ADJACENT TO THE 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", DATED 2003.
6. THE DIRECTOR 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.
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 ORDINANCES.
11. THE CONTRACTOR SHALL SUBMIT A TIFF AND FIVE (5) COPIES 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.
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 @ 243-5169 WHICH WILL ASSESS THE SIGNIFICANCE OF THE FIND AND RECOMMEND AN APPROPRIATE MITIGATION MEASURE, IF NECESSARY.
14. PURSUANT OF MAUI COUNTY CODE SECTION 3.44.015(C), 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'S MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL.

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 STREET AND HIGHWAY, 2003." THE CONTRACTOR SHALL PREPARE AND OBTAIN NECESSARY APPROVALS OF TRAFFIC CONTROL PLANS IF REQUIRED BY THE DSA.
3. STANDARD DETAIL DRAWINGS OF THE DEPARTMENT OF PUBLIC WORKS AND THE HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION (2005) AS AMENDED, SHALL BE INCLUDED AS PART OF THE CONSTRUCTION PLANS.
4. ALL CONSTRUCTION WORK SHALL STRICTLY CONFORM TO THE APPLICABLE SECTIONS OF THE 2005 HAWAII STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION, AS AMENDED, AND THE SEPTEMBER 1984 "STANDARD DETAILS" FOR PUBLIC WORKS CONSTRUCTION OF THE DEPARTMENT OF PUBLIC WORKS, AS AMENDED.
5. 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.
6. 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 ORDERED BY THE DIRECTOR OF PUBLIC WORKS SHALL BE PAID BY THE CONTRACTOR.
7. PURSUANT TO MAUI COUNTY CODE SECTION 3.44.015(C), THE COUNTY OF MAUI IS NOT RESPONSIBLE FOR ANY PARK, ROADWAY, EASEMENT (INCLUDING BUT NOT LIMITED TO DRAINAGE, SEWER, ACCESS, RECLAIMED WATER, OR IRRIGATION 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'S MEMBERS AT A REGULAR OR SPECIAL MEETING OF THE MAUI COUNTY COUNCIL.

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. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROVISIONS OF THE WATER QUALITY STANDARDS CONTAINED IN THE PUBLIC HEALTH REGULATIONS, STATE DEPARTMENT OF HEALTH, ON WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS.
4. ALL SLOPES AND EXPOSED AREAS SHALL BE SODDED OR PLANTED IMMEDIATELY AFTER THE GRADING WORK HAS BEEN COMPLETED.
5. 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.
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.
   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.

DISABILITY AND COMMUNICATION ACCESS BOARD (DCAB) REQUIREMENTS

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 4.1.1 (4) AND SHALL COMPLY W/ADAAG 4.3.1.

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.
   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.

COMPACTION REQUIREMENTS

1. 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:
   a. EMBANKMENT/SELECT BORROW AND SUBGRADE MATERIALS: ONE (1) COMPACTION TEST PER 600 SQUARE YARDS PER LIFT;
   b. AGGREGATE SUBBASE COURSE: ONE (1) COMPACTION TEST PER 400 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER PROJECT;
   c. AGGREGATE BASE COURSE: ONE (1) COMPACTION TEST PER 300 SQUARE YARDS; ONE (1) GRADATION AND SAND EQUIVALENT TEST PER PROJECT;
   d. ASPHALT CONCRETE PAVEMENT OR

STOCKPILING CON'T.

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 CONTROLS SHALL NOT BE REMOVED BEFORE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
14. TEMPORARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR 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 CIVIL ENGINEERING BRANCH, DEPT. OF PUBLIC WORKS TO ARRANGE FOR INSPECTIONAL 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 SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
18. FOR BENCH MARK, SEE SHEET 9.
19. LIFE OF THE STOCKPILE SHALL BE 1.5 YEAR.

BEST MANAGEMENT PRACTICES NOTES

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

TEMPORARY EROSION CONTROL NOTES

1. FOLLOW SEQUENCE OF OPERATION AS RECOMMENDED BY THE "SOIL EROSION STANDARDS AND GUIDELINES," DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, NOV. 1975.
2. THE CONTRACTOR SHALL PROVIDE A STABILIZED CONSTRUCTION ENTRANCE FOR INGRESS AND EGRESS.
3. SILT FENCING SHALL BE USED AS SHOWN AND AT SELECTED LOCATIONS, AS SHOWN ON PLANS. ADDITIONAL SILT FENCING SHALL BE INSTALLED AS DIRECTED BY THE OFFICER-IN-CHARGE.
4. THE CONTRACTOR SHALL MINIMIZE THE AMOUNT OF LAND TO BE EXPOSED AT ANY ONE TIME.
5. ALL GRADED AREAS SHALL BE HYDROMULCHED IN ORDER TO PREVENT EROSION AND SILT RUNOFF. TWO APPLICATIONS OF HYDROMULCHING SHALL BE PROVIDED DURING THE DURATION OF CONSTRUCTION.
6. THE ABOVE PROCEDURE FOR EROSION AND SEDIMENT CONTROL MAY BE REVISED BY THE CONTRACTOR TO CONFORM TO HIS GRADING OPERATION PROCEDURE. HOWEVER, ANY REVISIONS TO THE ABOVE SHALL BE SUBMITTED TO THE DEPARTMENT OF PUBLIC WORKS' (DPW) CHIEF ENGINEER FOR APPROVAL, BY THE CONTRACTOR. A COPY OF THE APPROVED PLAN SHALL BE SUBMITTED TO THE OFFICER-IN-CHARGE PRIOR TO STARTING WORK.

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, DHHL, 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 CIVIL ENGINEERING BRANCH, DEPT. OF PUBLIC WORKS TO ARRANGE FOR INSPECTIONAL 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 SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.

CONSTRUCTION BMPS

A. CONSTRUCTION MANAGEMENT TECHNIQUES INCLUDE:
1. CLEARING AND GRUBBING SHALL BE HELD TO THE MINIMUM NECESSARY FOR GRADING AND EQUIPMENT OPERATION (15 ACRES MAX.).
2. CONSTRUCTION SHALL BE SEQUENCED TO MINIMIZE THE EXPOSURE TIME OF CLEARED SURFACE AREA. (15 ACRES MAX.).
3. CONSTRUCTION SHALL BE STAGED OR PHASED FOR LARGE PROJECTS. AREAS OF ONE PHASE SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO THE START OF THE NEXT PHASE. STABILIZATION CAN BE ACCOMPLISHED BY TEMPORARILY OR PERMANENTLY PROTECTING THE DISTURBED SOIL SURFACE FROM RAINFALL IMPACTS AND RUNOFF.
4. EROSION AND SEDIMENT CONTROL MEASURES, INCLUDING BERMS IN DRAINAGE WAYS SHALL BE IN PLACE AND FUNCTIONAL PRIOR TO THE START OF THE GRADING WORK AND SHALL BE 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.
5. ALL CONTROL MEASURES SHALL BE CHECKED AND REPAIRED, AS NECESSARY, FOR EXAMPLE, WEEKLY IN DRY PERIODS AND WITHIN 24-HOURS AFTER ANY RAINFALL OF 0.5 INCHES OR GREATER WITHIN A 24-HOUR PERIOD. DURING PROLONGED RAINFALL, DAILY CHECKING IS NECESSARY. THE PERMITTEE SHALL MAINTAIN RECORDS OF CHECKS AND REPAIRS.
6. THE PERMITTEE SHALL MAINTAIN RECORDS OF THE DURATION AND ESTIMATED VOLUME OF STORM WATER DISCHARGE(S).
7. A SPECIFIC INDIVIDUAL SHALL BE DESIGNATED TO BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROLS ON EACH PROJECT SITE.

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 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 CAUSED EROSION AND SEDIMENTATION.
5. STORM DRAIN INLET PROTECTION.
6. CONTRACTOR SHALL CLEAN OUT ALL ACCUMULATED SILT AND DEBRIS IN EXISTING DRAINAGE DITCHES AND INLETS. FLUSHING IS PROHIBITED.

D. REMOVAL OF TEMPORARY SILT FENCE:
1. REMOVAL OF TEMPORARY SILT FENCE SHALL BE DONE AFTER PERMANENT VEGETATIVE GROUND COVER HAS BEEN ACCEPTED BY THE GOVERNING AGENCY.

WATER POLLUTION AND EROSION CONTROL NOTES

A. GENERAL:
1. 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.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

B. WASTE DISPOSAL:
1. 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.
2. 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.
3. 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.

C. EROSION AND SEDIMENT CONTROL INSPECTION AND MAINTENANCE PRACTICES:
1. 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.
2. FOR PROJECTS WITHOUT AN NPDES PERMIT FOR CONSTRUCTION ACTIVITIES, INSPECT ALL CONTROL MEASURES WEEKLY.
3. 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.
4. 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.
5. 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.
6. INSPECT TEMPORARY AND PERMANENT SEEDING AND PLANTING FOR BARE SPOTS, WASHOUTS AND HEALTHY GROWTH.
7. COMPLETE AND SUBMIT TO THE ENGINEER A MAINTENANCE INSPECTION REPORT WITHIN 24 HOURS AFTER EACH INSPECTION.
8. 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-PLANED 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 TARPAULIN. REMOVE SEDIMENT TRACKED ONTO THE STREET, SIDEWALK, OR OTHER PAVED AREA BY THE END OF THE DAY IN WHICH THE TRACK-OUT OCCURS.
9. INCLUDE DESIGNATED CONCRETE WASHOUT AREA(S) IN THE WATER POLLUTION, DUST, AND EROSION CONTROL SUBMITTALS.
10. SUBMIT THE NAME OF A SPECIFIC INDIVIDUAL DESIGNATED RESPONSIBLE FOR INSPECTIONS, MAINTENANCE AND REPAIR ACTIVITIES AND FILLING OUT THE INSPECTION AND MAINTENANCE REPORT.
11. 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.
12. 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.
13. 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.
14. 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.

D. GOOD HOUSEKEEPING, BEST MANAGEMENT PRACTICES:
1. MATERIALS POLLUTION PREVENTION PLAN
   A. APPLICABLE MATERIALS OR SUBSTANCES LISTED BELOW ARE EXPECTED TO BE PRESENT ONSITE DURING CONSTRUCTION. OTHER MATERIALS AND SUBSTANCES NOT LISTED BELOW SHALL BE ADDED TO THE INVENTORY.

CONCRETE	CLEANING SOLVENTS
DETERGENTS	WOOD
PAINTS (ENAMEL AND LATEX)	MASONRY BLOCK
METAL STUDS	HERBICIDES AND PESTICIDES
TAR	CURING COMPOUNDS
FERTILIZERS	ADHESIVES
PETROLEUM BASED PRODUCTS	

   B. USE MATERIAL MANAGEMENT PRACTICES TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF. MAKE AN EFFORT TO STORE ONLY ENOUGH PRODUCT AS IS REQUIRED TO DO THE JOB.
   C. STORE ALL MATERIALS STORED ONSITE IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
   D. KEEP PRODUCTS IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
   E. DO NOT MIX SUBSTANCES WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
   F. WHENEVER POSSIBLE, USE A PRODUCT UP COMPLETELY BEFORE DISPOSING OF THE CONTAINER.
   G. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR PROPER USE AND DISPOSAL.
   H. CONDUCT A DAILY INSPECTION TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.
2. HAZARDOUS MATERIAL POLLUTION PREVENTION PLAN
   A. KEEP PRODUCTS IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
   B. RETAIN ORIGINAL LABELS AND MATERIAL SAFETY DATA SHEETS (SDS) FORMERLY MATERIAL SAFETY DATA SHEETS (MSDS).
   C. DISPOSE OF SURPLUS PRODUCTS ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND LOCAL AND STATE REGULATIONS.
3. ONSITE AND OFFSITE PRODUCT SPECIFIC PLAN
   THE FOLLOWING PRODUCT SPECIFIC PRACTICES SHALL BE FOLLOWED ONSITE:
   A) 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.
   B) 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 TIMED 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.
   C) 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.
   D) 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.
4. SPILL CONTROL PLAN
   A. POST A SPILL PREVENTION PLAN TO INCLUDE MEASURES TO PREVENT AND CLEAN UP EACH SPILL.
   B. 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.

RICHARD Y. SANDO — LICENSED PROFESSIONAL ENGINEER — No. 8955-C — HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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Engineering Design | Construction Management | Infrastructure Planning
1288 Queen Emma Street, Third Floor — Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038, & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GENERAL NOTES - 2

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

WATER POLLUTION AND EROSION CONTROL NOTES : CON'T.

C. CLEARLY POST MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP. MAKE SITE PERSONNEL AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

D. KEEP AMPLE MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP IN THE MATERIAL STORAGE AREA ONSITE.

E. CLEAN UP ALL SPILLS IMMEDIATELY AFTER DISCOVERY.

F. KEEP THE SPILL AREA WELL VENTILATED. PERSONNEL SHALL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

G. 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 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.

E. PERMIT REQUIREMENTS:

1. 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.

2. COMPLY WITH ALL APPLICABLE STATE AND FEDERAL PERMIT CONDITIONS. PERMITS MAY INCLUDE BUT ARE NOT LIMITED TO THE FOLLOWING:
   A. NPDES PERMIT FOR CONSTRUCTION ACTIVITIES
   B. NPDES PERMIT FOR CONSTRUCTION DEWATERING
   C. NPDES PERMIT FOR HYDROTESTING WATERS
   D. WATER QUALITY CERTIFICATION
   E. STREAM CHANNEL ALTERATION PERMIT
   F. SECTION 404 ARMY CORPS OF ENGINEER PERMIT

F. 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 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:

1. PROTECT ALL DRAINAGE INLETS RECEIVING RUNOFF FROM DISTURBED AREAS (SC-2).
2. CONTAIN ON-SITE RUNOFF USING PERIMETER SEDIMENT CONTROLS
   A. SC-1 SILT FENCE
   B. SC-5 VEGETATED FILTER STRIPS AND BUFFERS
   C. SC-8 COMPOST FILTER BERM
   D. SC-13 SANDBAG BARRIER
   E. SC-14 BRUSH OR ROCK FILTER
3. CONTROL OFFSITE RUNOFF FROM ENTERING CONSTRUCTION AREA
   A. EC-8 RUN-ON DIVERSION
   B. SC-6 EARTH DIKE
   C. SC-7 TEMPORARY DRAINS AND SWALES
4. INCORPORATE APPLICABLE SITE MANAGEMENT BMP
   A. SM-1 EMPLOYEE TRAINING
   B. SM-2 MATERIAL DELIVERY AND STORAGE
   C. SM-3 MATERIAL USE
   D. SM-4 PROTECTION OF STOCKPILES
   E. SM-6 SOLID WASTE MANAGEMENT
   F. SM-7 SANITARY/SEPTIC WASTE MANAGEMENT
   G. SM-9 HAZARDOUS WASTE MANAGEMENT
   H. SM-10 SPILL PREVENTION AND CONTROL
   I. SM-11 VEHICLE AND EQUIPMENT CLEANING
   J. SM-12 VEHICLE AND EQUIPMENT MAINTENANCE
   K. SM-13 VEHICLE AND EQUIPMENT REFUELING
   L. SM-14 SCHEDULING
   M. SM-15 LOCATION OF POTENTIAL SOURCES OF SEDIMENT
   N. SM-16 PRESERVATION OF EXISTING VEGETATION
   O. SM-18 DUST CONTROL
5. 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 EXIT ONTO A PAVED STREET. RESTRICT VEHICLE ACCESS TO THESE POINTS.
6. 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.)
7. 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.

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1286 Queen Emma Street, Third Floor — Honolulu, Hawaii

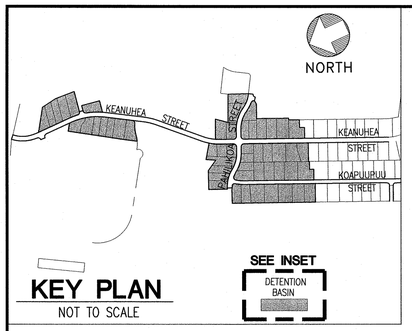
CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038, & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GENERAL NOTES - 3

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

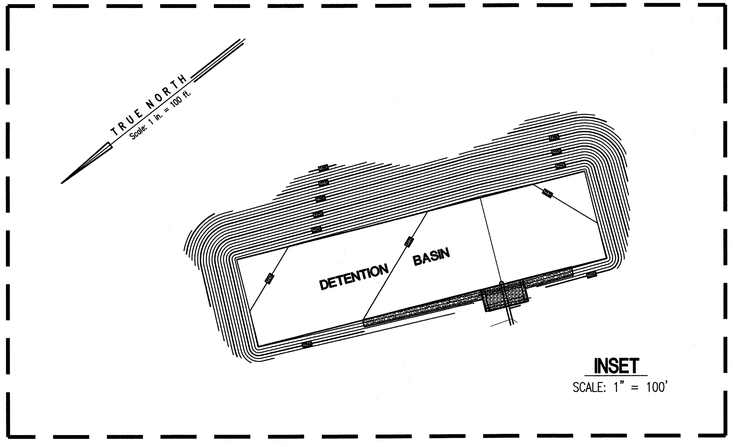
FILE	POCKET	FOLDER	NO.



KEY PLAN
NOT TO SCALE

LEGEND

- PROPERTY LINE
- OLD PROPERTY LINE
- GRP SWALE
- GRASS SWALE
- CULVERT ACCESS ROAD
- DRIVEWAY
- BERM
- DRAIN LOT



INSET
SCALE: 1" = 100'

GENERAL LAYOUT PLAN

SCALE: 1" = 100'

100 50 0 100 200
Graphic Scale in Feet

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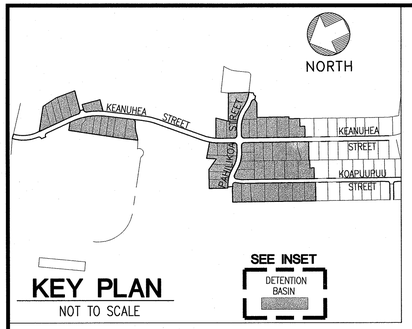
GENERAL LAYOUT PLAN

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.



KEY PLAN
NOT TO SCALE

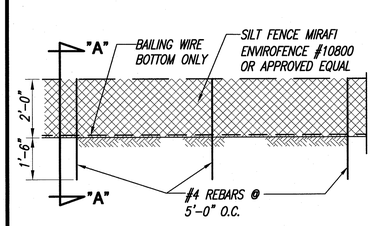
EROSION CONTROL PLAN
SCALE: 1" = 100'

TYPICAL SECTION

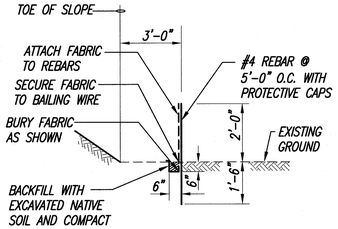
TEMPORARY EROSION CONTROL @ CULVERT OUTLETS
NOT TO SCALE

NOTES :

1. CLOTH BARRIER TO BE MIRAFI 140N OR APPROVED EQUAL.
2. LUMBER SIZES ARE NOMINAL INCHES.
3. 1 X 2 CLOTH BARRIER CAPS TO BE NAILED 12" O.C.
4. BURLAP IS NOT ACCEPTABLE AS THE CLOTH BARRIER.
5. CLOTH TO HAVE NO HORIZONTAL SEAMS.
6. VERTICAL SEAMS TO BE MADE OVER UPRIGHTS ONLY.
7. ALL SEAMS TO BE CAPPED WITH MINIMUM 1 X 2.
8. ALL JOINTS TO BE SECURELY FASTENED BY MECHANICAL MEANS.

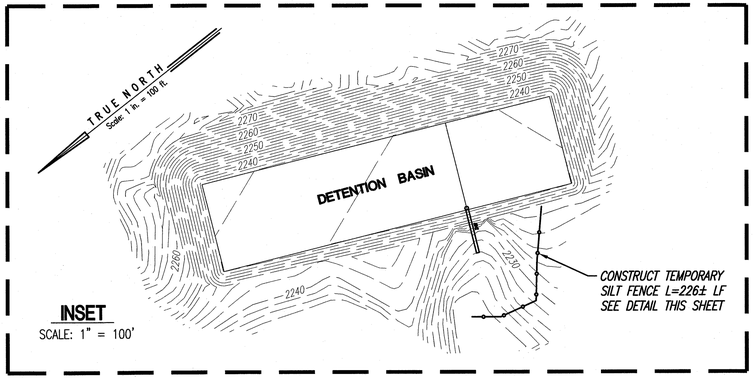


ELEVATION



SECTION "A - A"

TEMPORARY SILT FENCE
NOT TO SCALE



INSET
SCALE: 1" = 100'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- SILT FENCE
- 100 YEAR STREAM FLOOD LIMIT
- TEMPORARY EROSION CONTROL @ CULVERT OUTLET
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER

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EROSION CONTROL PLAN & DETAILS

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

BORING LOCATION: See Suite Plan | DRILLER: PSC | **BORING NO. TP-45**
BORING ELEVATION: | LOGGED BY: JGN
DATE (S) DRILLED: 7/07 | TYPE RIG: Backhoe

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	CORE RECOVERY (%)	R.Q.D. (%)	NUMBER OF BLOWS/12"	SAMPLE NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
						BS-45	1		MH	**Clayey SILT**with trace gravel, sand and rootlets, dark brown, moist
							6		MH	**Gravelly SILT** with angular to sub-angular basaltic boulders, trace of clay and rootlets, brown to dark brown, moist (volcanic ash)
							8			**BASALT**, dark gray, moderately weathered, strong
							9			Test pit terminated at about 8.5 ft. Groundwater was not encountered
							10			

SAMPLE TYPE
MC - Modified California SPT - Standard Penetration
CB - Core Barrel SH - Shelby Tube
AUG - Auger Cuttings D&M - Dames & Moore

OTHER LABORATORY TESTS
MD - Moisture/Density UC - Unconfined Compression
CON - Consolidation Test SG - Specific Gravity
PI - Atterberg Limits SA - Sieve Analysis

LOG OF BORING

Geotechnical & Environmental Consultants
Construction Management, Testing & Inspection

Keokea/Waiohuli Development
Kula, Makawao, Maui, Hawaii

DATE: March 2005 | PROJECT NO.: 24304.10

PLATE NO. 47

BORING LOCATION: See Site Plan | DRILLER: PSC | **BORING TP-59**
BORING ELEVATION: | LOGGED BY: JAGN
DATE (S) DRILLED: 5/21/05 | TYPE RIG:

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	CORE RECOVERY (%)	R.Q.D. (%)	NUMBER OF BLOWS/12"	SAMPLE NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
LL=52 PL=36 PI=16				MDD=91.9	@28.5%	Moisture Content	1		MH	**SILT**, with some gravel and scattered cobles, brown, soft to medium stiff, moist.
							6			**BASALT**, slightly weathered to fresh, strong, occassionaly fractured, hard, massive.
							9			Test pit terminated at about 6.25 feet at the soil rock-interface Groundwater was not encountered.

SAMPLE TYPE
MC - Modified California SPT - Standard Penetration
CB - Core Barrel SH - Shelby Tube
AUG - Auger Cuttings D&M - Dames & Moore

OTHER LABORATORY TESTS
MD - Moisture/Density UC - Unconfined Compression
CON - Consolidation Test SG - Specific Gravity
PI - Atterberg Limits SA - Sieve Analysis

LOG OF BORING

Geotechnical & Environmental Consultants
Construction Management, Testing & Inspection

NEW WAIOHULI ROAD ALIGNMENT AND BRIDGE ABUTMENT
Keokea-Waiohuli Agricultural Lots Subdivision
Waiohuli, Kula, Maui, Hawaii

DATE: August 2005 | PROJECT NO.: 24304.14

PLATE NO. 6

BORING LOCATION: See Site Plan | DRILLER: PSC | **BORING NO. TP-46**
BORING ELEVATION: | LOGGED BY: JGN
DATE (S) DRILLED: 7/07 | TYPE RIG: Backhoe

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	CORE RECOVERY (%)	R.Q.D. (%)	NUMBER OF BLOWS/12"	SAMPLE NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
						BS-46	1		MH	**SILT** with some gravels, cobbles and boulders, trace rootlets, brown, moist
							8			**BASALT**, dark gray, moderately weathered, strong
							9			Test pit terminated at about 8.0 ft. Groundwater was not encountered.

SAMPLE TYPE
MC - Modified California SPT - Standard Penetration
CB - Core Barrel SH - Shelby Tube
AUG - Auger Cuttings D&M - Dames & Moore

OTHER LABORATORY TESTS
MD - Moisture/Density UC - Unconfined Compression
CON - Consolidation Test SG - Specific Gravity
PI - Atterberg Limits SA - Sieve Analysis

LOG OF BORING

Geotechnical & Environmental Consultants
Construction Management, Testing & Inspection

Keokea/Waiohuli Development
Kula, Makawao, Maui, Hawaii

DATE: March 2005 | PROJECT NO.: 24304.10

PLATE NO. 48

NOTE :

BORING AND TEST PIT LOGS TAKEN FROM "PRELIMINARY GEOTECHNICAL EXPLORATION REPORT KEOKEA–WAIOHULI DEVELOPMENT PROJECT"
PREPARED BY PCS CONSULTANTS, LLC
DATED MARCH 31, 2005

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

BORING LOGS - 1

DRAWN BY: KWNW | ENGINEER: KWNW/MFC | CHECKED BY: RYS
APPROVED:

CHIEF, ENGINEERING DIVISION, D.P.W. & E.M. DATE

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

FILE	POCKET	FOLDER	NO.

SHEET 8 OF 84 SHEETS

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDWG\Increment 1\Current\08-09 Boring Logs.dwg, 11/14/2014 1:33:39 PM, 1:1

BORING LOCATION: See Site Plan	DRILLER: PSC	BORING NO. TP-34
BORING ELEVATION:	LOGGED BY: JGN	
DATE (S) DRILLED: 7/04	TYPE RIG: Backhoe	

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	CORE RECOVERY (%)	R.Q.D. (%)	NUMBER OF BLOWS/12"	SAMPLE NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
						BS-34				**SILT**, with basalt boulders, traces of clay and rootlets, brown, moist (volcanic ash)
							1			
							2			grades with more basaltic boulders
							3			
							4			**BASALT**, dark gray, moderately weathered to fresh, strong
							5			Test pit excavation terminated at about 5.0 ft. Groundwater was not encountered.
							6			

SAMPLE TYPE
MC - Modified California SPT - Standard Penetration
CB - Core Barrel SH - Shelby Tube
AUG - Auger Cuttings D&M - Dames & Moore

OTHER LABORATORY TESTS
MD - Moisture/Density UC - Unconfined Compression
CON - Consolidation Test SG - Specific Gravity
PI - Atterberg Limits SA - Sieve Analysis

LOG OF BORING

PSC Geotechnical & Environmental Consultants Construction Management, Testing & Inspection

Keokea/Waiohuli Development
Kula, Makawao, Maui, Hawaii

DATE: March 2005 PROJECT NO.: 24304.10

BORING KEOKEA.GPJ BORING.GDT 9/7/04

PLATE NO. 36

BORING LOCATION: See Site Plan	DRILLER: PSC	BORING NO. TP-35
BORING ELEVATION:	LOGGED BY: JGN	
DATE (S) DRILLED: 7/2/04	TYPE RIG:	

OTHER LAB TESTS	DRY UNIT WEIGHT (pcf)	MOISTURE CONTENT (%)	CORE RECOVERY (%)	R.Q.D. (%)	NUMBER OF BLOWS/12"	SAMPLE NUMBER	DEPTH IN FEET	GRAPHIC SYMBOL	U.S.C.S.	GEOTECHNICAL DESCRIPTION
						BS-35				**Silty GRAVEL**, gray tuffaceous gravels, cobbles and boulders with silt matrix, trace rootlets, brown, moist
							1			
									GM	
							2			
							3			**BASALT**, dark gray, slightly to moderately weathered, strong.
										Test pit terminated at about 3.5 Groundwater was not encountered
							4			

SAMPLE TYPE
MC - Modified California SPT - Standard Penetration
CB - Core Barrel SH - Shelby Tube
AUG - Auger Cuttings D&M - Dames & Moore

OTHER LABORATORY TESTS
MD - Moisture/Density UC - Unconfined Compression
CON - Consolidation Test SG - Specific Gravity
PI - Atterberg Limits SA - Sieve Analysis

LOG OF BORING

PSC Geotechnical & Environmental Consultants Construction Management, Testing & Inspection

Keokea/Waiohuli Development
Kula, Makawao, Maui, Hawaii

DATE: March 2005 PROJECT NO.: 24304.10

BORING KEOKEA.GPJ BORING.GDT 9/7/04

PLATE NO. 37

NOTE :

BORING AND TEST PIT LOGS TAKEN FROM "PRELIMINARY GEOTECHNICAL EXPLORATION REPORT KEOKEA-WAIOIHULI DEVELOPMENT PROJECT"
PREPARED BY PCS CONSULTANTS, LLC
DATED MARCH 31, 2005

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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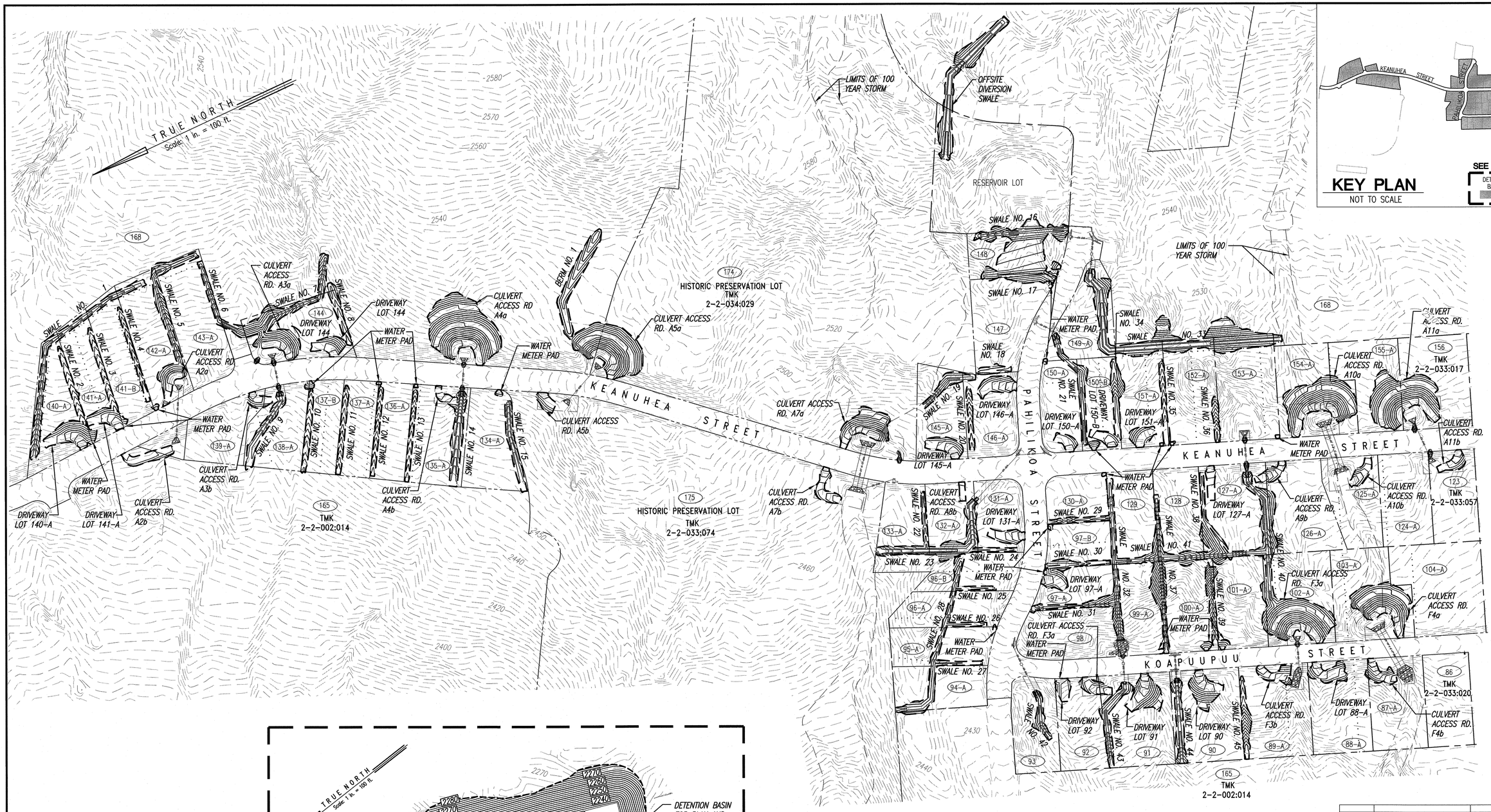
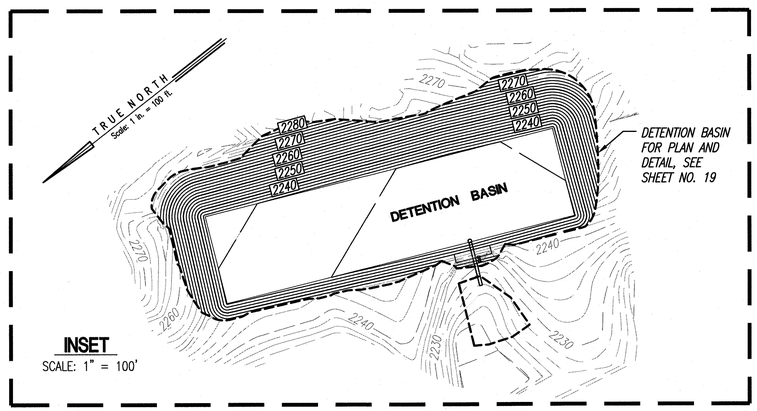
BORING LOG - 2

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\08-09 Boring Logs.dwg, 11/14/2014 1:32:06 PM, 1:1





LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER
- BORING LOCATION

NOTES :

1. FOR WATER METER PAD GRADING PLAN AND DETAILS, SEE SHEET NOS. 77-81.
2. MAINTENANCE OF THE SWALES/CULVERT ACCESS ROADS DURING CONSTRUCTION SHALL BE MAINTAINED BY THE CONTRACTOR.
3. MAINTENANCE OF THE SWALES AFTER CONSTRUCTION SHALL BE MAINTAINED BY THE LESSEE OR DEPARTMENT OF HAWAIIAN HOMESTEAD.
4. MAINTENANCE OF THE CULVERT ACCESS ROADS AFTER CONSTRUCTION SHALL BE MAINTAINED BY THE COUNTY OF MAUI.

GENERAL GRADING PLAN

SCALE: 1"=100'

100 50 0 100 200

Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GENERAL GRADING PLAN

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 10 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\10 General Grading Plan.dwg, 11/14/2014 1:44:34 PM, 1:1

SWALE NO. 4
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 22
FOR DETAIL, SEE SHEET NOS. 53 & 54

SWALE NO. 1
(TRAPEZOIDAL GRP SWALE
2 FT BOTTOM WIDTH, 2.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 20
FOR DETAIL, SEE SHEET NOS. 53 & 54

SWALE NO. 5
(TRAPEZOIDAL GRP SWALE
2 FT BOTTOM WIDTH 2.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 23
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 7
(TRAPEZOIDAL GRP SWALE
2 FT BOTTOM WIDTH, 2.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 25
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 3
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 21
FOR DETAIL, SEE SHEET NOS. 53 & 54

SWALE NO. 6
(TRAPEZOIDAL GRP SWALE
2 FT BOTTOM WIDTH, 2.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 24
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 8
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 25
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 2
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 21
FOR DETAIL, SEE SHEET NOS. 53 & 54

CULVERT ACCESS RD. A3a
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 65
FOR DETAIL SEE SHEET NOS. 75 & 76

DRIVEWAY LOT 144
(15 FT WIDE NON-PAVED DRIVEWAY)
FOR PLAN & PROFILE
SEE SHEET NO. 60
FOR DETAIL SEE SHEET NO. 63

BERM NO. 1
(3 FT TOP WIDTH, 4 FT HEIGHT)
FOR PLAN & PROFILE
SEE SHEET NO. 52
FOR DETAIL SEE SHEET NO. 54

CULVERT ACCESS RD. A4a
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 66
FOR DETAIL SEE SHEET NOS. 75 & 76

CULVERT ACCESS RD. A2b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 64
FOR DETAIL SEE SHEET NOS. 75& 76

CULVERT ACCESS RD. A4b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 66
FOR DETAIL SEE SHEET NOS. 75 & 76

CULVERT ACCESS RD. A5a
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 67
FOR DETAIL SEE SHEET NOS. 75 & 76

CULVERT ACCESS RD. A5b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 67
FOR DETAIL SEE SHEET NOS. 75 & 76

SWALE NO. 15
(TRAPEZOIDAL GRP SWALE
3 FT BOTTOM WIDTH, 3.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 29
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 14
(TRAPEZOIDAL GRP SWALE
4 FT BOTTOM WIDTH, 4 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 29
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 13
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 28
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 12
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 28
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 11
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 27
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 10
(TRAPEZOIDAL GRASS SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 27
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 9
(TRAPEZOIDAL GRP SWALE
3 FT BOTTOM WIDTH, 3 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 26
FOR DETAIL SEE SHEET NOS. 53 & 54

DRIVEWAY LOT 140-A
(15 FT WIDE NON-PAVED DRIVEWAY)
FOR PLAN & PROFILE
SEE SHEET NO. 59
FOR DETAIL SEE SHEET NO. 63

DRIVEWAY LOT 141-A
(15 FT WIDE NON-PAVED DRIVEWAY)
FOR PLAN & PROFILE
SEE SHEET NO. 59
FOR DETAIL SEE SHEET NO. 63

CULVERT ACCESS RD. A2b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 64
FOR DETAIL SEE SHEET NOS. 75 & 76

CULVERT ACCESS RD. A3b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 65
FOR DETAIL, SEE SHEET NOS. 75 & 76

TRUE NORTH
Scale: 1 in. = 40 ft.

KEANUHEA STREET

168 | 143-A | 142-A | 141-B | 141-A | 140-A | 139-A | 138-A | 144 | 137-B | 137-A | 136-A | 135-A | 134-A | 174 | 175

165
TMK
2-2-002:014

174
TMK
2-2-034:029

175
TMK
2-2-033:074

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER
- BORING LOCATION

NORTH
KEANUHEA STREET
KAAUKOA STREET
KOAPUUPUU STREET
DETENTION BASIN

KEY PLAN
NOT TO SCALE

GRADING PLAN - 1
SCALE 1" = 40'

40 20 0 40 80
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

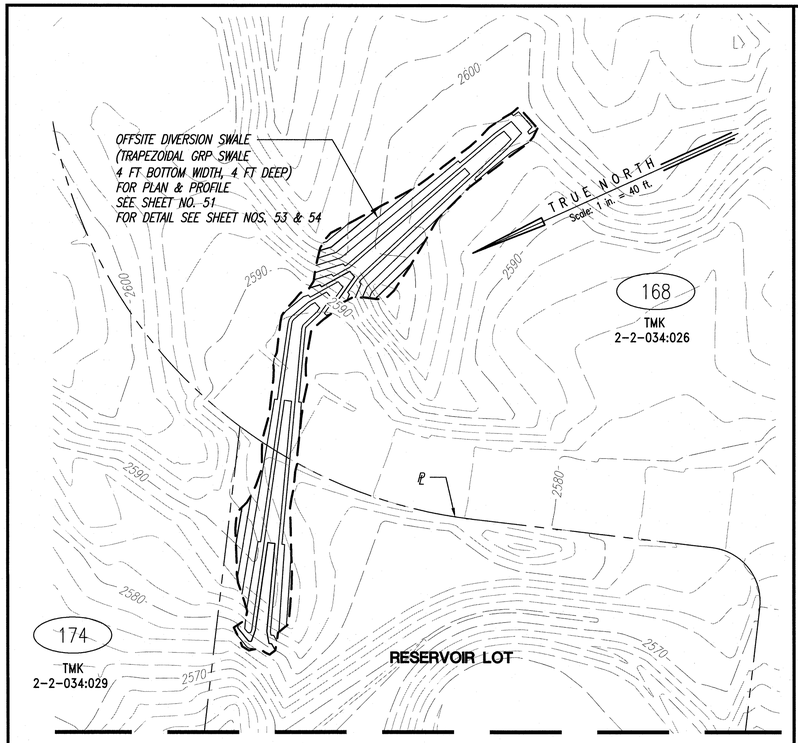
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

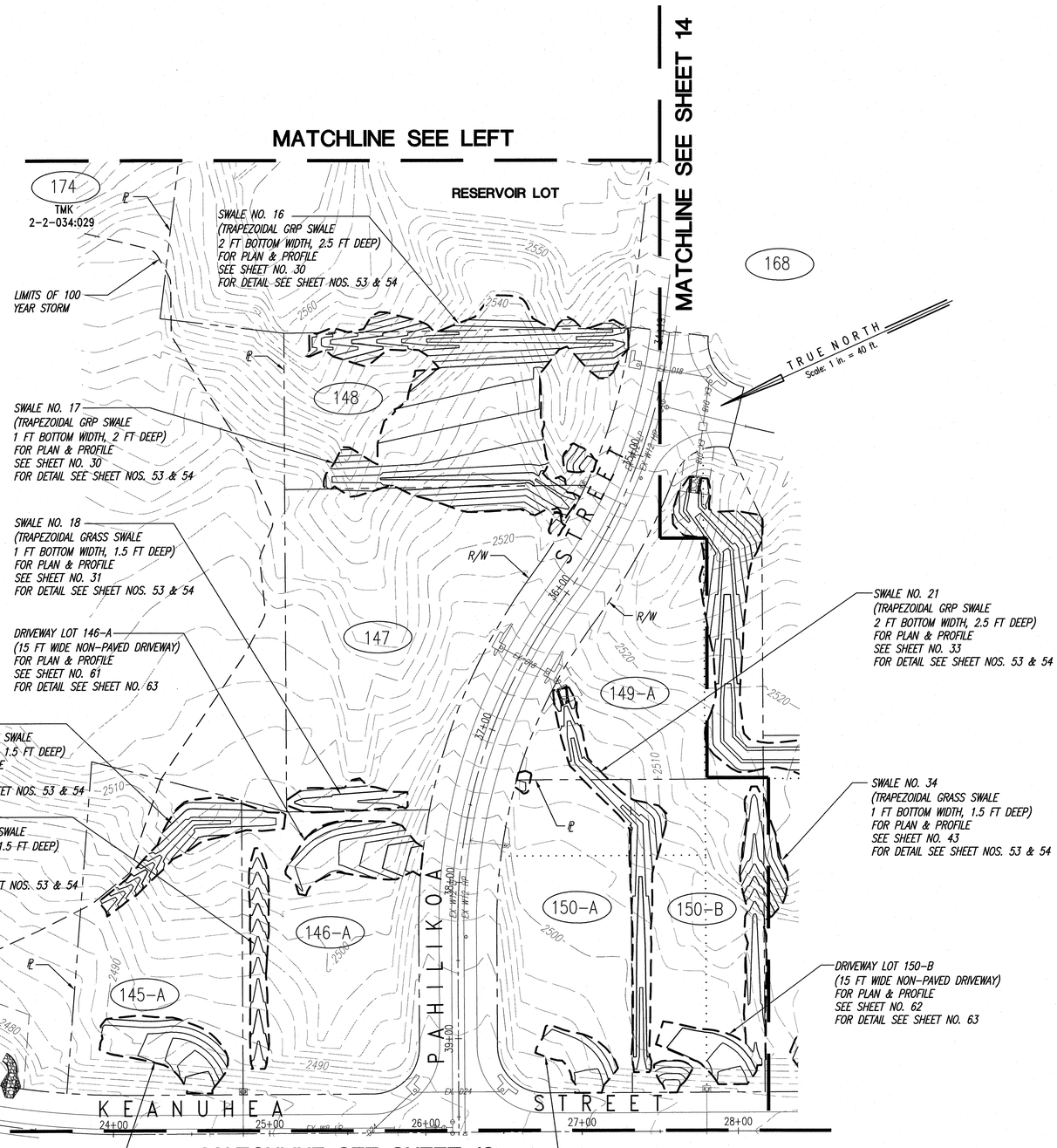
GRADING PLAN - 1

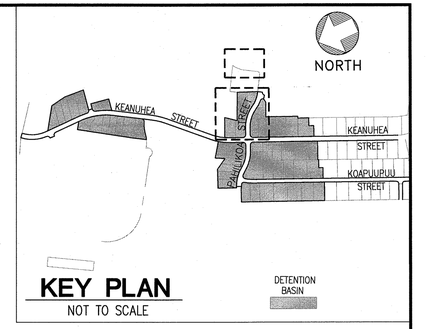
DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\11-15 Grading Plan 1-5.dwg, 11/14/2014 1:55:38 PM, 1:1







LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER
- BORING LOCATION

GRADING PLAN - 2

SCALE: 1" = 40'

40 20 0 40 80
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GRADING PLAN - 2

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\11-15 Grading Plan 1-5.dwg, 11/14/2014 1:52:50 PM, 1:1

TRUE NORTH
Scale: 1 in. = 40 ft.

SWALE NO. 22
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 34
FOR DETAIL SEE SHEET NOS. 53 & 54

CULVERT ACCESS RD. A8b
(10 FT WIDE A.C. PAVED ACCESS RD.)
FOR PLAN & PROFILE
SEE SHEET NO. 69
FOR DETAIL SEE SHEET NOS. 75 & 76

SWALE NO. 24
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 36
FOR DETAIL SEE SHEET NOS. 53 & 54

DRIVEWAY LOT 131-A
(15 FT WIDE NON-PAVED DRIVEWAY)
FOR PROFILE
SEE SHEET NO. 58
FOR DETAIL SEE SHEET NO. 63

MATCHLINE
SEE SHEET 14

SWALE NO. 23
(TRAPEZOIDAL GRP SWALE
4 FT BOTTOM WIDTH, 3.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 35
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 25
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 36
FOR DETAIL SEE SHEET NOS. 53 & 54

175
TMK
2-2-034:029

SWALE NO. 26
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 37
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 27
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 37
FOR DETAIL SEE SHEET NOS. 53 & 54

LIMITS OF 100
YEAR STORM

SWALE NO. 28
(TRAPEZOIDAL GRP SWALE
2 FT BOTTOM WIDTH, 2 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 38
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 29
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 2 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 39
FOR DETAIL SEE SHEET NOS. 53 & 54

SWALE NO. 30
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 1.5 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 39
FOR DETAIL SEE SHEET NOS. 53 & 54

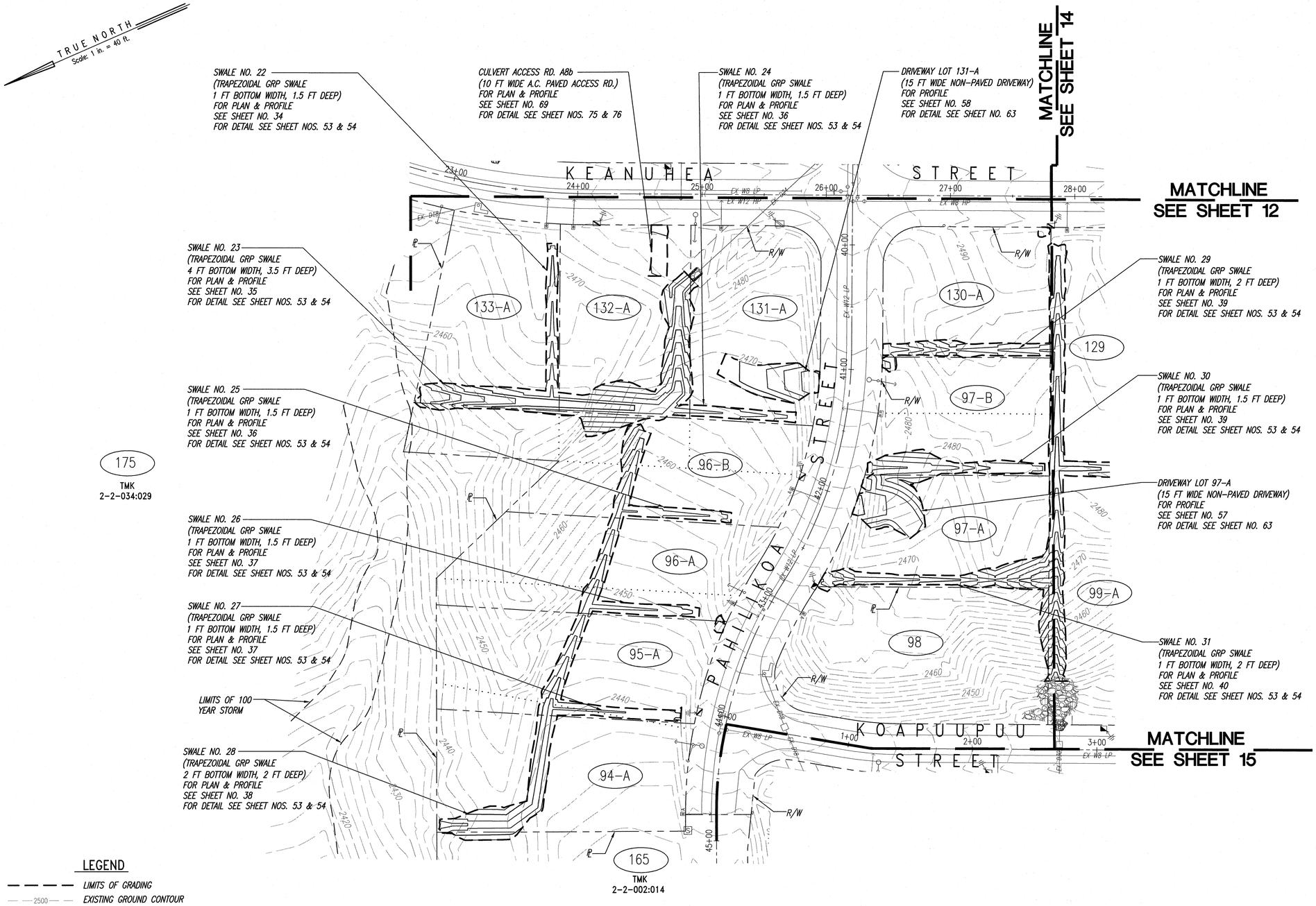
DRIVEWAY LOT 97-A
(15 FT WIDE NON-PAVED DRIVEWAY)
FOR PROFILE
SEE SHEET NO. 57
FOR DETAIL SEE SHEET NO. 63

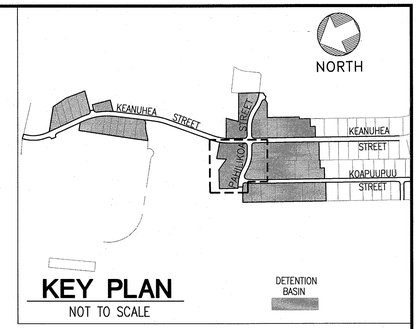
SWALE NO. 31
(TRAPEZOIDAL GRP SWALE
1 FT BOTTOM WIDTH, 2 FT DEEP)
FOR PLAN & PROFILE
SEE SHEET NO. 40
FOR DETAIL SEE SHEET NOS. 53 & 54

MATCHLINE
SEE SHEET 12

MATCHLINE
SEE SHEET 15

165
TMK
2-2-002:014





LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER
- BORING LOCATION

GRADING PLAN - 3

SCALE 1" = 40'

40 20 0 40 80
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GRADING PLAN - 3

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 13 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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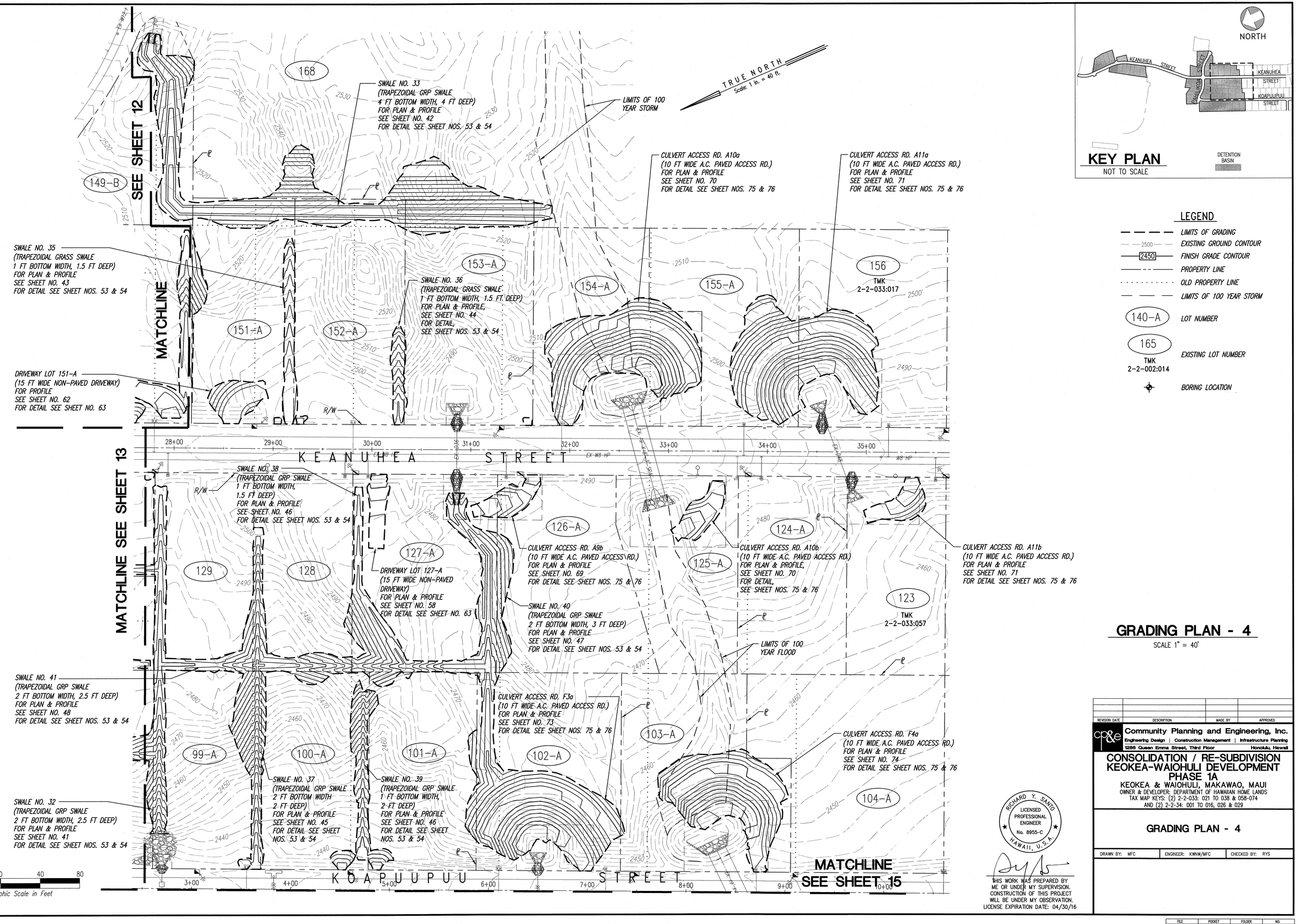

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER
- BORING LOCATION

GRADING PLAN - 4

SCALE 1" = 40'

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GRADING PLAN - 4

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

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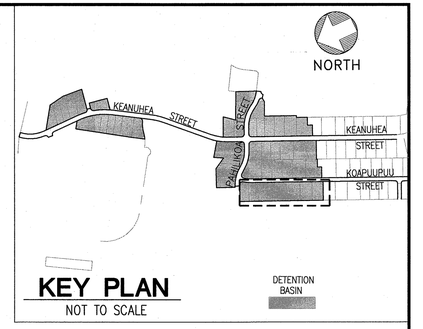
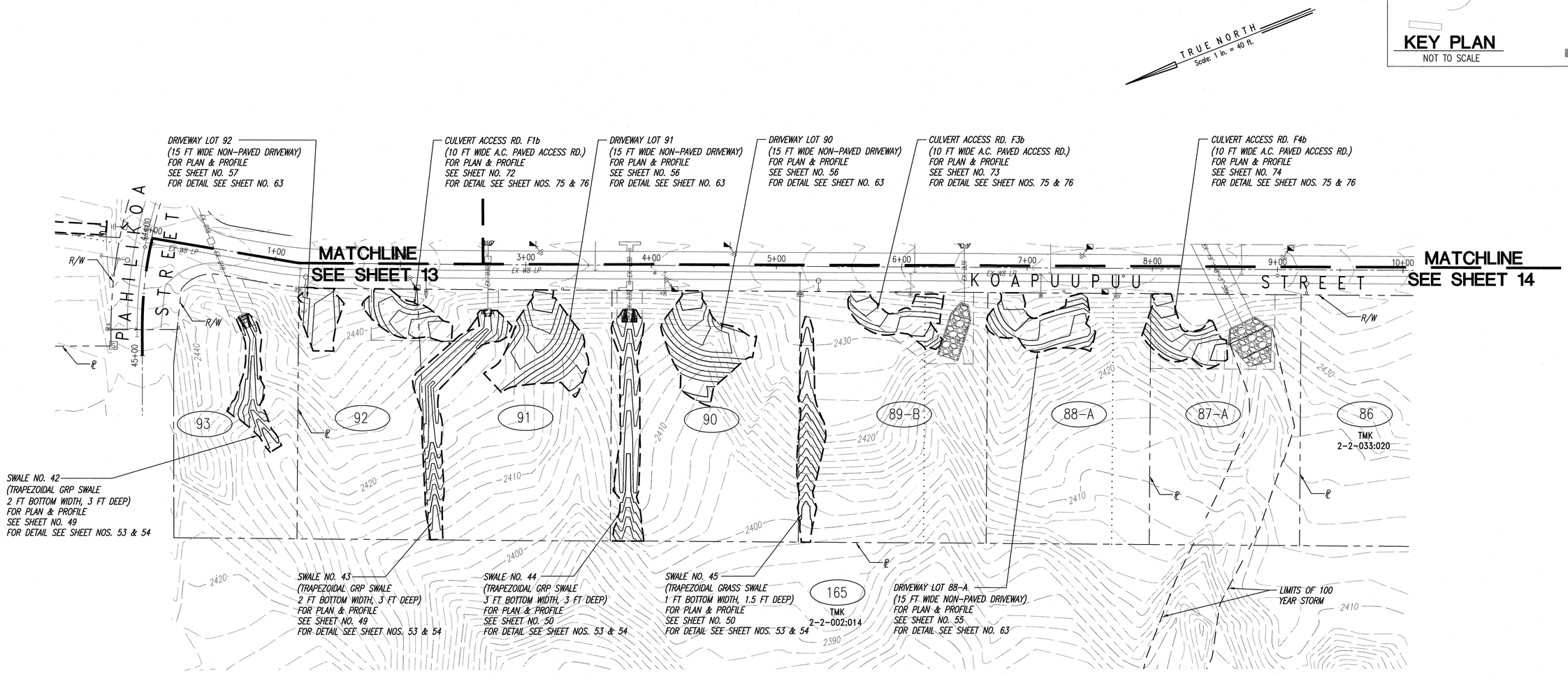


KEY PLAN
NOT TO SCALE



LEGEND

- LIMITS OF GRADING
- 2500 — EXISTING GROUND CONTOUR
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A — LOT NUMBER
- 165 TMK 2-2-002:014 — EXISTING LOT NUMBER
- BORING LOCATION

GRADING PLAN - 5

SCALE 1" = 40'

40 20 0 40 80
Graphic Scale in Feet

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HAWAII, U.S.A.

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION
KEOKEA-WAIOHULI DEVELOPMENT
PHASE 1A
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

GRADING PLAN - 5

DRAWN BY: MFC | ENGINEER: KWNW/MFC | CHECKED BY: RYS
APPROVED:

SHEET 15 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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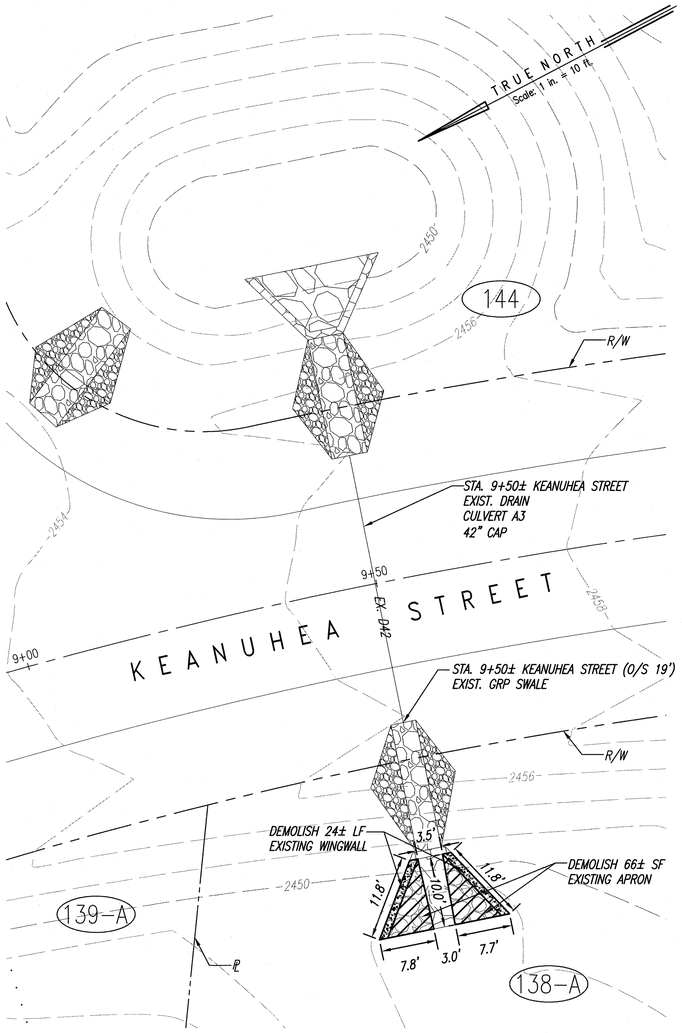

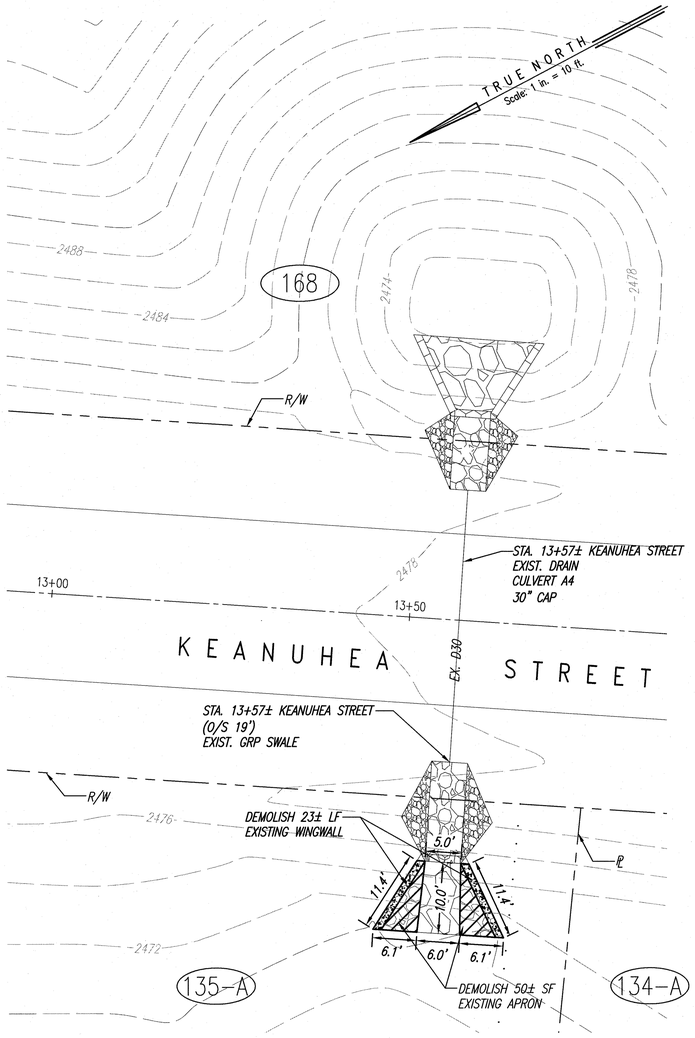

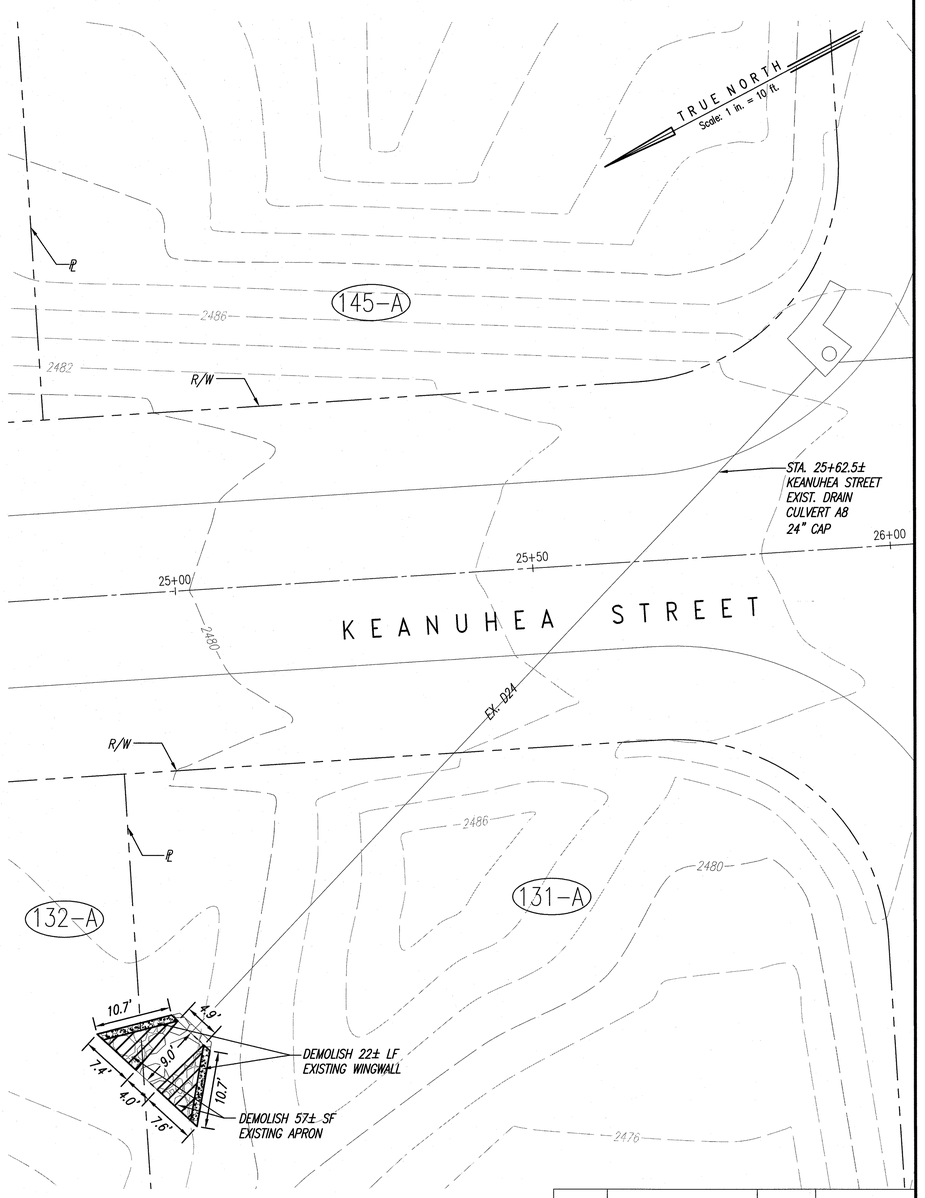

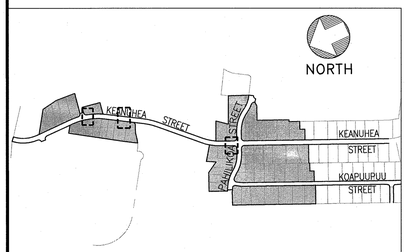

KEY PLAN
NOT TO SCALE

LEGEND

- 2500 — EXISTING GROUND CONTOUR
- DEMOLISH EXISTING WINGWALL
- DEMOLISH EXISTING APRON
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER

DEMOLITION PLAN - 1
SCALE: 1"= 10'

10 5 0 10 20
Graphic Scale in Feet

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PHASE 1A
KEOKEA & WAIOHULI, MAKAWAO, MAUI
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AND (2) 2-2-34: 001 TO 016, 026 & 029

DEMOLITION PLAN - 1

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

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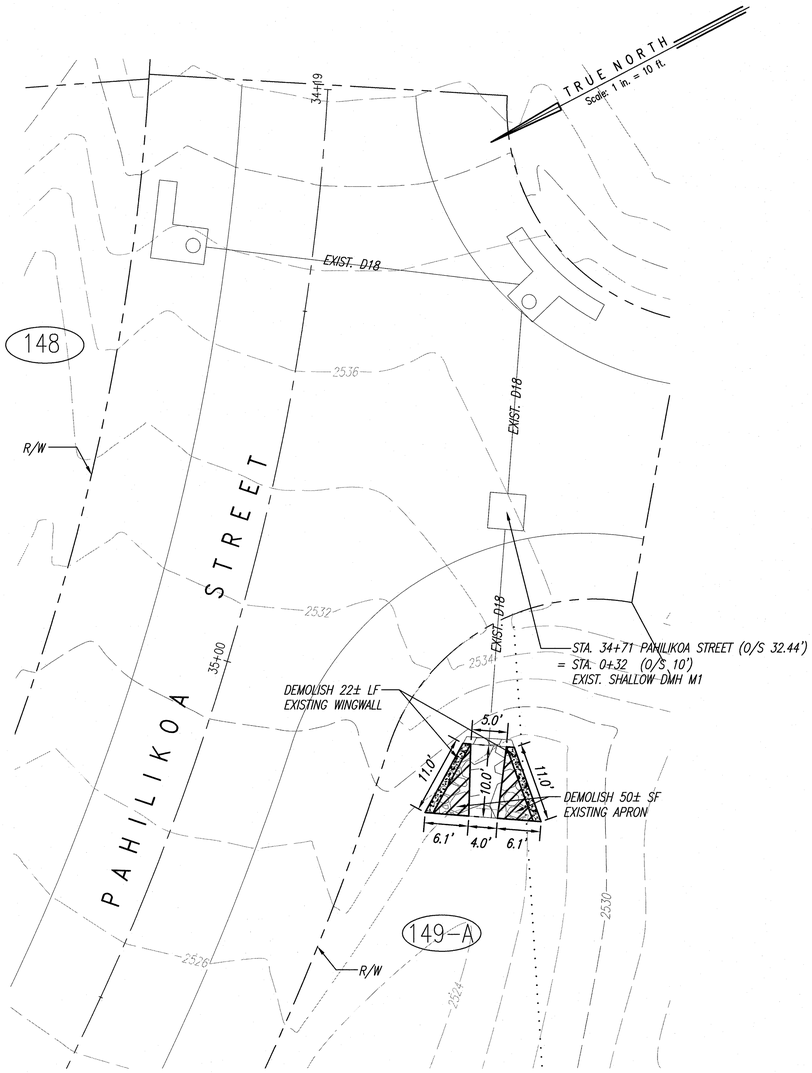

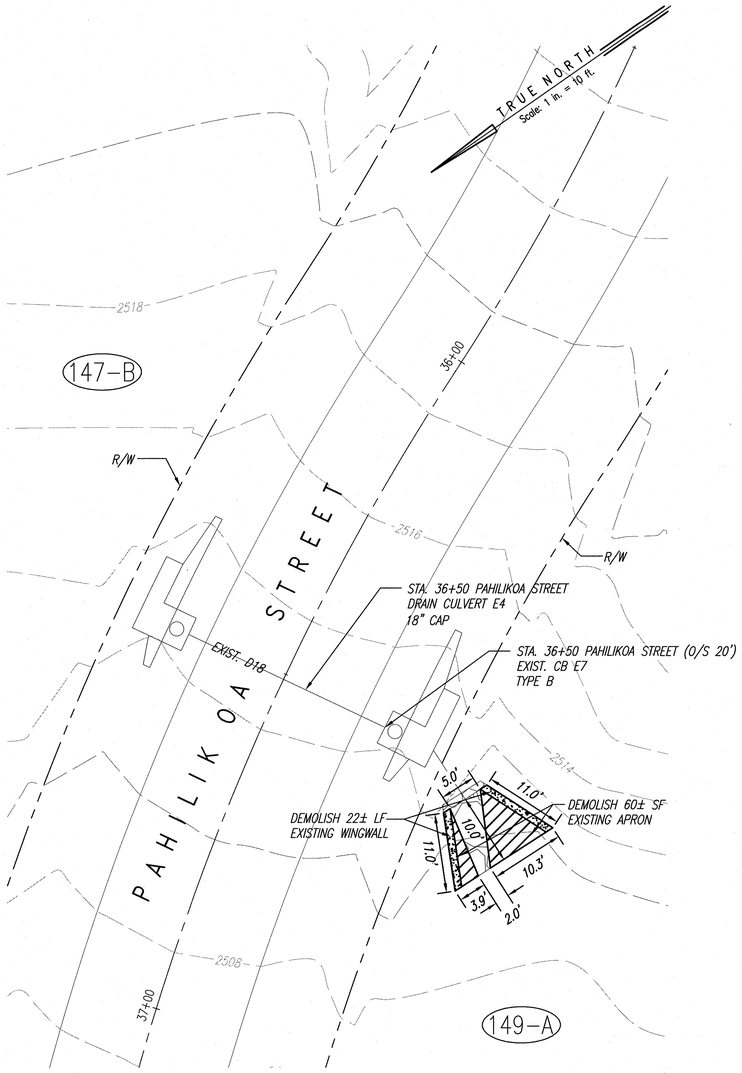

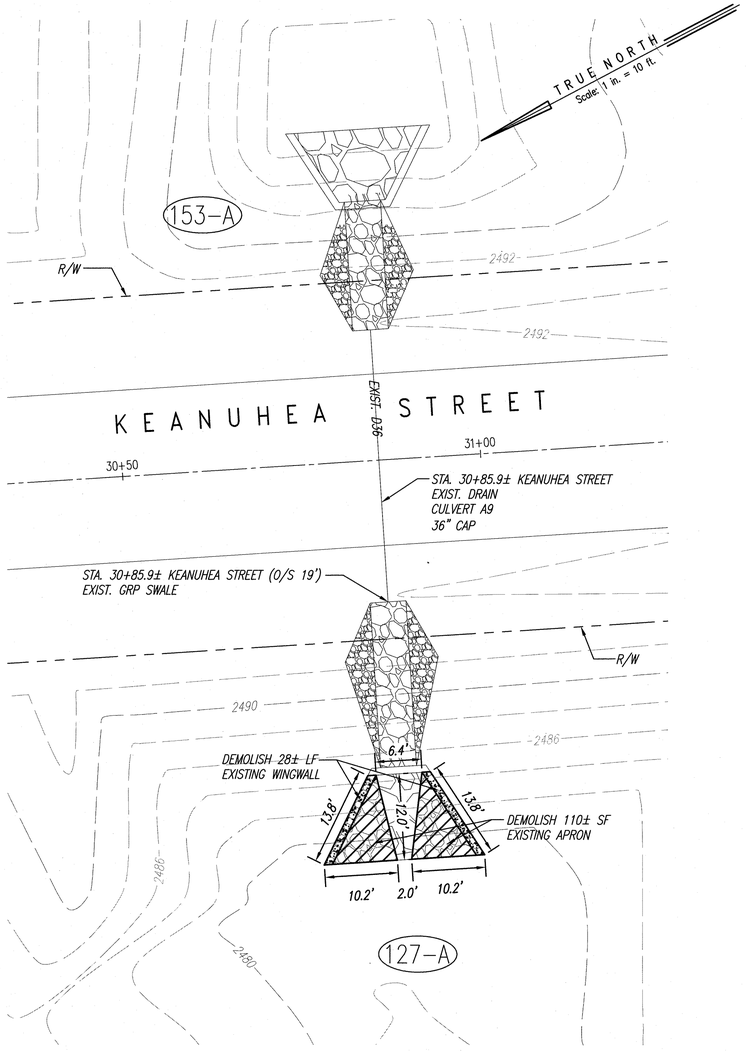

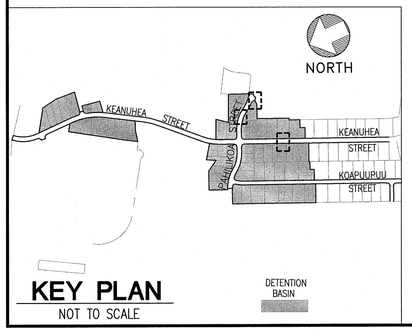

KEY PLAN
NOT TO SCALE

LEGEND

- 2500 — EXISTING GROUND CONTOUR
- DEMOLISH EXISTING WINGWALL
- DEMOLISH EXISTING APRON
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A — LOT NUMBER

DEMOLITION PLAN - 2
SCALE: 1"= 10'

10 5 0 10 20
Graphic Scale in Feet

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HAWAII, U.S.A.

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KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

DEMOLITION PLAN - 2

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 17 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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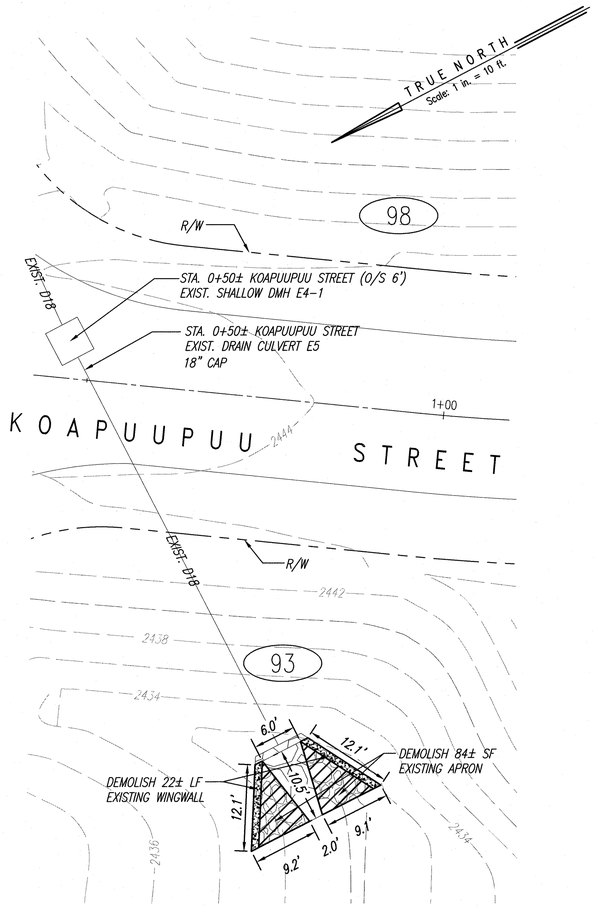

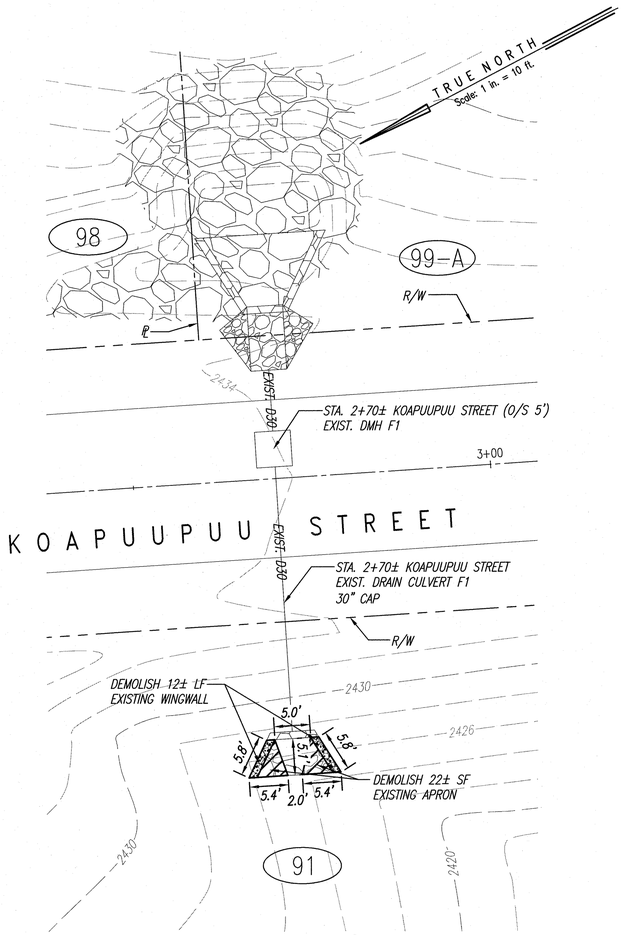

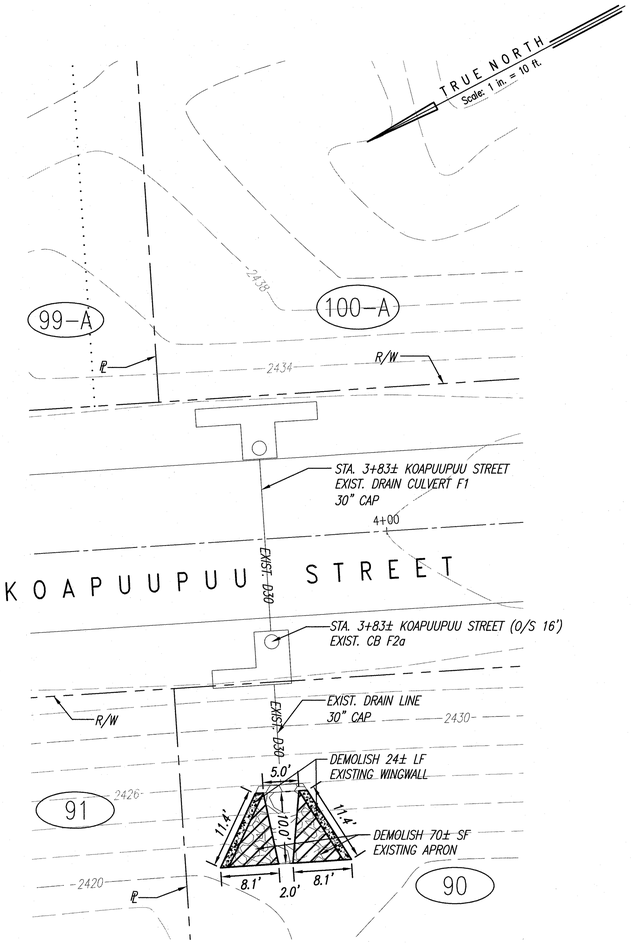

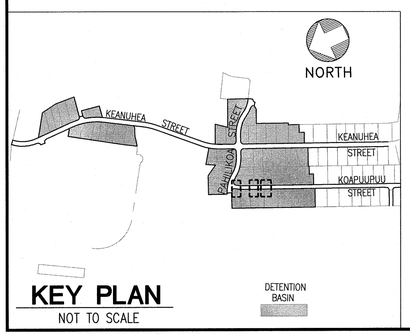

KEY PLAN
NOT TO SCALE

LEGEND

- 2500 — EXISTING GROUND CONTOUR
- DEMOLISH EXISTING WINGWALL
- DEMOLISH EXISTING APRON
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER

DEMOLITION PLAN - 3
SCALE: 1" = 10'

10 5 0 10 20
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION
KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

DEMOLITION PLAN - 3

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 18 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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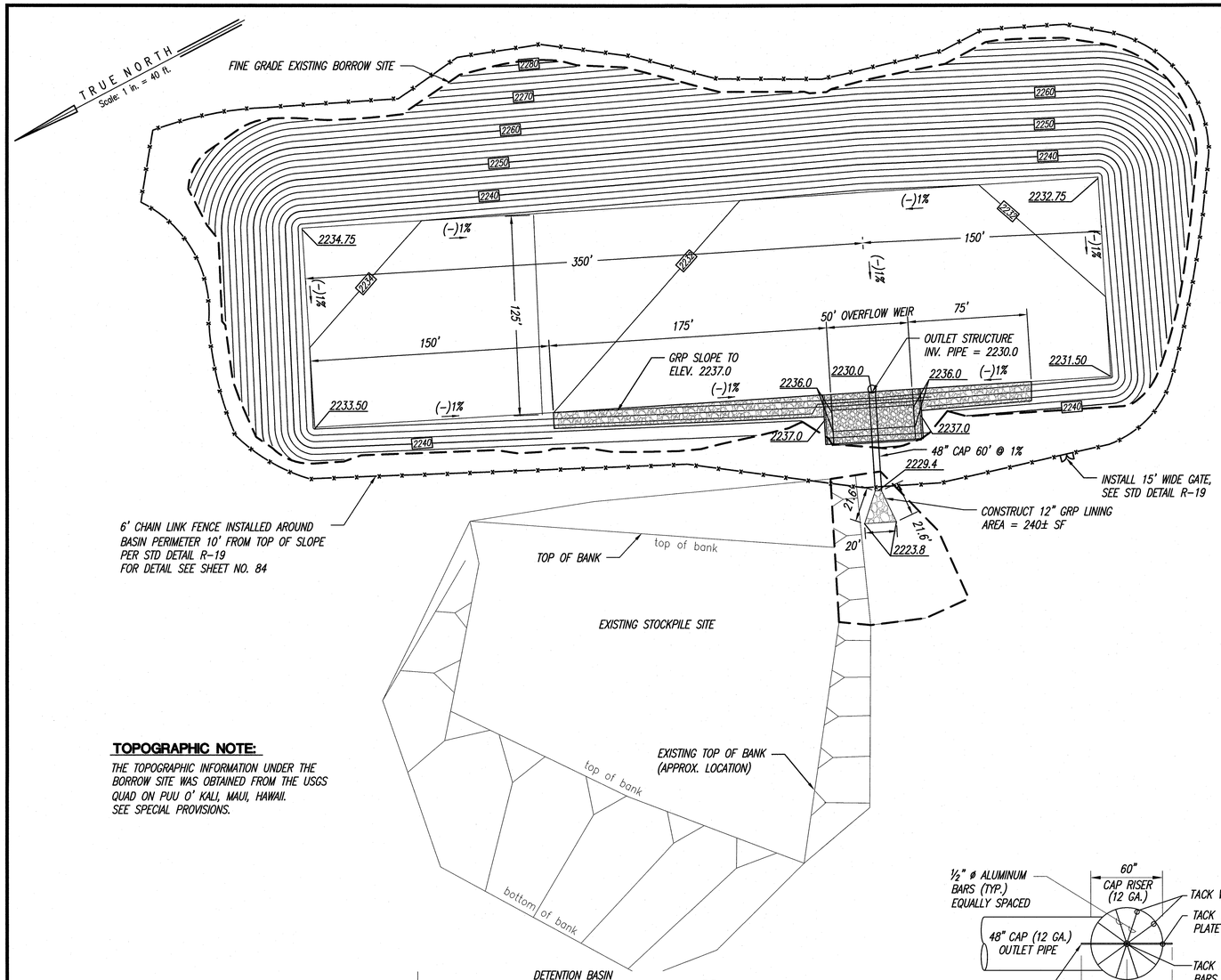
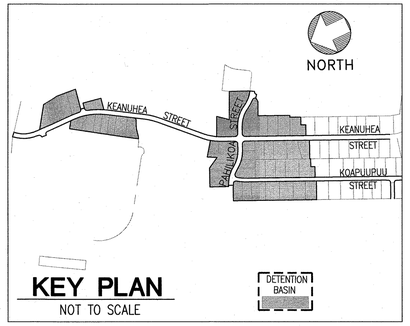




FOUNDATION

1. THE FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS IN THE FOUNDATION INVESTIGATION REPORT BY PSC ASSOCIATES, INC. UNLESS OTHERWISE INDICATED, FOUNDATION WORK SHALL BE PERFORMED IN ACCORDANCE WITH THIS REPORT. THE REPORT IS PART OF THIS PLAN AND SHOULD BE KEPT ON THE JOB SITE AT ALL TIMES.
2. ALL FOOTINGS SHALL BEAR ON WEATHERED BASALT OR STRUCTURALLY PREPARED FILL. BOTTOM OF ALL FOOTING EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY A QUALIFIED FOUNDATION ENGINNER PRIOR TO PLACEMENT OF REINFORCING STEEL OR CONCRETE.
3. ALL WATER, MUD AND DEBRIS SHALL BE REMOVED FROM THE BOTTOM OF FOOTING EXCAVATIONS PRIOR TO PLACEMENT OF CONCRETE.

STRUCTURAL STEEL

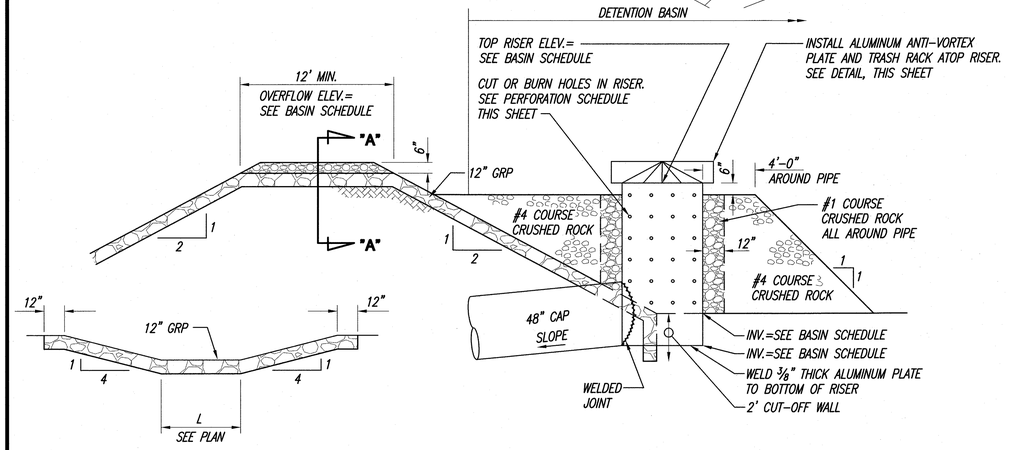
1. ALL STRUCTURAL AND MISCELLANEOUS STEEL SHALL CONFORM TO ASTM SPECIFICATION A-36 AND SHALL BE FABRICATED AND ERECTED IN ACCORDANCE WITH THE A.I.S.C. SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, LATEST EDITION.
2. BOLTS SHALL CONFORM TO ASTM A307.
3. WELDING: ALL WELDING IS TO COMPLY WITH A.W.S. SPECIFICATIONS AND IS TO BE DONE BY CERTIFIED WELDERS. ALL WELDING IS TO BE DONE BY ELECTRIC ARC PROCESS AND SHAL BE PERFORMED WITH APPROVED ELECTRODES AS REQUIRED PER CHAPTER 27 U.B.C. WELDS ARE DESIGNED AT FULL STRESS AND MUST BE DONE IN THE SHOP OF A LICENSED FABRICATOR.
4. ALL WELDS NOT SHOWN SHALL BE FULL PENETRATION WELDS CAPABLE OF DEVELOPING THE FULL STRENGTH OF THE CONNECTING MEMBERS.
5. THE CONTRACTOR SHALL DETAIL ALL MEMBERS AND CONNECTIONS NOT SHOWN AND SHALL SUBMIT THEM TO THE ENGINEER FOR REVIEW AND APPROVAL. COST OF THESE MEMBERS AND CONNECTIONS SHALL BE INCLUDED IN THE CONTRACTOR'S BID PRICE.
6. GALVANIZE ALL STRUCTURAL STEEL SHAPES, PLATES, BOLTS AND ACCESSORIES EXPOSED TO WEATHER.

DESIGN CRITERIA

1. THE FOUNDATION DESIGN IS BASED ON THE RECOMMENDATIONS IN THE FOUNDATION INVESTIGATION REPORT BY PSC ASSOCIATES, INC., JOB NO. 24304.10/24304.11. BEARING CAPACITIES, ACTIVE AND PASSIVE PRESSURES AND COEFFICIENT OF FRICTION VARY WITH SITE CONDITIONS.
2. REFER TO DETENTION BASIN BEST MANAGEMENT PRACTICE-OPERATION AND MAINTENANCE MANUAL FOR OPERATION AND MAINTENANCE PROCEDURES.

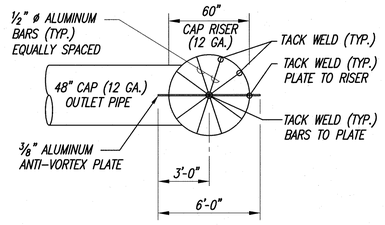
TOPOGRAPHIC NOTE:

THE TOPOGRAPHIC INFORMATION UNDER THE BORROW SITE WAS OBTAINED FROM THE USGS QUAD ON PUU O' KALI, MAUI, HAWAII. SEE SPECIAL PROVISIONS.



PERMANENT OUTLET FOR DETENTION BASIN

NOT TO SCALE



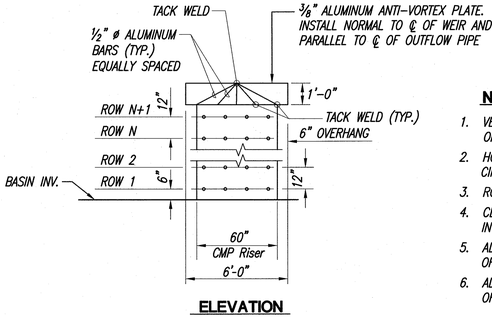
PLAN

DETENTION BASIN	DETENTION BASIN SCHEDULE						
TOP OF BERM ELEV. (FT.)	2237.0						
OVERFLOW WEIR ELEV. (FT.)	2236.0						
INVERT ELEV. (FT.)	2230.0						
OUTLET STRUCTURE							
TYPE	CAP						
DIA. OF RISER (IN.)	60.0						
TOP RISER ELEV. (FT.)	2235.0						
DIA. OF OUTLET PIPE (IN.)	48.0						
INVERT OF OUTLET PIPE	2234.0						
SLOPE OF OUTLET PIPE (%)	1.0						
PERFORATION SCHEDULE							
ROW NUMBER		1	2	3	4	5	
HOLE DIAMETER (IN.)		3	3	3	3	3	
NUMBER OF HOLES		14	10	20	20	20	

DETENTION BASIN SCHEDULE

LEGEND

- LIMITS OF GRADING
- CHAIN LINK FENCE
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE



ELEVATION

ANTI-VORTEX PLATE AND TRASH RACK

NOT TO SCALE

NOTES :

1. VERTICAL SPACING BETWEEN HOLES=12 INCHES OFFSET TO OFFSET.
2. HOLES SHALL BE SPACED EVENLY AROUND THE CIRCUMFERENCE OF THE RISER.
3. ROWS ARE NUMBERED FROM BOTTOM TO TOP.
4. CENTER OF BOTTOM ROW IS 6 INCHES ABOVE INVERT OF BASIN.
5. ALUMINUM PLATE SHALL MEET THE SPECIFICATIONS OF ASTM B-209.
6. ALUMINUM RODS SHALL MEET THE SPECIFICATIONS OF ASTM B-211.

40 20 0 40 80
Graphic Scale in Feet

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

DETENTION BASIN PLANS AND DETAILS

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

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HAWAII, U.S.A.

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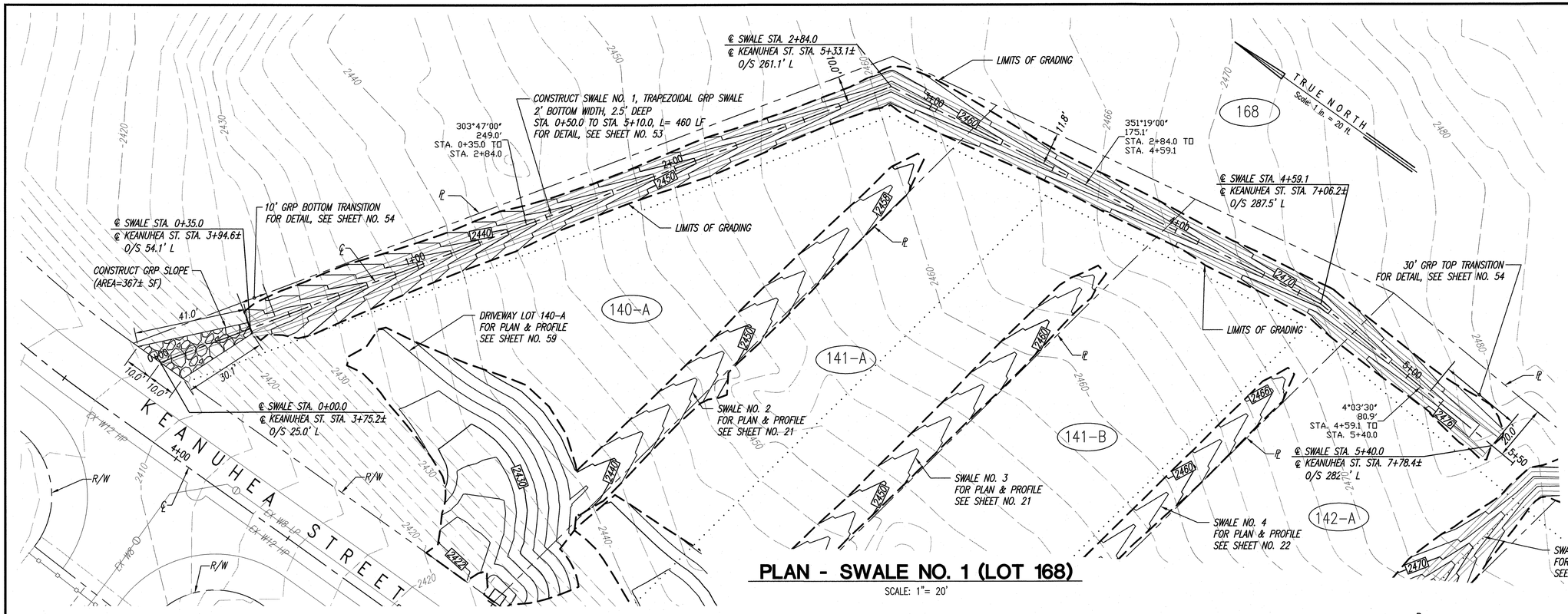
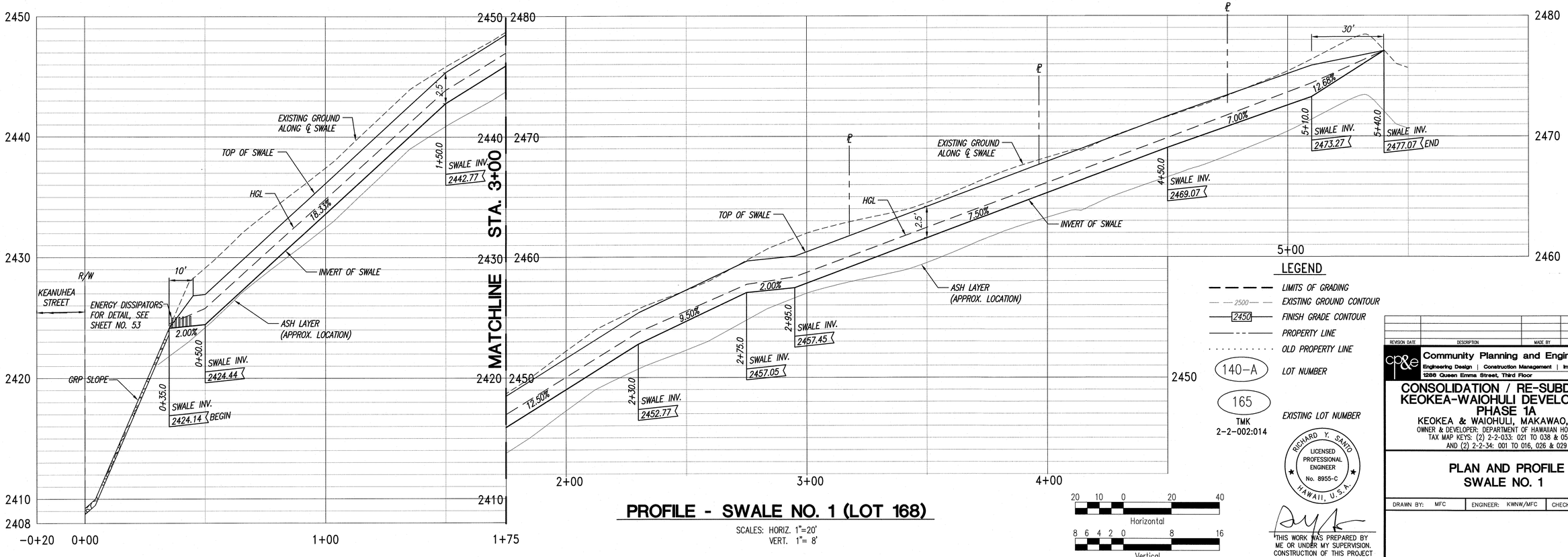


PLAN - SWALE NO. 1 (LOT 168)

SCALE: 1"= 20'



PROFILE - SWALE NO. 1 (LOT 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

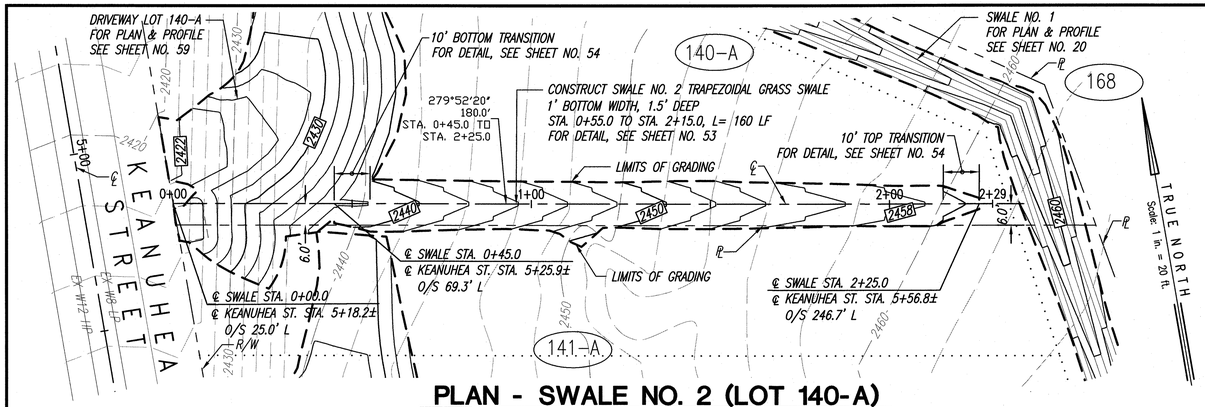
PLAN AND PROFILE SWALE NO. 1

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 20 OF 84 SHEETS

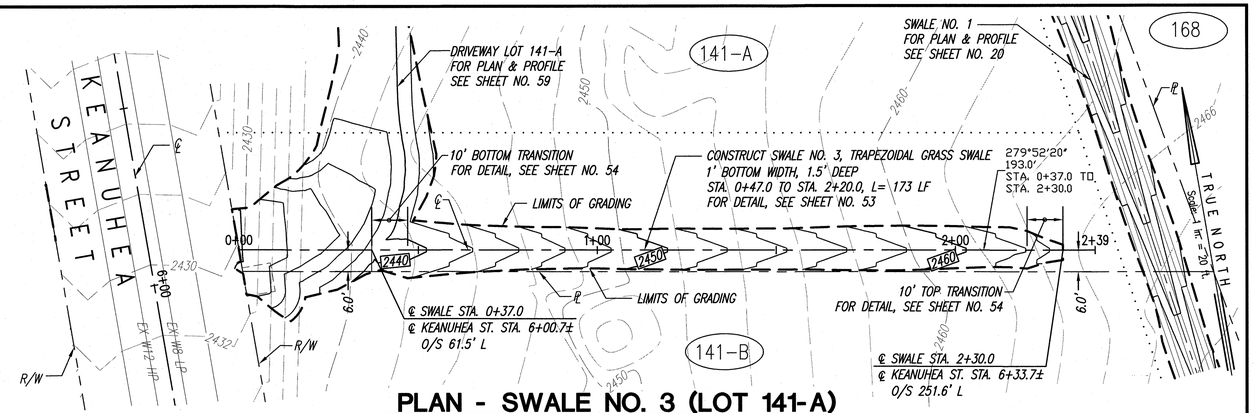
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\A\DWG\Increment 1\Current\20-25 P&P Swale 1-8.dwg, 11/14/2014 2:27:53 PM, 1:1



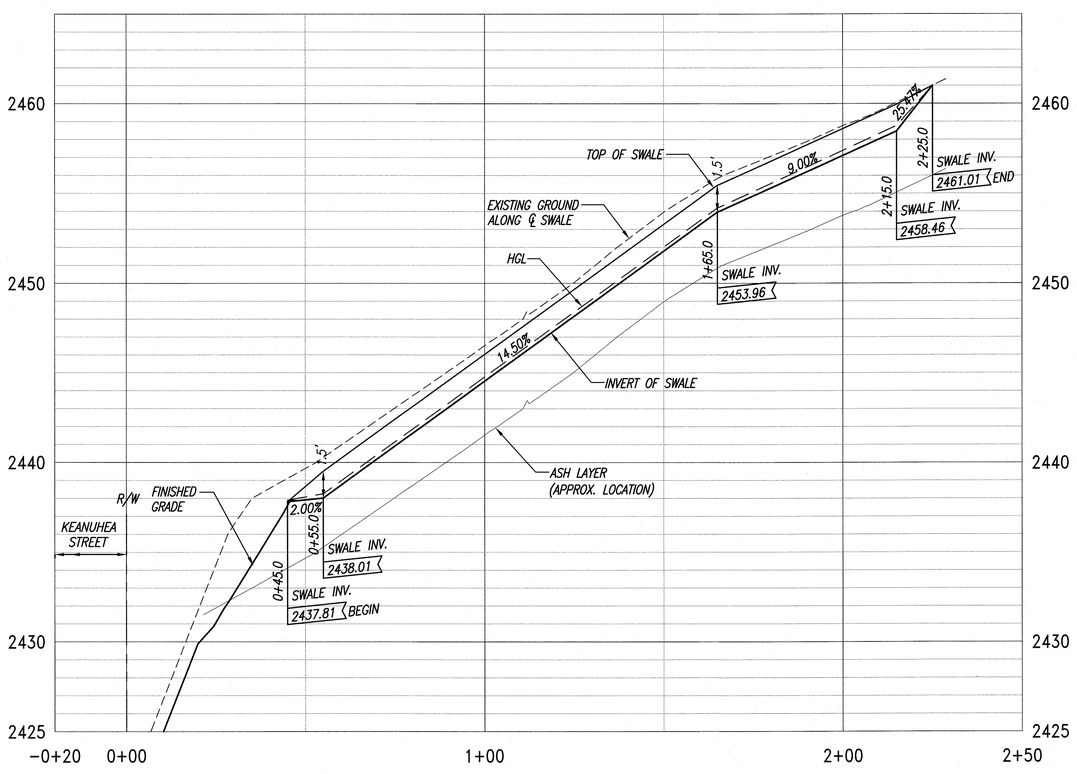
PLAN - SWALE NO. 2 (LOT 140-A)

SCALE: 1"= 20'



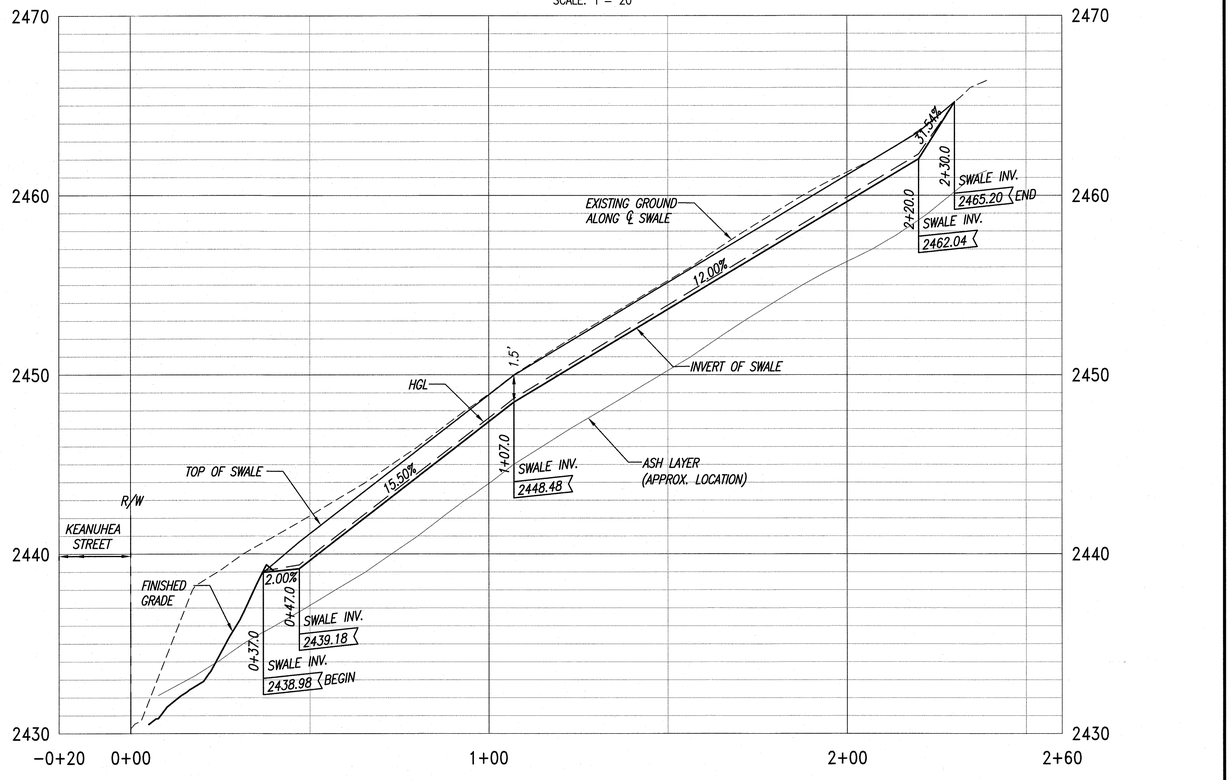
PLAN - SWALE NO. 3 (LOT 141-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 2 (LOT 140-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



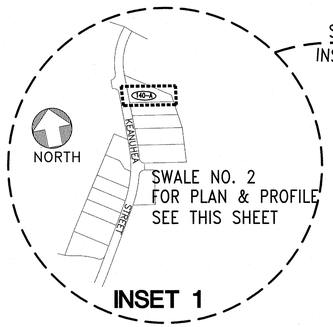
PROFILE - SWALE NO. 3 (LOT 141-A)

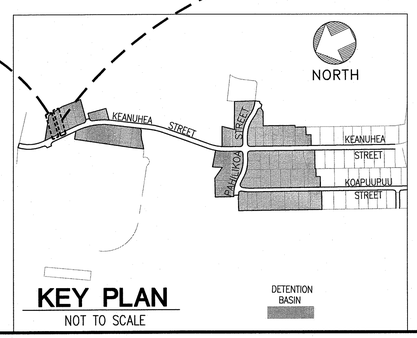
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

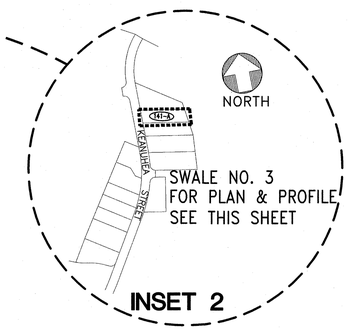
- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014





KEY PLAN
NOT TO SCALE



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

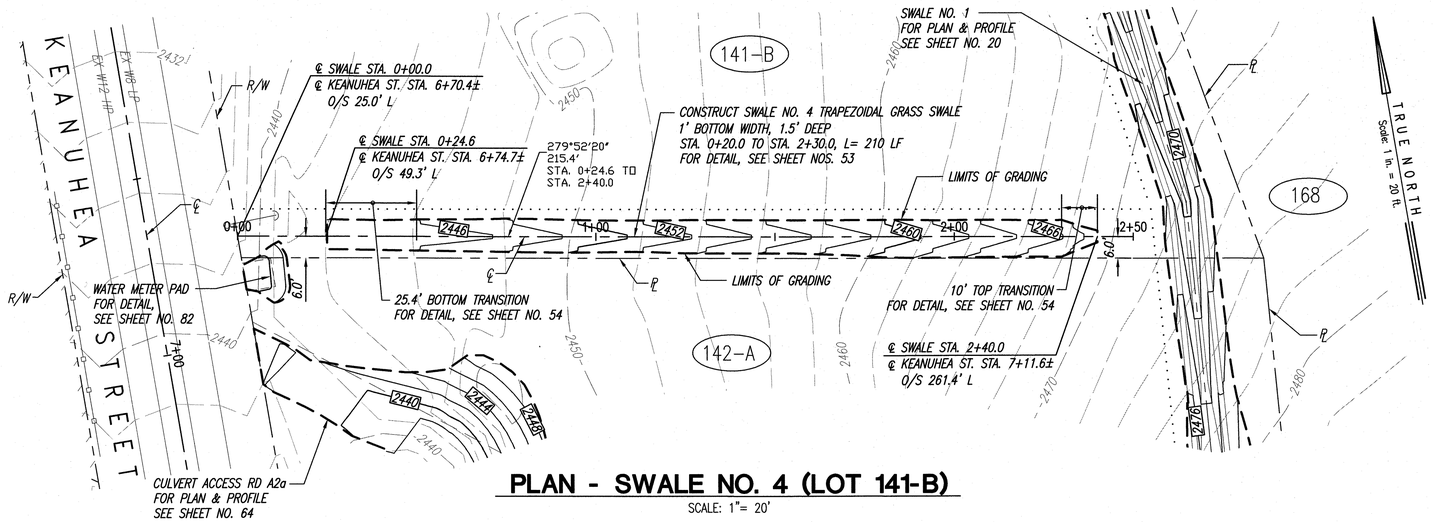
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 2 AND SWALE NO. 3

DRAWN BY:	KWNW	ENGINEER:	KWNW/MFC	CHECKED BY:	RYS

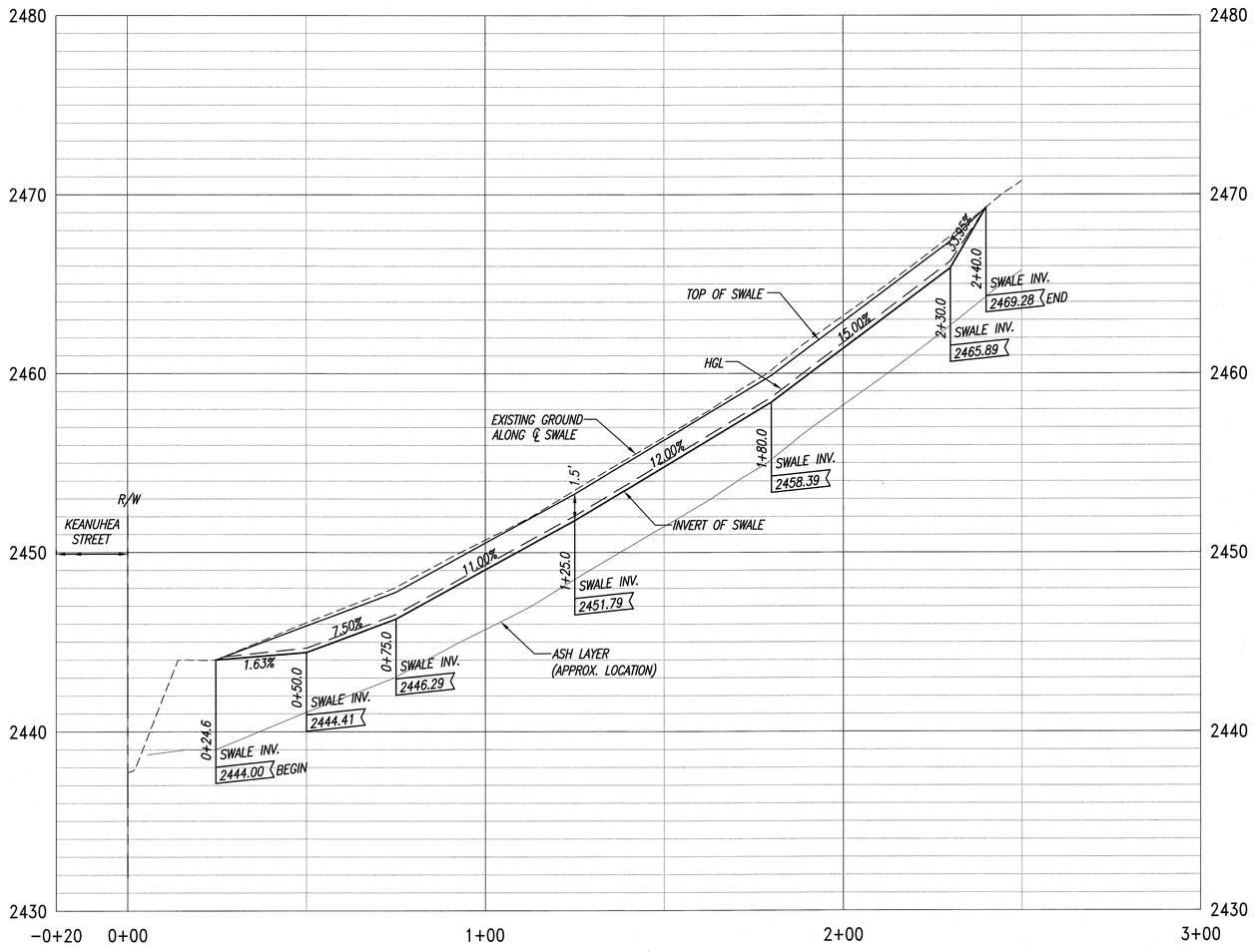
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\20-25 P&P Swale 1-8.dwg, 11/14/2014 2:35:28 PM, 1:1



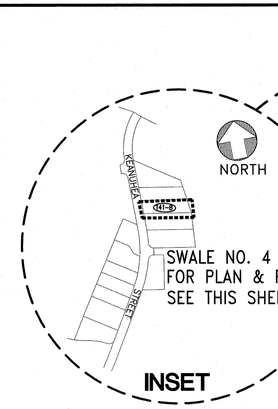
PLAN - SWALE NO. 4 (LOT 141-B)

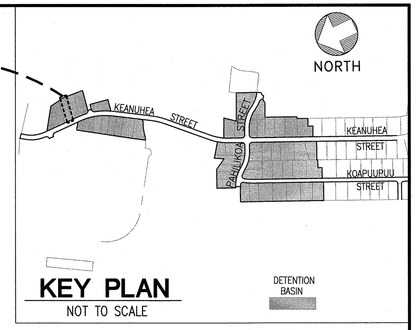
SCALE: 1"= 20'



PROFILE - SWALE NO. 4 (LOT 141-B)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'





LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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LICENSE EXPIRATION DATE: 04/30/16

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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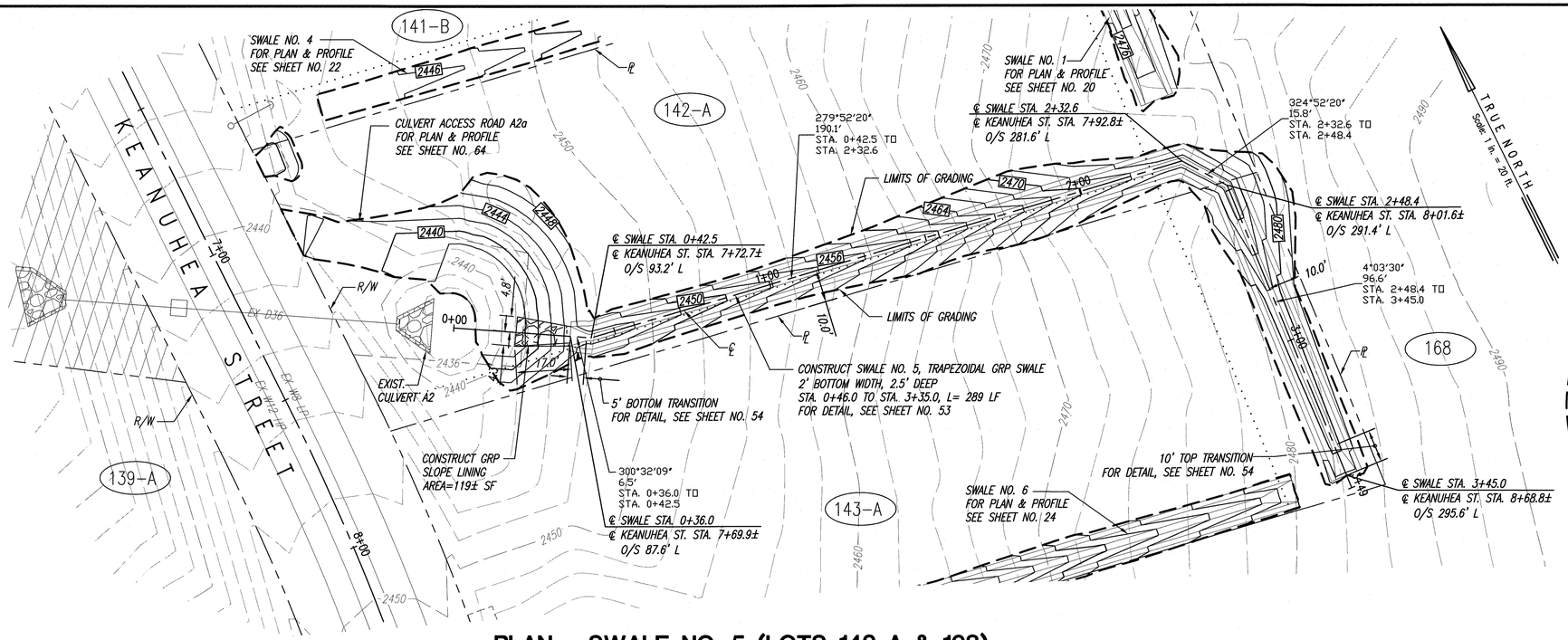
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

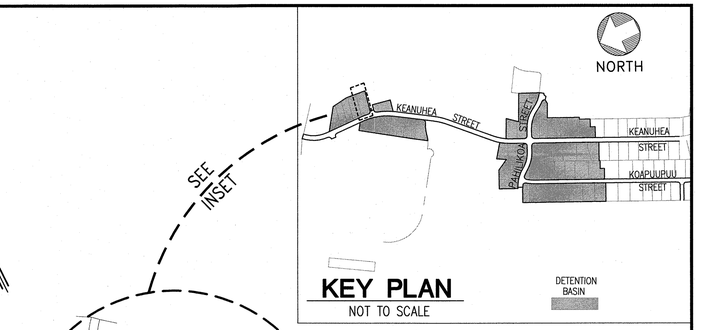
PLAN AND PROFILE SWALE NO. 4

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\20-25 P&P Swale 1-8.dwg, 11/14/2014 2:45:30 PM, 1:1





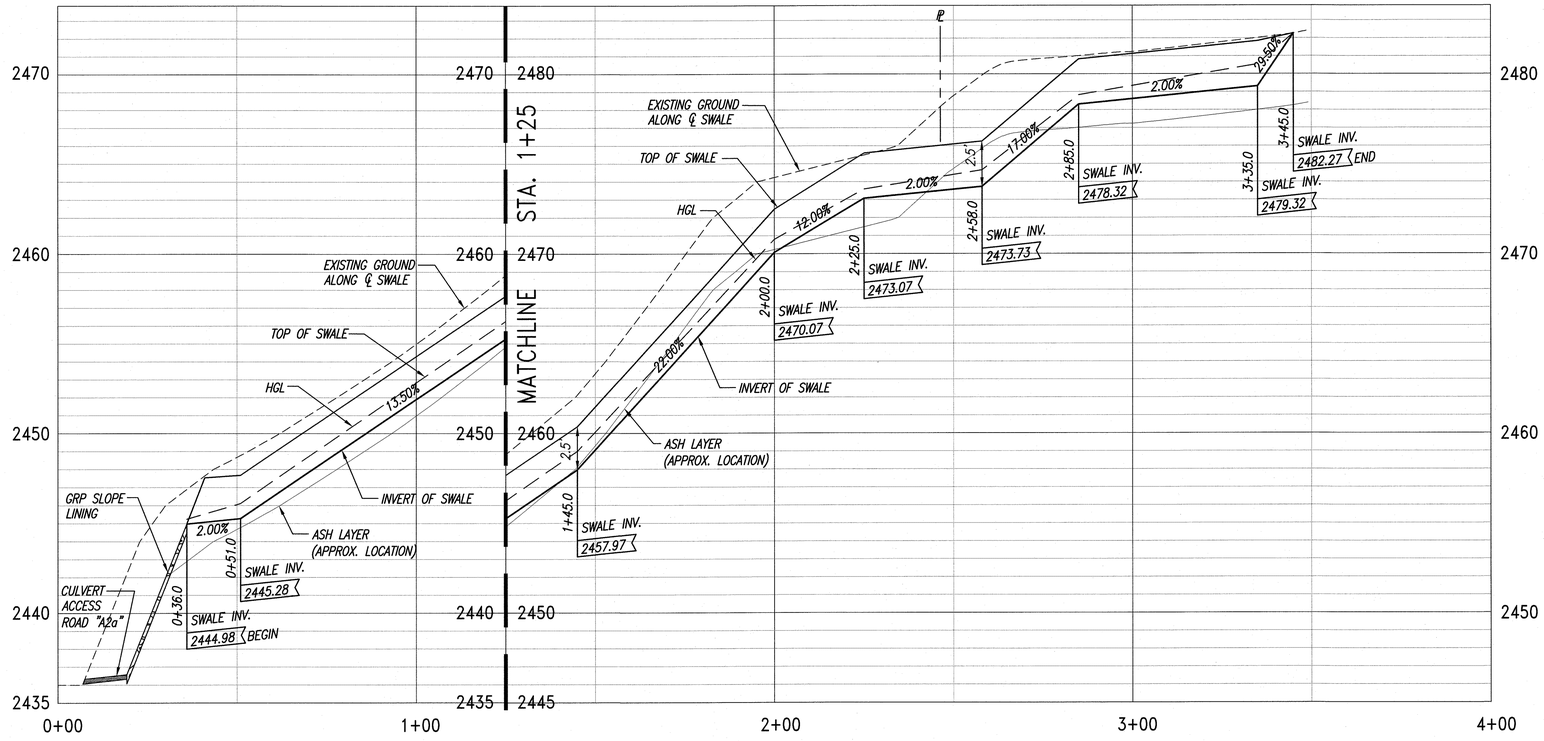
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014

PLAN - SWALE NO. 5 (LOTS 142-A & 168)

SCALE: 1"= 20'



PROFILE - SWALE NO. 5 (LOTS 142-A & 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal

8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 5

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

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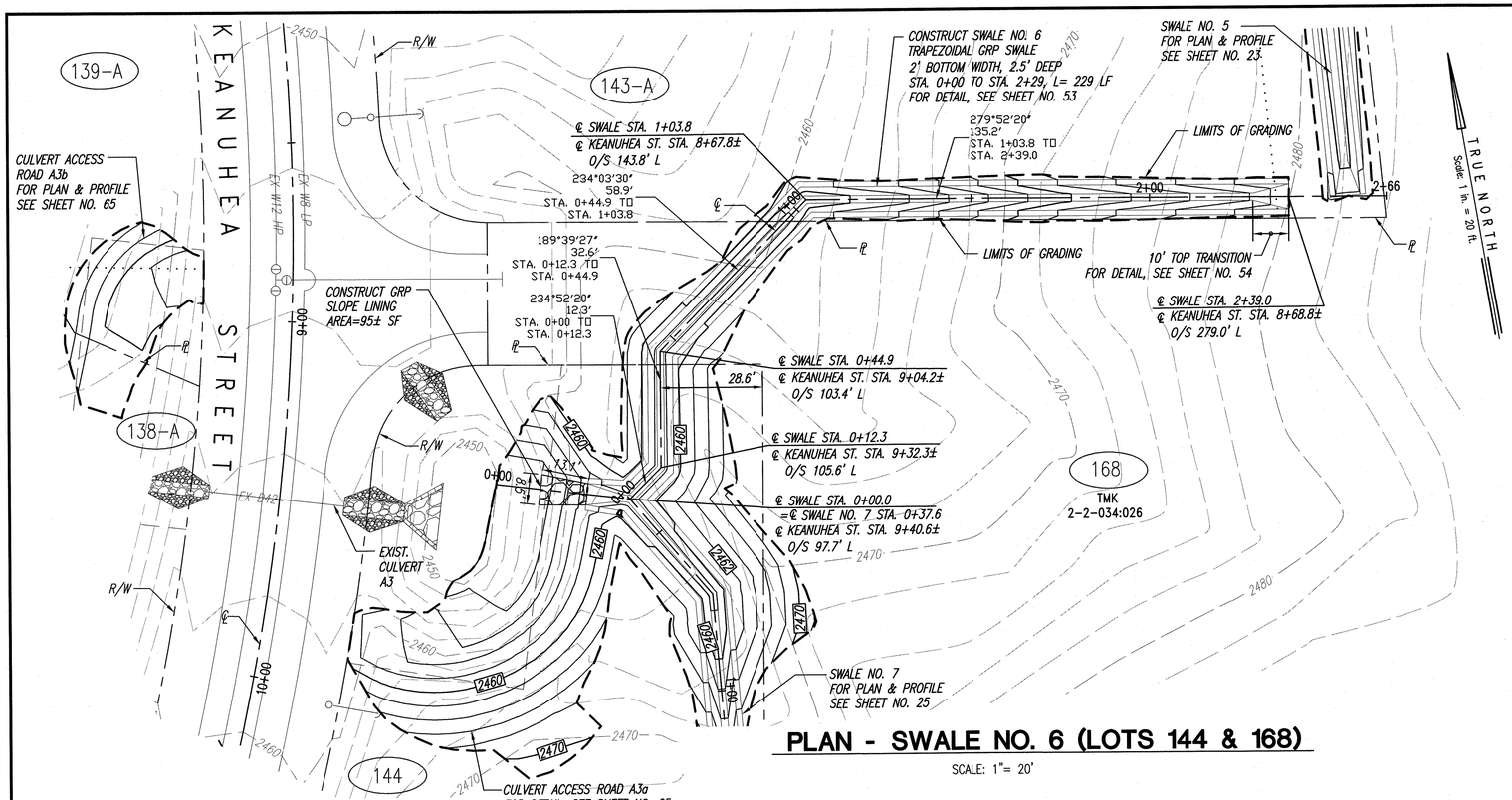
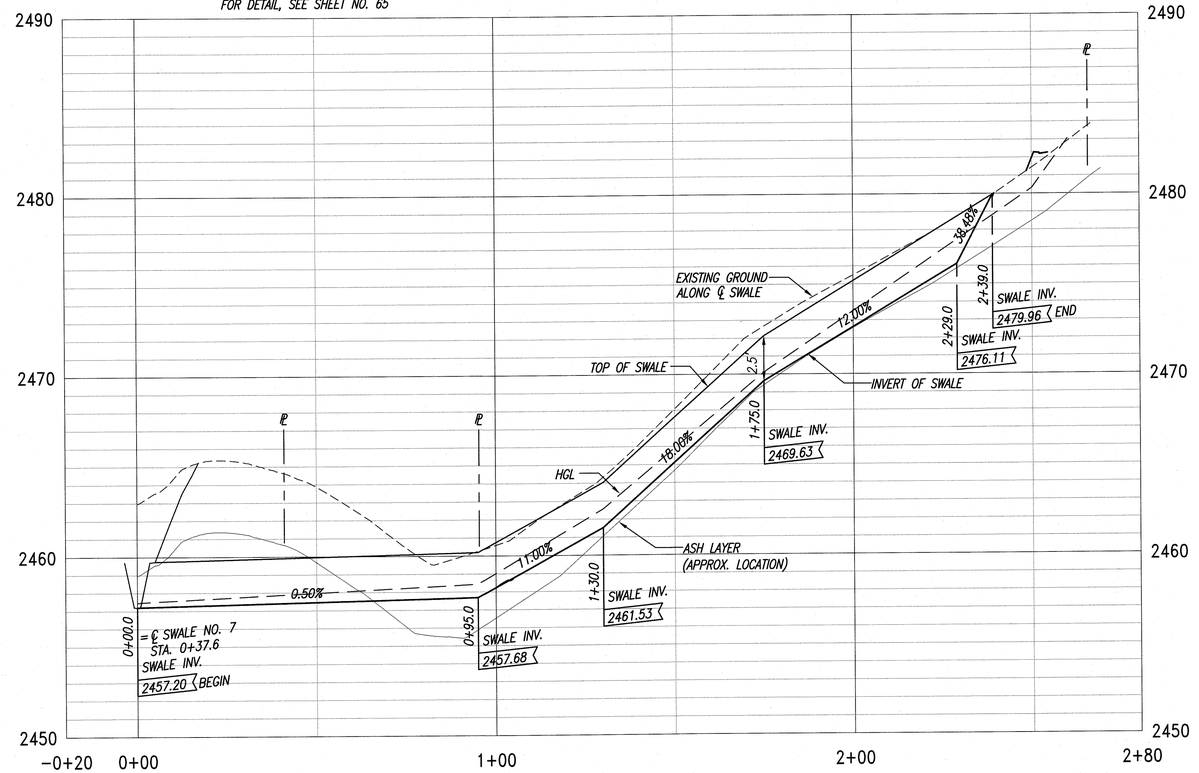


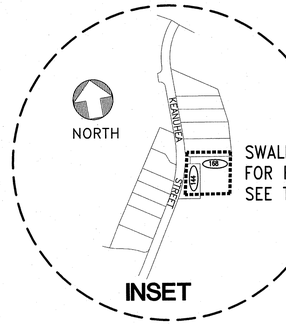
PLAN - SWALE NO. 6 (LOTS 144 & 168)

SCALE: 1"= 20'

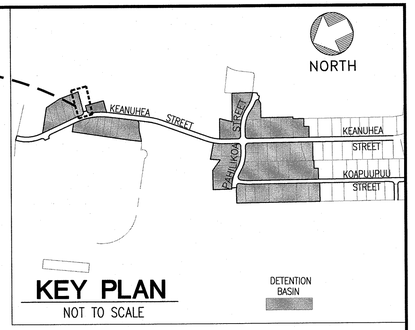


PROFILE - SWALE NO. 6 (LOTS 144 & 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



SEE INSET



LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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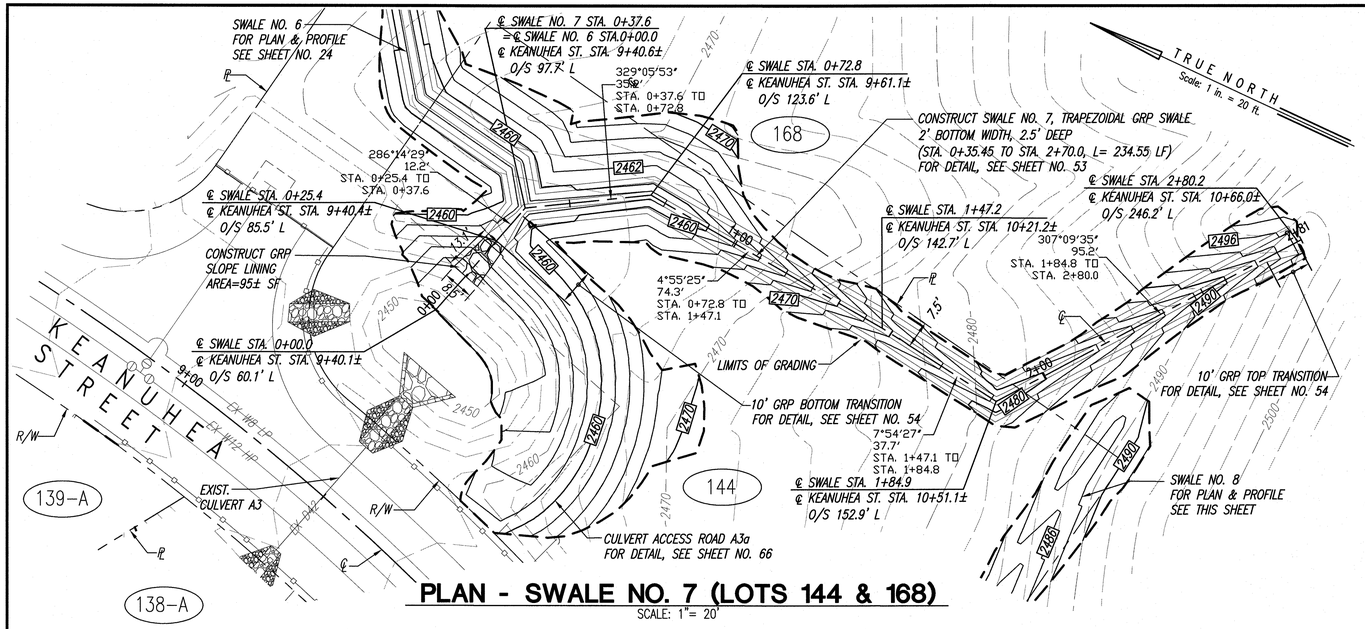
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 6

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

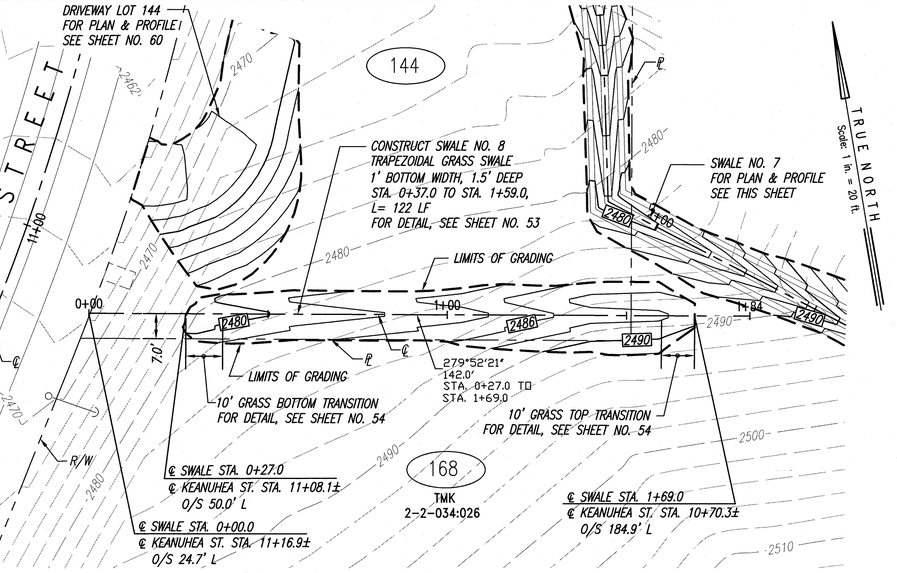
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\20-25 P&P Swale 1-8.dwg, 11/14/2014 2:47:04 PM, 1:1



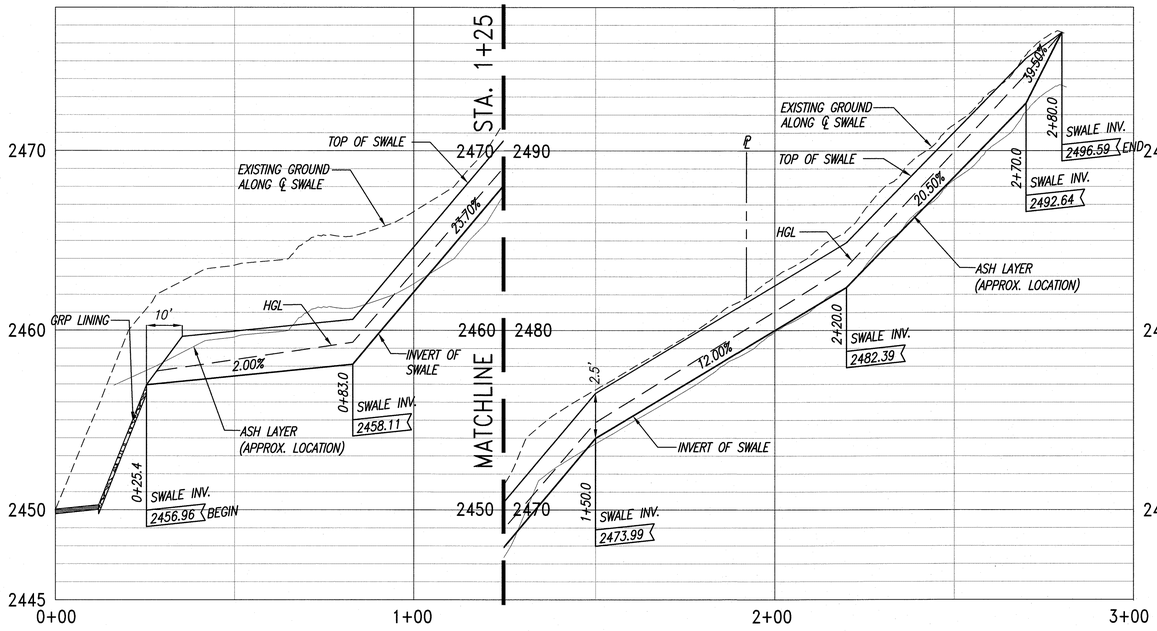
PLAN - SWALE NO. 7 (LOTS 144 & 168)

SCALE: 1"= 20'



PLAN - SWALE NO. 8 (LOT 168)

SCALE: 1"= 20'



PROFILE - SWALE NO. 7 (LOTS 144 & 168)

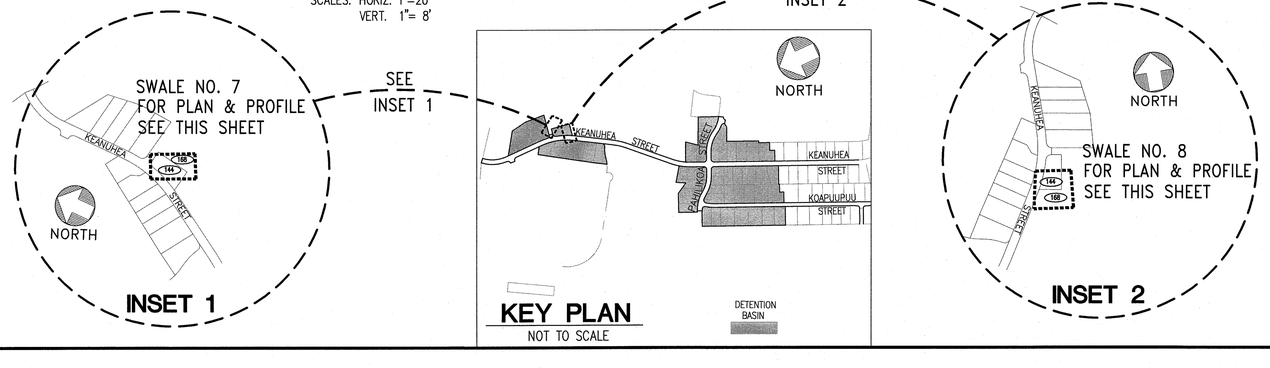
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

PROFILE - SWALE NO. 8 (LOT 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

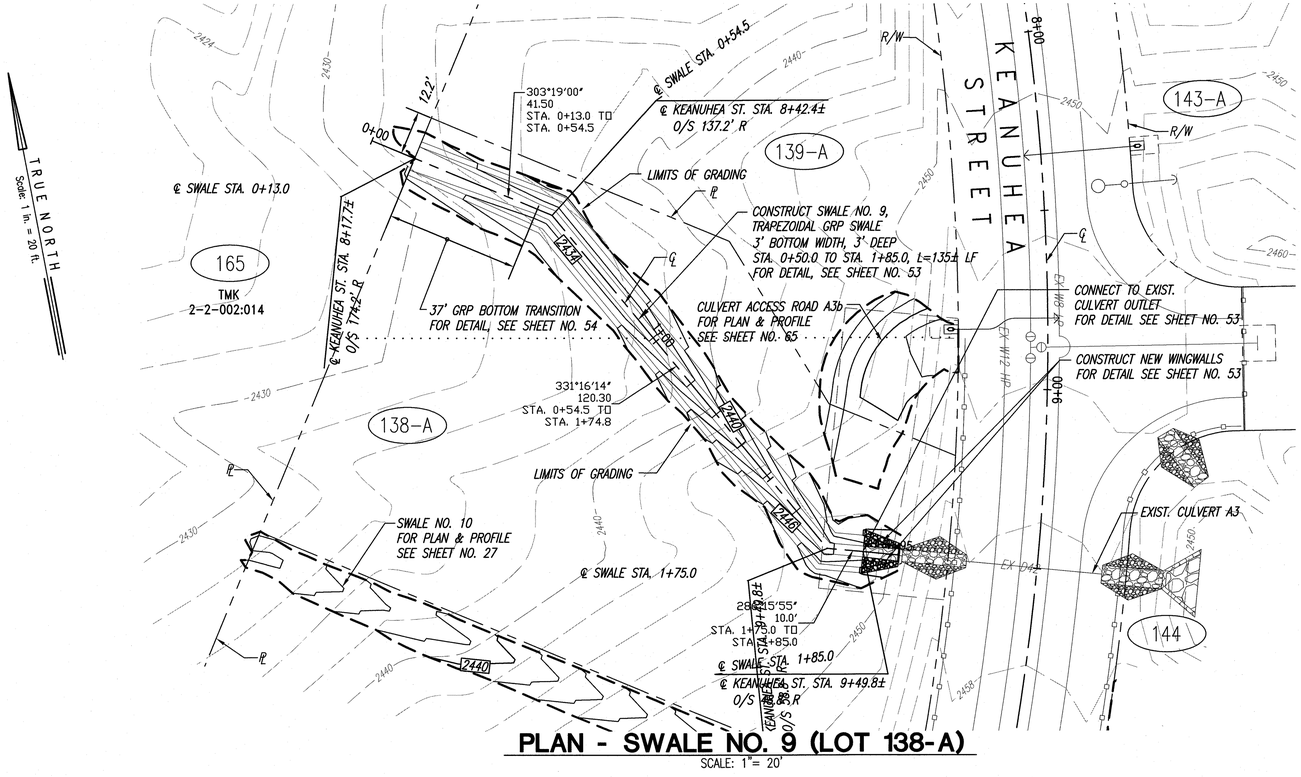
PLAN AND PROFILE SWALE NO. 7 AND NO. 8

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 25 OF 84 SHEETS

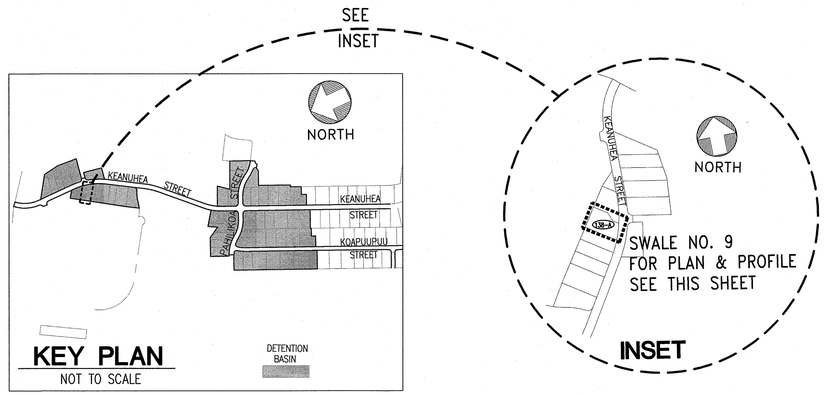
FILE	POCKET	FOLDER	NO.

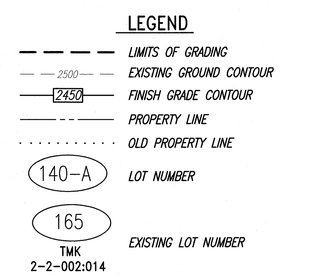
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AD\WG\Increment 1\Current\20-25 P&P Swale 1-8.dwg, 11/14/2014 2:39:57 PM, 1:1

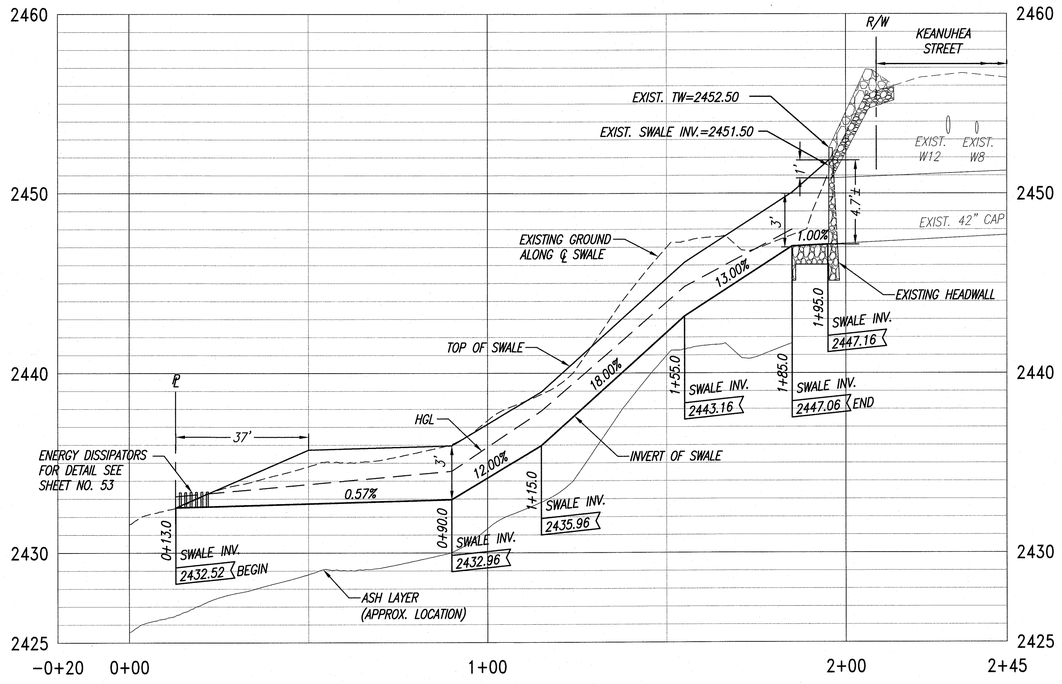


PLAN - SWALE NO. 9 (LOT 138-A)

SCALE: 1"= 20'

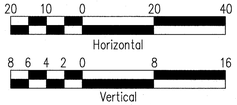


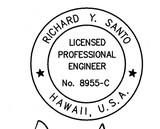




PROFILE - SWALE NO. 9 (LOT 138-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'





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ME OR UNDER MY SUPERVISION.
CONSTRUCTION OF THIS PROJECT
WILL BE UNDER MY OBSERVATION.
LICENSE EXPIRATION DATE: 04/30/16

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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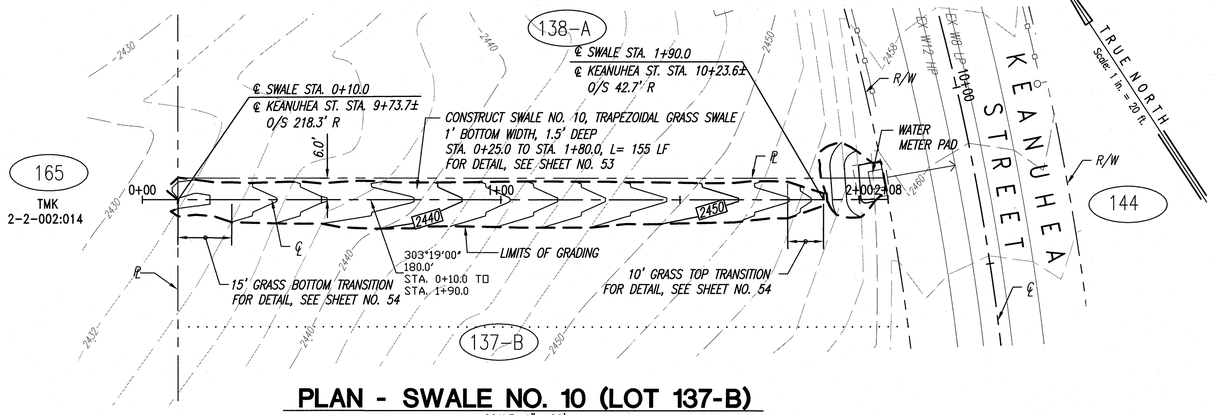
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 9

DRAWN BY: MFC	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\26-29 P&P Swale 9-15.dwg, 11/14/2014 2:57:19 PM, 1:1

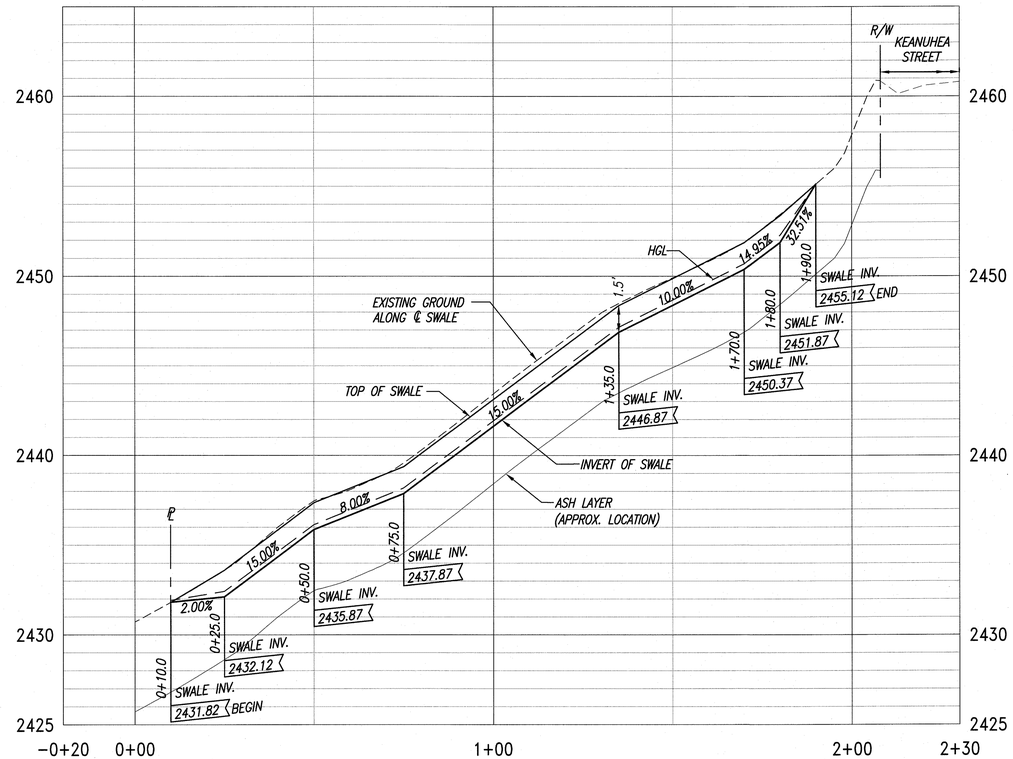


PLAN - SWALE NO. 10 (LOT 137-B)

SCALE: 1"= 20'

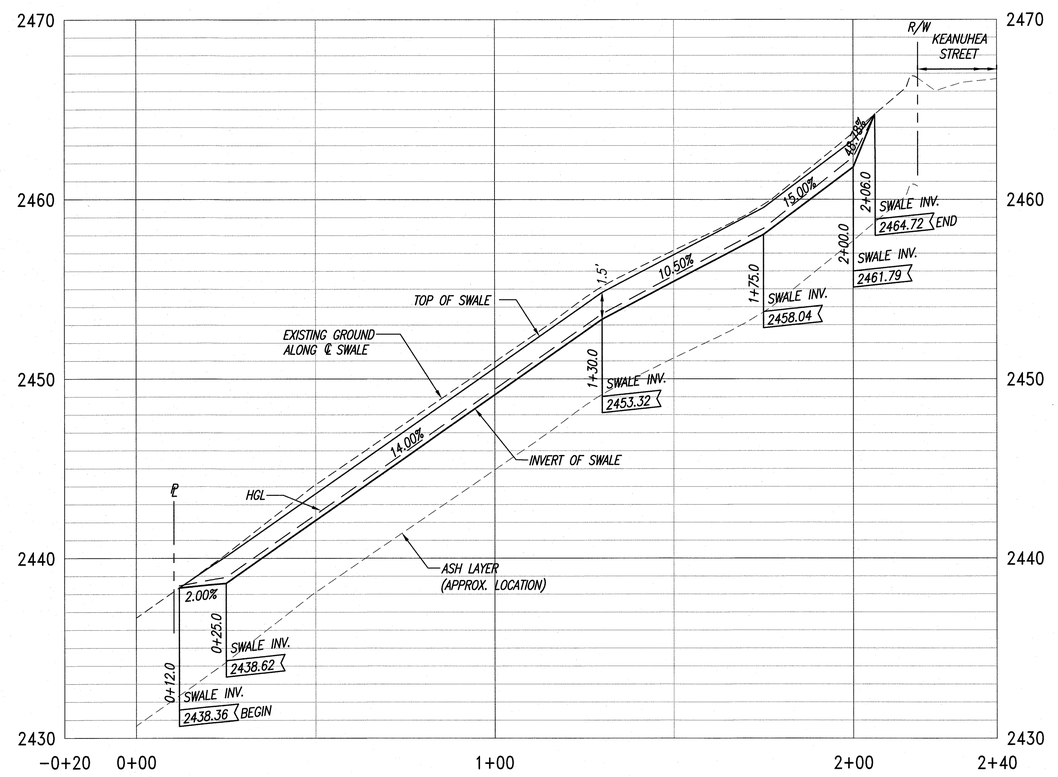
PLAN - SWALE NO. 11 (LOT 137-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 10 (LOT 137-B)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

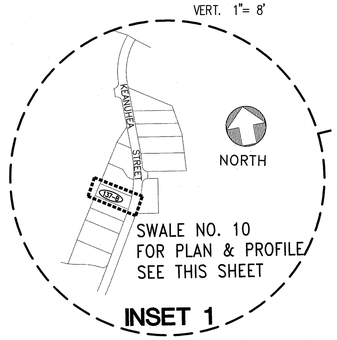


PROFILE - SWALE NO. 11 (LOT 137-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

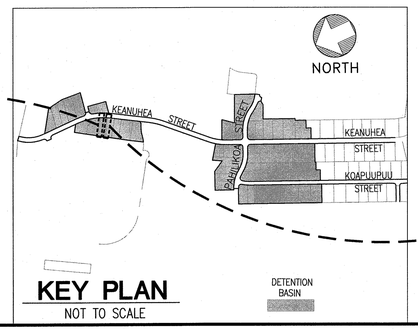
LEGEND

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



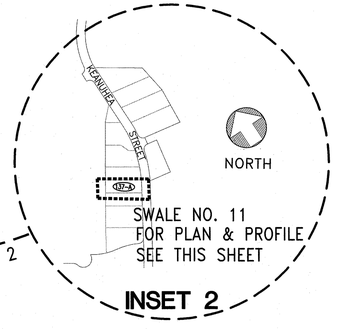
INSET 1

SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



INSET 2

Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

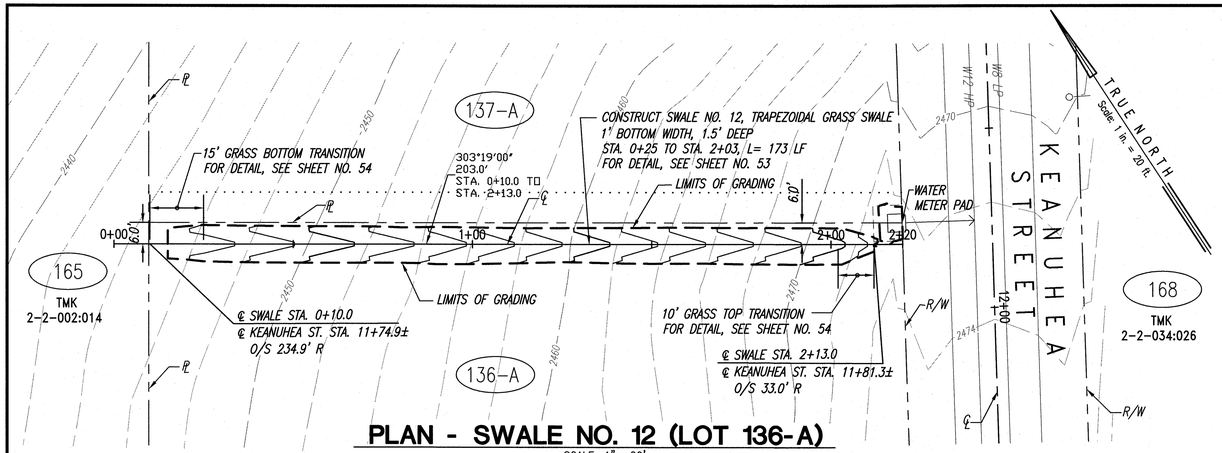
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 10 & SWALE NO. 11

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

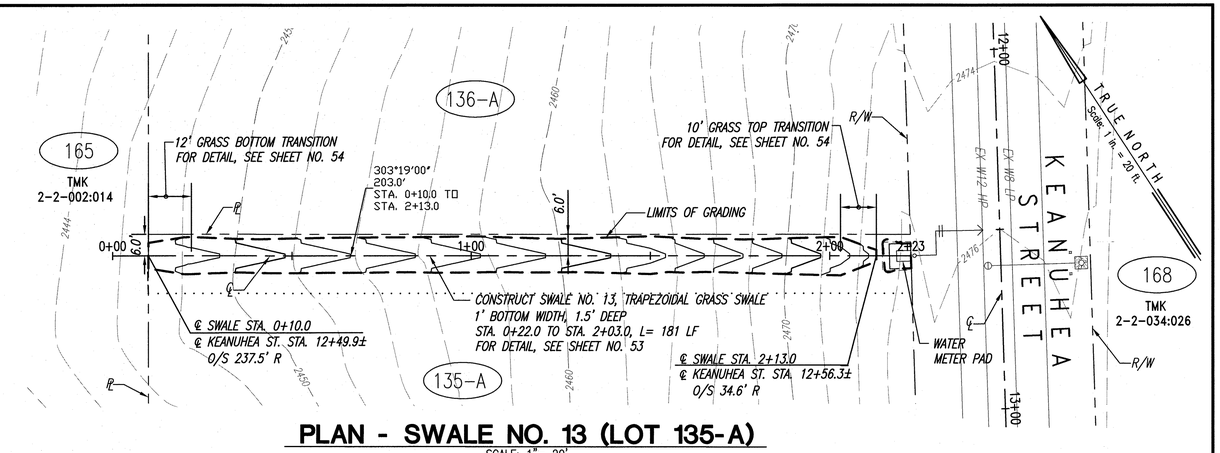
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\26-29 P&P Swale 9-15.dwg, 11/14/2014 2:59:24 PM, 1:1



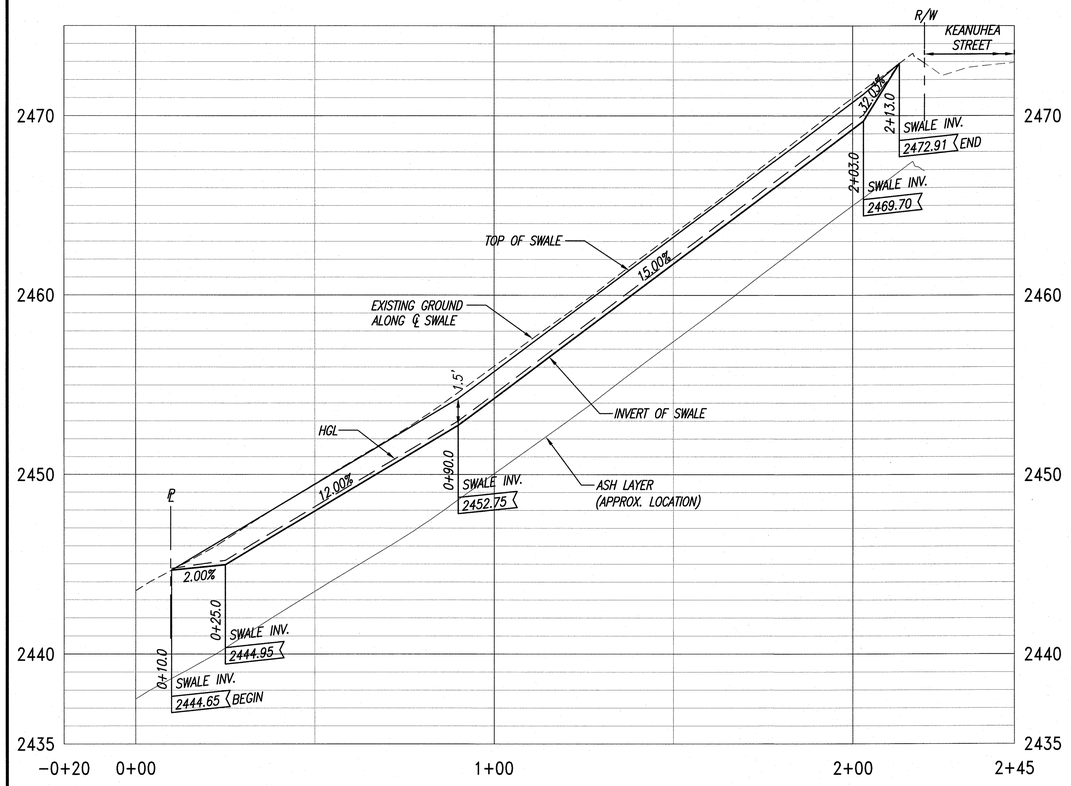
PLAN - SWALE NO. 12 (LOT 136-A)

SCALE: 1"= 20'



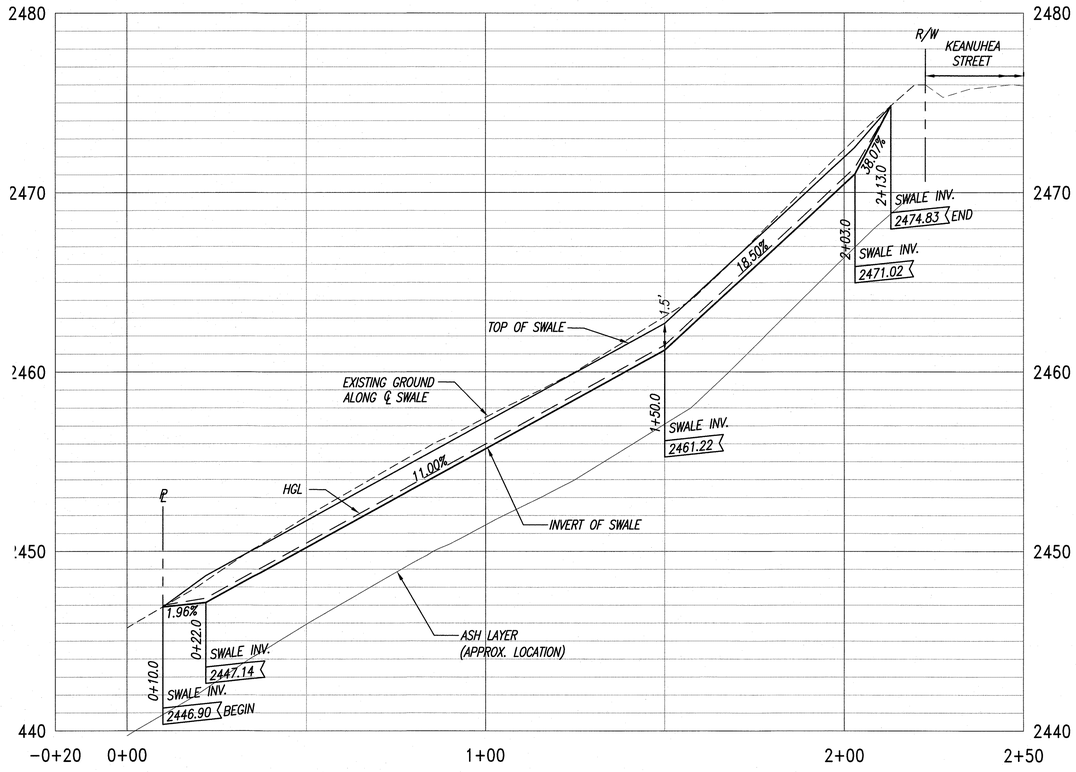
PLAN - SWALE NO. 13 (LOT 135-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 12 (LOT 136-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

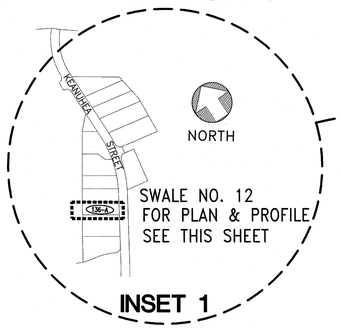


PROFILE - SWALE NO. 13 (LOT 135-A)

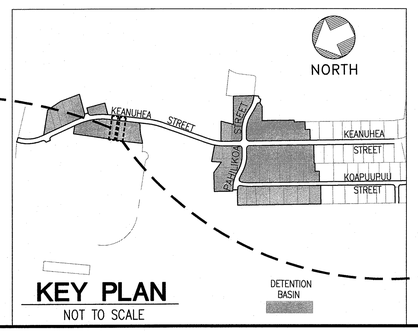
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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

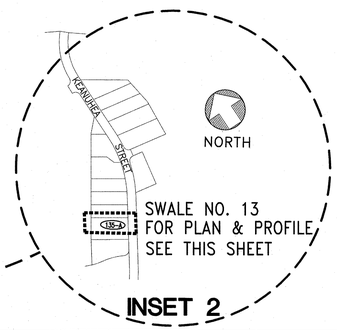


SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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AND (2) 2-2-34: 001 TO 016, 026 & 029

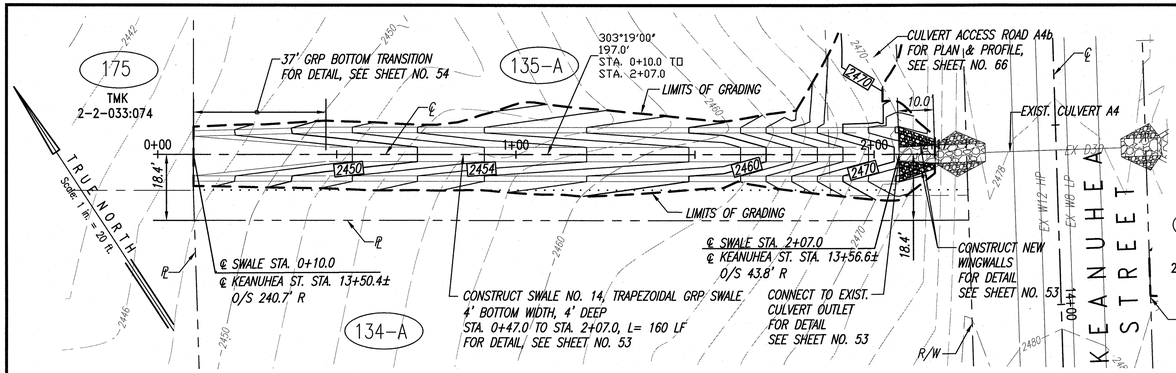
PLAN AND PROFILE SWALE NO. 12 & SWALE NO. 13

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 28 OF 84 SHEETS

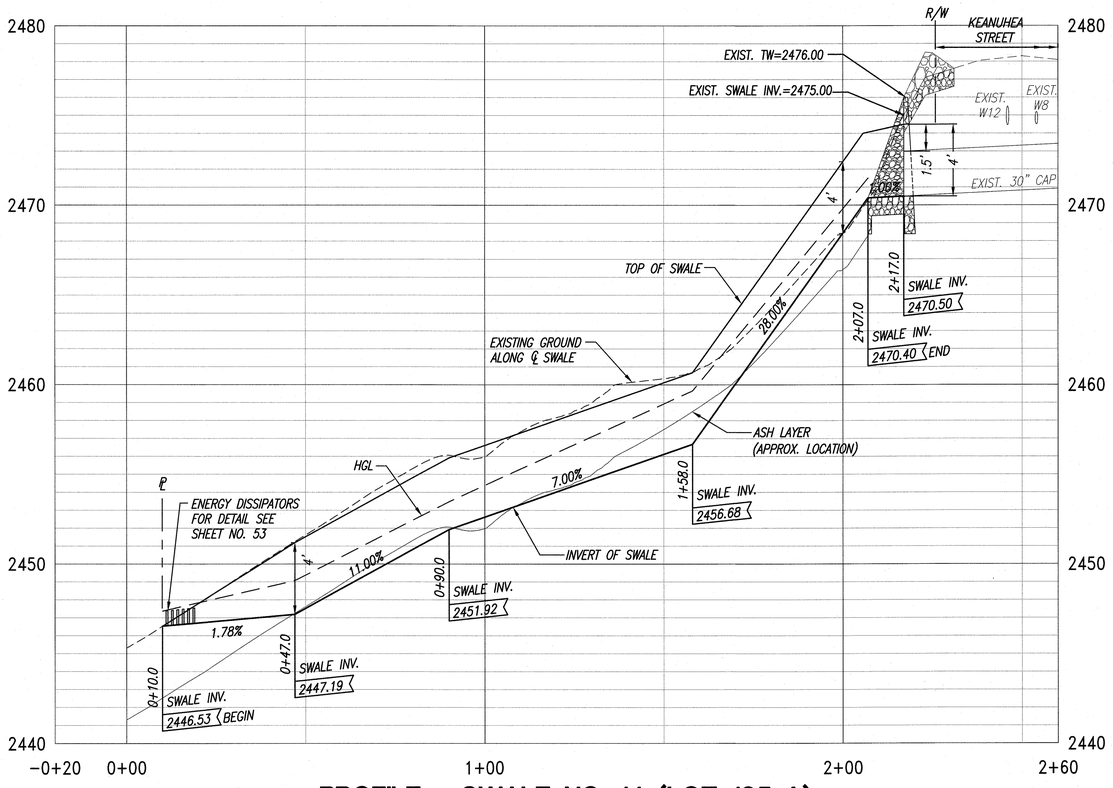
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\26-29 P&P Swale 9-15.dwg, 11/14/2014 3:02:45 PM, 1:1



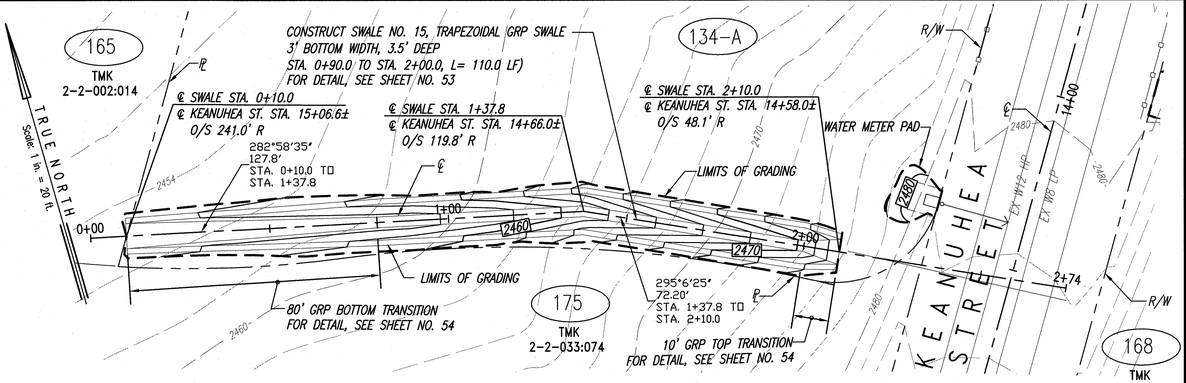
PLAN - SWALE NO. 14 (LOT 135-A)

SCALE: 1"= 20'



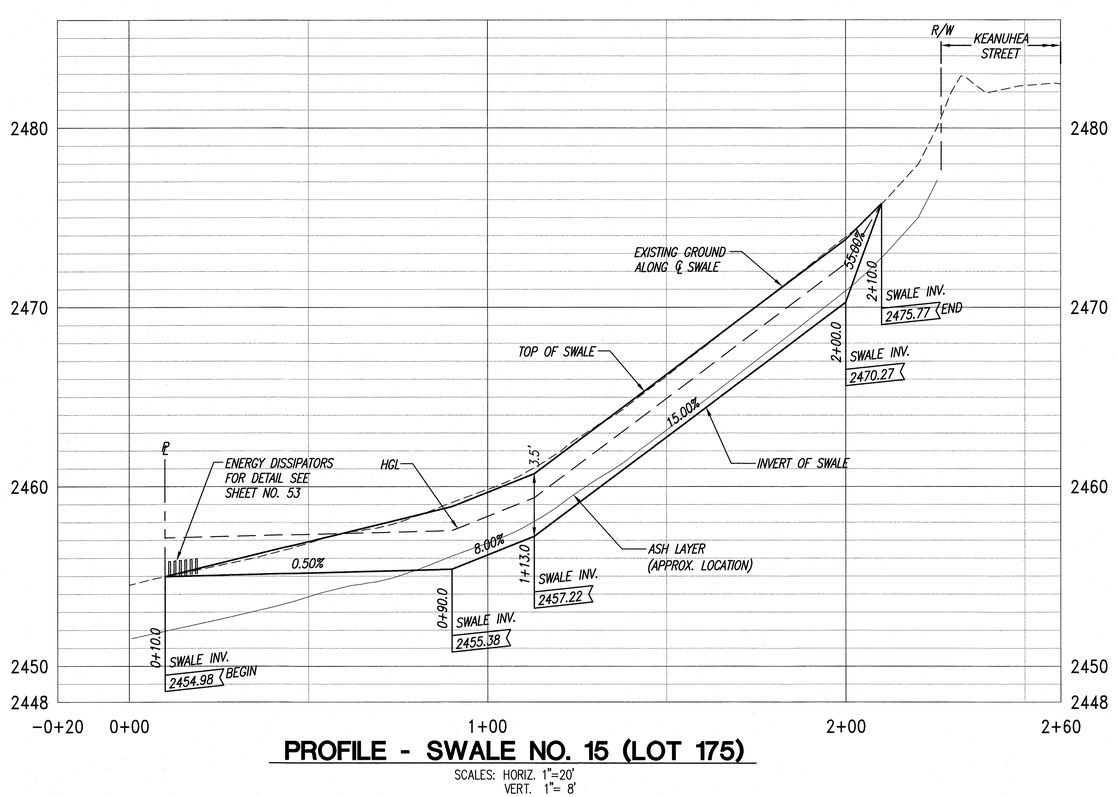
PROFILE - SWALE NO. 14 (LOT 135-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - SWALE NO. 15 (LOT 175)

SCALE: 1"= 20'

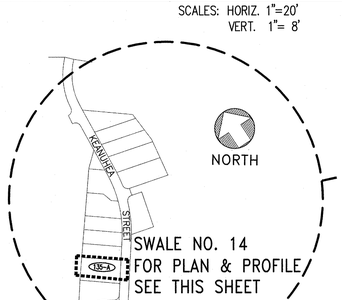


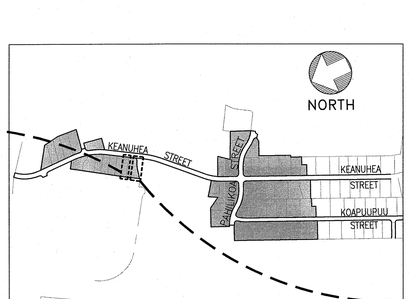
PROFILE - SWALE NO. 15 (LOT 175)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

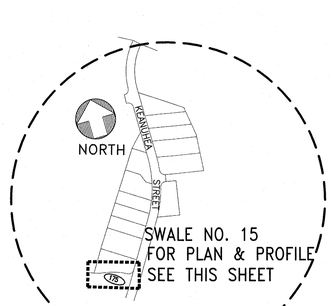
LEGEND

- LIMITS OF GRADING
- 2500 — EXISTING GROUND CONTOUR
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A — LOT NUMBER
- 165 / TMK 2-2-002:014 — EXISTING LOT NUMBER





KEY PLAN
NOT TO SCALE



SEE INSET 1

SEE INSET 2

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 14 & SWALE NO. 15

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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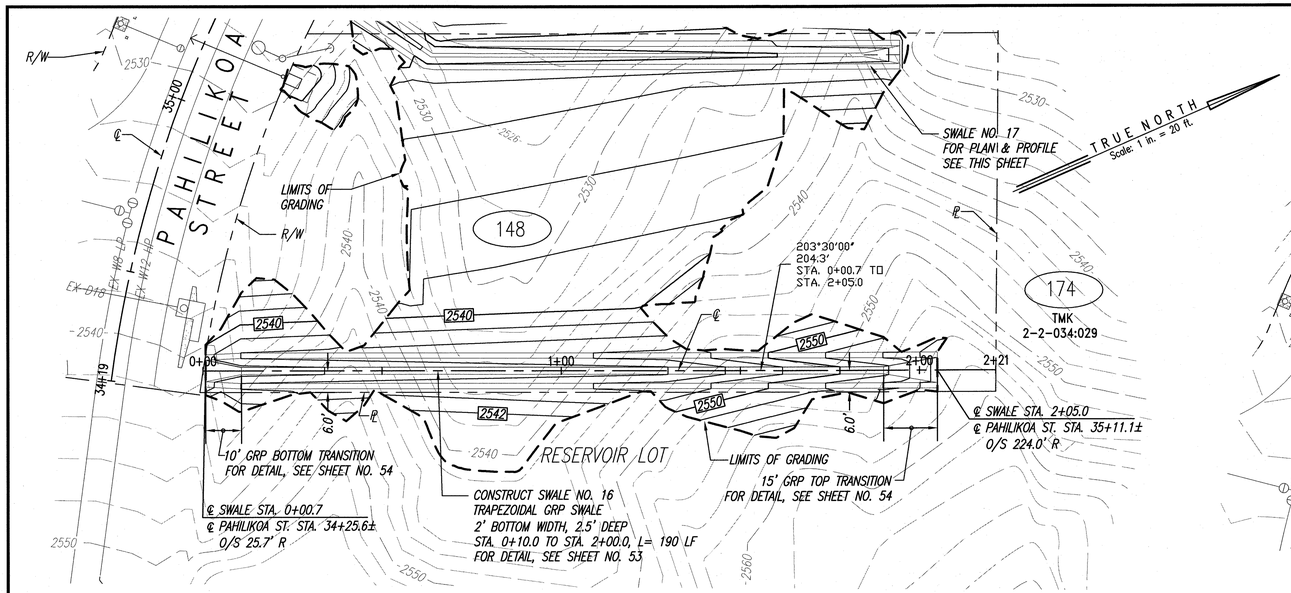
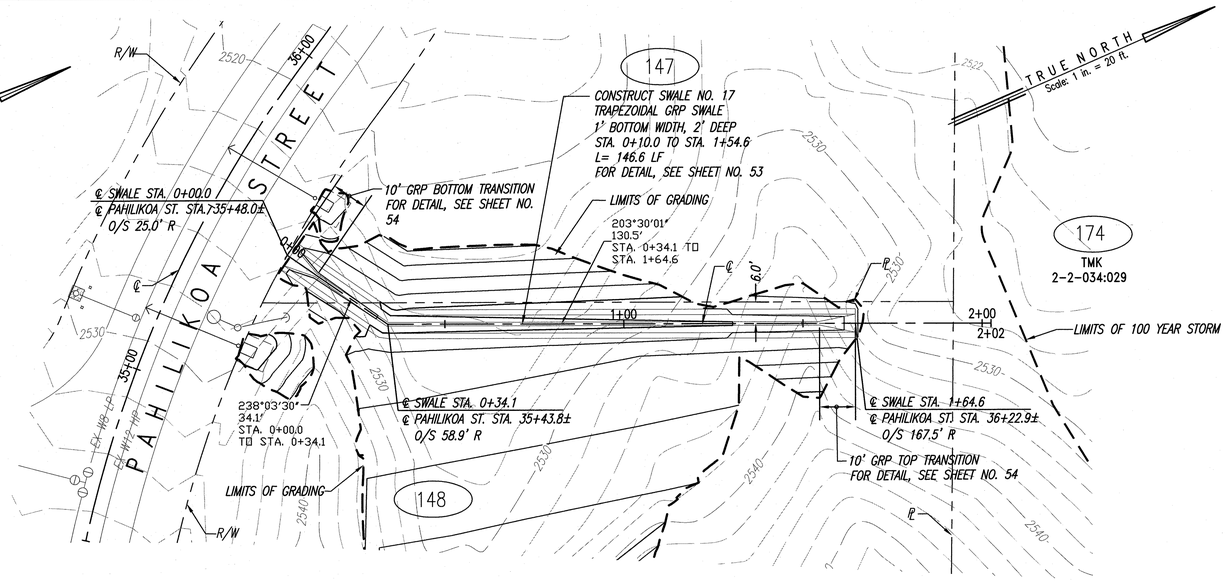
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Gincrement 1\Current\26-29 P&P Swale 9-15.dwg, 11/14/2014 3:05:02 PM, 1:1



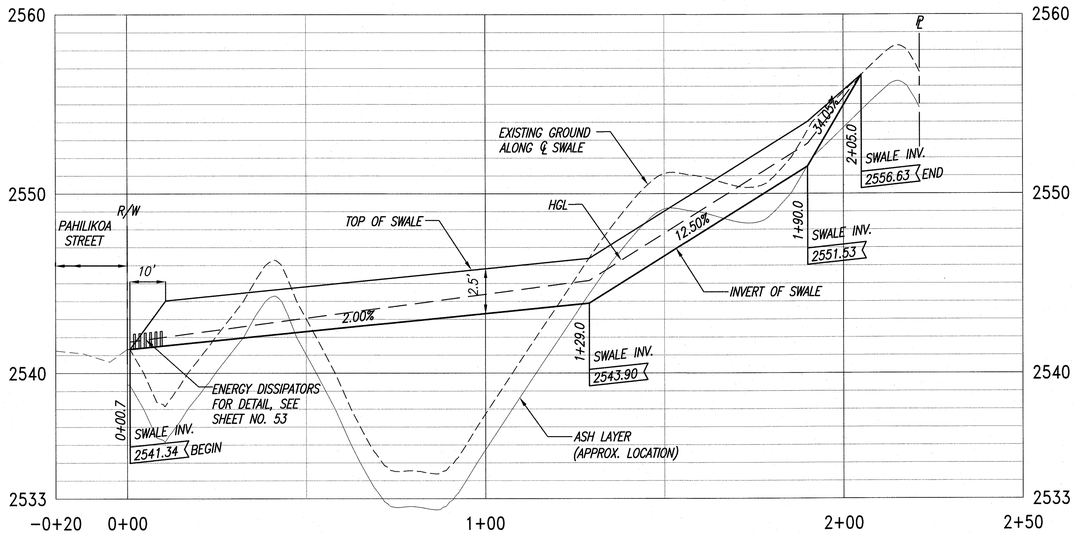
PLAN - SWALE NO. 16 (LOT 148)

SCALE: 1"= 20'



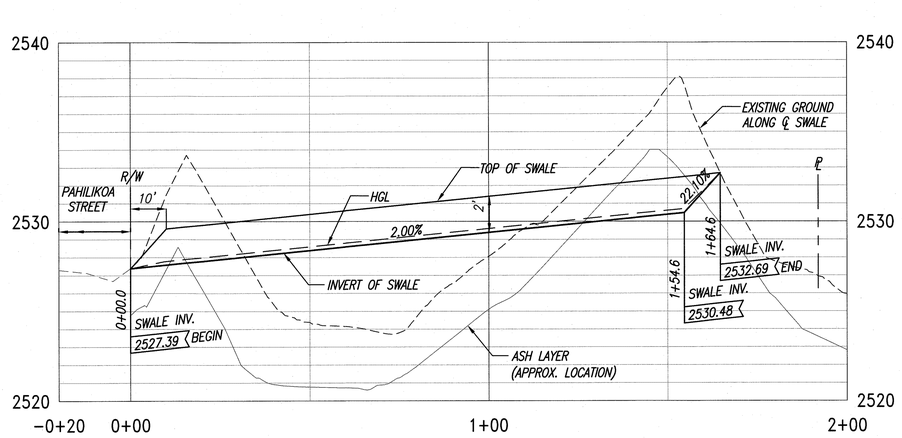
PLAN - SWALE NO. 17 (LOT 147)

SCALE: 1"= 20'



PROFILE - SWALE NO. 16 (LOT 148)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



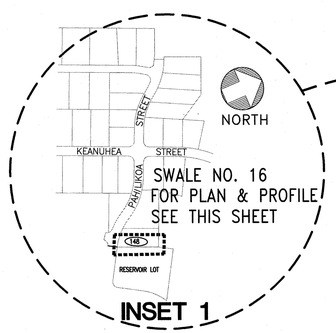
PROFILE - SWALE NO. 17 (LOT 147)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

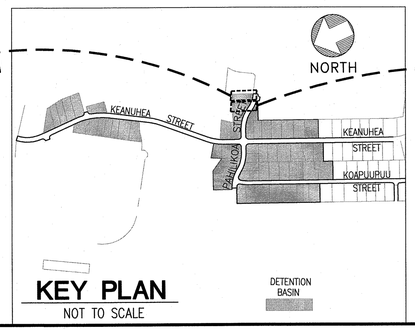
- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014



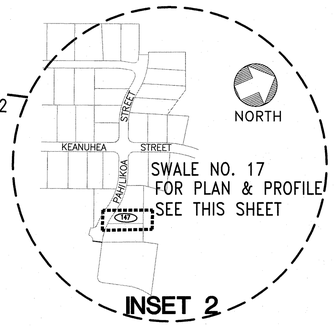
INSET 1

SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



INSET 2

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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AND (2) 2-2-34: 001 TO 016, 026 & 029

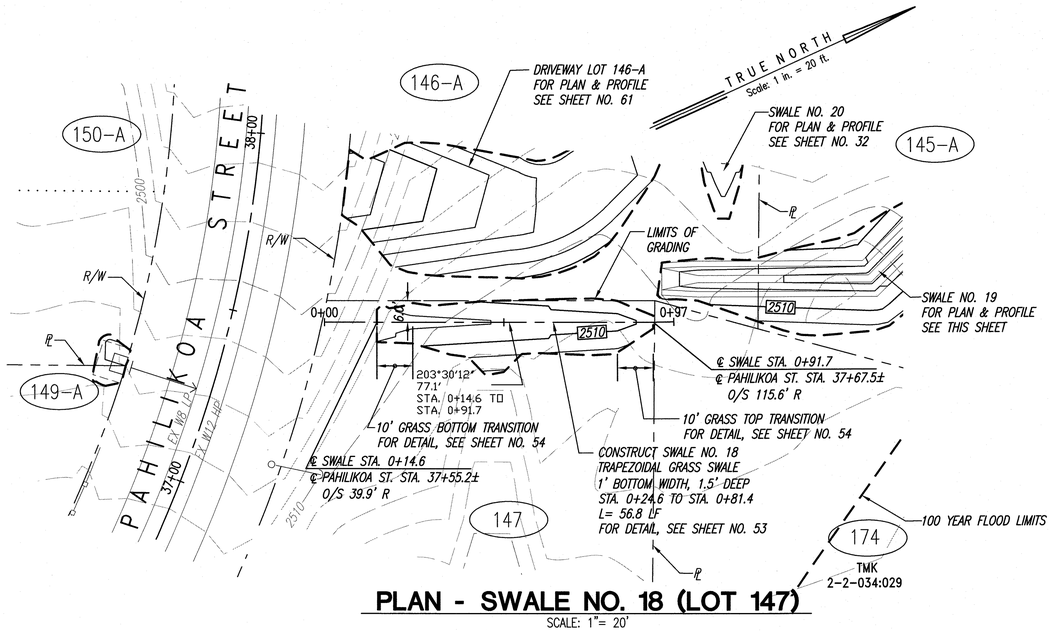
PLAN AND PROFILE SWALE NO. 16 & SWALE NO. 17

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

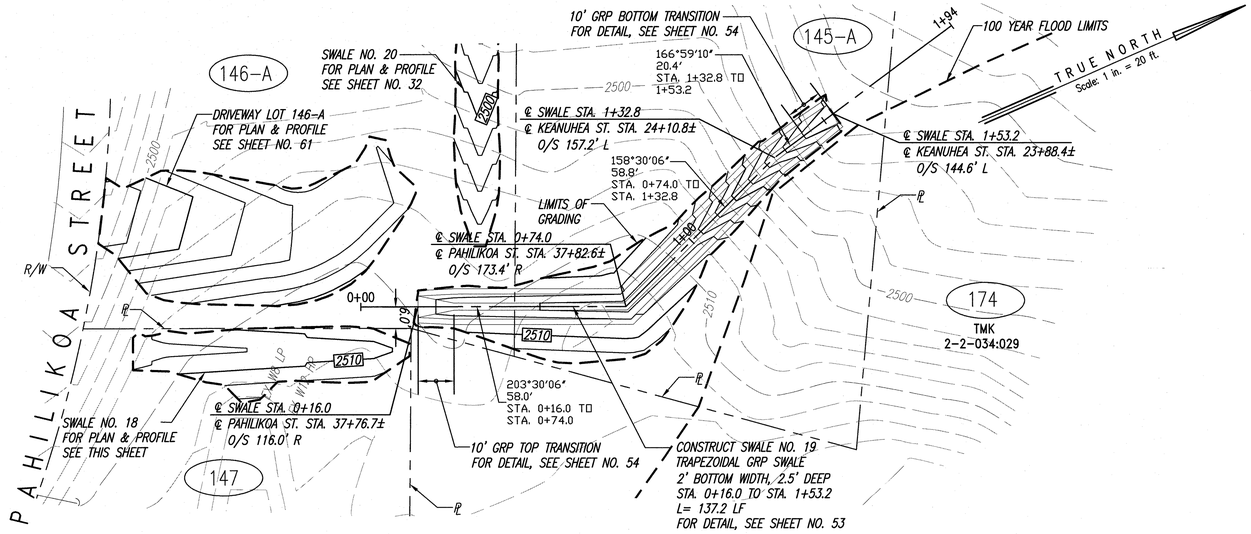
SHEET 30 OF 84 SHEETS

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DW\Increment 1\Current\30-33 P&P Swale 16-21.dwg, 11/14/2014 3:10:56 PM, 1:1



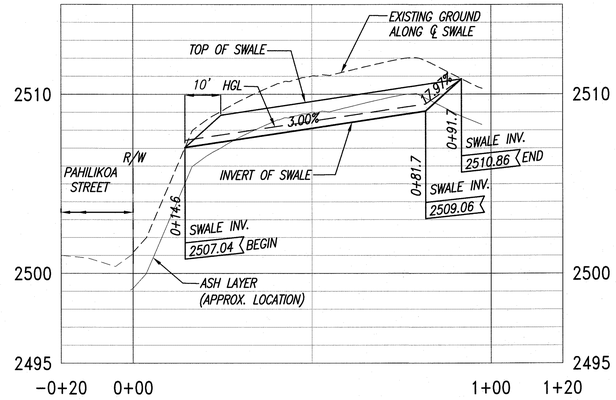
PLAN - SWALE NO. 18 (LOT 147)

SCALE: 1"= 20'



PLAN - SWALE NO. 19 (LOT 145-A AND LOT 146-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 18 (LOT 147)

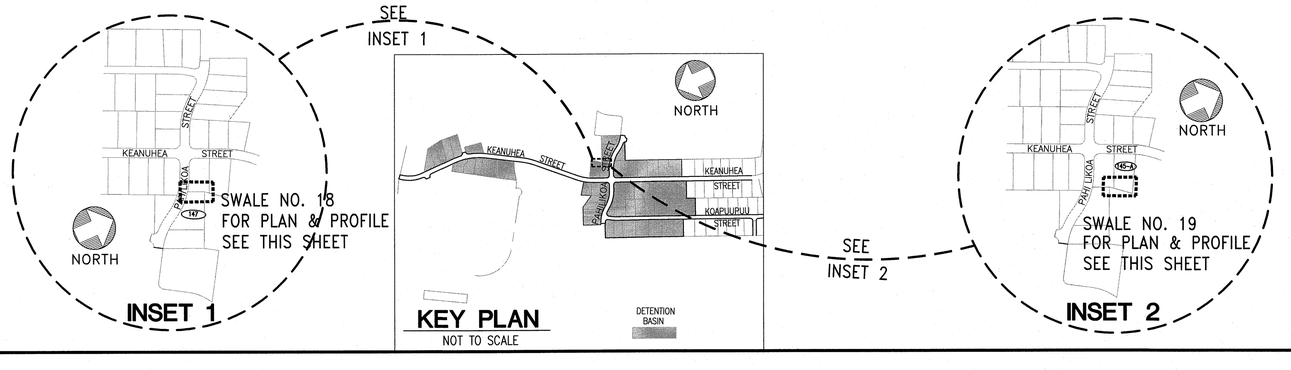
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

PROFILE - SWALE NO. 19 (LOT 145-A AND LOT 146-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
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No. 8955-C
HAWAII, U.S.A.

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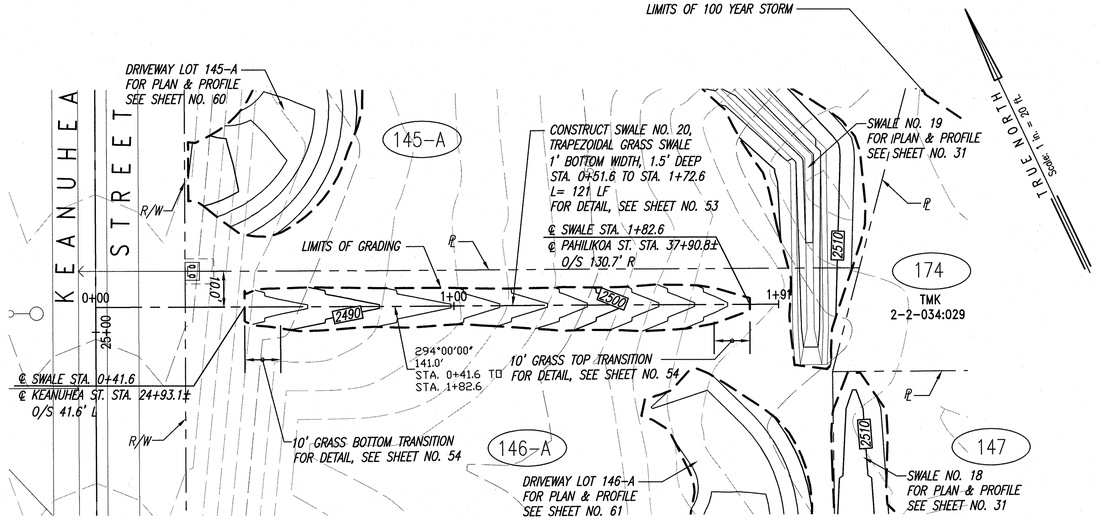
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 18 & SWALE NO. 19

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

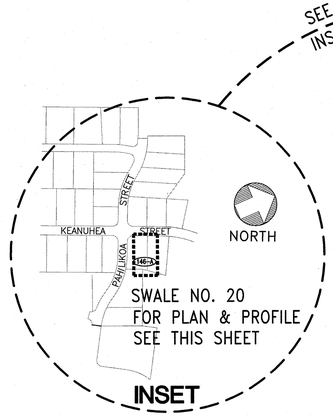
FILE	POCKET	FOLDER	NO.

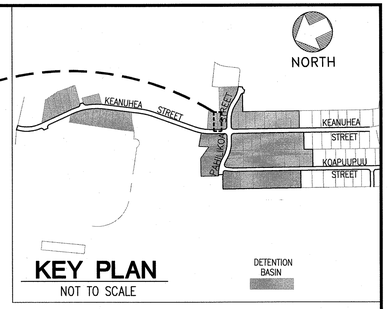
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DW\Increment 1\Current\30-33 P&P Swale 16-21.dwg, 11/14/2014 3:12:53 PM, 1:1

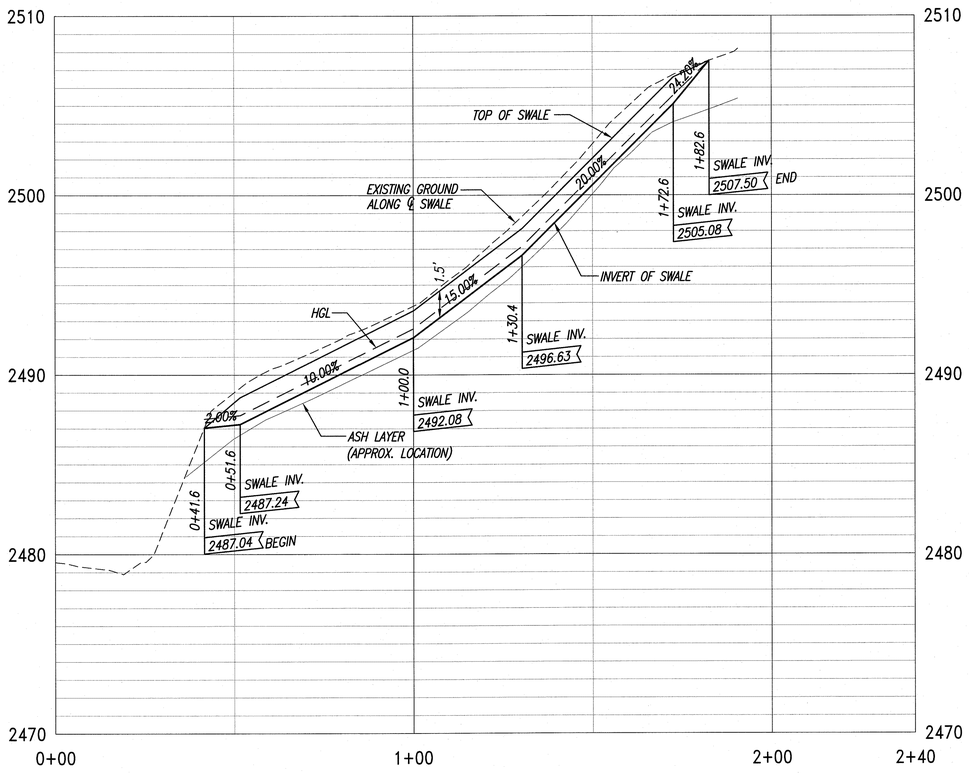


PLAN - SWALE NO. 20 (LOT 146-A)

SCALE: 1"= 20'







PROFILE - SWALE NO. 20 (LOT 146-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal

8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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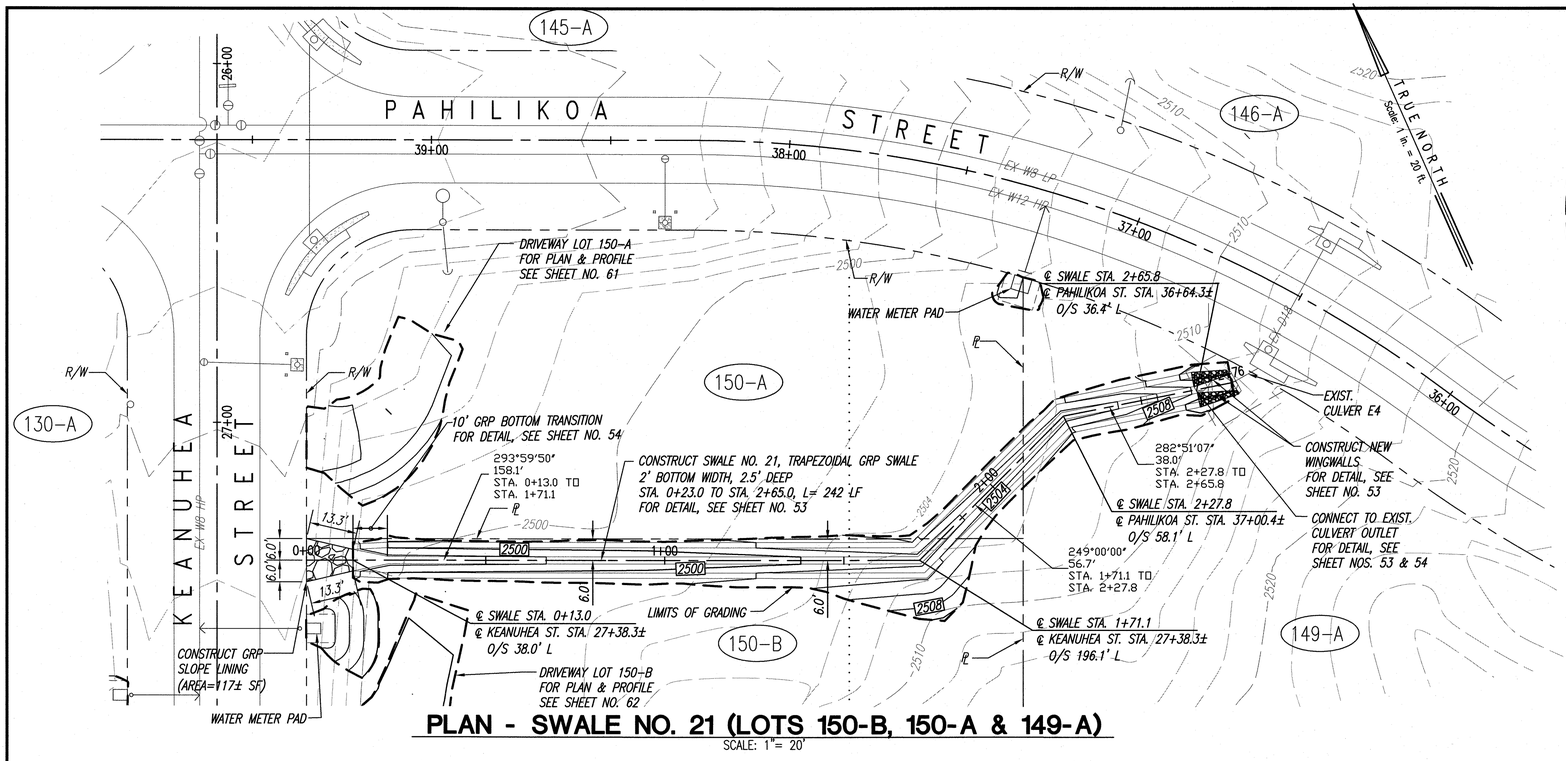
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 20

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

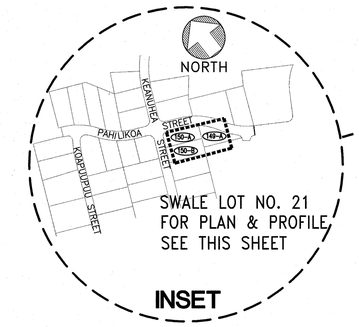
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Kaokea Ph 1, 2 & 4A\DWG\Increment 1\Current\30-33 P&P Swale 16-21.dwg, 11/14/2014 3:19:13 PM, 1:1

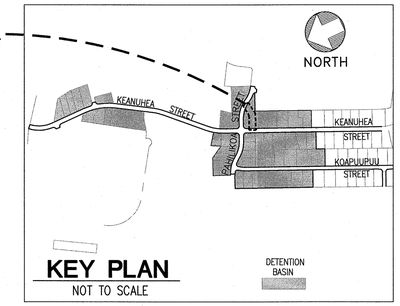


PLAN - SWALE NO. 21 (LOTS 150-B, 150-A & 149-A)

SCALE: 1"= 20'



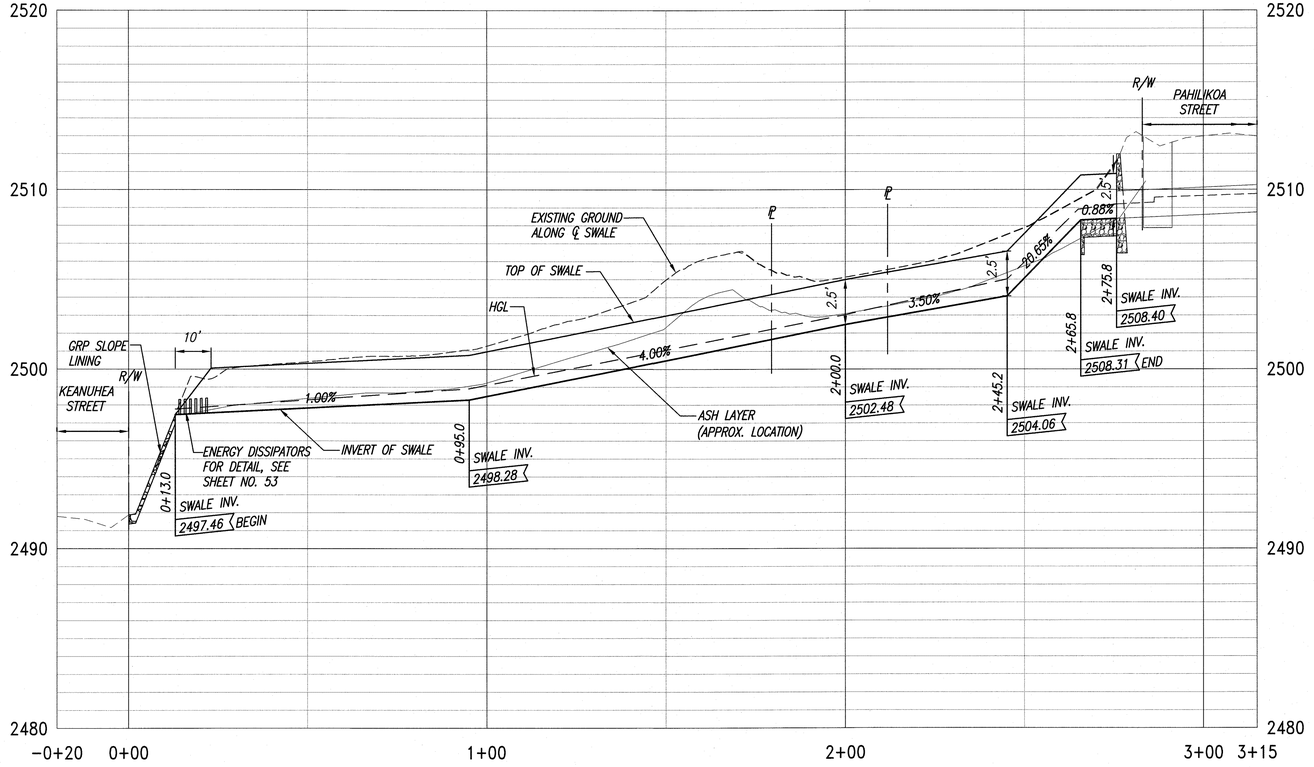
SEE INSET



LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK 2-2-002:014



PROFILE - SWALE NO. 21 (LOTS 150-B, 150-A & 149-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANIO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

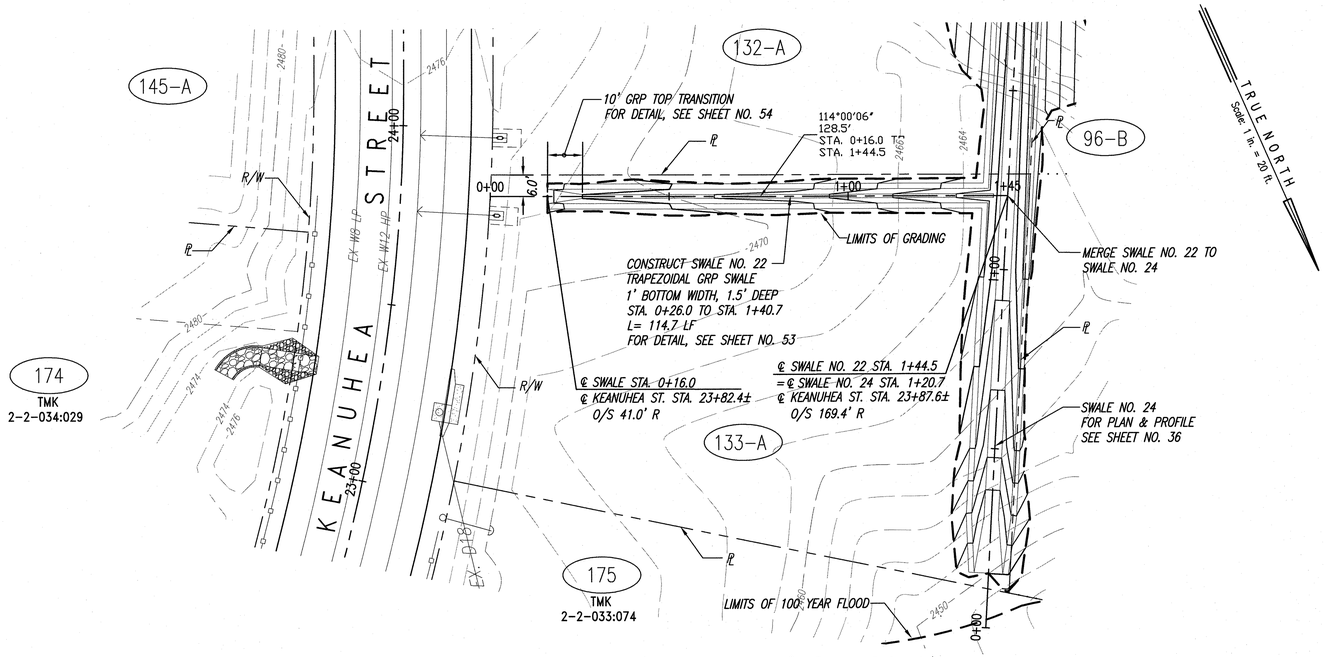
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 21

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

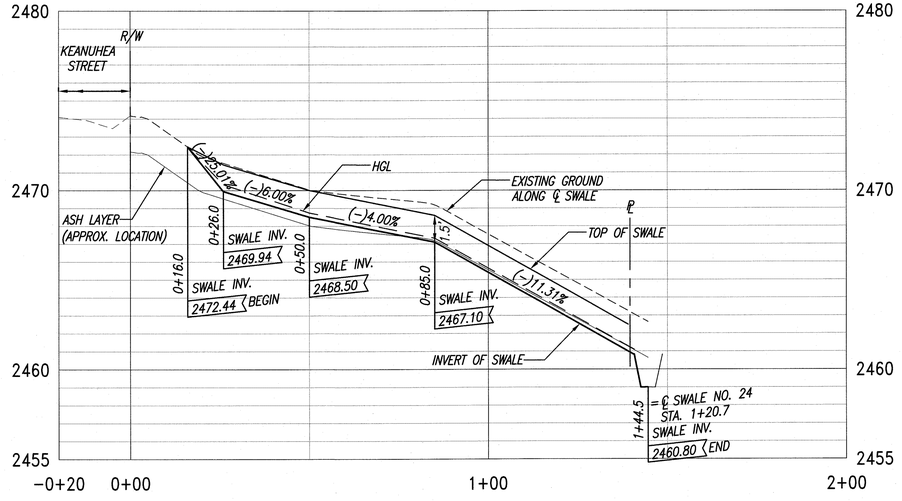
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADWG\Increment 1\Current\30-33 P&P Swale 16-21.dwg, 11/14/2014 3:22:17 PM, 1:1



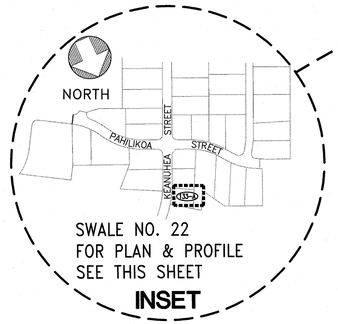
PLAN - SWALE NO. 22 (LOT 133-A)

SCALE: 1"= 20'

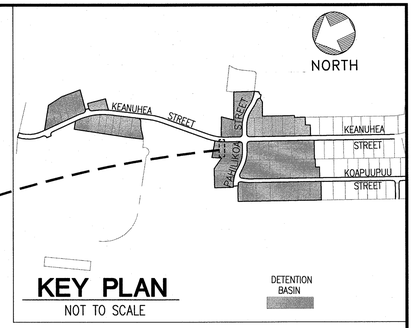


PROFILE - SWALE NO. 22 (LOT 133-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



SEE INSET



LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

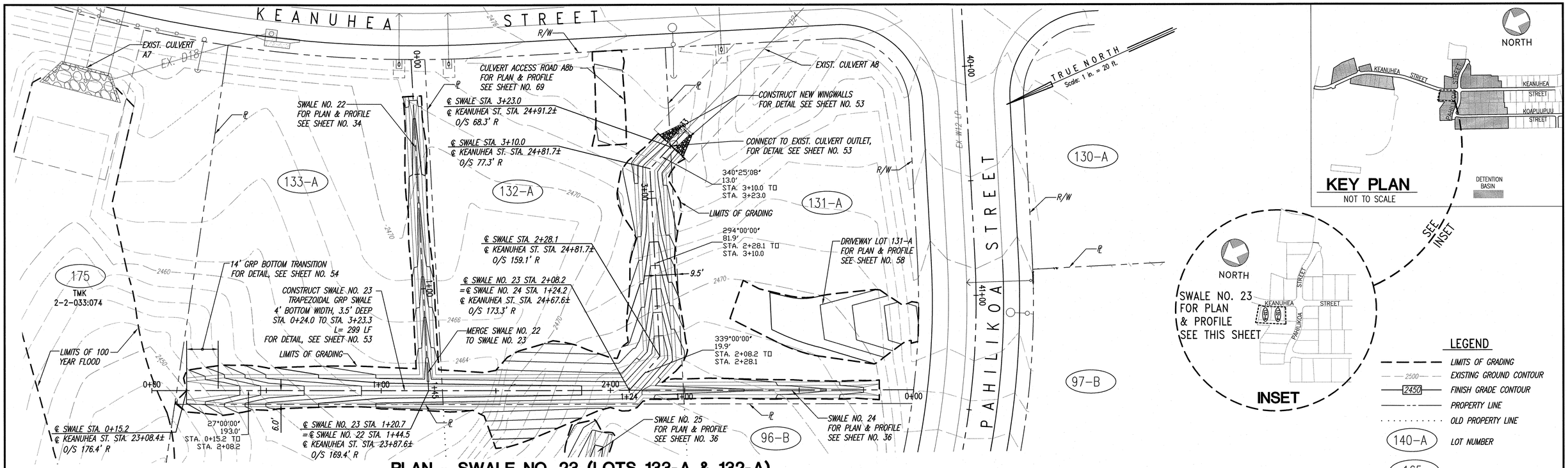
PLAN AND PROFILE SWALE NO. 22

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 34 OF 84 SHEETS

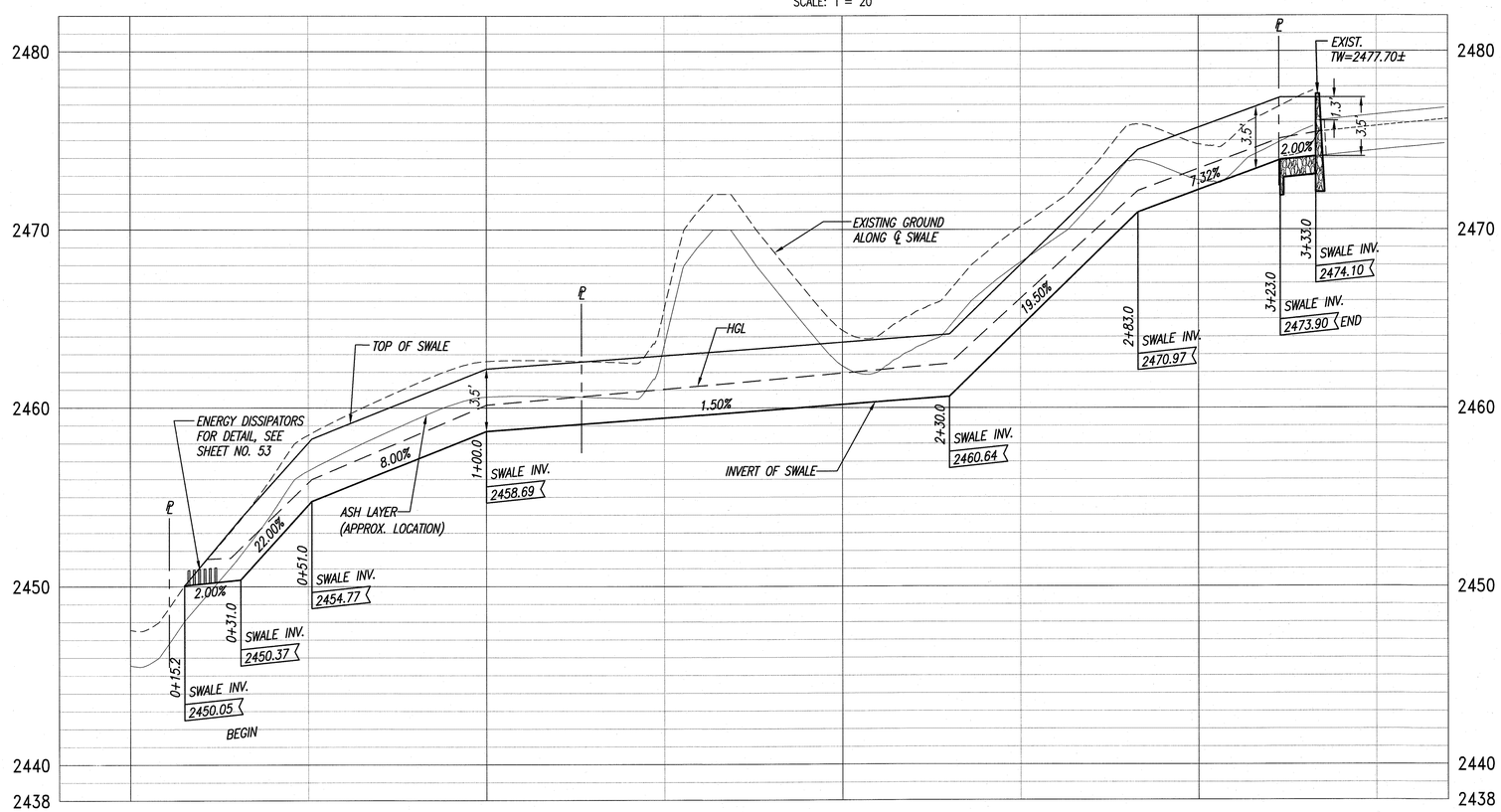
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\34-38 P&P Swale 22-28.dwg, 11/14/2014 3:29:53 PM, 1:1



PLAN - SWALE NO. 23 (LOTS 133-A & 132-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 23 (LOTS 133-A & 132-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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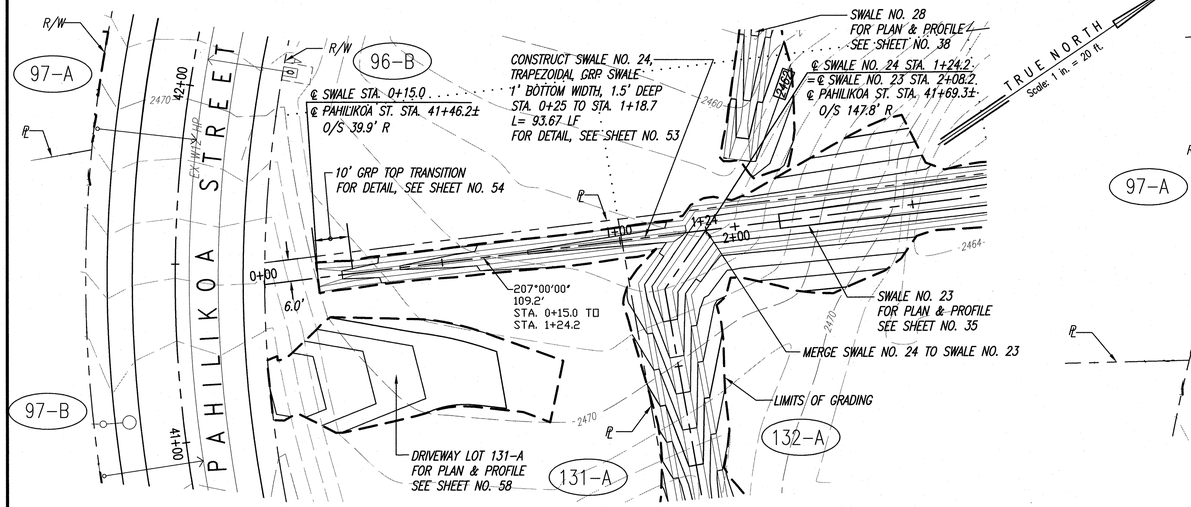
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 23

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

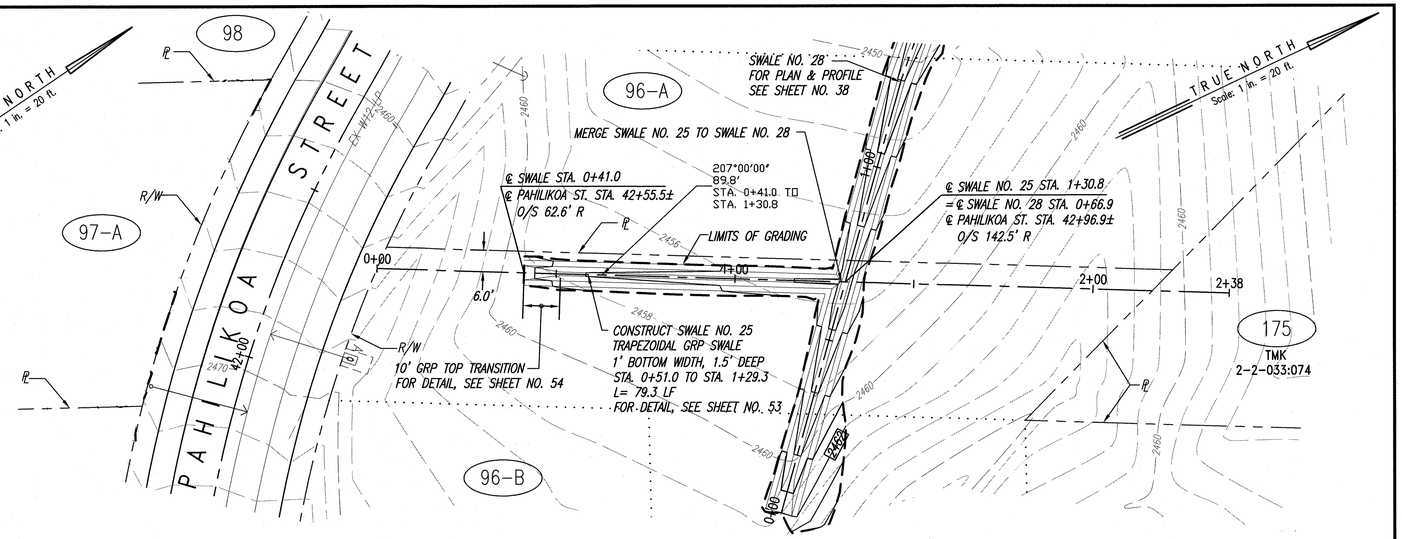
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DW\Gincrement 1\Current\34-38 P&P Swale 22-28.dwg, 11/14/2014 3:31:52 PM, 1:1



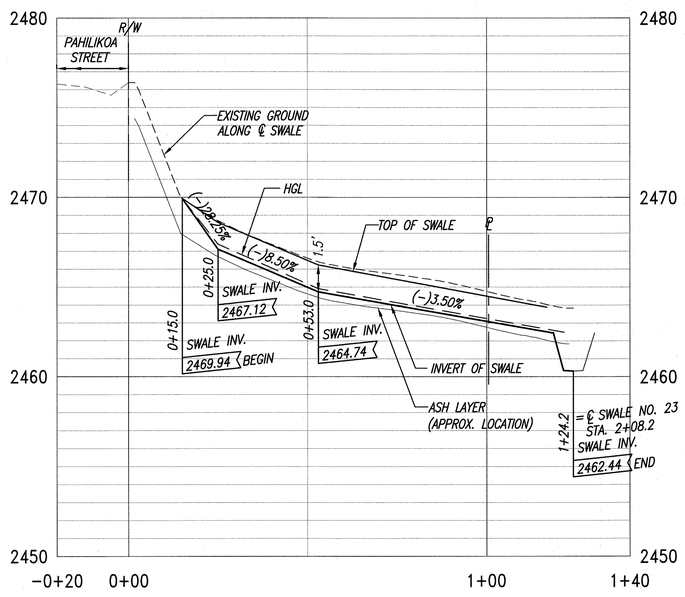
PLAN - SWALE NO. 24 (LOTS 131-A & 132-A)

SCALE: 1"= 20'



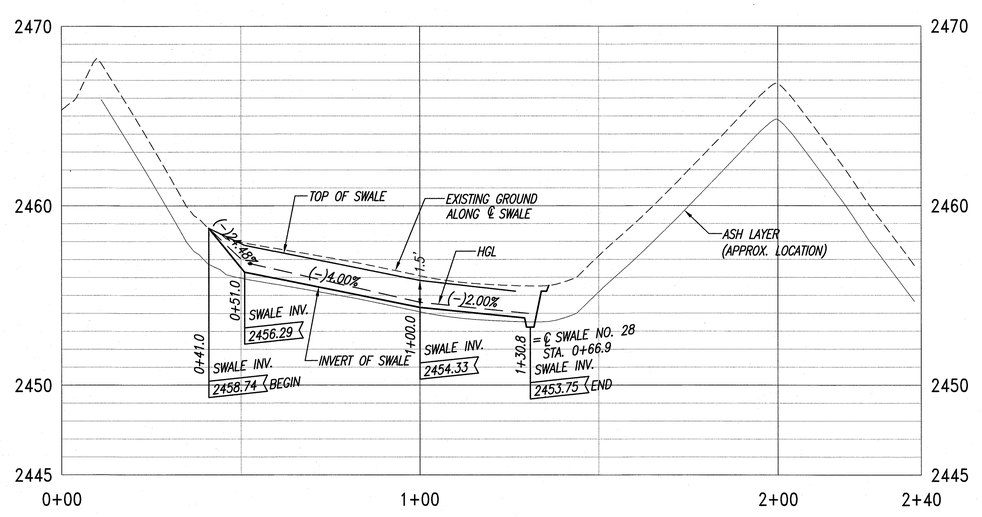
PLAN - SWALE NO. 25 (LOT 96-B)

SCALE: 1"= 20'



PROFILE - SWALE NO. 24 (LOTS 131-A & 132-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PROFILE - SWALE NO. 25 (LOT 96-B)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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

SEE INSET 1

KEY PLAN
NOT TO SCALE

SEE INSET 2

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

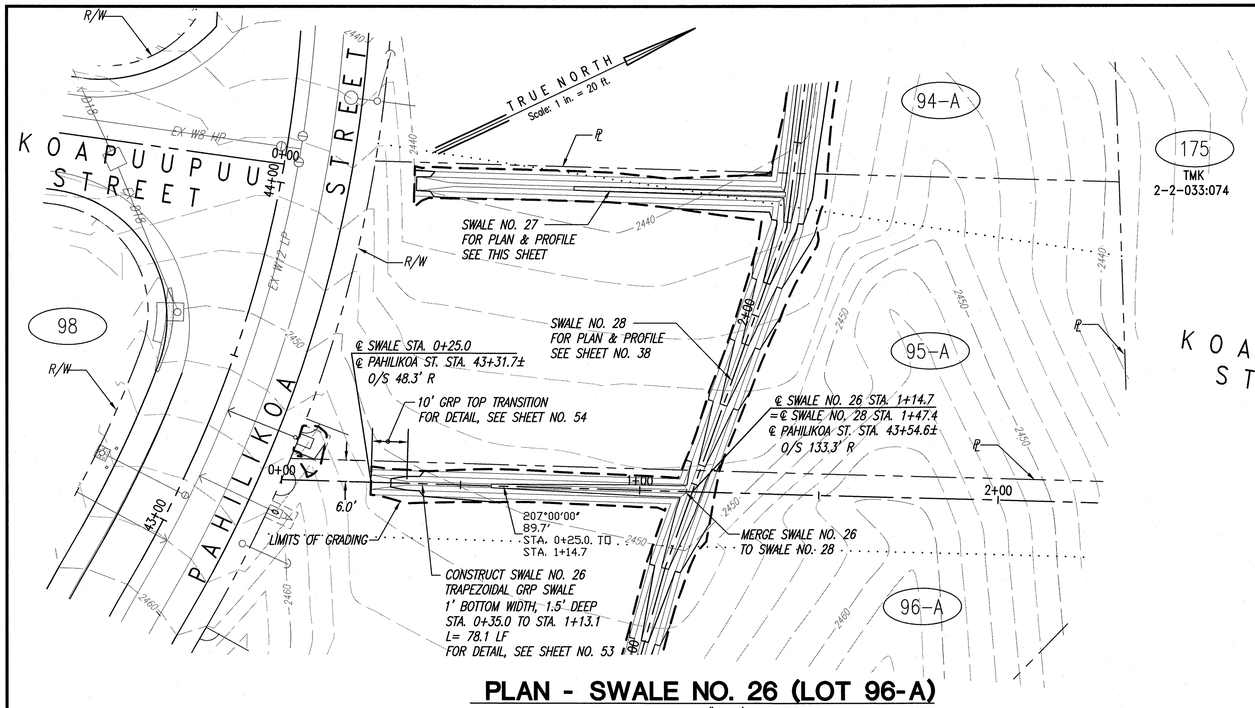
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 24 AND SWALE NO. 25

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

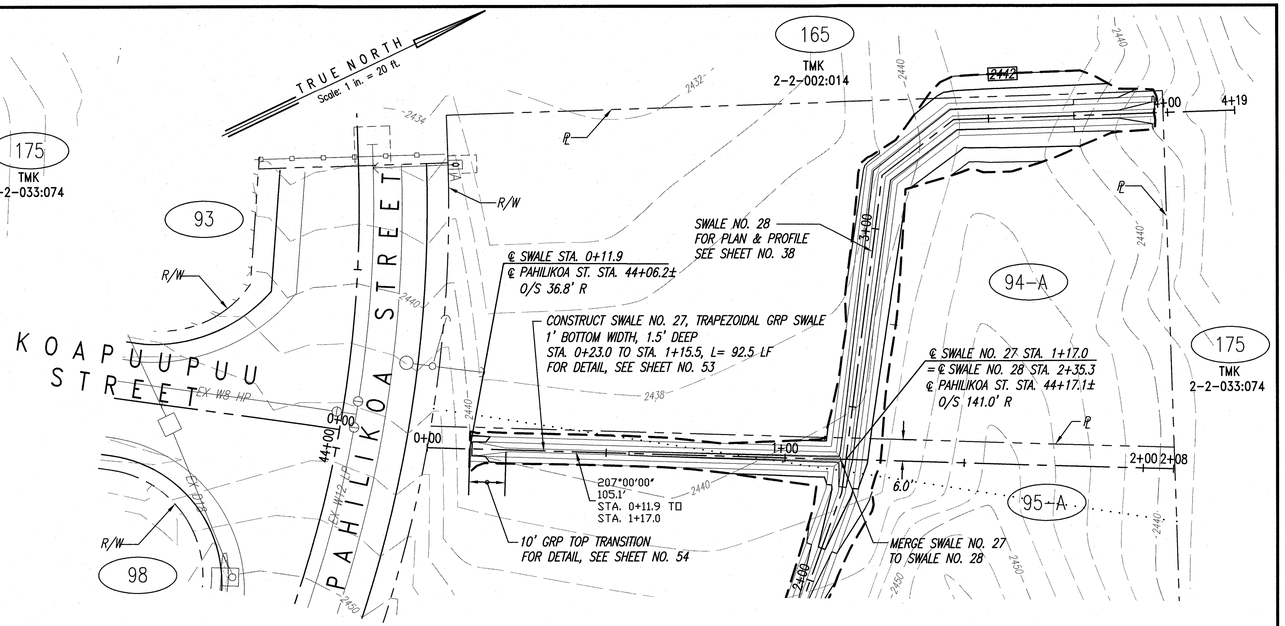
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\34-38 P&P Swale 22-28.dwg, 11/17/2014 8:37:32 AM, 1:1



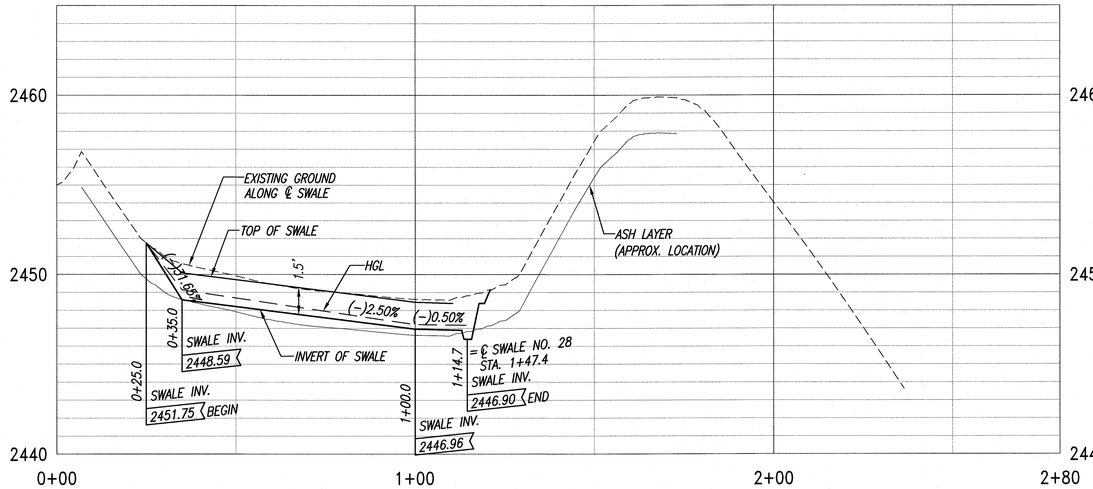
PLAN - SWALE NO. 26 (LOT 96-A)

SCALE: 1"= 20'



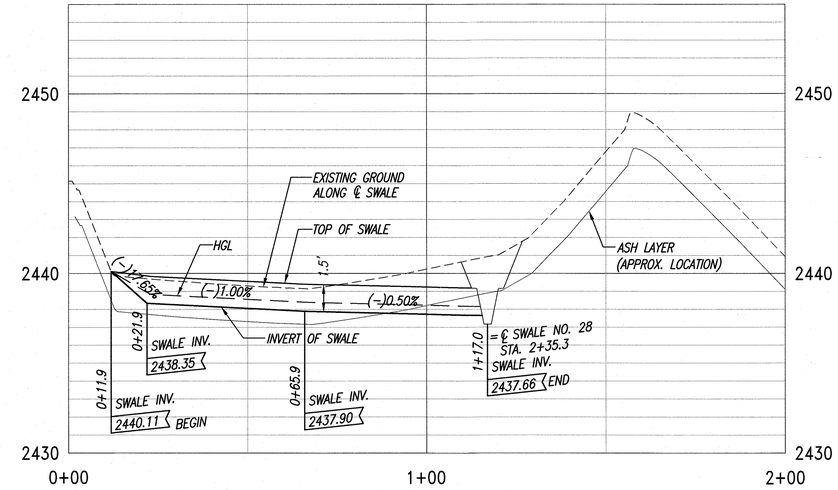
PLAN - SWALE NO. 27 (LOT 95-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 26 (LOT 96-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

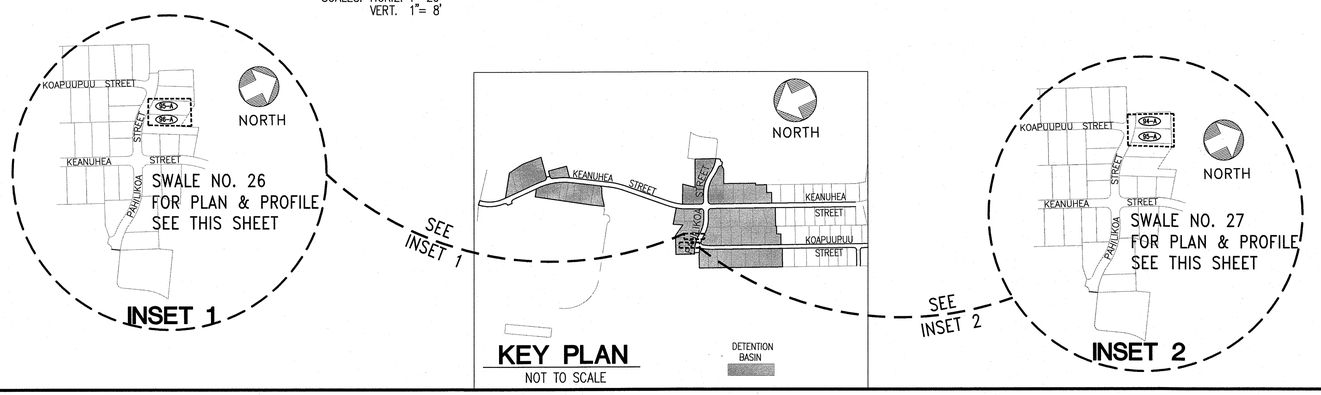


PROFILE - SWALE NO. 27 (LOT 95-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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



20 10 0 20 40
Horizontal

8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

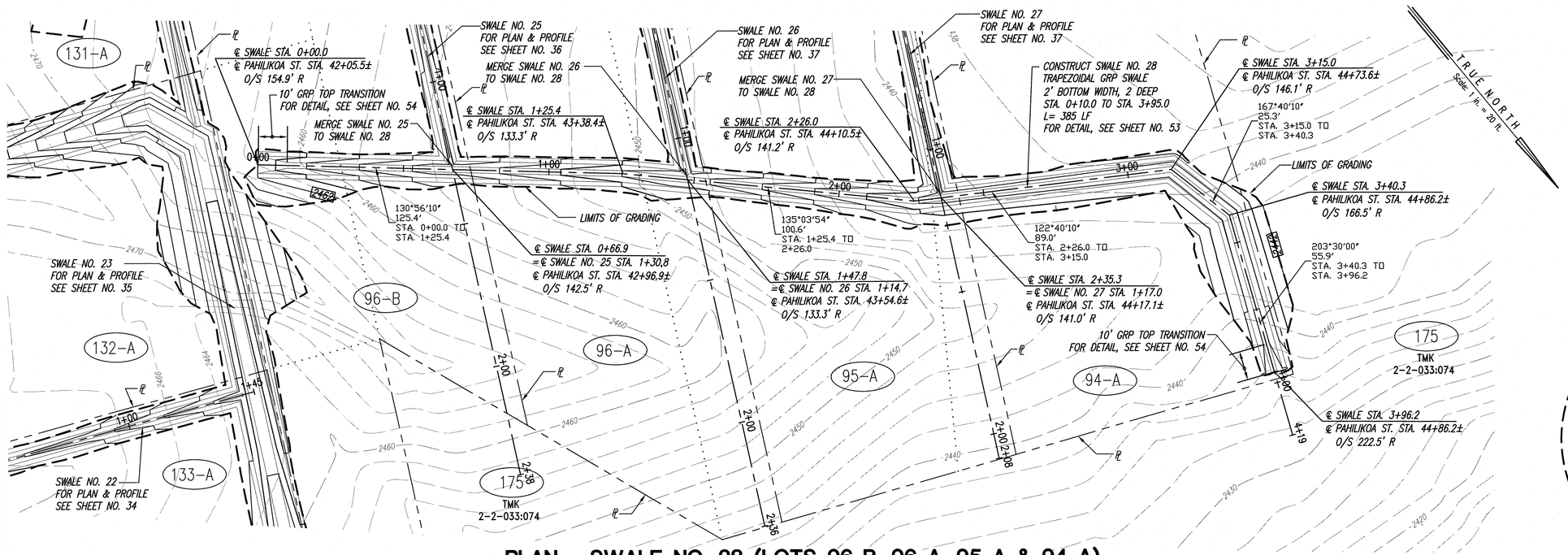
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 26 AND SWALE NO. 27

DRAWN BY: KNW	ENGINEER: KNW/MFC	CHECKED BY: RYS

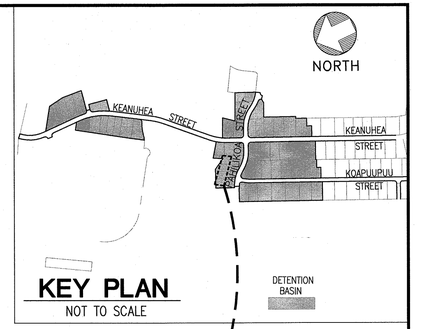
FILE	POCKET	FOLDER	NO.

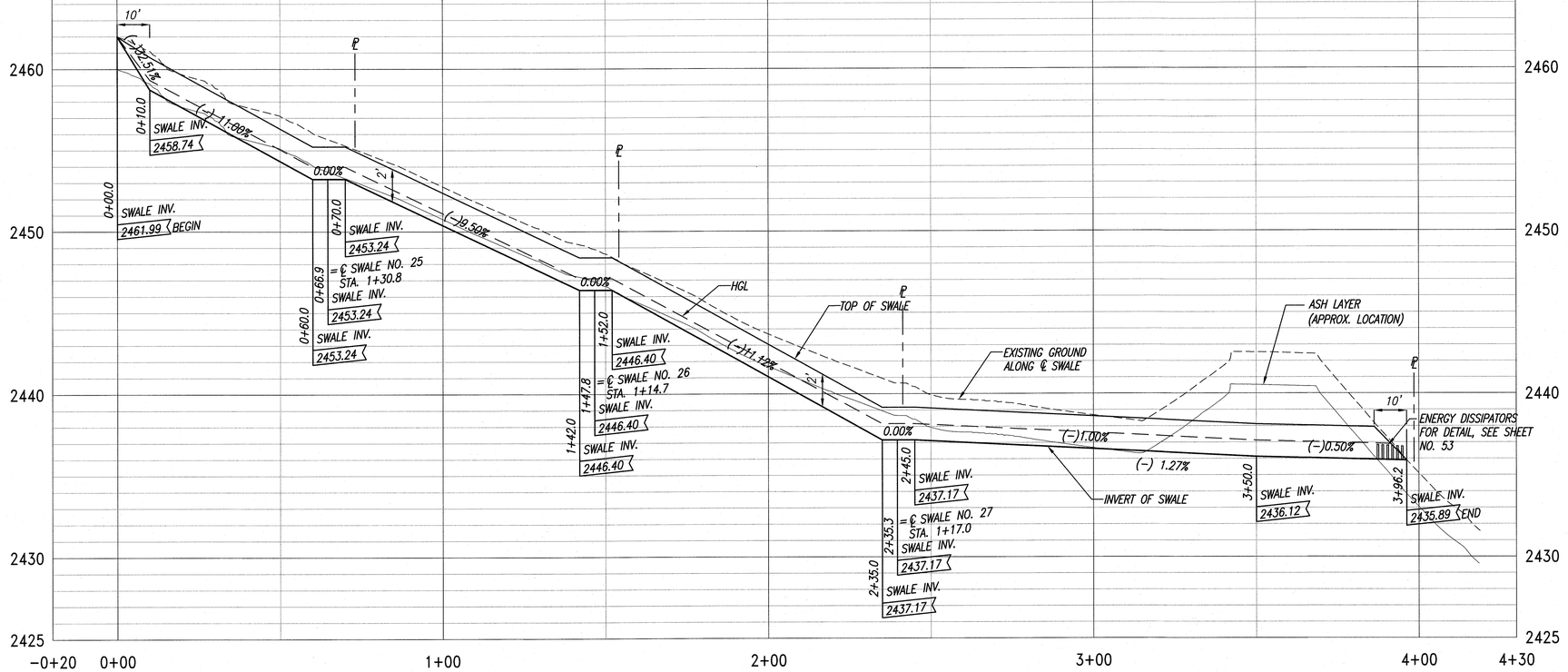
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\34-38 P&P Swale 22-28.dwg, 11/14/2014 3:34:22 PM, 1:1



PLAN - SWALE NO. 28 (LOTS 96-B, 96-A, 95-A & 94-A)

SCALE: 1"= 20'





PROFILE - SWALE NO. 28 (LOTS 96-B, 96-A, 95-A & 94-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

LEGEND

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

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 28

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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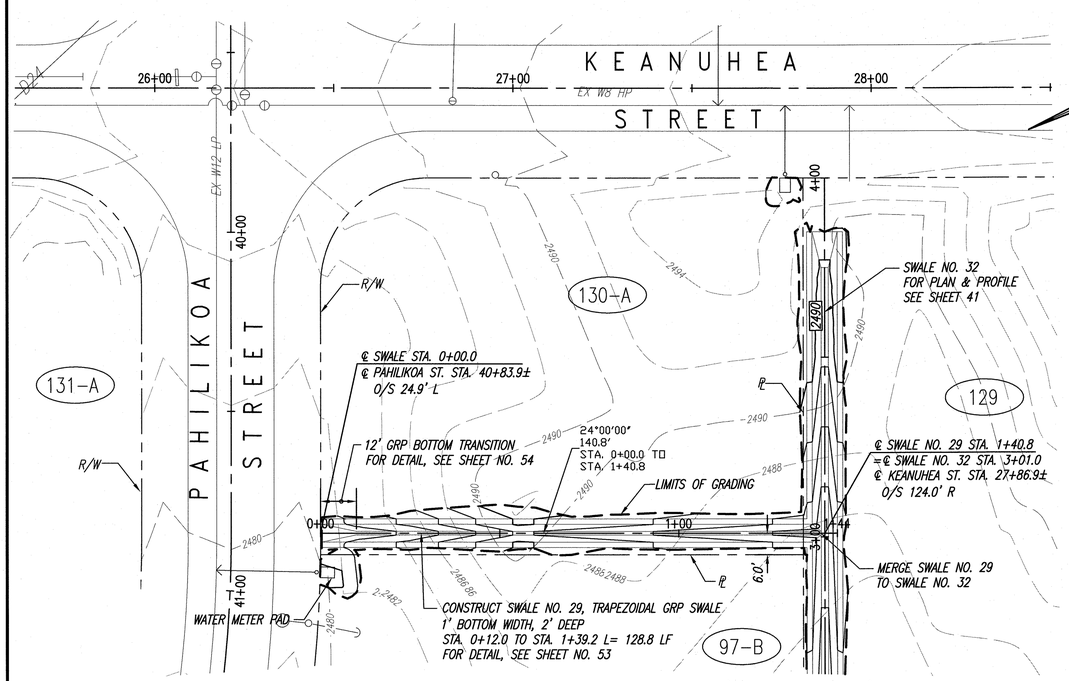
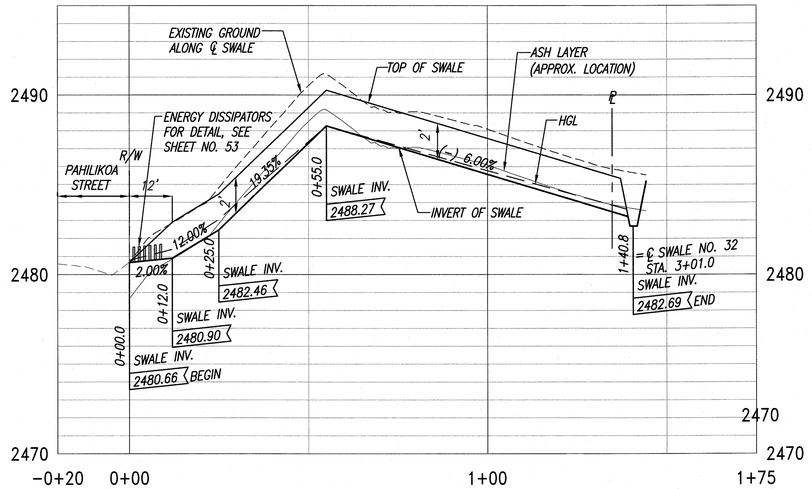
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\34-38 P&P Swale 22-28.dwg, 11/14/2014 3:36:38 PM, 1:1



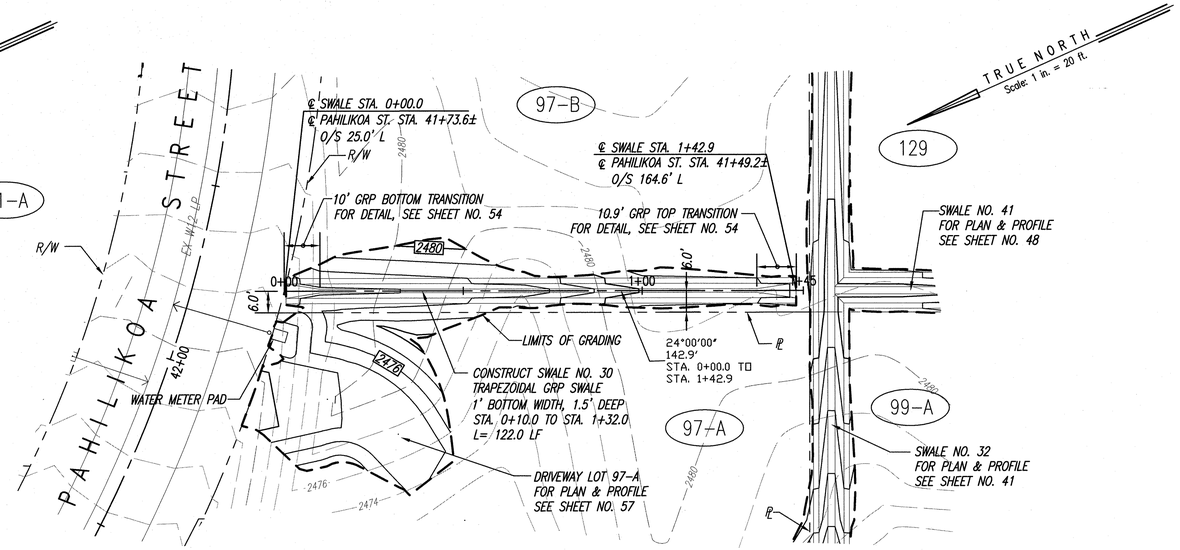
PLAN - SWALE NO. 29 (LOT 130-A)

SCALE: 1"= 20'



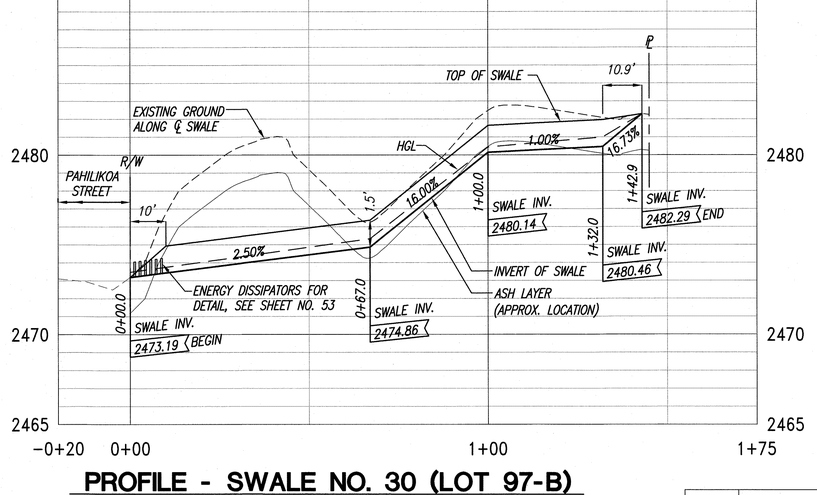
PROFILE - SWALE NO. 29 (LOT 130-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - SWALE NO. 30 (LOT 97-B)

SCALE: 1"= 20'

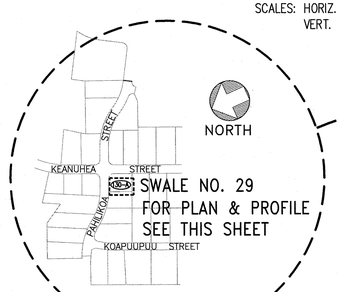


PROFILE - SWALE NO. 30 (LOT 97-B)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

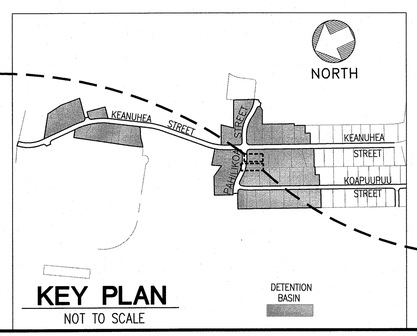
LEGEND

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



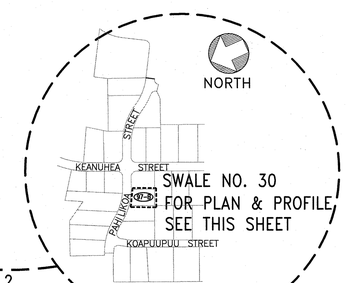
INSET 1

SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



INSET 2

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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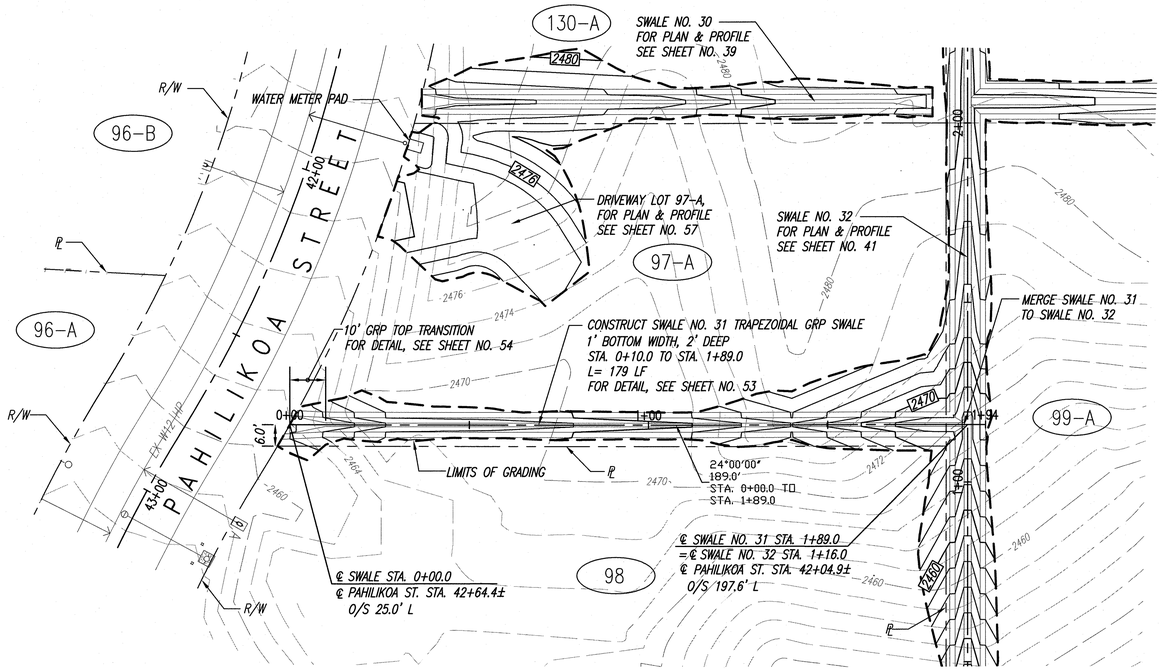
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 29 & SWALE NO. 30

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

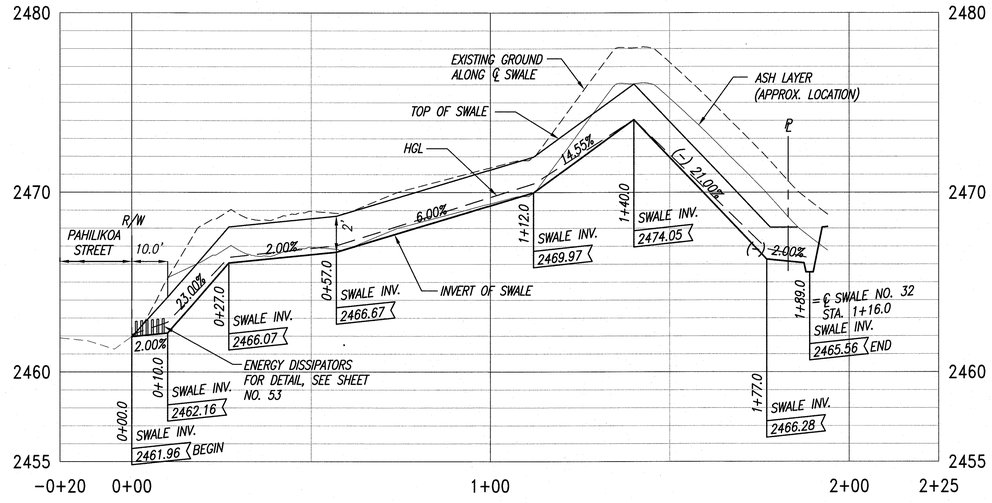
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AI\DWG\Increment 1\Current\39-41 P&P Swale 29-32.dwg, 11/14/2014 3:47:02 PM, 1:1



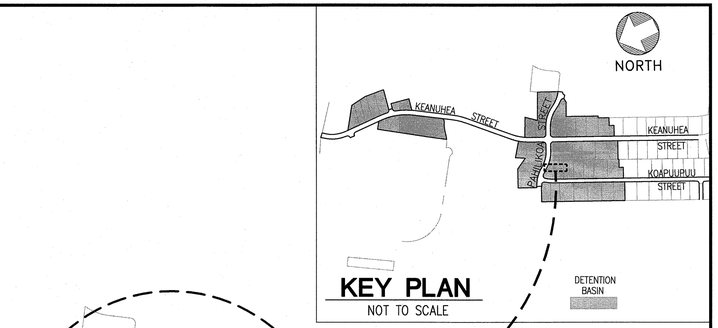
PLAN - SWALE NO. 31 (LOT 97-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 31 (LOT 97-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

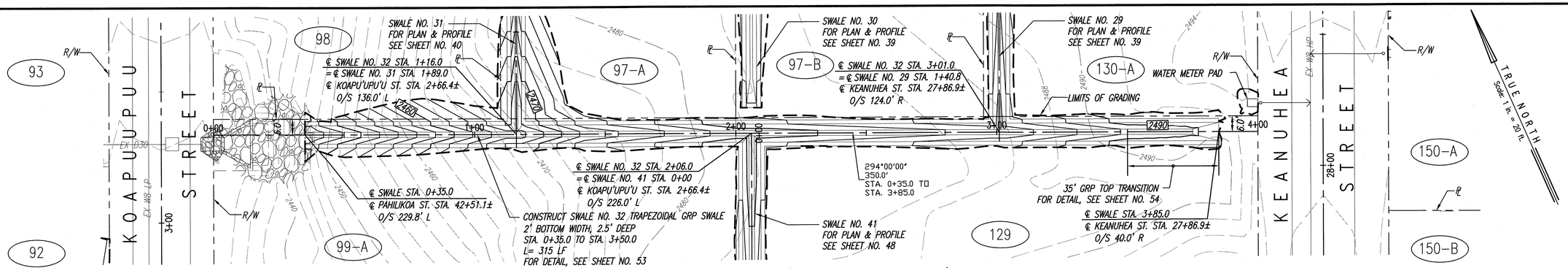
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 31

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

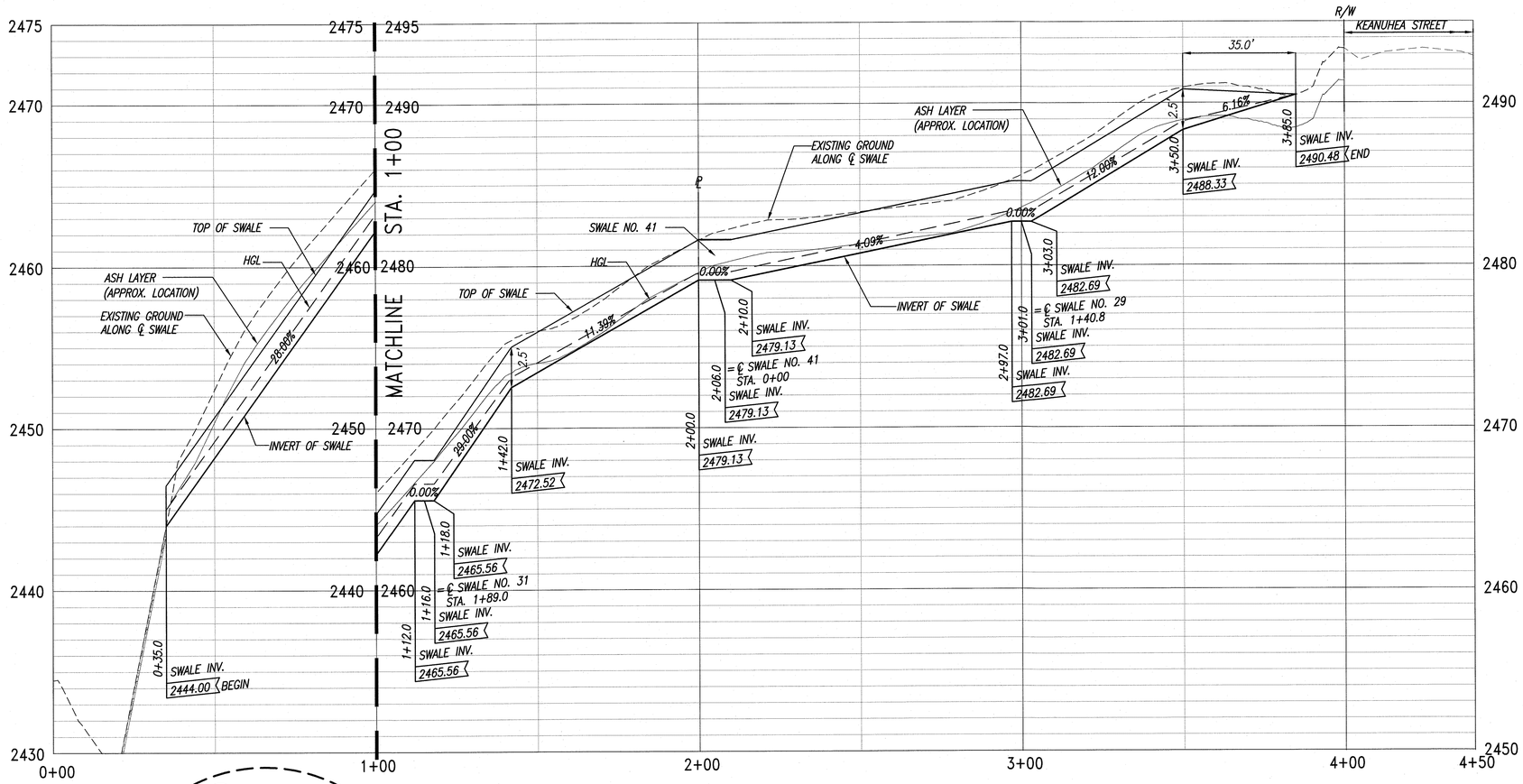
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\39-41 P&P Swale 29-32.dwg, 11/14/2014 3:49:09 PM, 1:1



PLAN - SWALE NO. 32 (LOT 99-A & 129)

SCALE: 1"= 20'



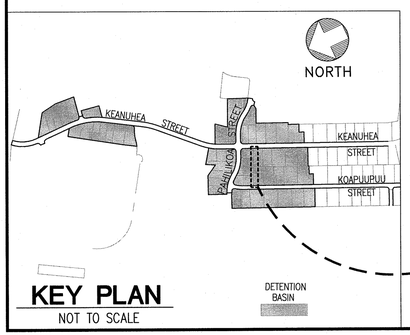
PROFILE - SWALE NO. 32 (LOTS 99-A & 129)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

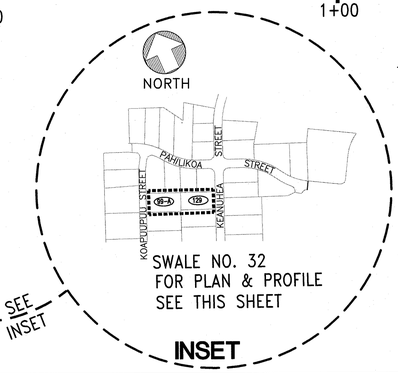
TMK
2-2-002:014



KEY PLAN

NOT TO SCALE

SEE INSET



SWALE NO. 32
FOR PLAN & PROFILE
SEE THIS SHEET

INSET

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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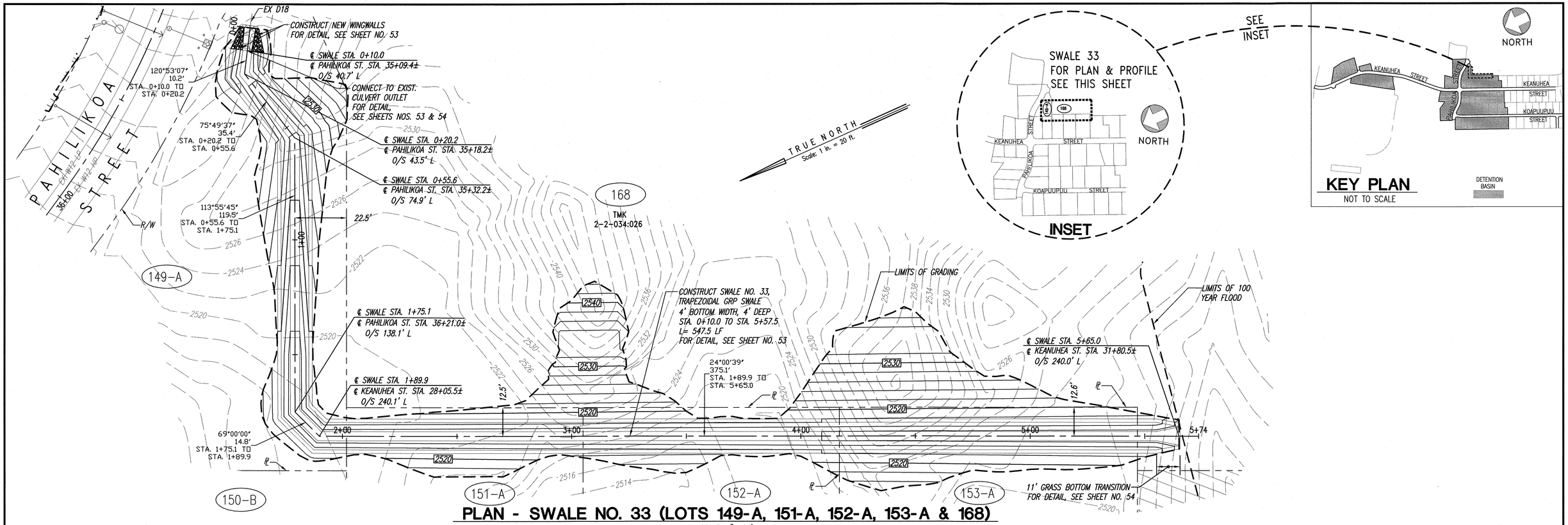
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 32

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

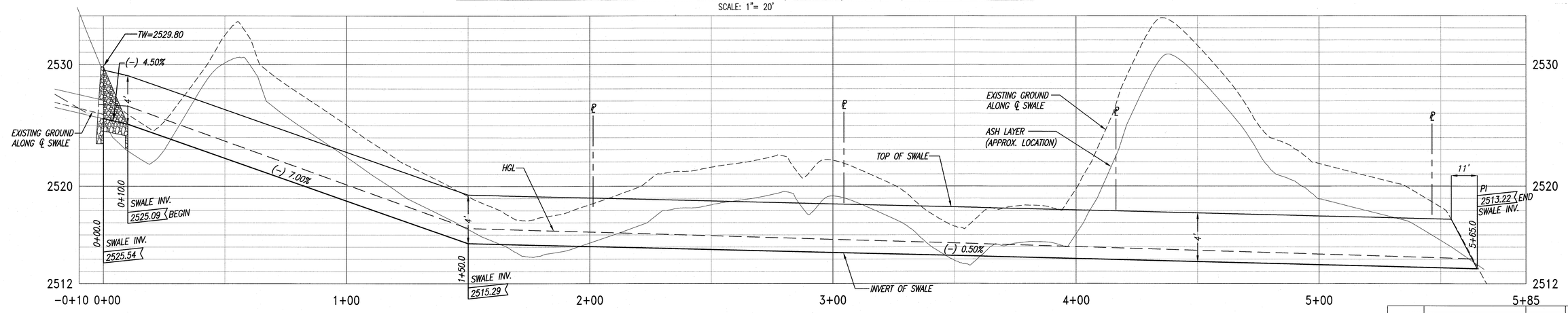
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\39-41 P&P Swale 29-32.dwg, 11/14/2014 3:51:45 PM, 1:1



PLAN - SWALE NO. 33 (LOTS 149-A, 151-A, 152-A, 153-A & 168)

SCALE: 1"= 20'



PROFILE - SWALE NO. 33 (LOTS 149-A, 151-A, 152-A, 153-A & 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

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No. 8955-C
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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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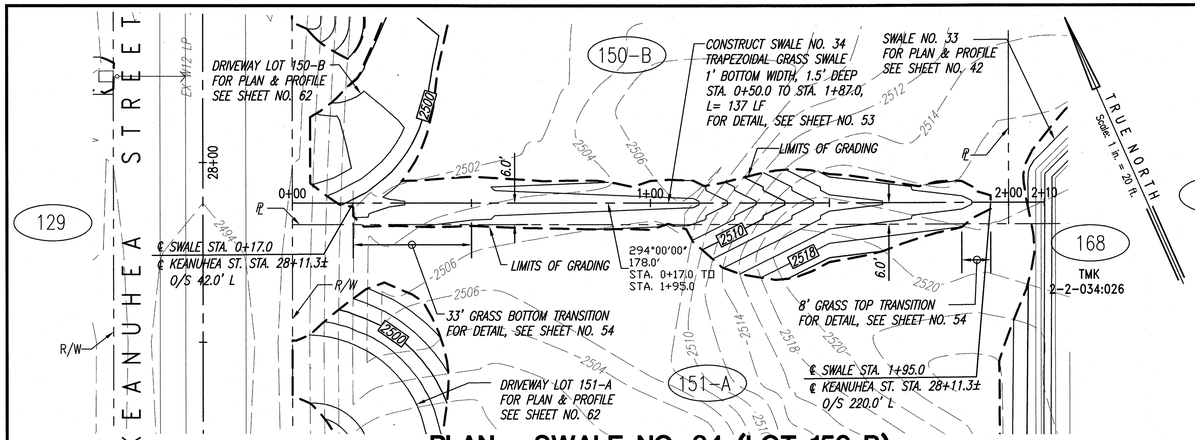
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 33

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

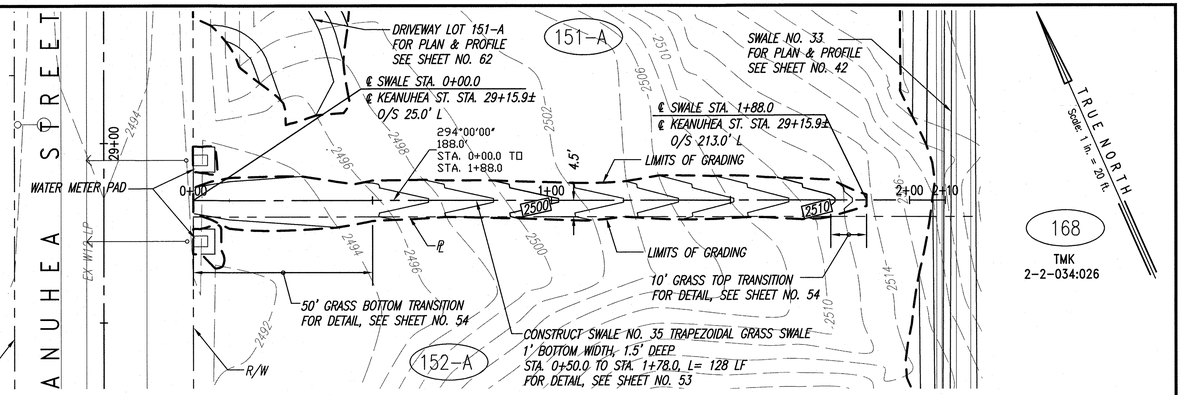
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\42-45 P&P Swale 33-37.dwg, 11/14/2014 4:00:28 PM, 1:1



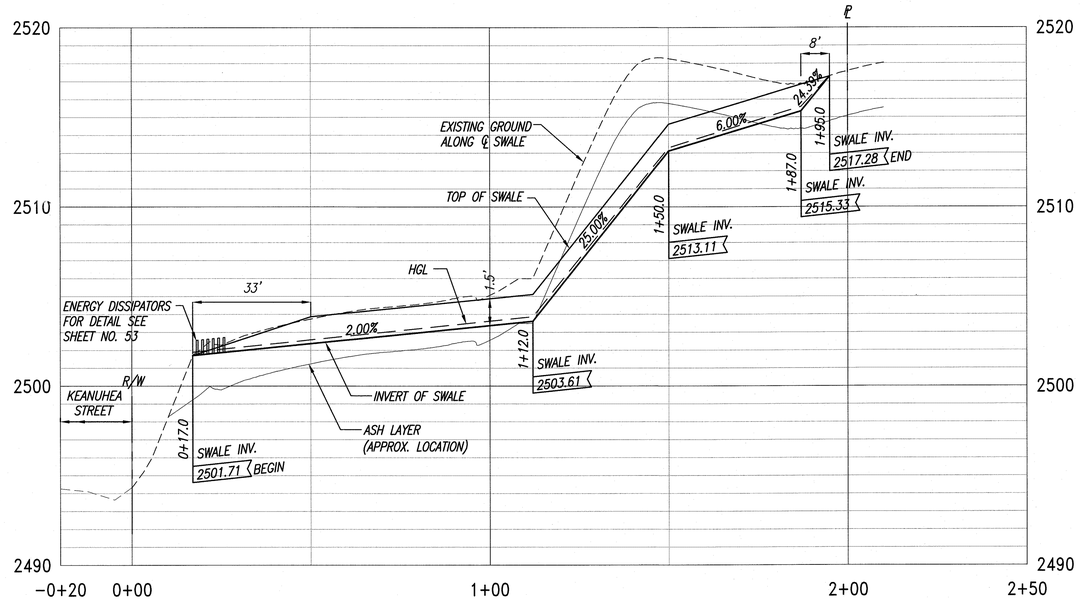
PLAN - SWALE NO. 34 (LOT 150-B)

SCALE: 1"= 20'



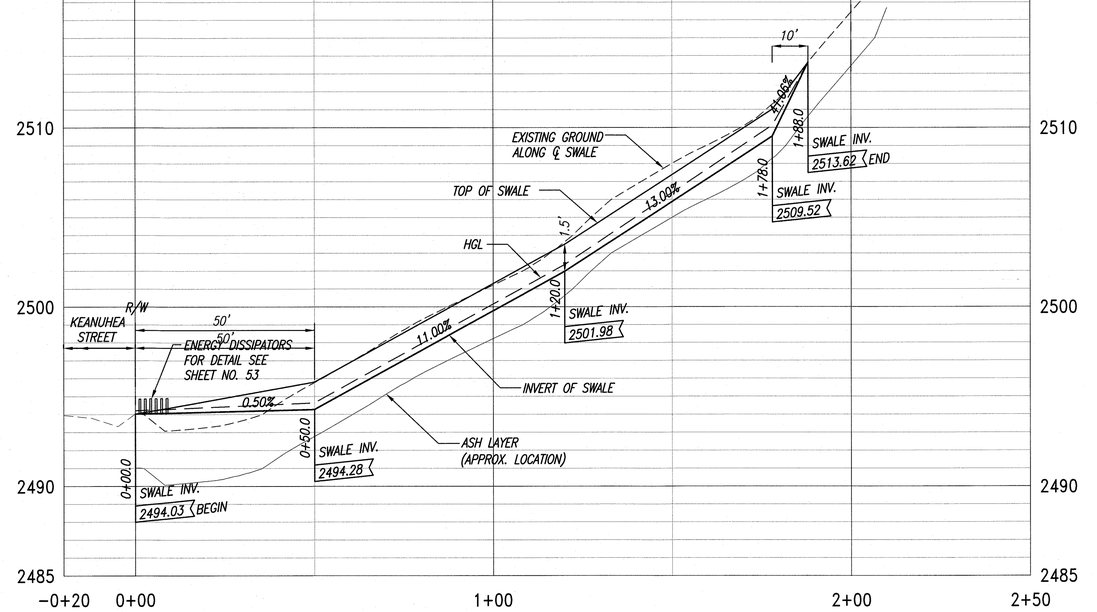
PLAN - SWALE NO. 35 (LOT 151-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 34 (LOT 150-B)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

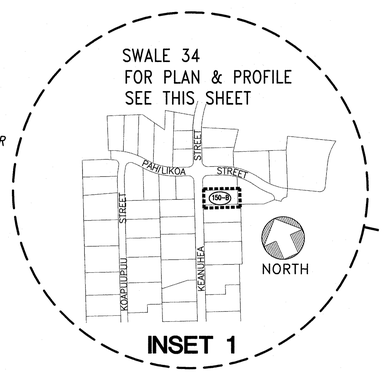


PROFILE - SWALE NO. 35 (LOT 151-A)

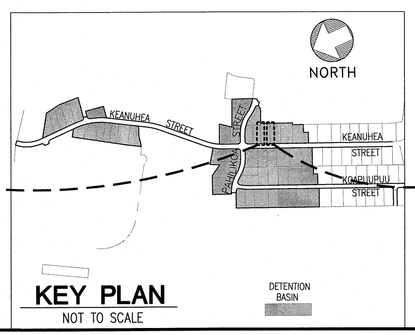
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

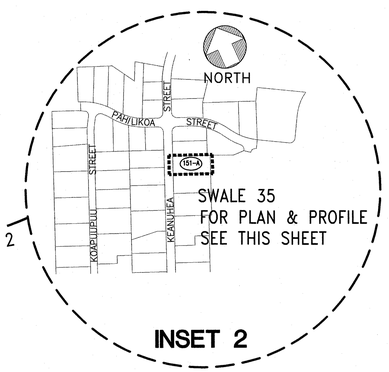
- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER



SEE INSET 1



SEE INSET 2



Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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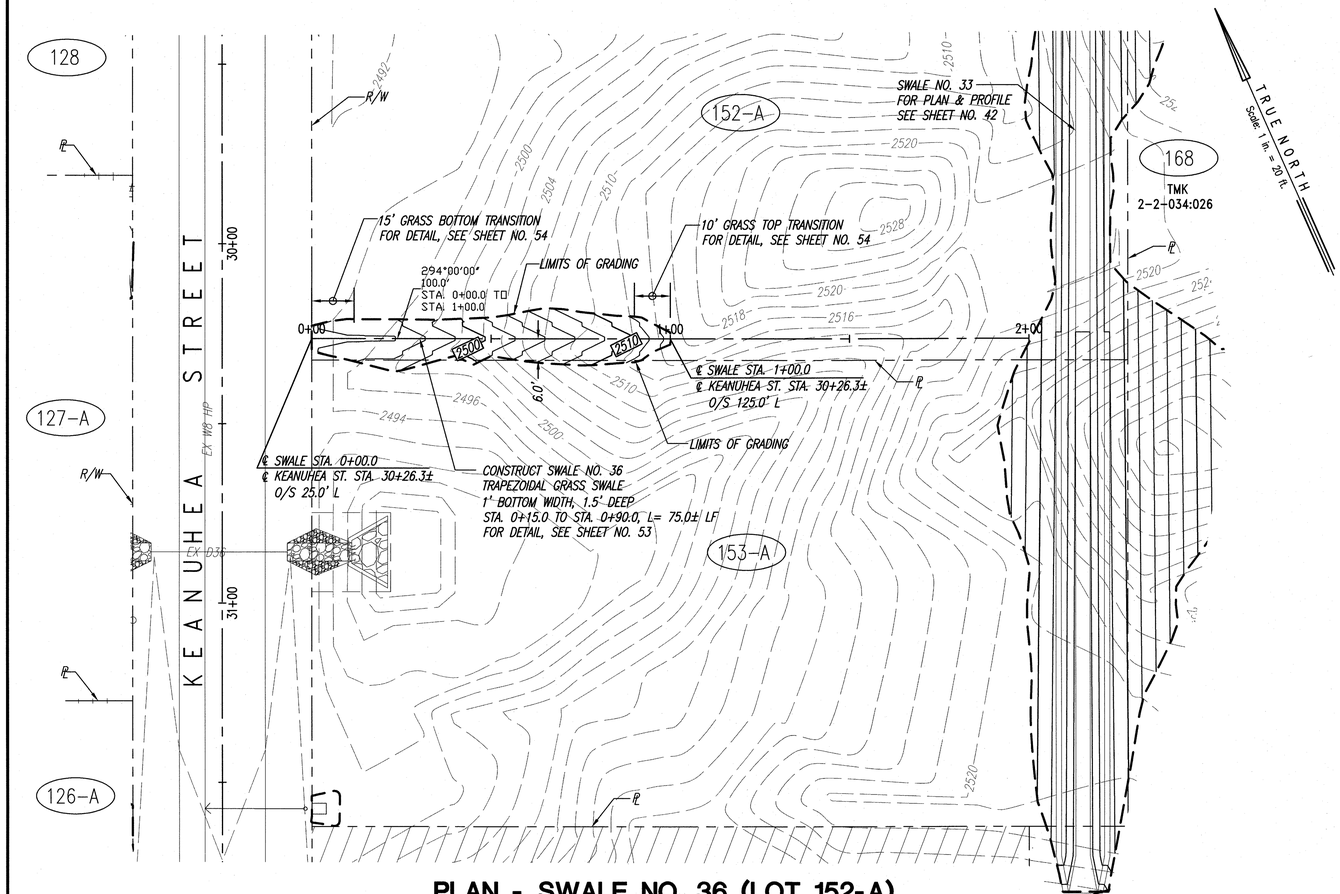
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 34 AND SWALE NO. 35

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

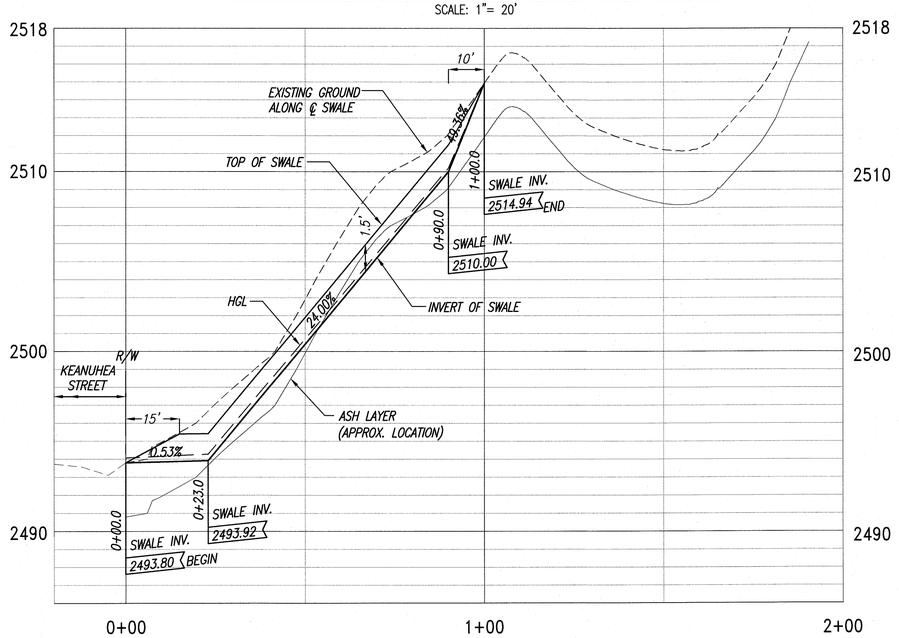
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\42-45 P&P Swale 33-37.dwg, 11/14/2014 4:13:31 PM, 1:1



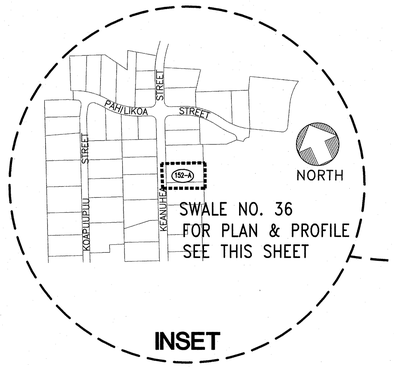
PLAN - SWALE NO. 36 (LOT 152-A)

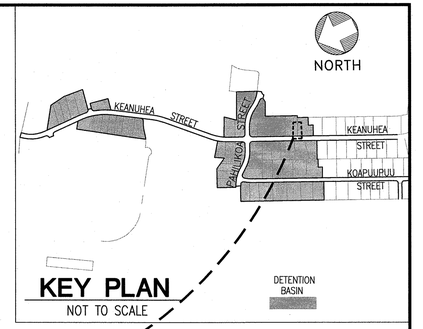
SCALE: 1"= 20'



PROFILE - SWALE NO. 36 (LOT 152-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'





LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANYO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

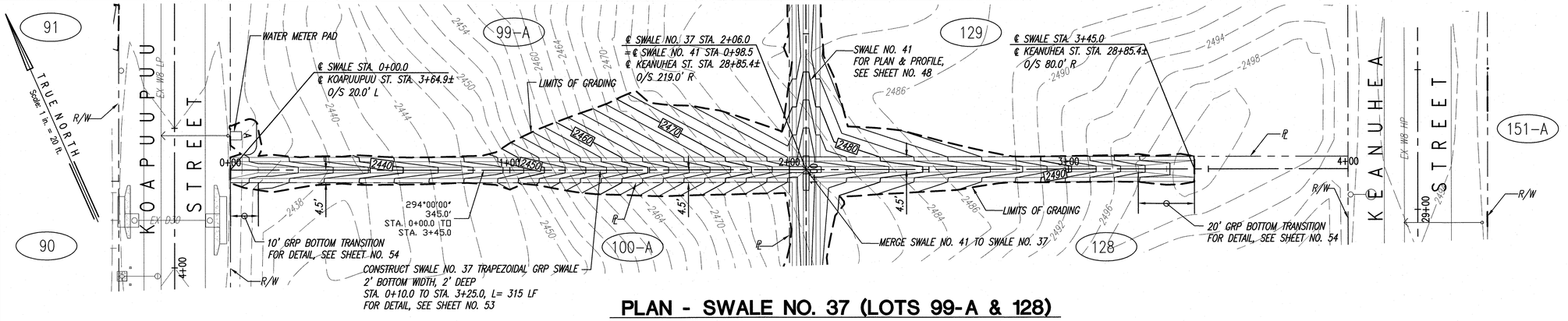
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 36

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

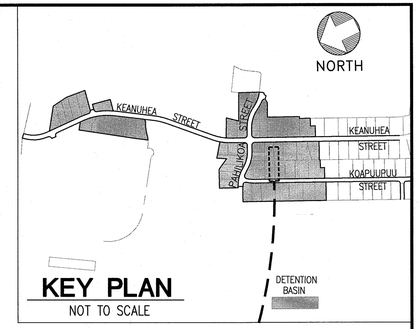
FILE	POCKET	FOLDER	NO.

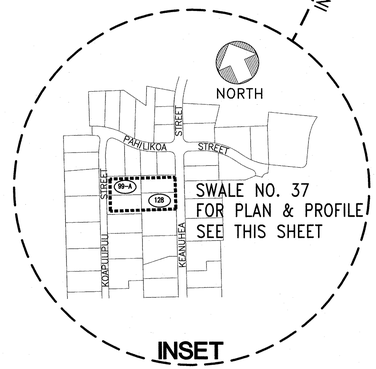
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\42-45 P&P Swale 33-37.dwg, 11/14/2014 4:02:15 PM, 1:1

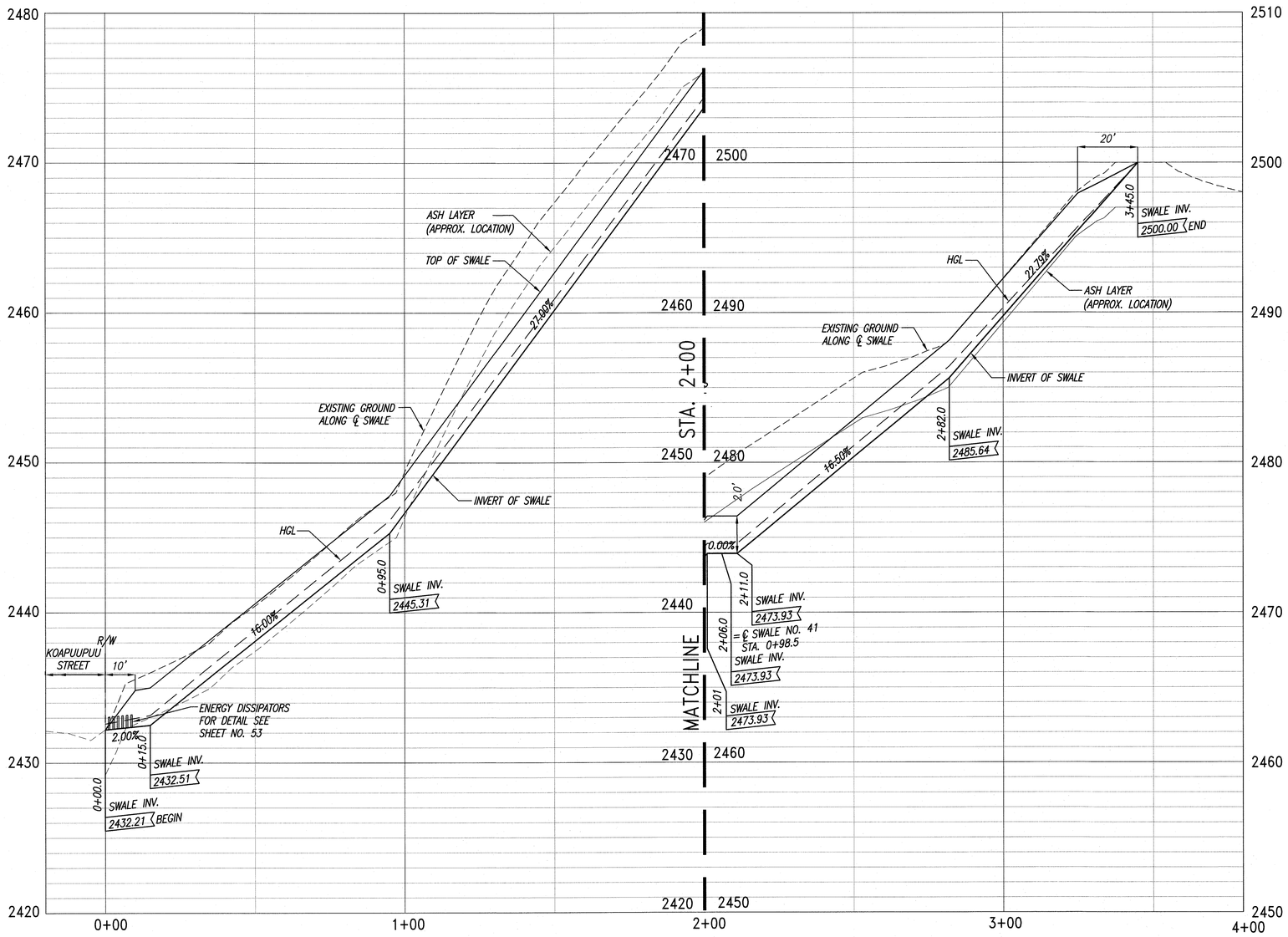


PLAN - SWALE NO. 37 (LOTS 99-A & 128)

SCALE: 1"= 20'







PROFILE - SWALE NO. 37 (LOTS 99-A & 128)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 37

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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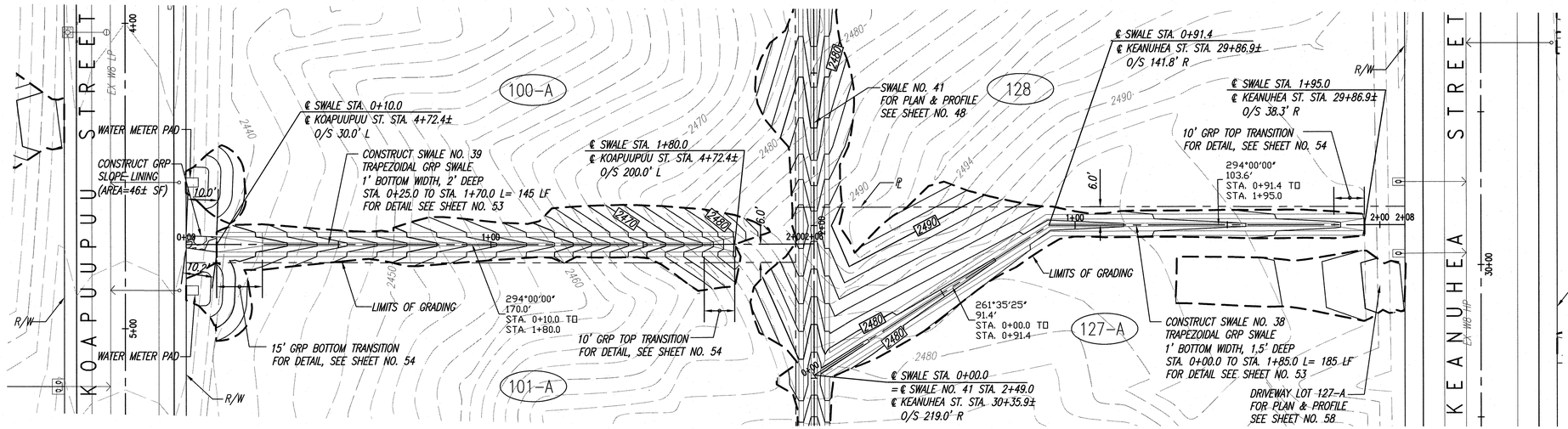
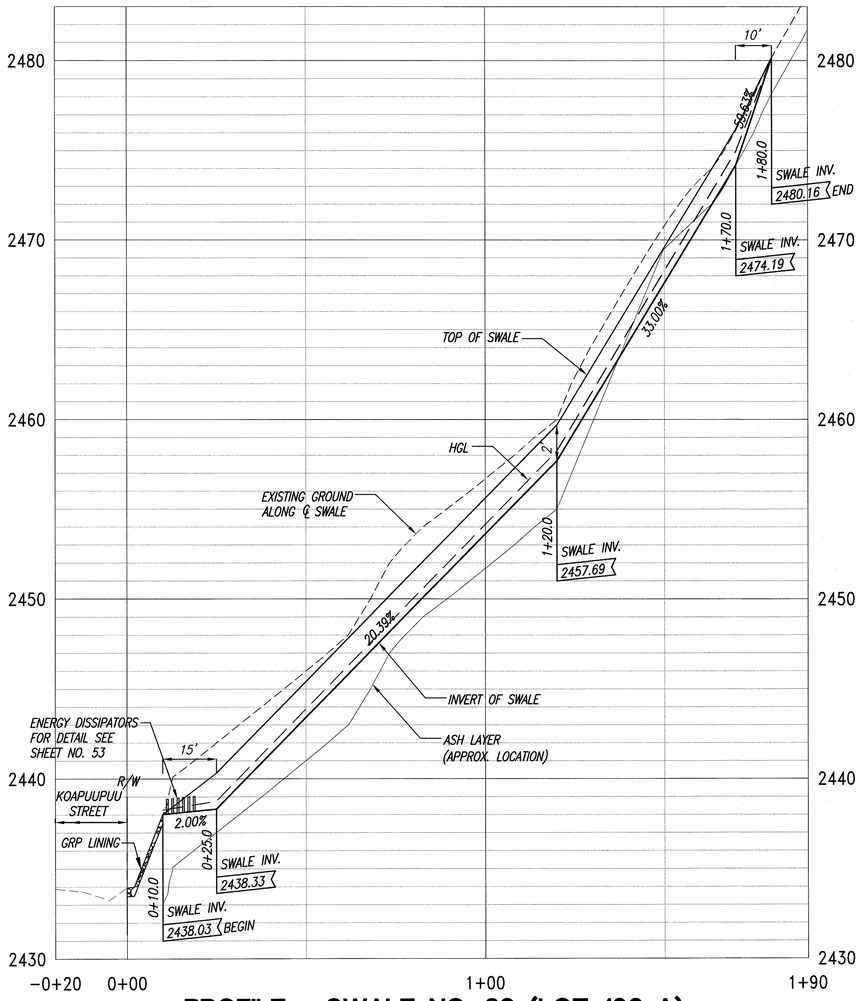
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DW\Increment 1\Current\42-45 P&P Swale 33-37.dwg, 11/14/2014 4:03:56 PM, 1:1



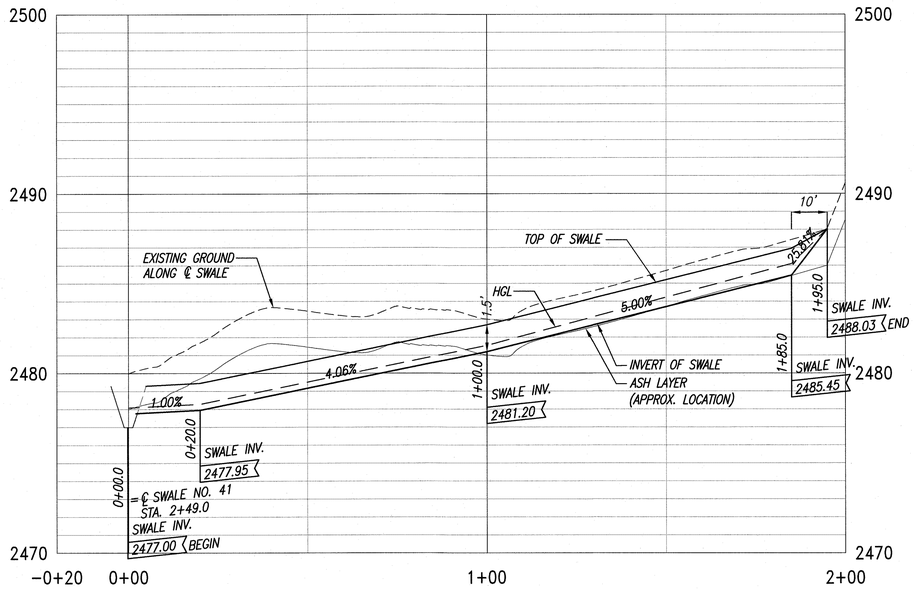
PLAN - SWALE NO. 39 (LOT 100-A) & SWALE NO. 38 (LOT 127-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 39 (LOT 100-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PROFILE - SWALE NO. 38 (LOT 127-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

LEGEND

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

RICHARD Y. SANTO
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HAWAII, U.S.A.

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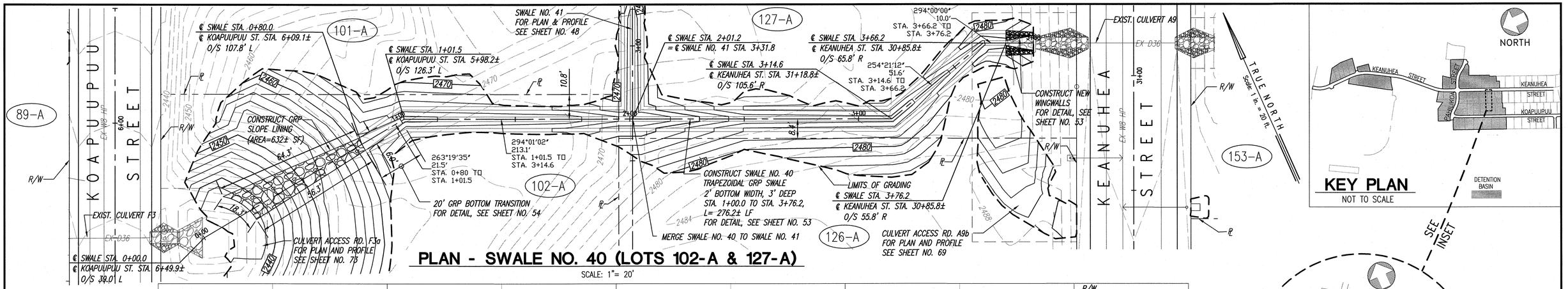
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 38 AND SWALE NO. 39

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

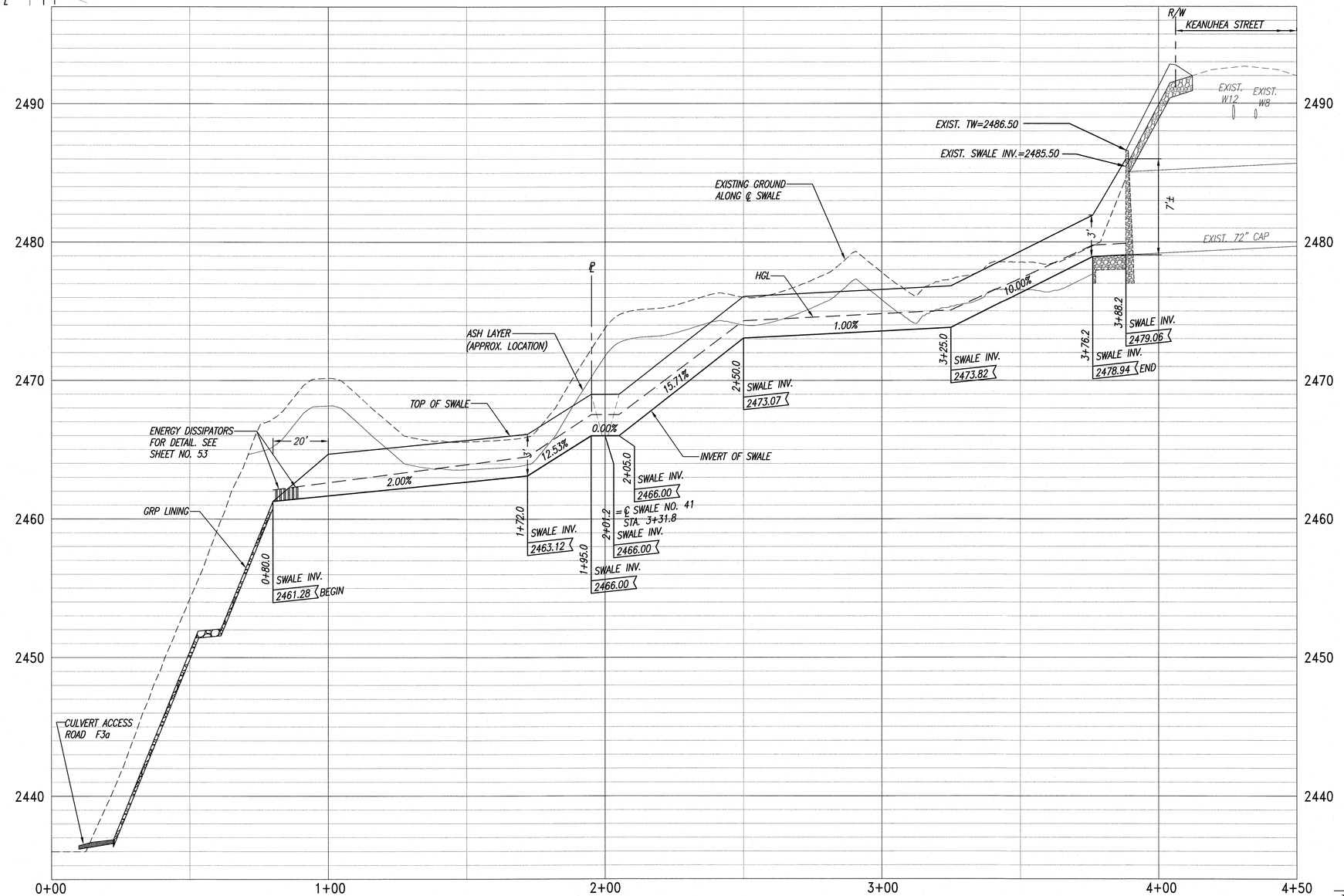
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\46-48 P&P Swale 38-41.dwg, 11/14/2014 4:15:36 PM, 1:1



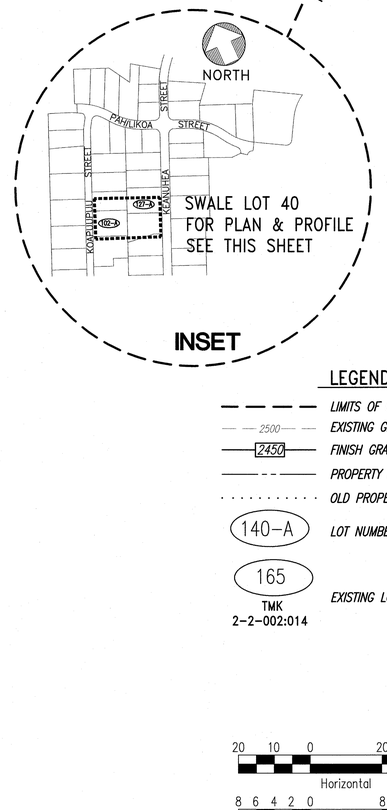
PLAN - SWALE NO. 40 (LOTS 102-A & 127-A)

SCALE: 1"= 20'



PROFILE - SWALE NO. 40 (LOTS 102-A & 127-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 40

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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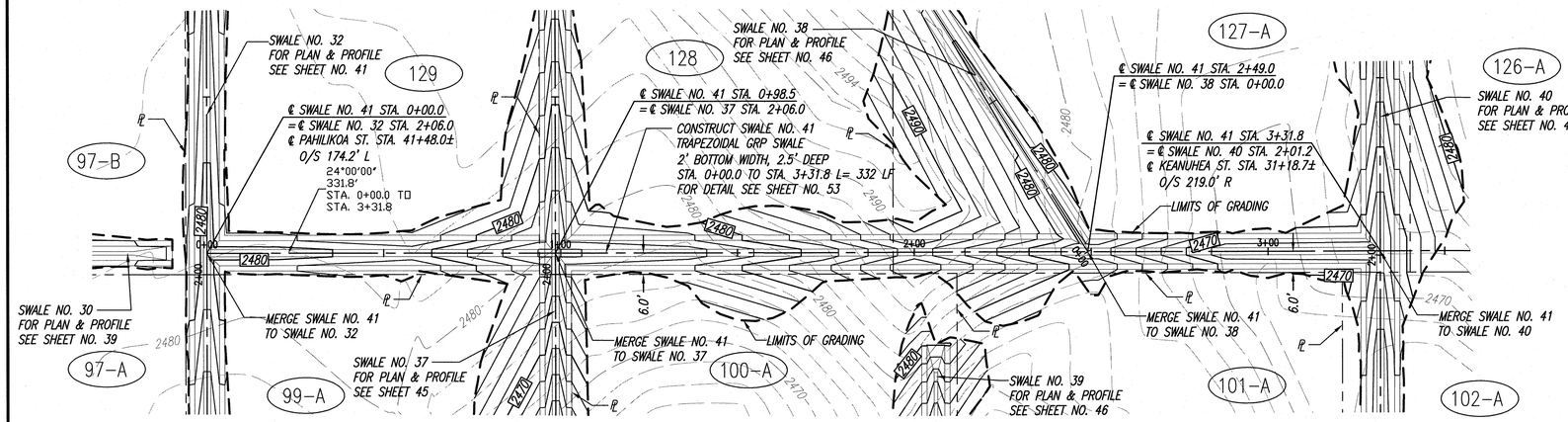
FILE	POCKET	FOLDER	NO.

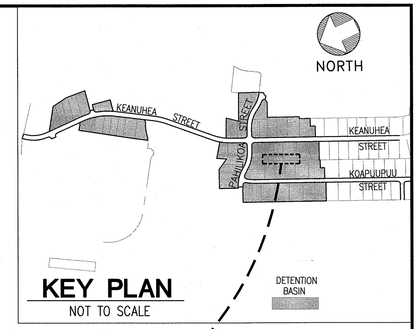
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\46-48 P&P Swale 38-41.dwg, 11/14/2014 4:17:21 PM, 1:1

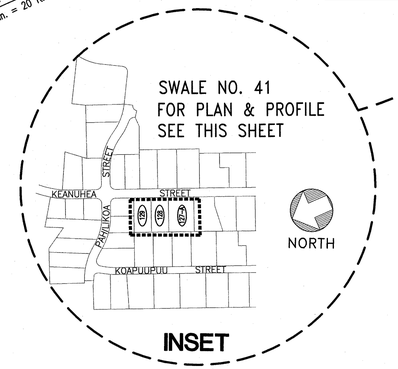


PLAN - SWALE NO. 41 (LOTS 129, 128 & 127-A)

SCALE: 1"= 20'

TRUE NORTH
Scale: 1 in. = 20 ft.

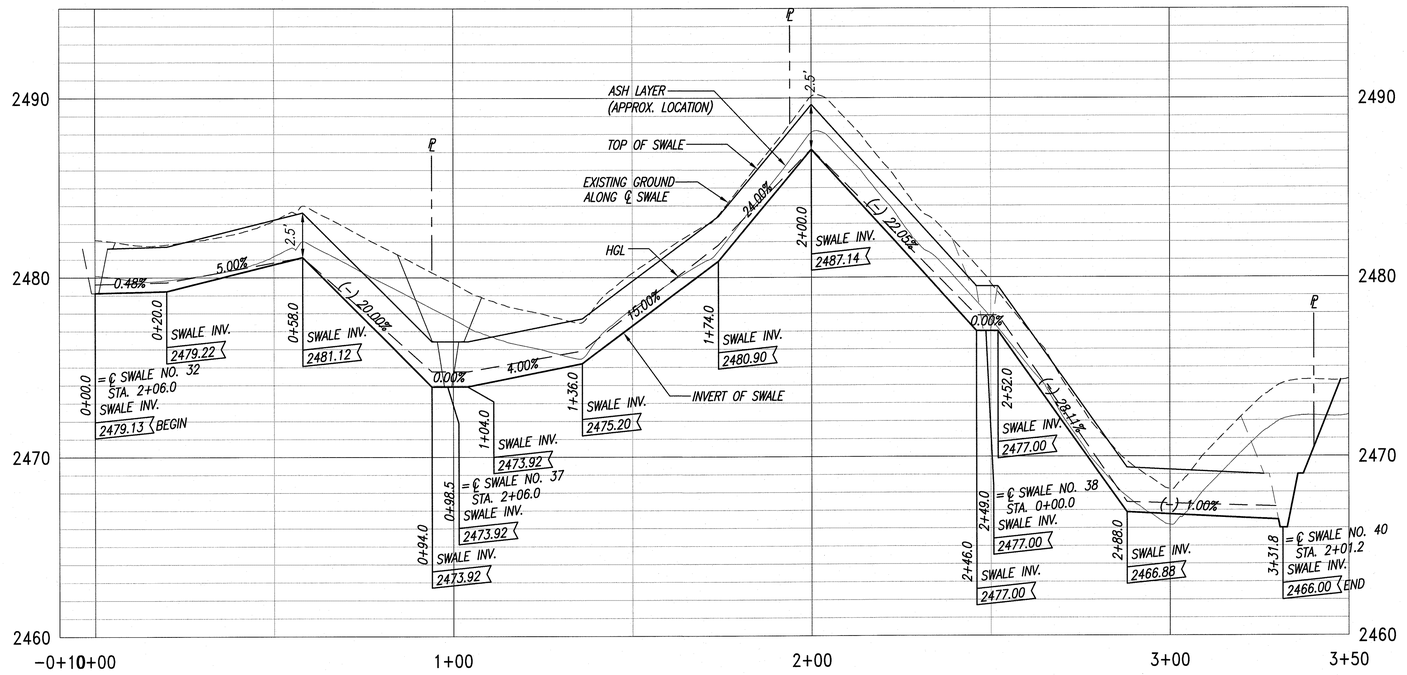




LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014



PROFILE - SWALE NO. 41 (LOTS 129, 128 & 127-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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AND (2) 2-2-34: 001 TO 016, 026 & 029

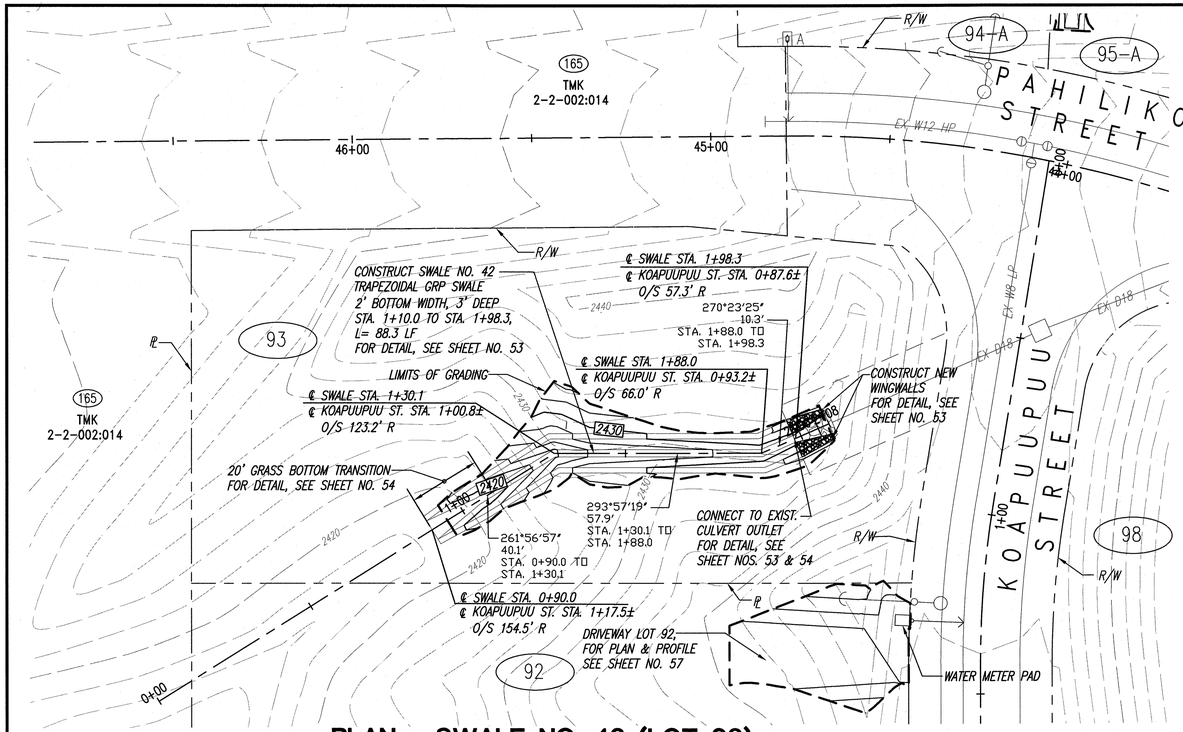
PLAN AND PROFILE SWALE NO. 41

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 48 OF 84 SHEETS

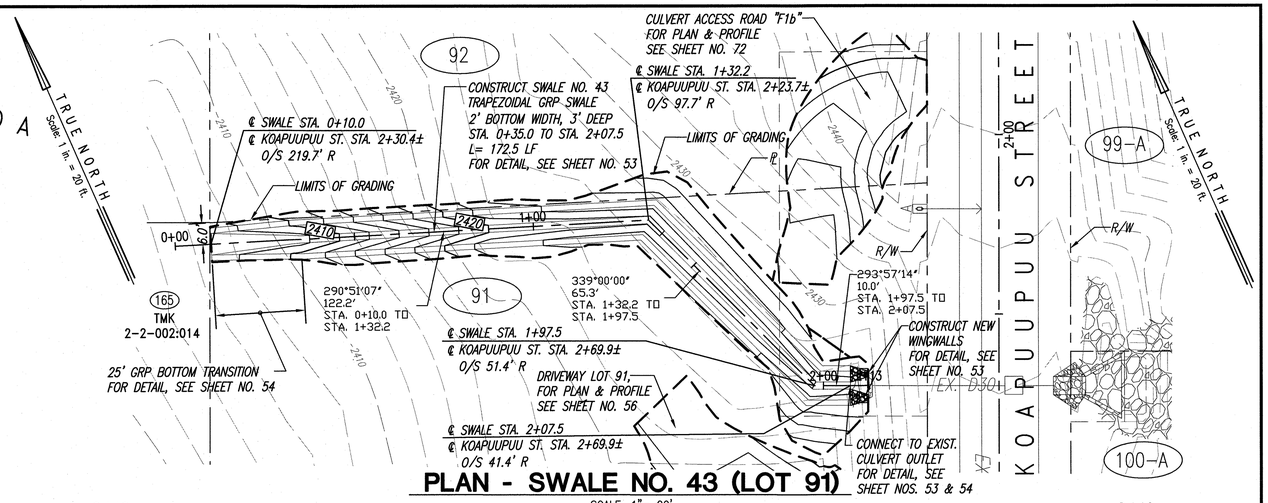
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\46-48 P&P Swale 38-41.dwg, 11/14/2014 4:19:15 PM, 1:1



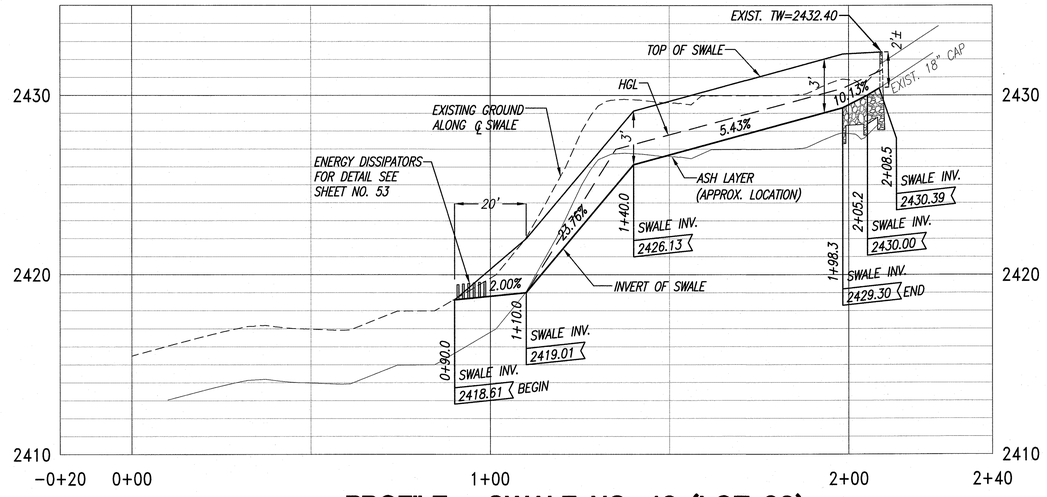
PLAN - SWALE NO. 42 (LOT 93)

SCALE: 1"= 20'



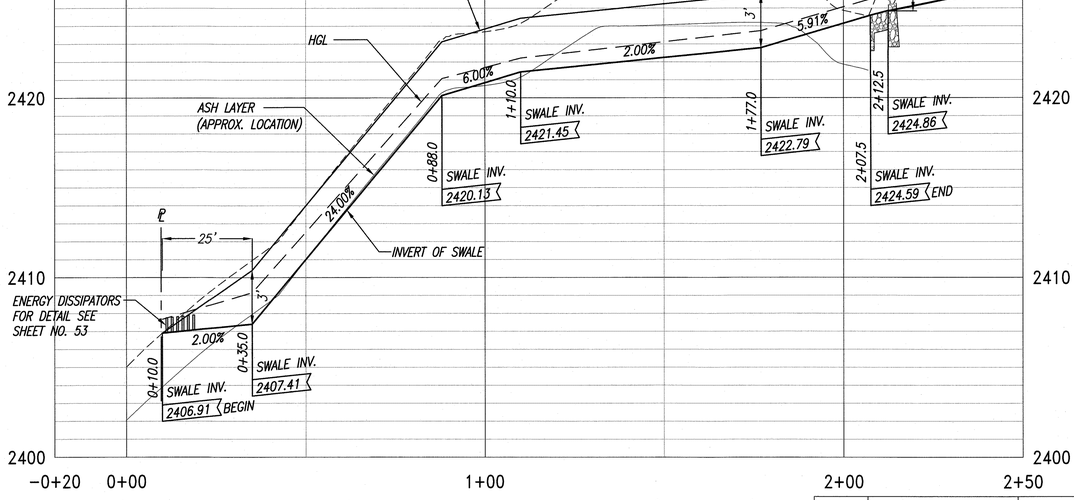
PLAN - SWALE NO. 43 (LOT 91)

SCALE: 1"= 20'



PROFILE - SWALE NO. 42 (LOT 93)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

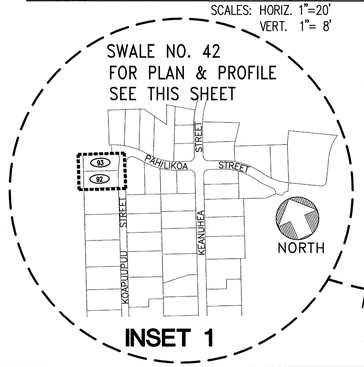


PROFILE - SWALE NO. 43 (LOT 91)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

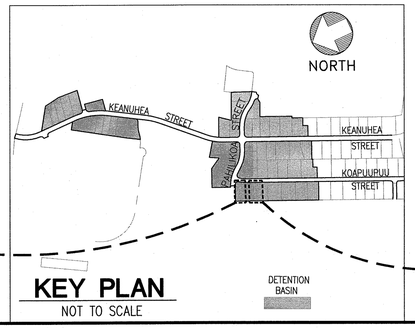
LEGEND

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



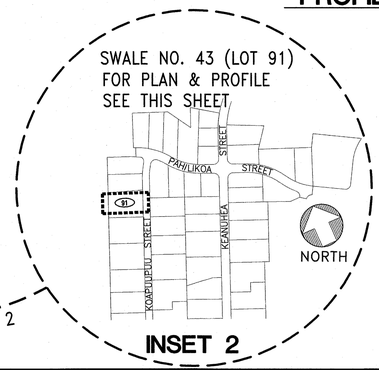
INSET 1

SEE INSET 1



KEY PLAN
NOT TO SCALE
DETENTION BASIN

SEE INSET 2



INSET 2

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
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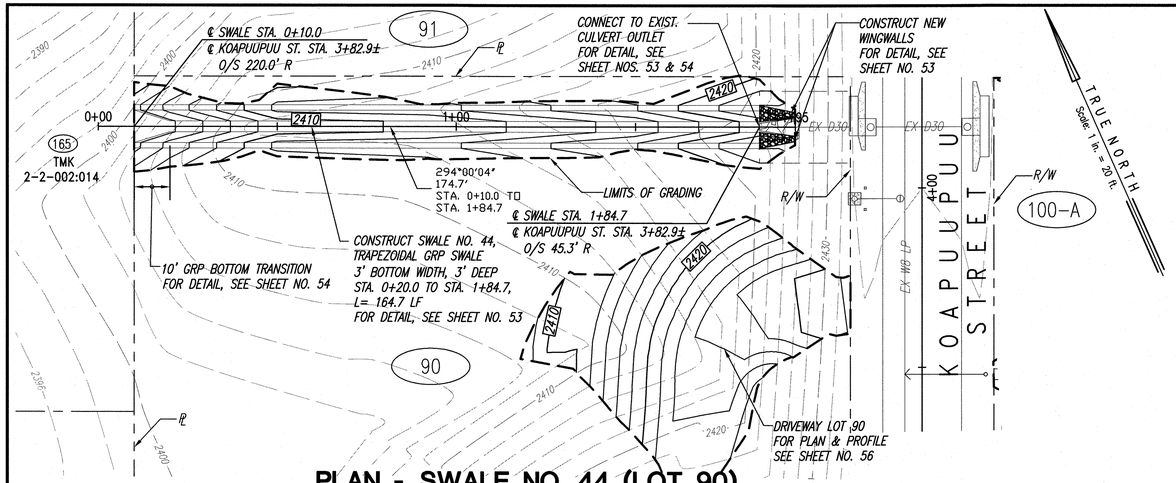
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 42 AND SWALE NO. 43

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

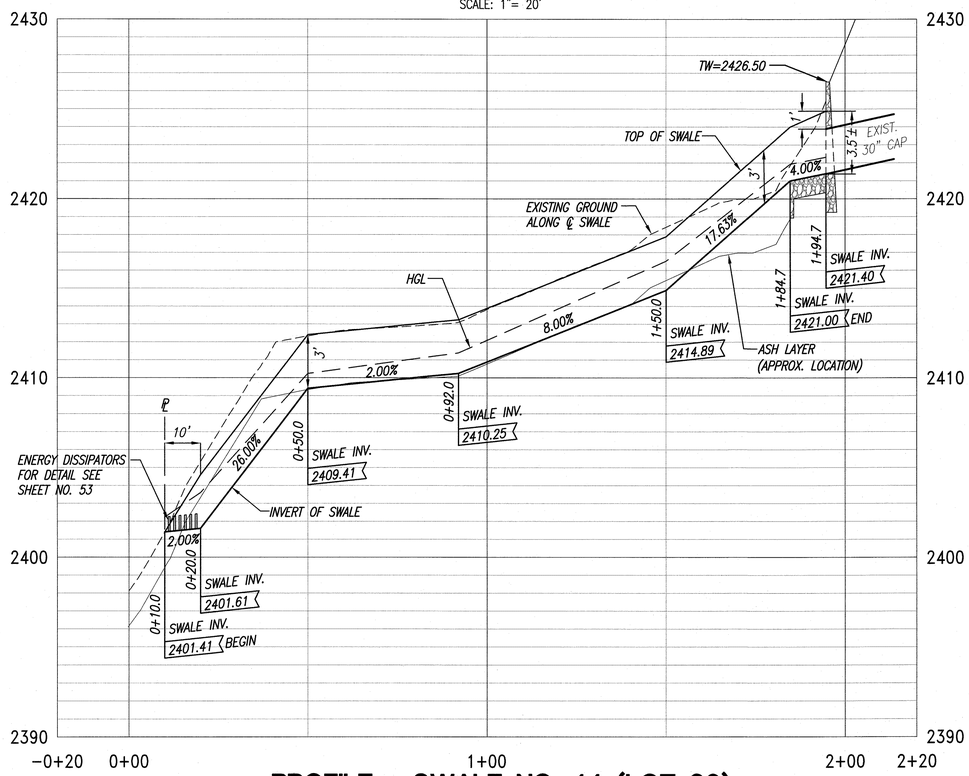
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\49-53 P&P Swale 42-45 ; Offsite Diversion Ditch & Berm 1 & 2.dwg, 11/14/2014 4:34:14 PM, 1:1



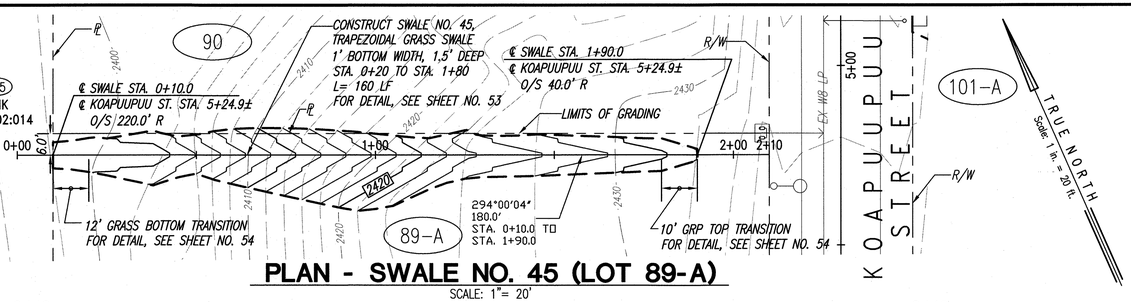
PLAN - SWALE NO. 44 (LOT 90)

SCALE: 1"= 20'



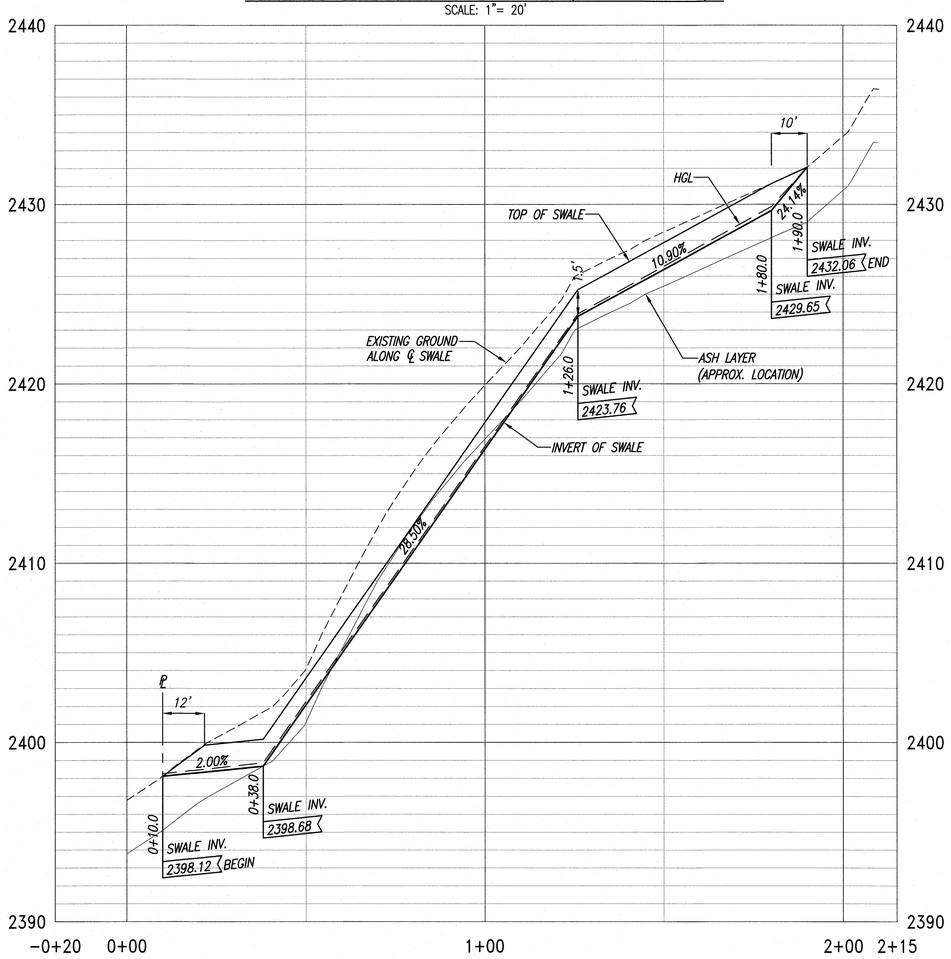
PROFILE - SWALE NO. 44 (LOT 90)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - SWALE NO. 45 (LOT 89-A)

SCALE: 1"= 20'

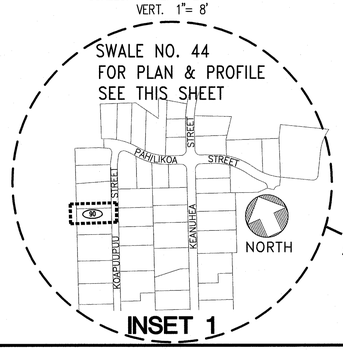


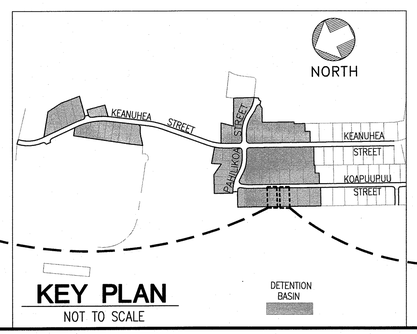
PROFILE - SWALE NO. 45 (LOT 89-A)

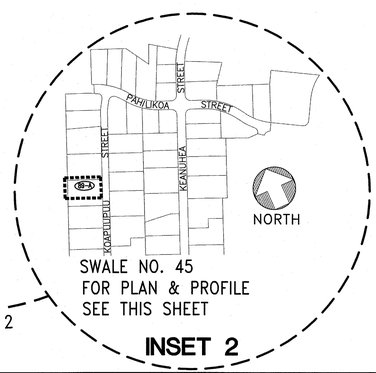
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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







20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

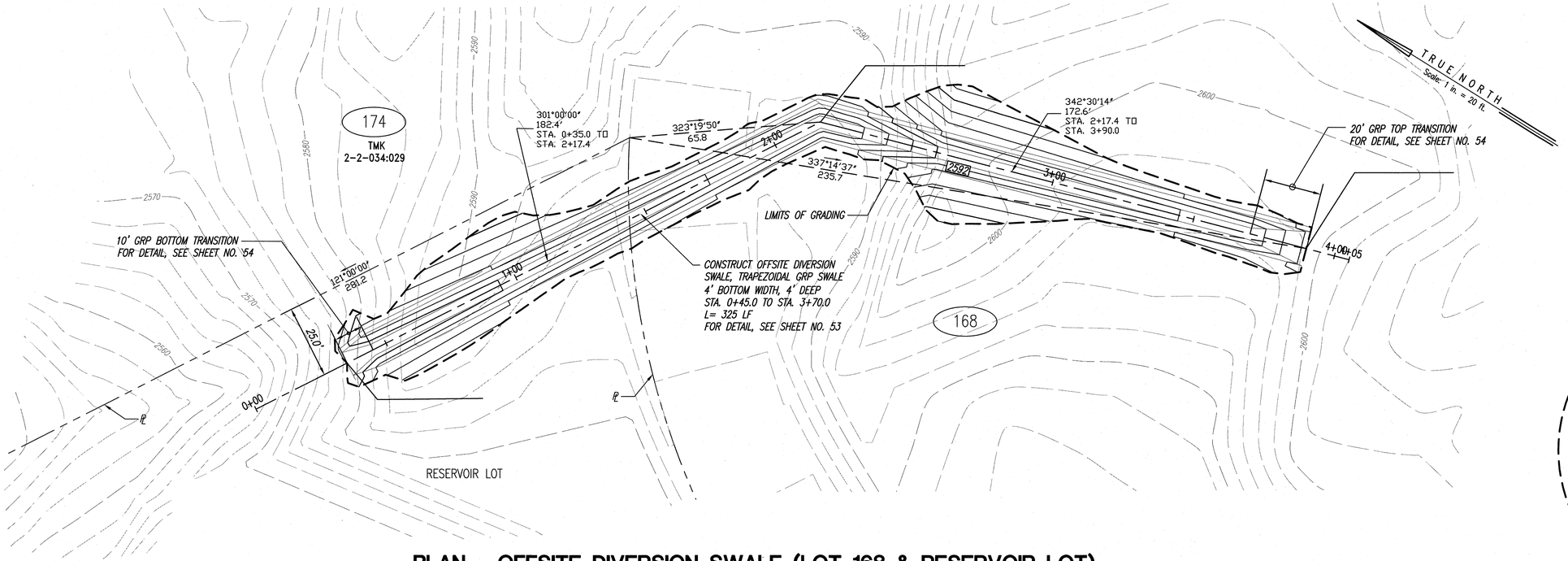
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE SWALE NO. 44 AND SWALE NO. 45

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

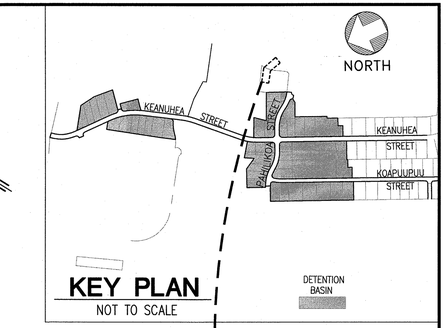
FILE	POCKET	FOLDER	NO.

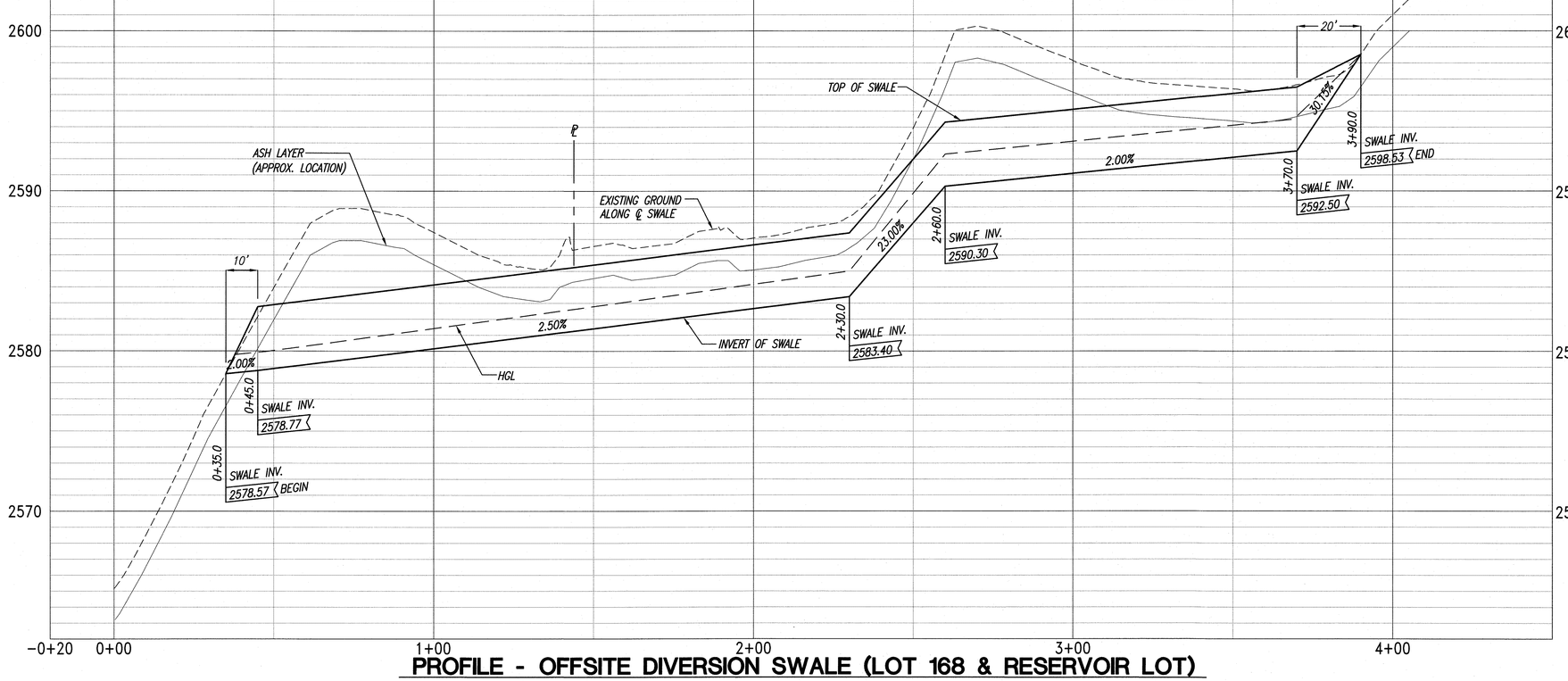
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\DWG\Increment 1\Current\49-53 P&P Swale 42-45 ; Offsite Diversion Ditch & Berm 1 & 2.dwg, 11/14/2014 4:36:13 PM, 1:1



PLAN - OFFSITE DIVERSION SWALE (LOT 168 & RESERVOIR LOT)

SCALE: 1"=20'





PROFILE - OFFSITE DIVERSION SWALE (LOT 168 & RESERVOIR LOT)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

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

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE OFFSITE DIVERSION SWALE

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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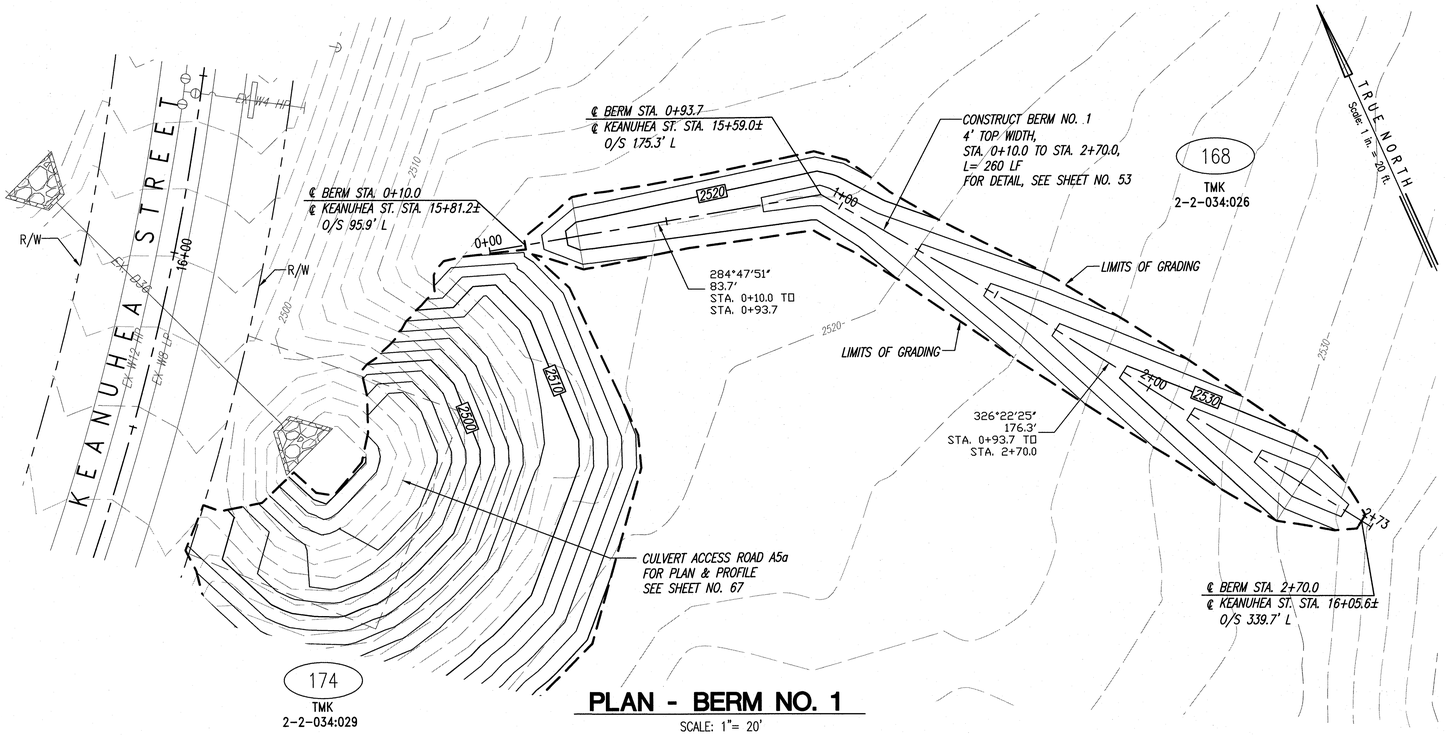
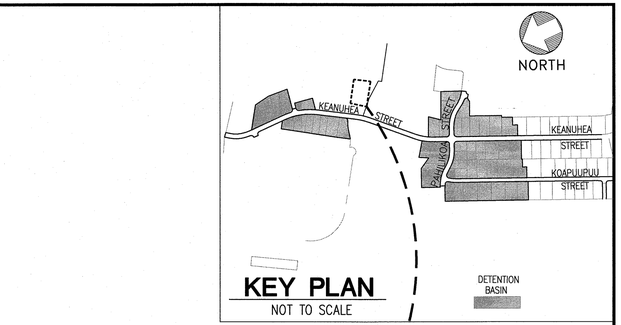
FILE	POCKET	FOLDER	NO.

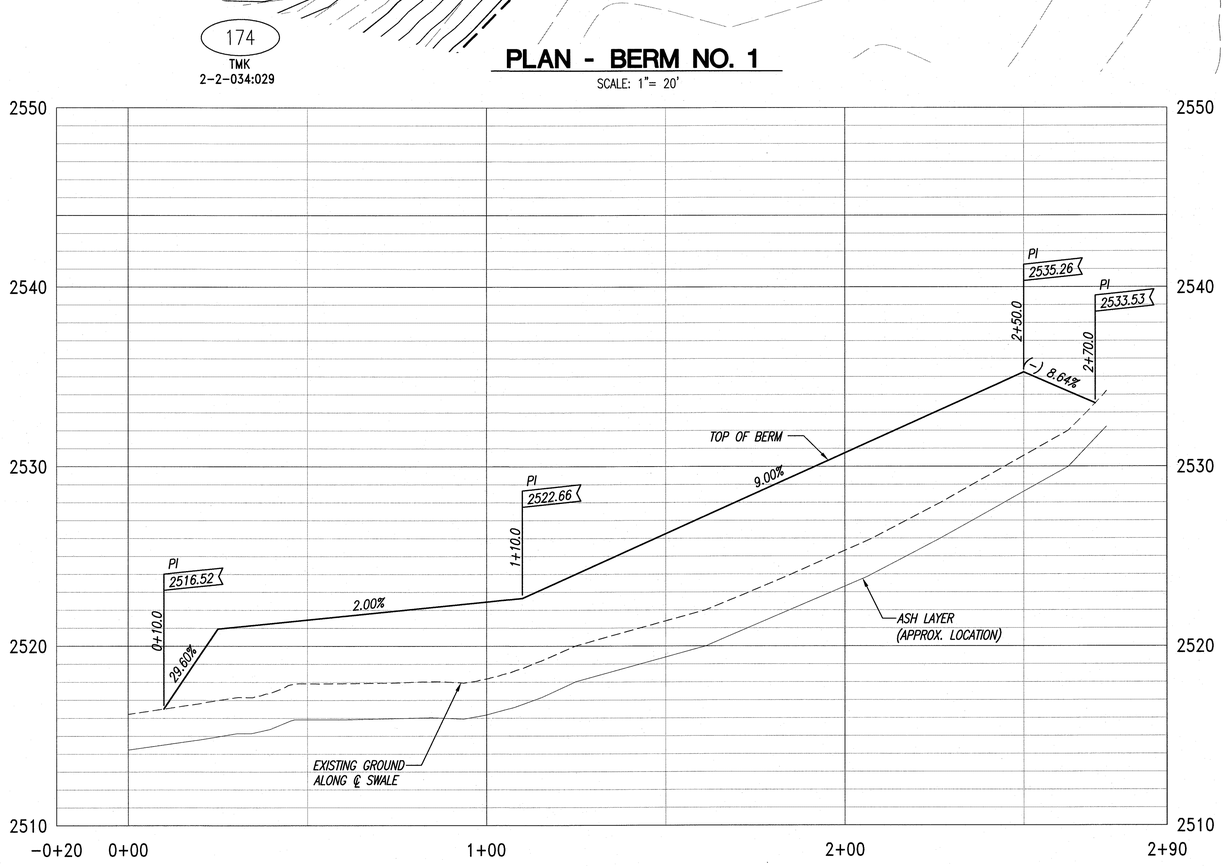
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADWG\Increment 1\Current\49-53 P&P Swale 42-45 ; Offsite Diversion Ditch & Berm 1 & 2.dwg, 11/14/2014 4:38:06 PM, 1:1



PLAN - BERM NO. 1

SCALE: 1"= 20'





PROFILE - BERM NO. 1

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

LEGEND

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

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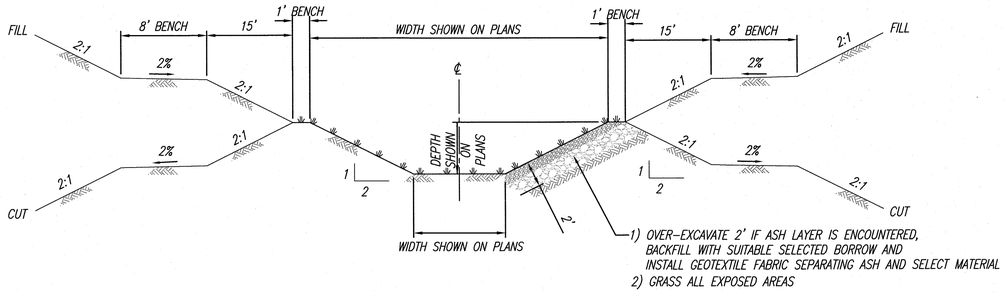
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE BERM NO. 1

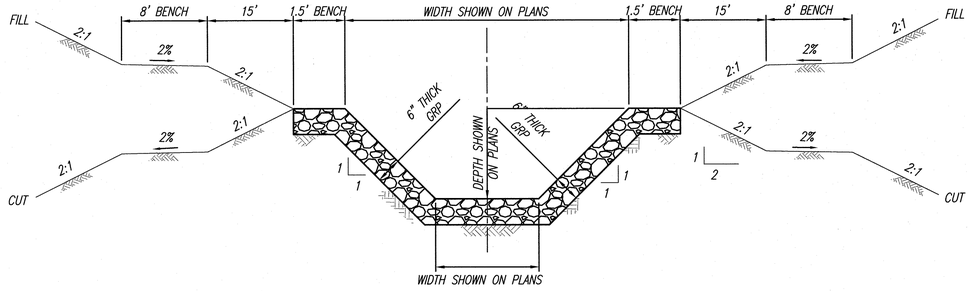
DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

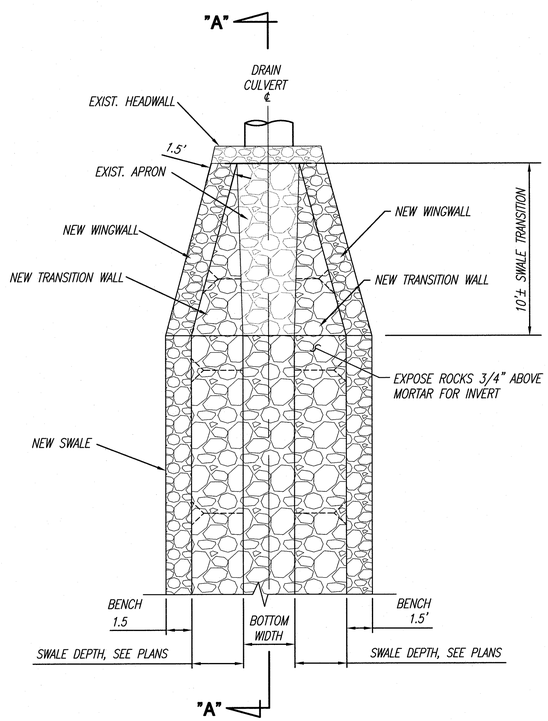
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDW\Increment 1\Current\49-53 P&P Swale 42-45 ; Offsite Diversion Ditch & Berm 1 & 2.dwg, 11/14/2014 4:43:23 PM, 1:1



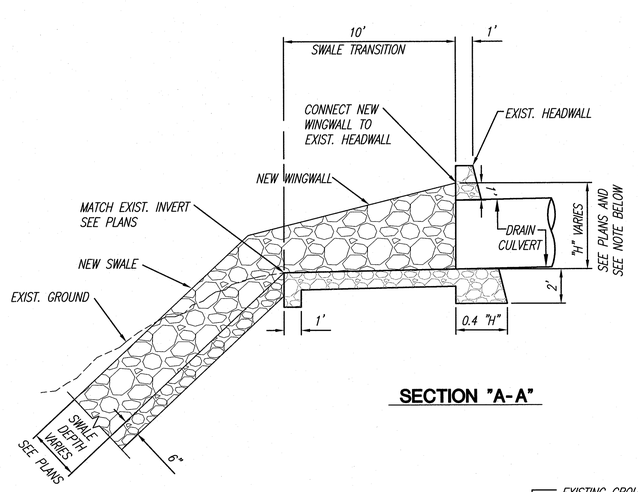
TYPICAL GRASS SWALE SECTION
NOT TO SCALE



TYPICAL GRP SWALE SECTION
NOT TO SCALE



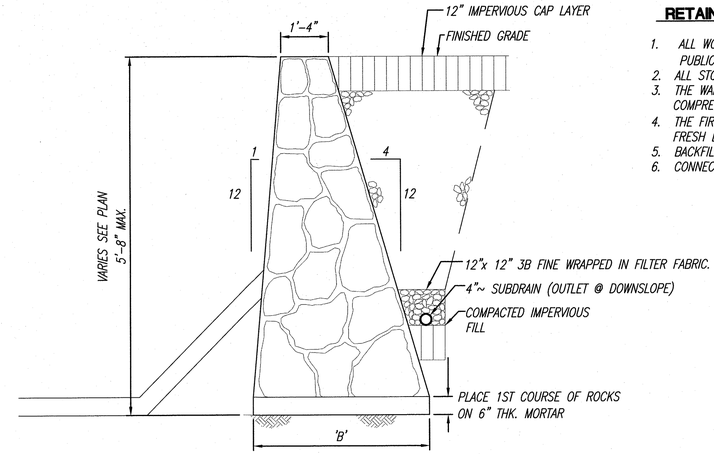
PLAN



SECTION "A-A"

NOTE:
"H" = PIPE DIA. PLUS 1 FEET OR HEIGHT OF EXIST. HEADWALL WHICHEVER IS GREATER

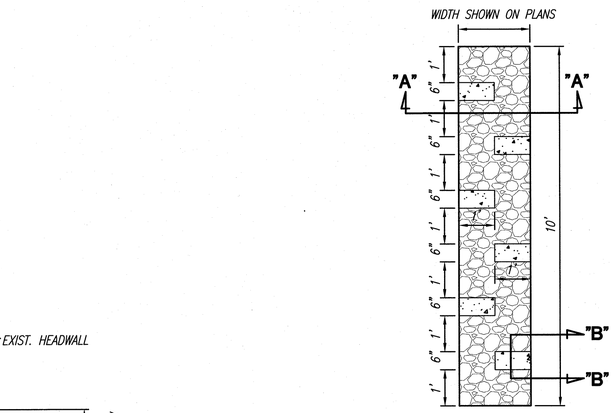
SWALE CONNECTION TO EXIST. CULVERT DETAIL WITH NEW WINGWALL
NOT TO SCALE

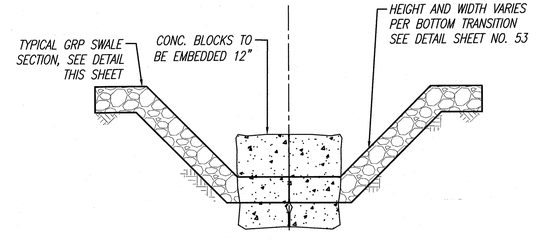


RETAINING WALL NOTES:

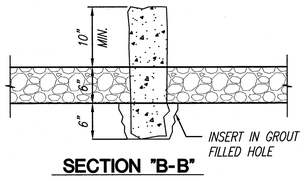
1. ALL WORK SHALL CONFORM TO THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION OF THE CITY AND COUNTY OF HONOLULU" (LATEST).
2. ALL STONES SHALL BE CLEAN AND FREE FROM DIRT OR LOOSE MATERIAL.
3. THE WALL SHALL BE GROUTED SOLID. GROUT AND MORTAR SHALL HAVE MINIMUM COMPRESSIVE STRENGTH OF 2,000 PSI AT 28 DAYS.
4. THE FIRST COURSE OF STONES SHALL BE SET INTO A 6" MINIMUM THICK LAYER OF FRESH BEDDING MORTAR.
5. BACKFILL SHALL SHALL BE PRE-APPROVED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT.
6. CONNECT NEW RETAINING WALL TO THE EXISTING HEADWALL WITH A FULL MORTAR JOINT.

RETAINING WING WALL
NOT TO SCALE



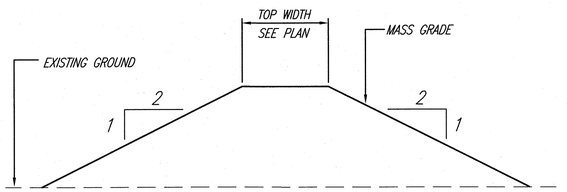


SECTION "A-A"



SECTION "B-B"

ENERGY DISSIPATOR
NOT TO SCALE



TYPICAL EARTH BERM
NOT TO SCALE

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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LICENSE EXPIRATION DATE: 04/30/16

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

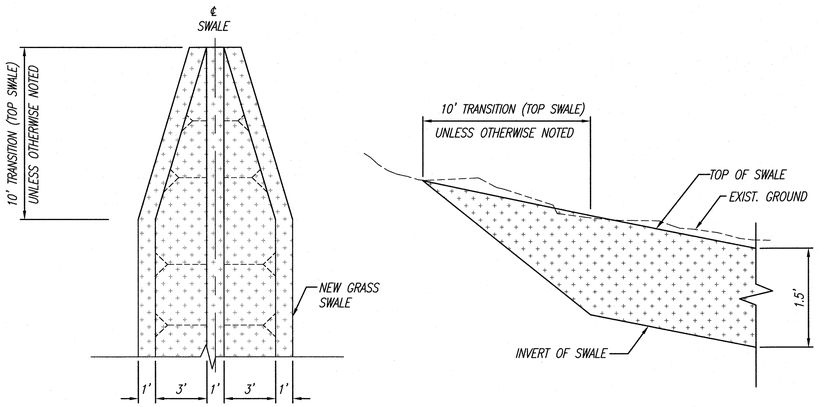
SWALE AND BERM DETAILS - 1

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

APPROVED:

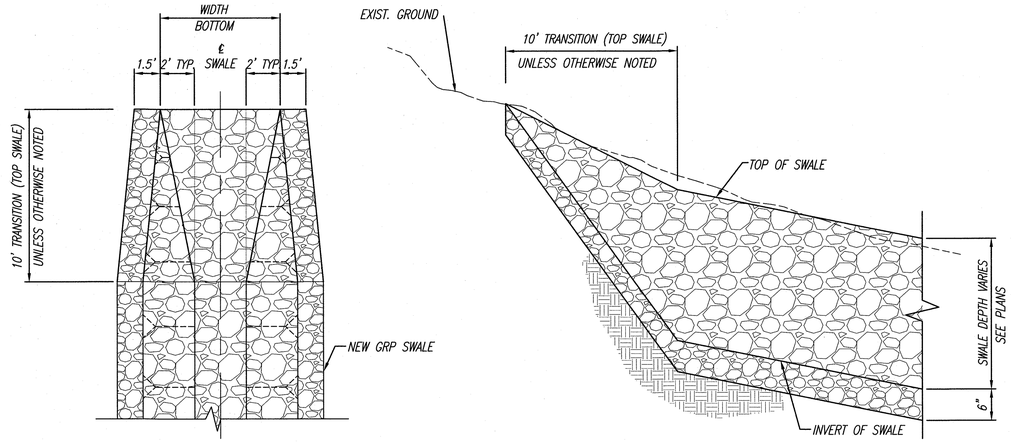
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\54-55 Swale & Berm Details 1-2 & Swales Connection Details.dwg, 11/14/2014 4:45:12 PM, 1:1



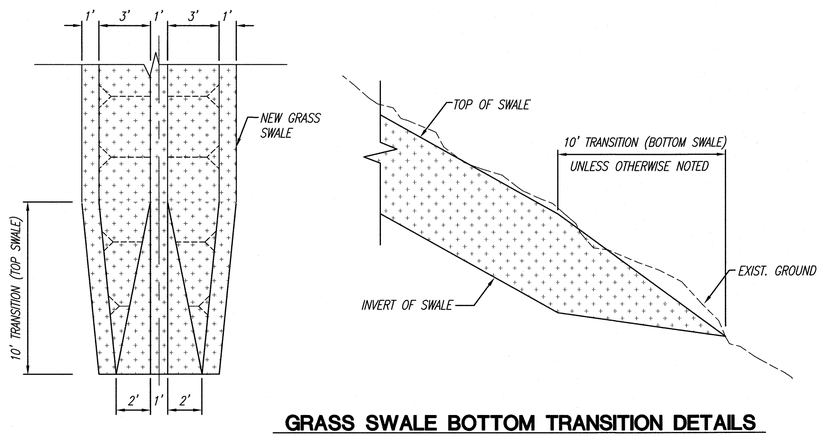
GRASS SWALE TOP TRANSITION DETAILS

NOT TO SCALE



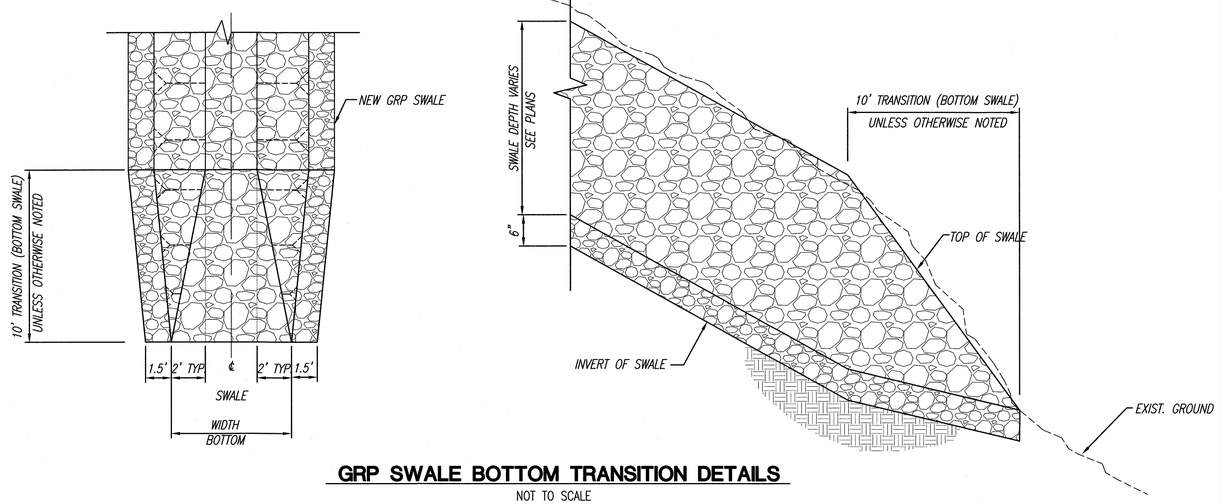
GRP SWALE TOP TRANSITION DETAILS

NOT TO SCALE



GRASS SWALE BOTTOM TRANSITION DETAILS

NOT TO SCALE



GRP SWALE BOTTOM TRANSITION DETAILS

NOT TO SCALE

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

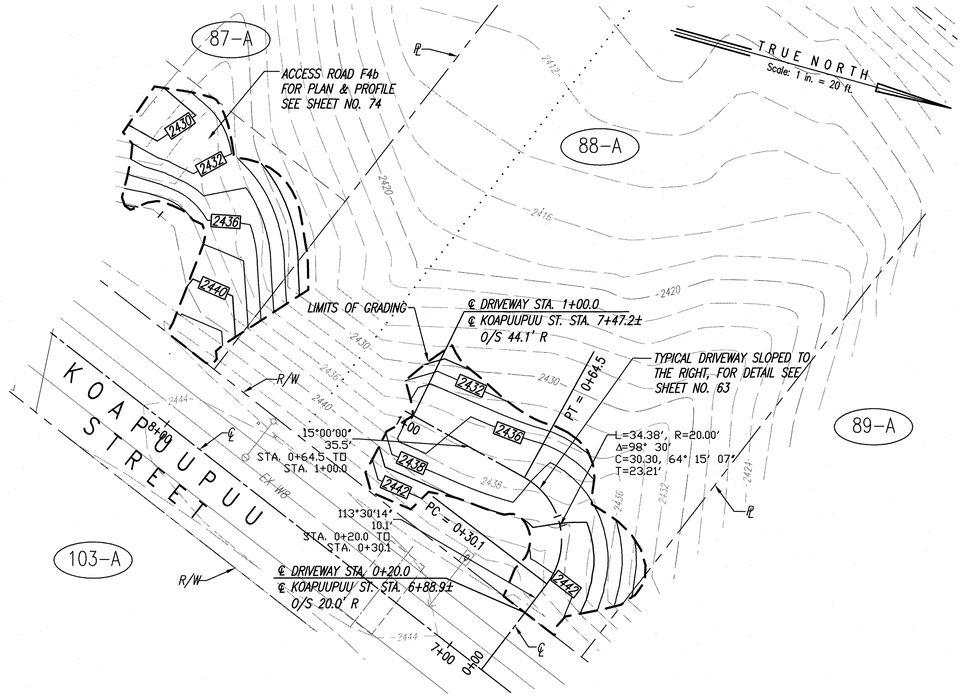
SWALE AND BERM DETAILS - 2

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

APPROVED:

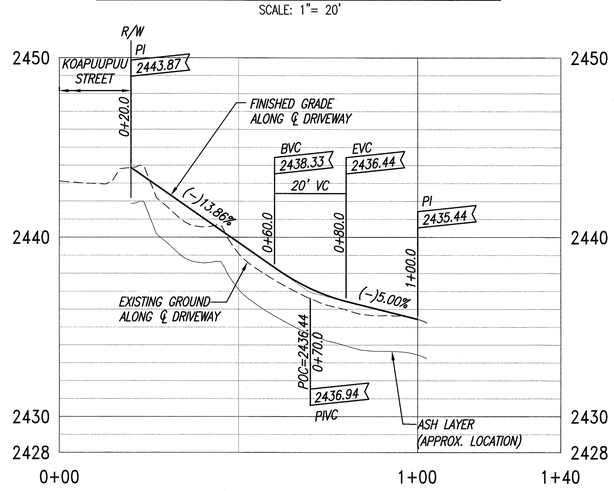
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\54-55 Swale & Berm Details 1-2 & Swales Connection Details.dwg, 11/17/2014 6:41:57 AM, 1:1



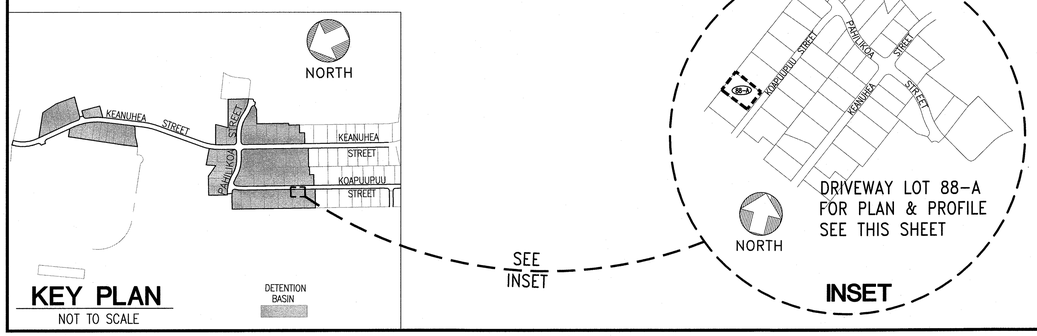
PLAN - DRIVEWAY LOT 88-A

SCALE: 1"= 20'



PROFILE - DRIVEWAY LOT 88-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



KEY PLAN

NOT TO SCALE

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

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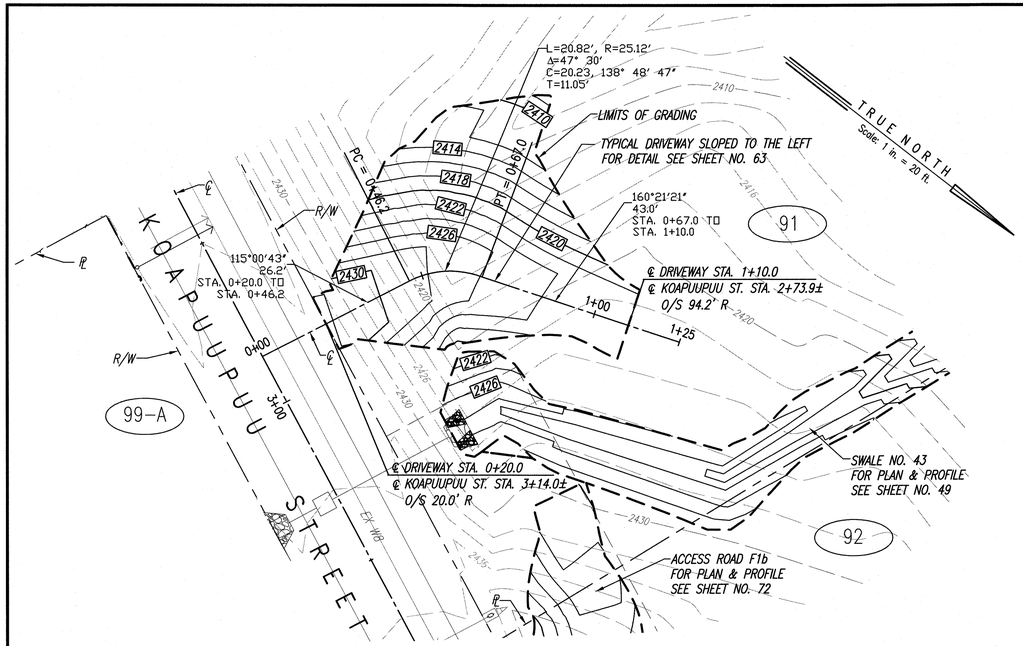
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 88-A

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 6:50:41 AM, 1:1

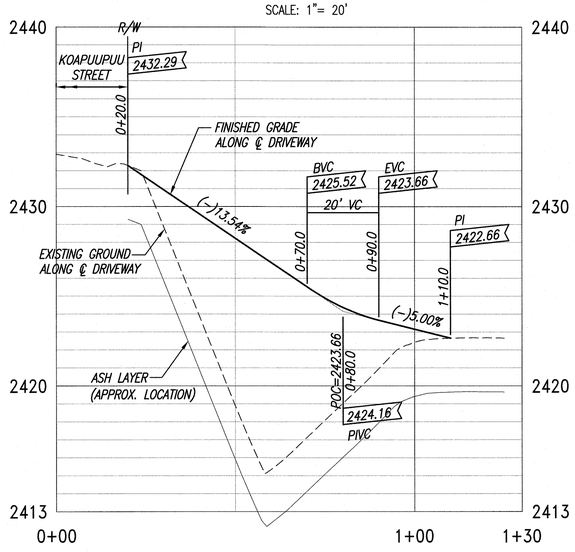


PLAN - DRIVEWAY LOT 91

SCALE: 1"= 20'

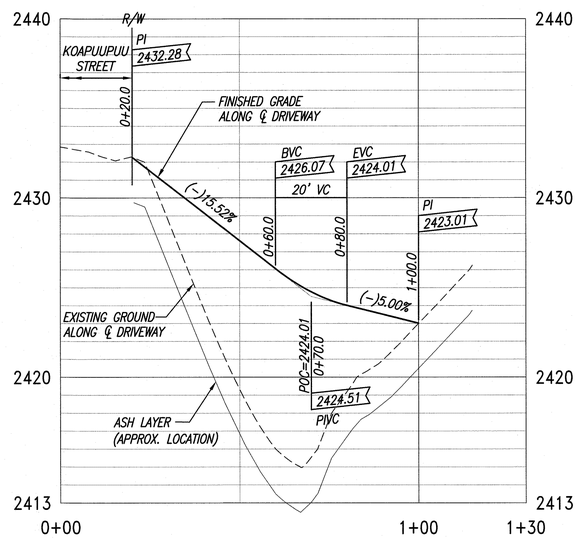
PLAN - DRIVEWAY LOT 90

SCALE: 1"= 20'



PROFILE - DRIVEWAY LOT 91

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

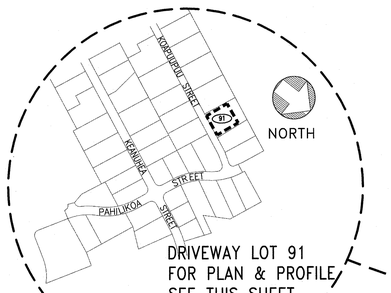


PROFILE - DRIVEWAY LOT 90

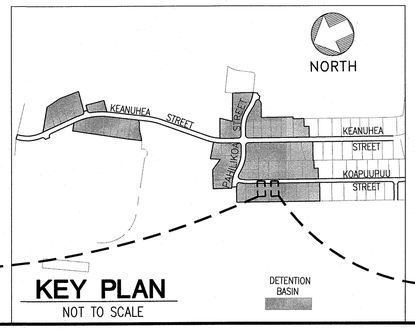
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER
  TMK 2-2-002:014



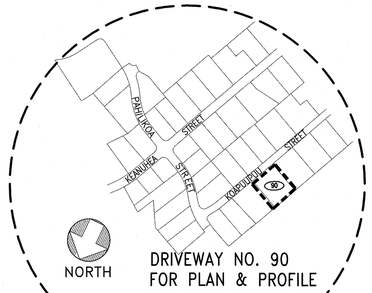
SEE INSET 1



KEY PLAN

NOT TO SCALE

SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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1288 Queen Emma Street, Third Floor Honolulu, Hawaii

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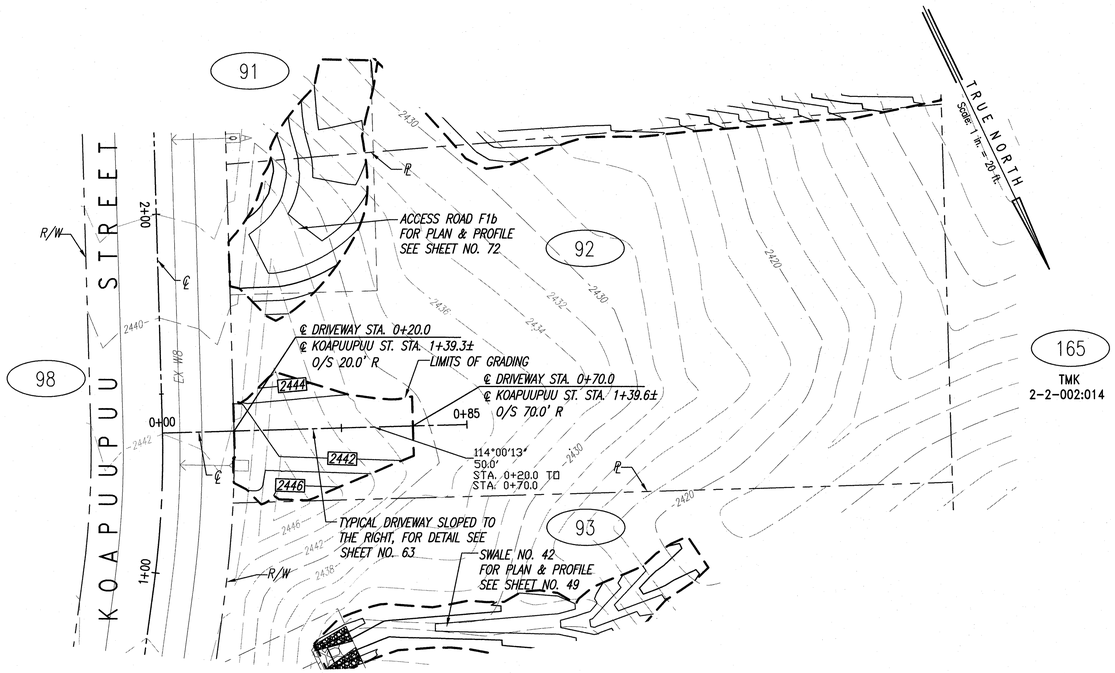
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 90 & DRIVEWAY LOT 91

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

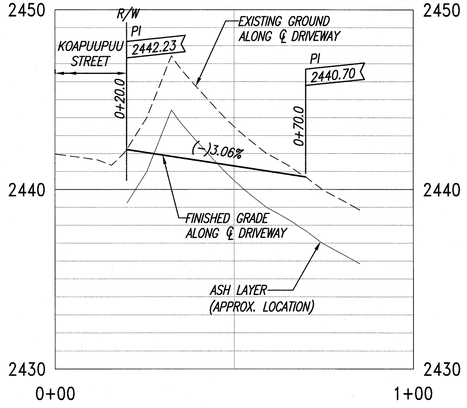
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DW\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 6:56:42 AM, 1:1



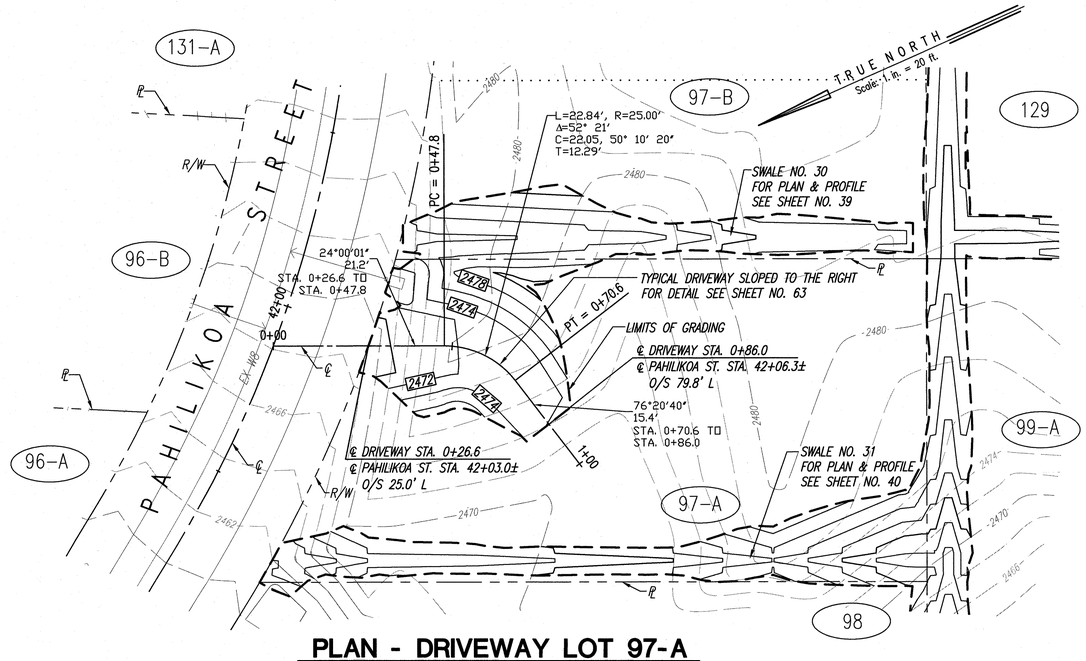
PLAN - DRIVEWAY LOT 92

SCALE: 1"= 20'



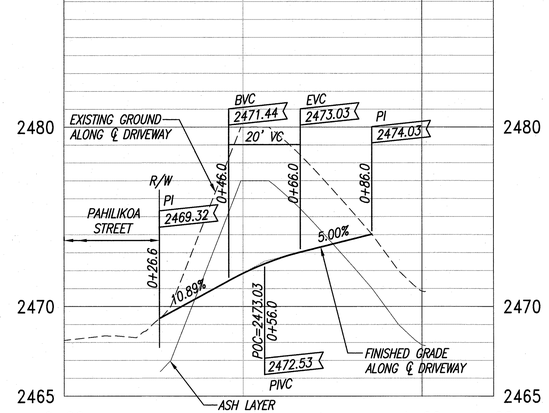
PROFILE - DRIVEWAY LOT 92

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - DRIVEWAY LOT 97-A

SCALE: 1"= 20'



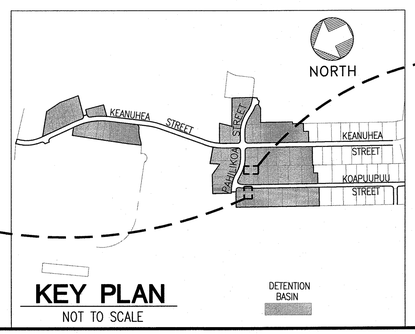
PROFILE - DRIVEWAY LOT 97-A

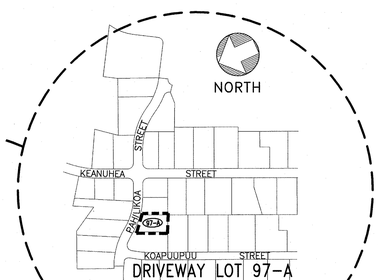
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER







20 10 0 20 40
Horizontal

8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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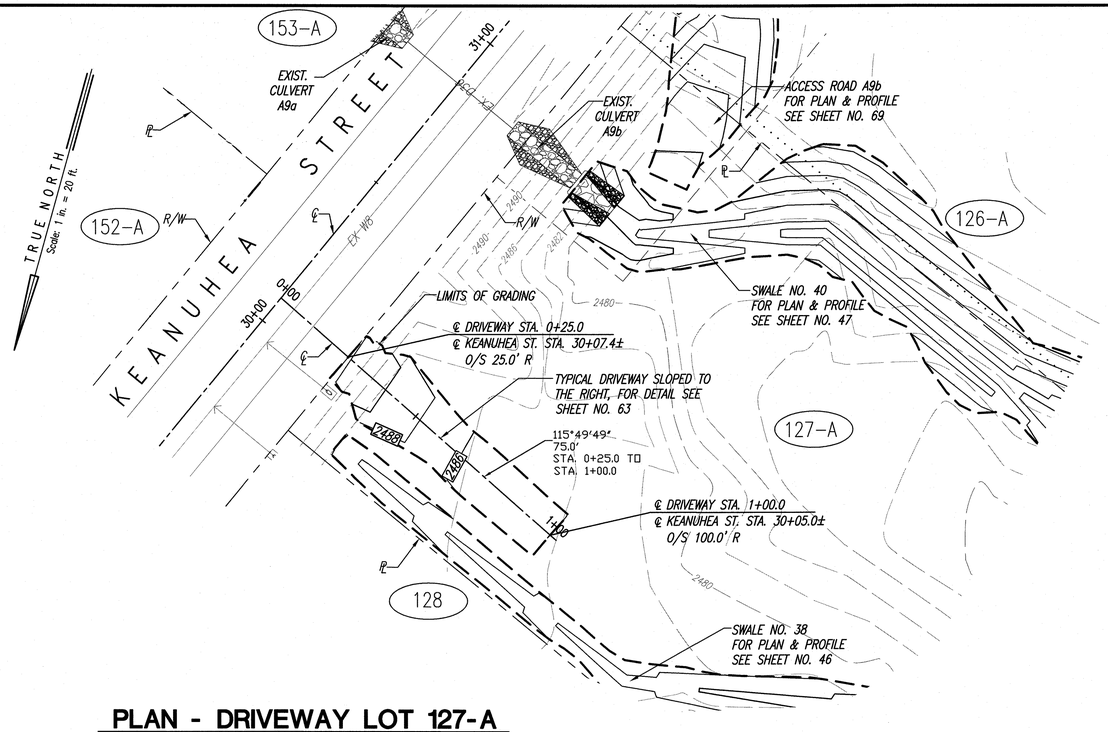
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 92 & & DRIVEWAY LOT 97-A

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

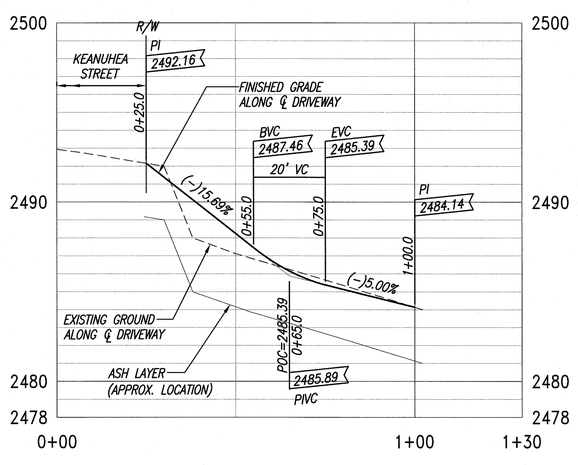
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 6:59:11 AM, 1:1



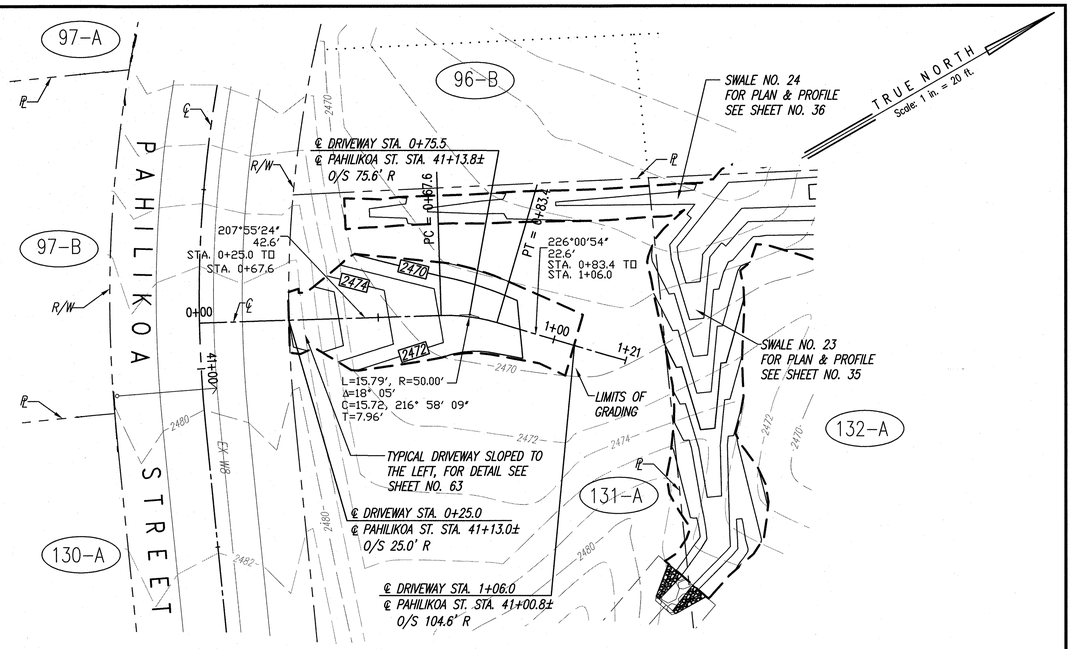
PLAN - DRIVEWAY LOT 127-A

SCALE: 1"= 20'



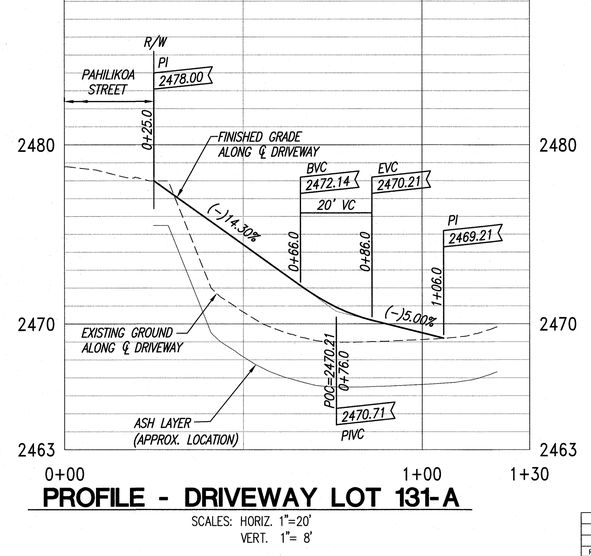
PROFILE - DRIVEWAY LOT 127-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - DRIVEWAY LOT 131-A

SCALE: 1"= 20'

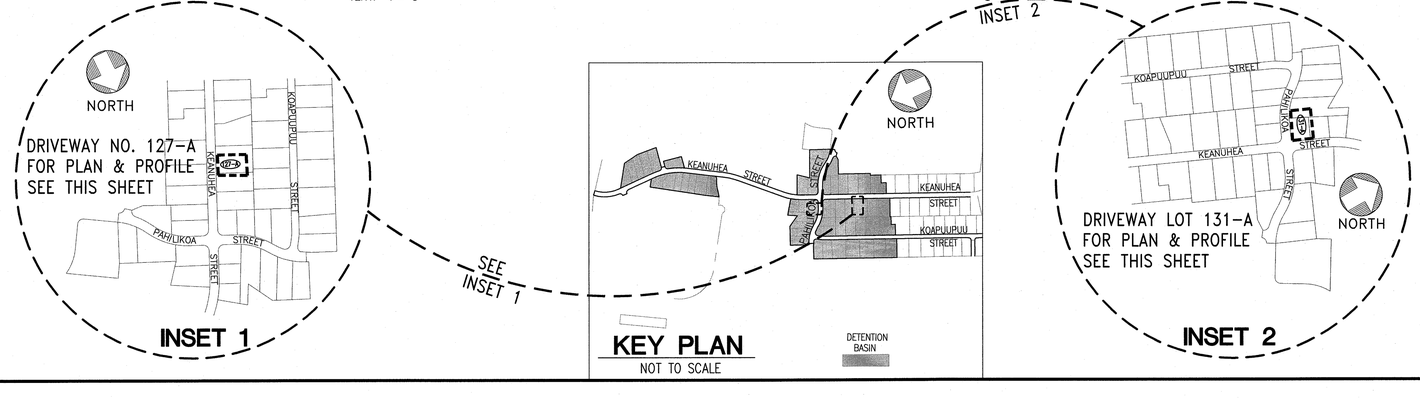


PROFILE - DRIVEWAY LOT 131-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER
- TMK 2-2-002:014



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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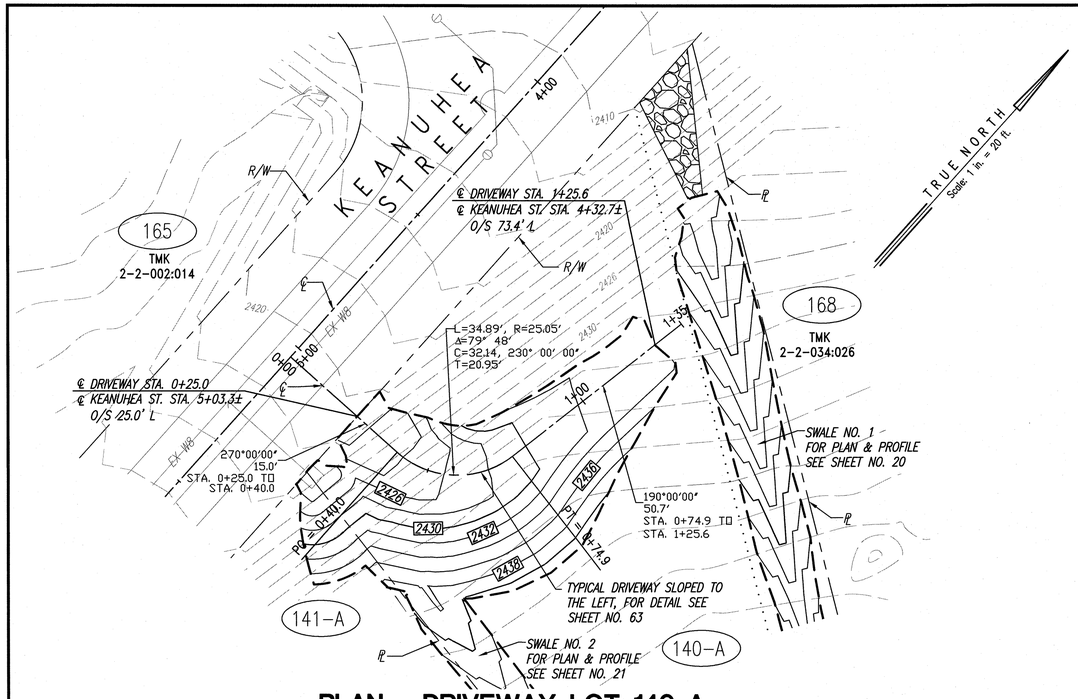
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 127-A & DRIVEWAY LOT 131-A

DRAWN BY: JSO	ENGINEER: KMNW/MFC	CHECKED BY: RYS

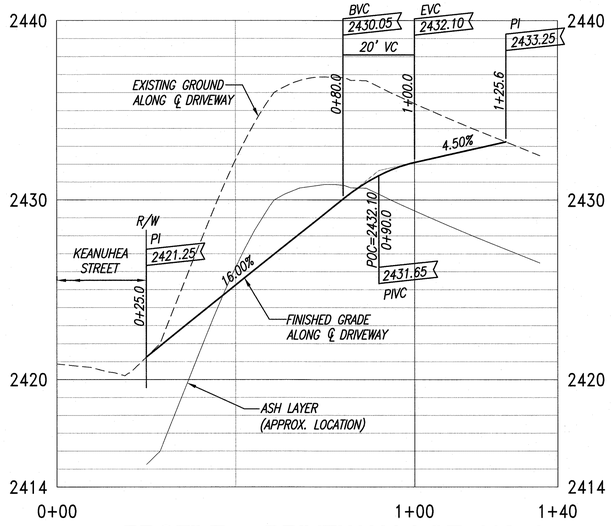
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 7:05:51 AM, 1:1



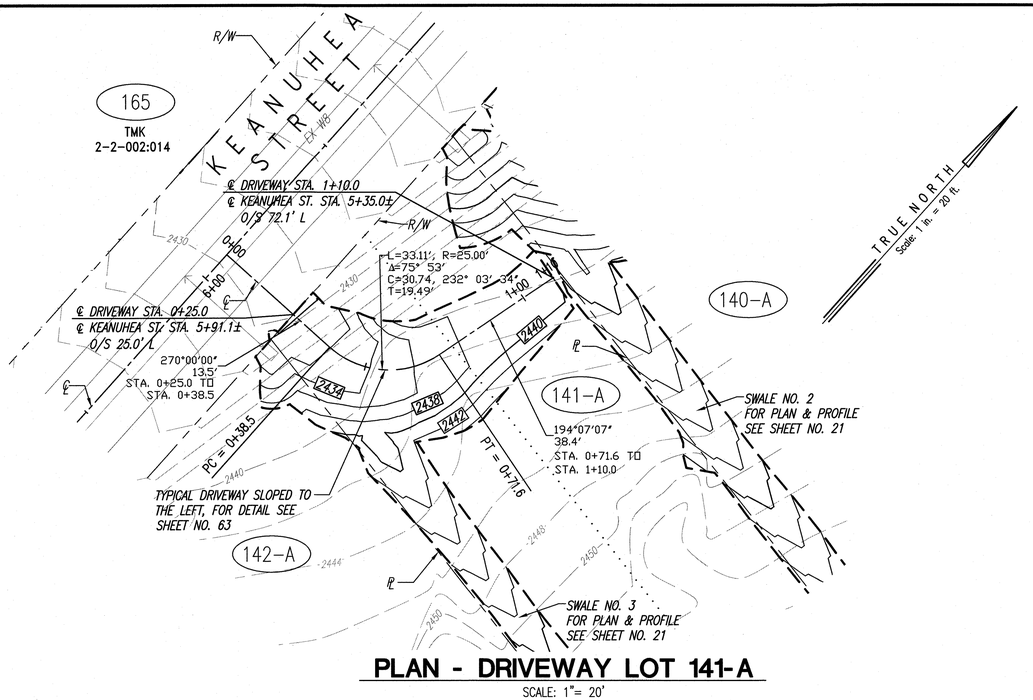
PLAN - DRIVEWAY LOT 140-A

SCALE: 1"= 20'



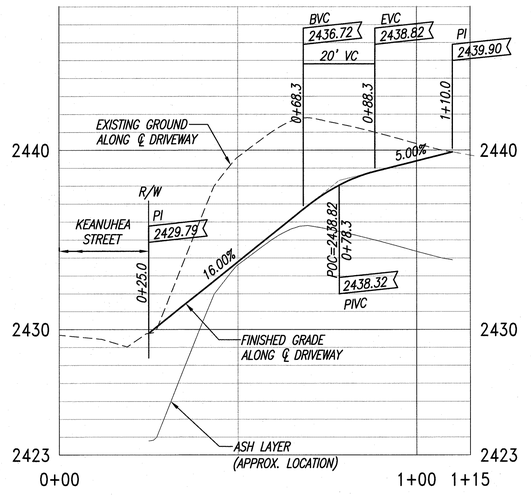
PROFILE - DRIVEWAY LOT 140-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - DRIVEWAY LOT 141-A

SCALE: 1"= 20'

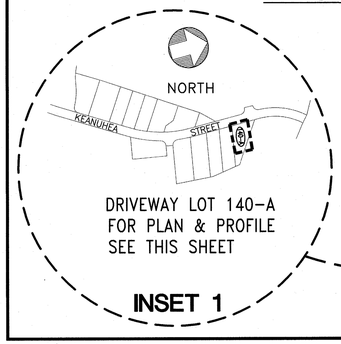


PROFILE - DRIVEWAY LOT 141 -A

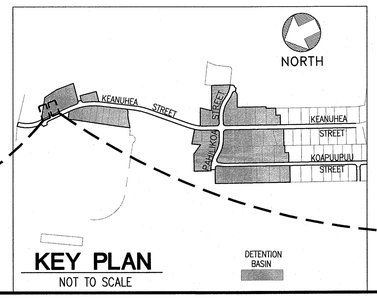
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER

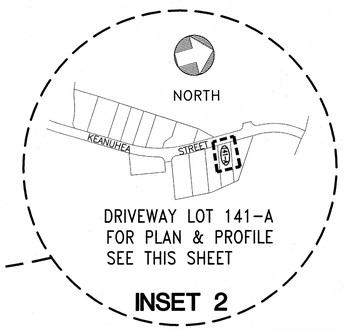


SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

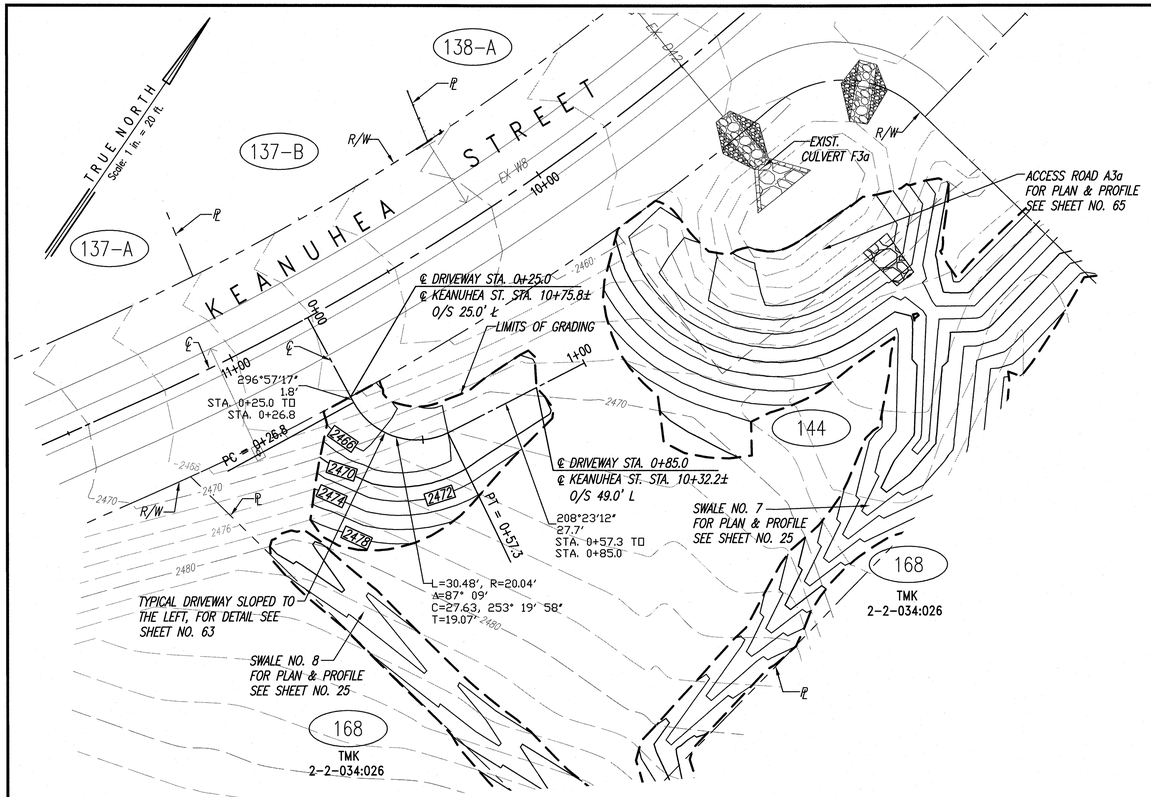
PLAN AND PROFILE DRIVEWAY LOT 140-A & DRIVEWAY LOT 141-A

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 59 OF 84 SHEETS

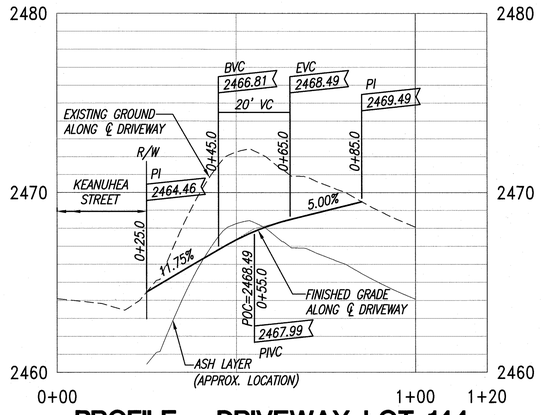
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Kaokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 7:07:37 AM, 1:1



PLAN - DRIVEWAY LOT 144

SCALE: 1"= 20'

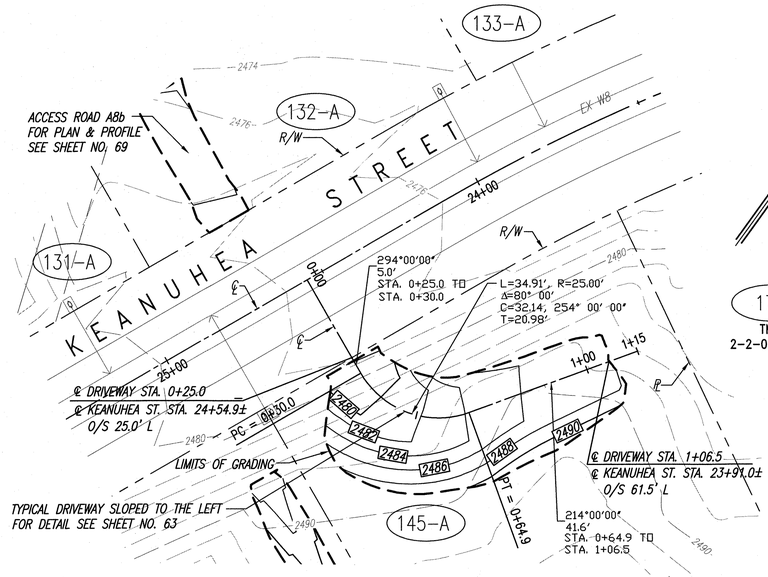


PROFILE - DRIVEWAY LOT 144

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

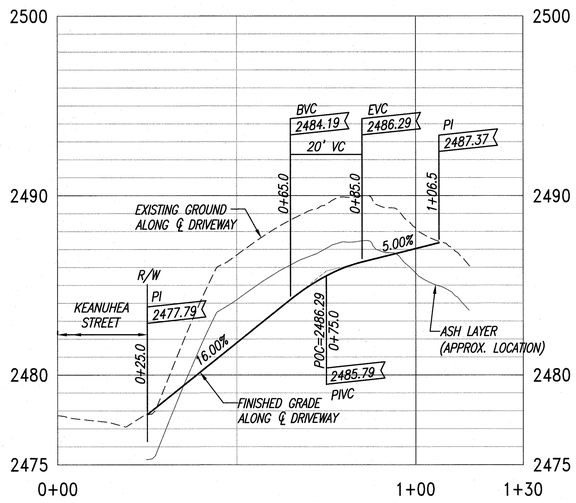
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER



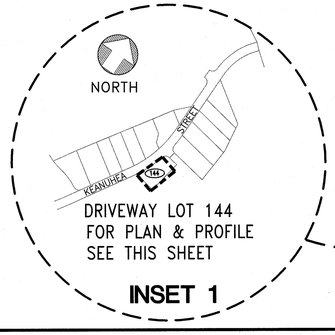
PLAN - DRIVEWAY LOT 145-A

SCALE: 1"= 20'

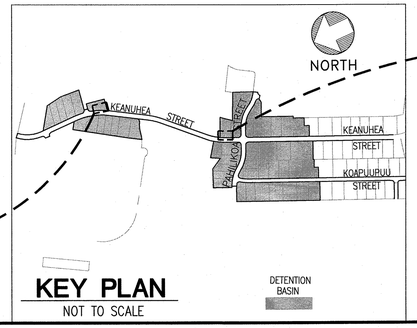


PROFILE - DRIVEWAY LOT 145-A

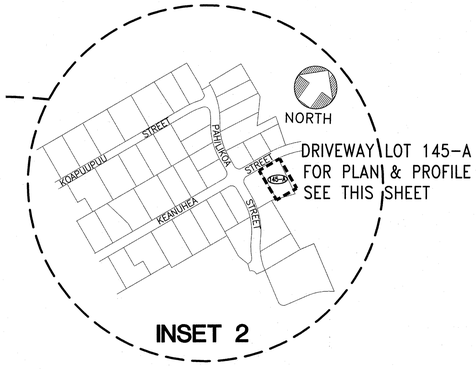
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



SEE INSET 1



SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

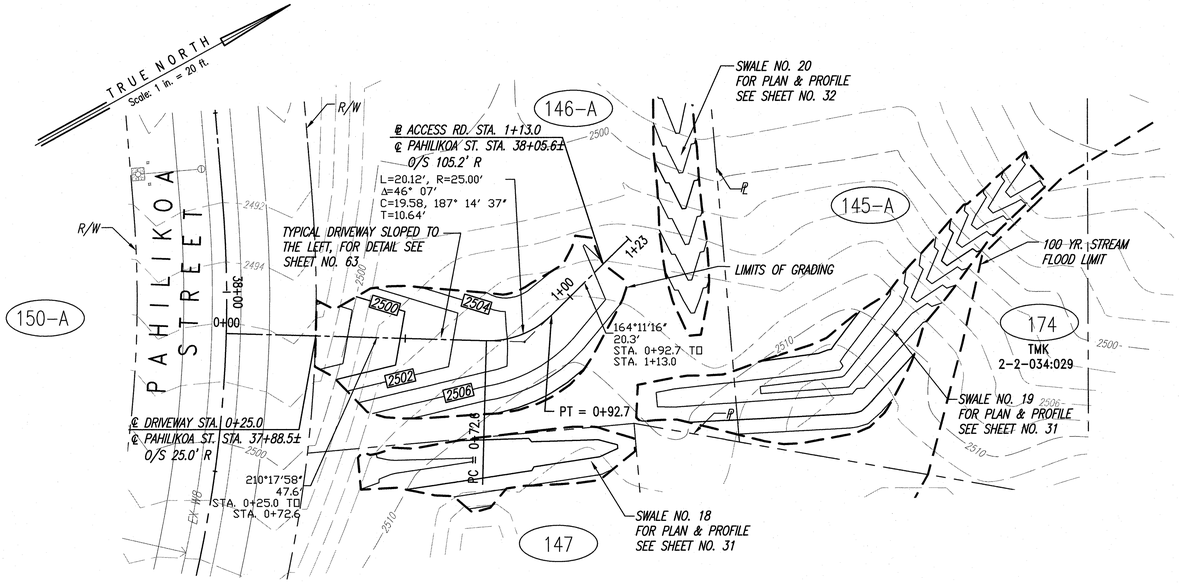
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 144 & DRIVEWAY LOT 145-A

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

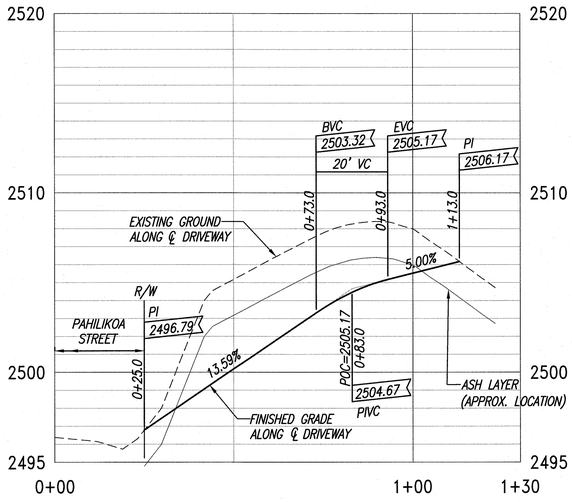
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 7:09:40 AM, 1:1



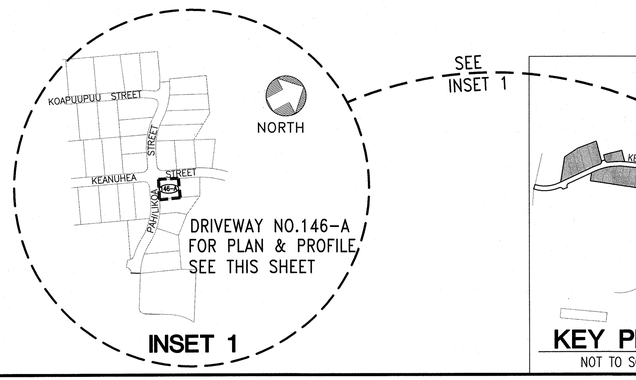
PLAN - DRIVEWAY LOT 146-A

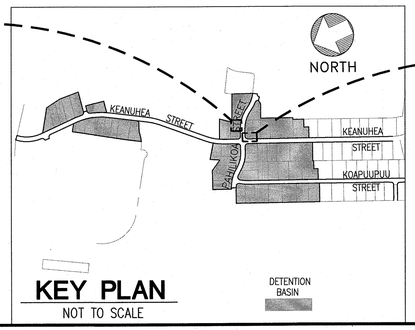
SCALE: 1"= 20'



PROFILE - DRIVEWAY LOT 146-A

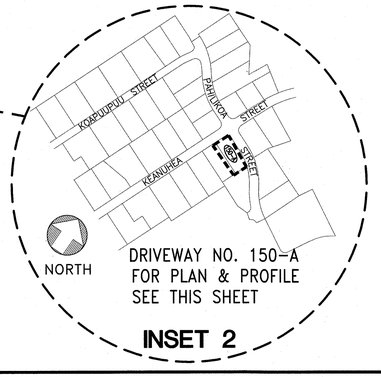
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'





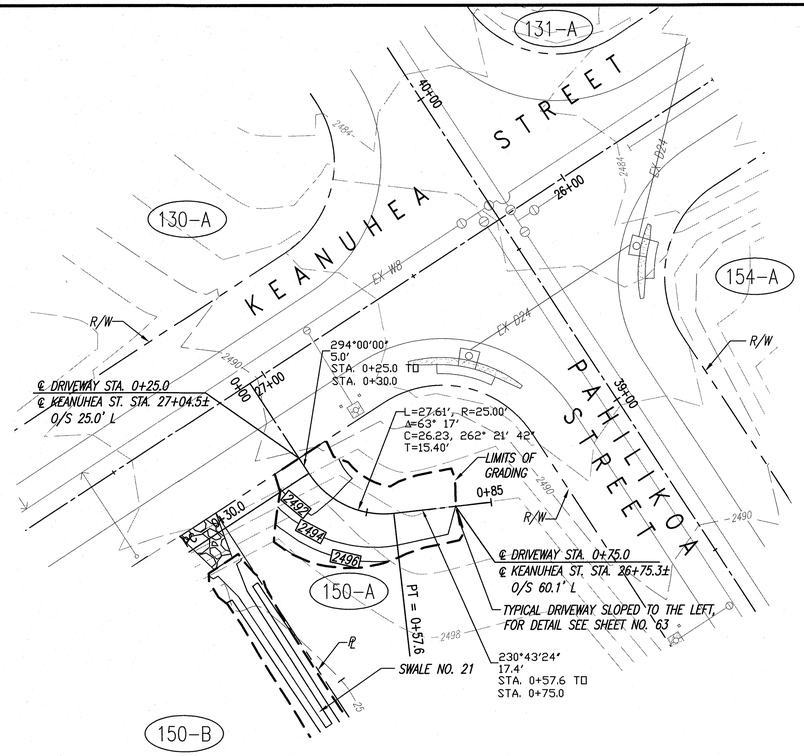
KEY PLAN

NOT TO SCALE



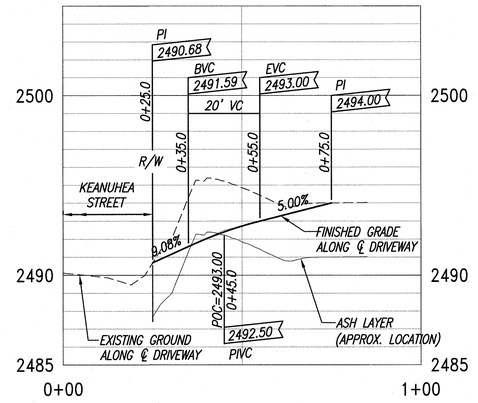
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER



PLAN - DRIVEWAY LOT 150-A

SCALE: 1"= 20'



PROFILE - DRIVEWAY LOT 150-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 146-A & DRIVEWAY LOT 150-A

DRAWN BY: JSO	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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SHEET 61 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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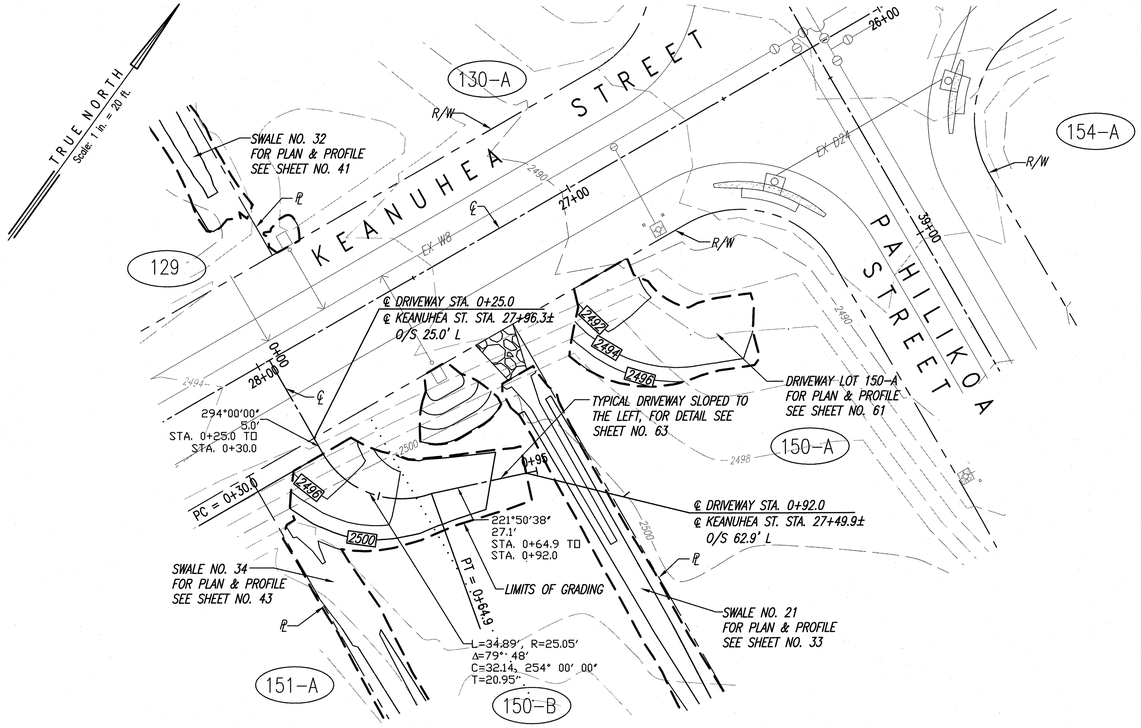
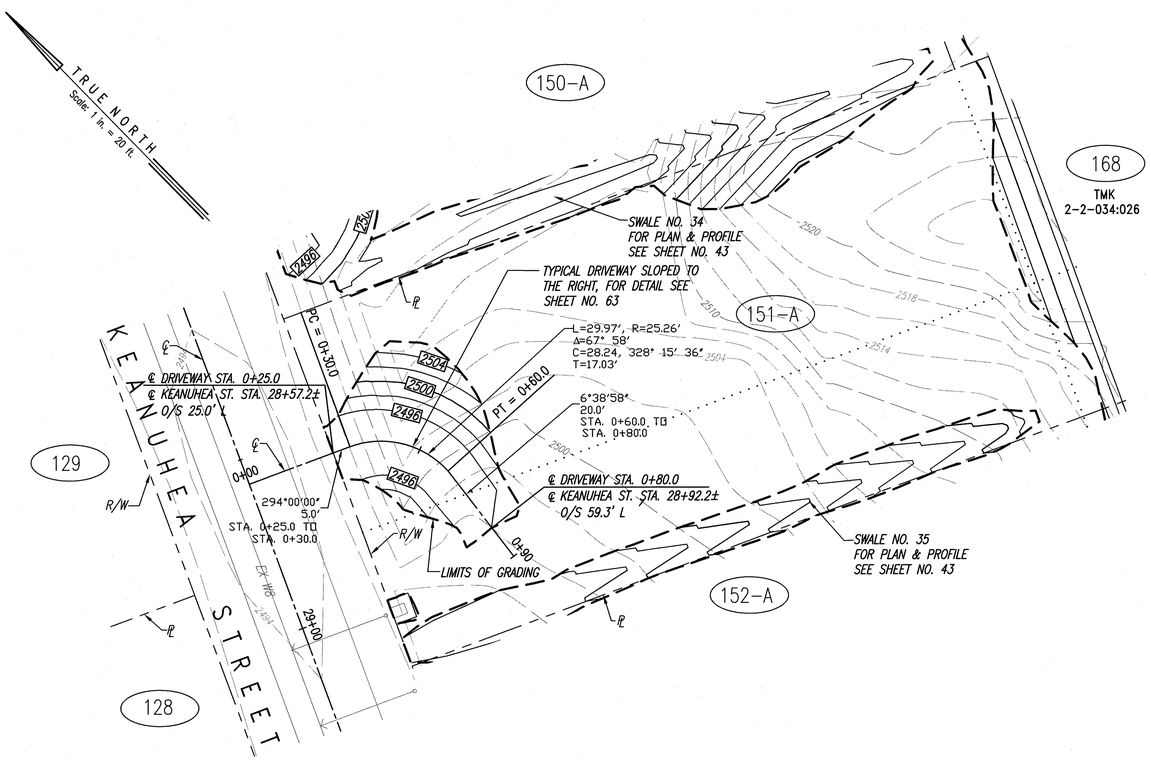


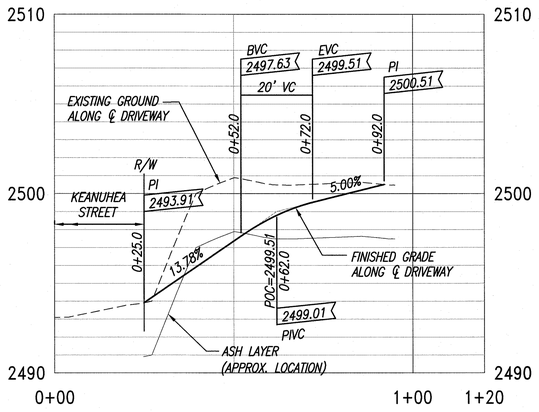
PLAN - DRIVEWAY LOT 150-B

SCALE: 1"= 20'



PLAN - DRIVEWAY LOT 151-A

SCALE: 1"= 20'

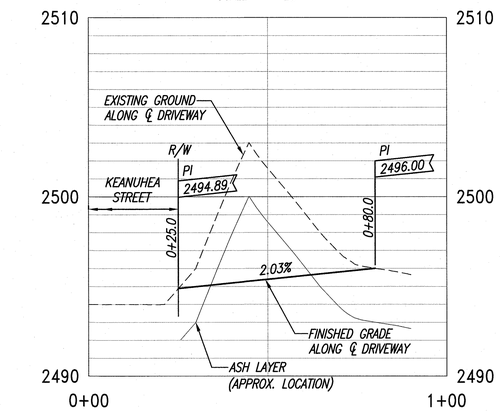


PROFILE - DRIVEWAY LOT 150-B

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

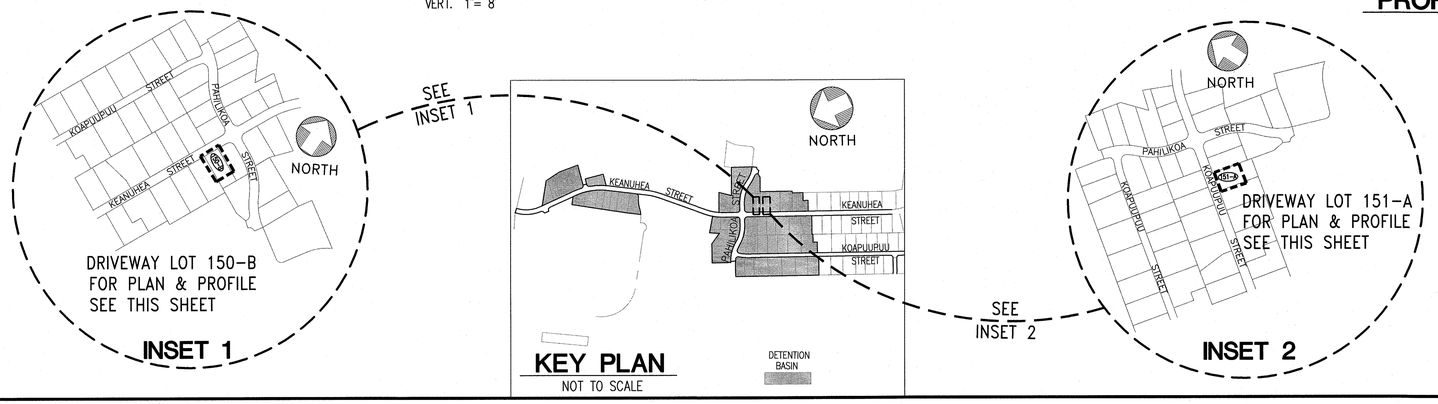
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER
  TMK 2-2-002:014



PROFILE - DRIVEWAY LOT 151-A

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
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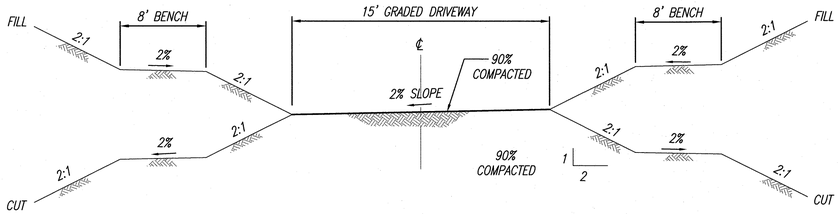
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE DRIVEWAY LOT 150-B & DRIVEWAY LOT 151-A

DRAWN BY: JSO	ENGINEER: KWN/W/MFC	CHECKED BY: RYS

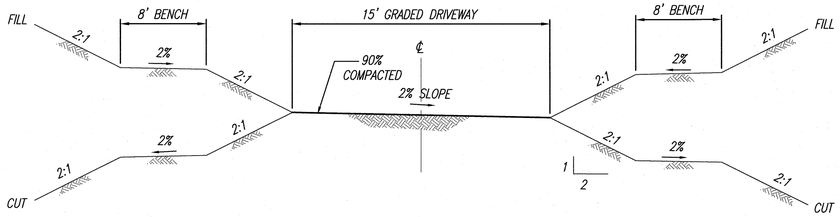
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\56-63 P&P Driveways.dwg, 11/17/2014 7:19:25 AM, 1:1



DRIVEWAY SLOPED TO THE LEFT
TYPICAL SECTION

NOT TO SCALE



DRIVEWAY SLOPED TO THE RIGHT
TYPICAL SECTION

NOT TO SCALE

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION
KEOKEA-WAIOHULI DEVELOPMENT
PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

TYPICAL DRIVEWAY SECTION DETAILS

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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SHEET 63 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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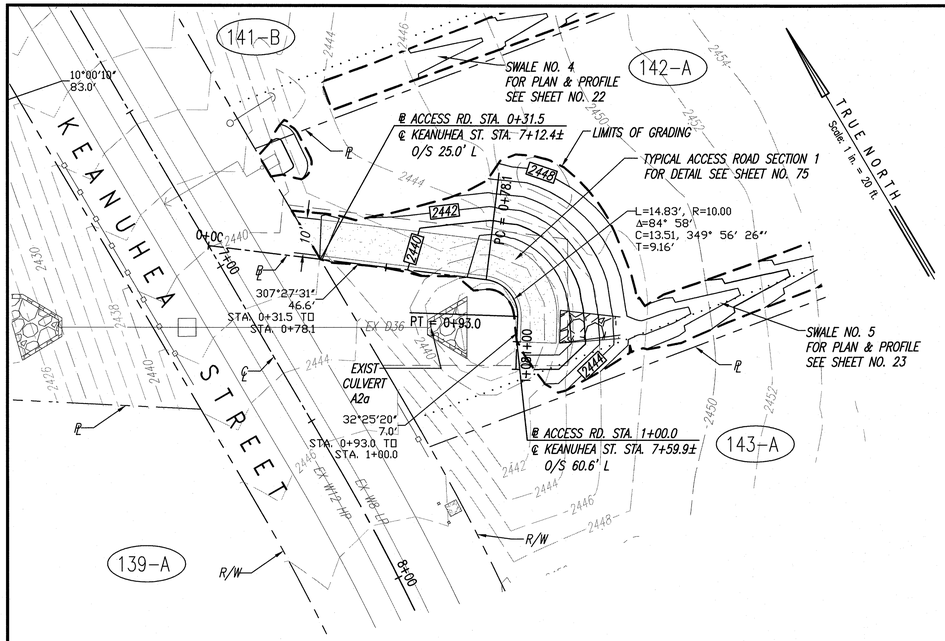
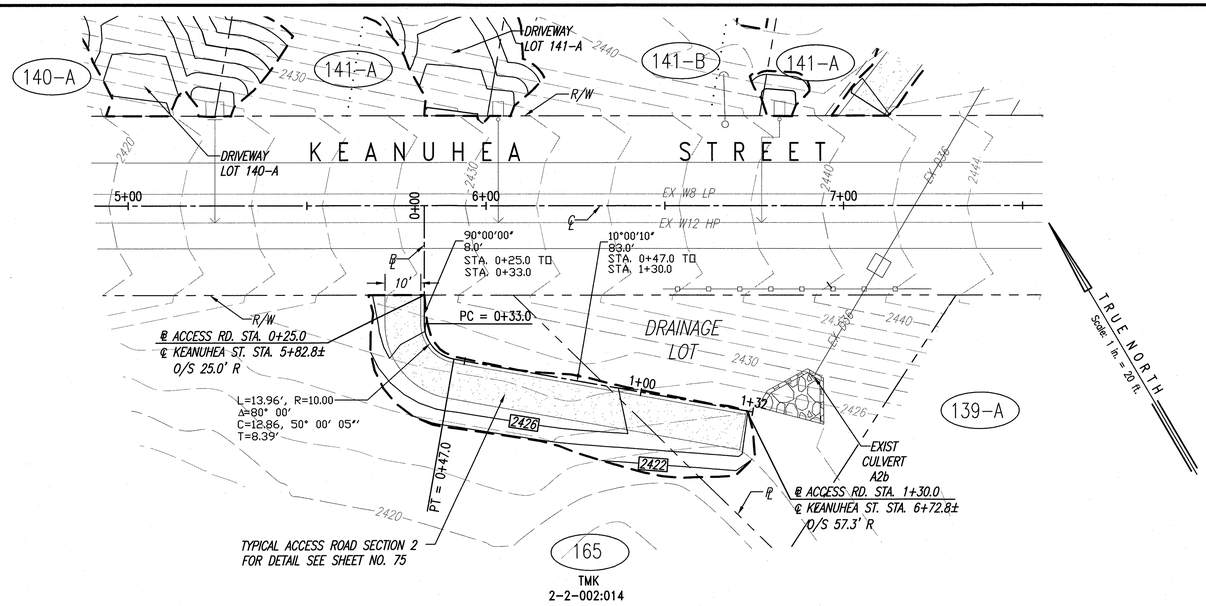
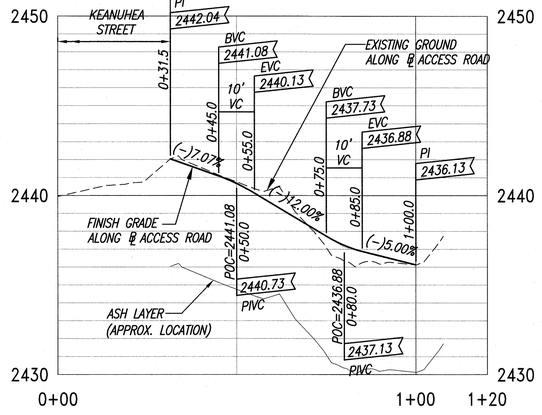




PLAN - CULVERT ACCESS ROAD A2a (LOT 142-A)

SCALE: 1"= 20'

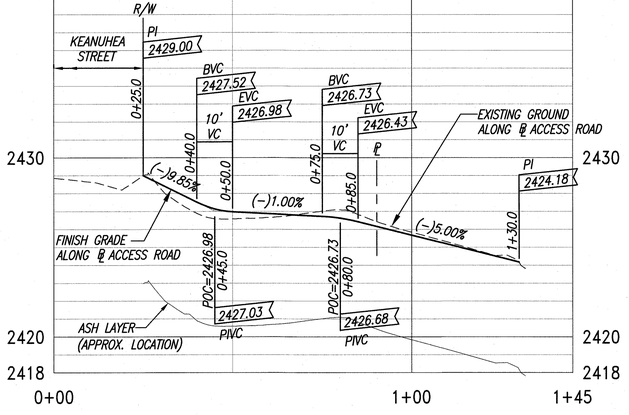


PROFILE - CULVERT ACCESS ROAD A2a (LOT 142-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

PLAN - CULVERT ACCESS ROAD A2b (LOT 165 & DRAINAGE LOT)

SCALE: 1"= 20'



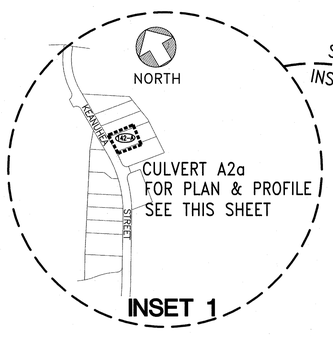
PROFILE - CULVERT ACCESS ROAD A2b (LOT 165 & DRAINAGE LOT)

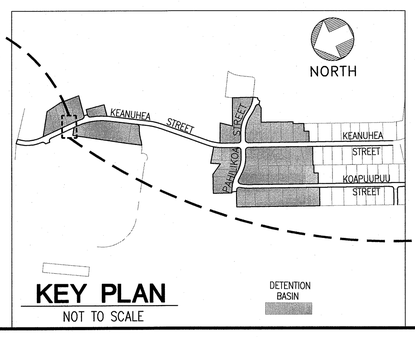
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

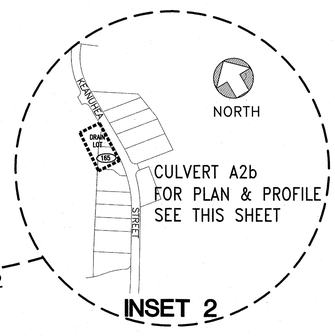
TMK
2-2-002:014





SEE INSET 1

SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

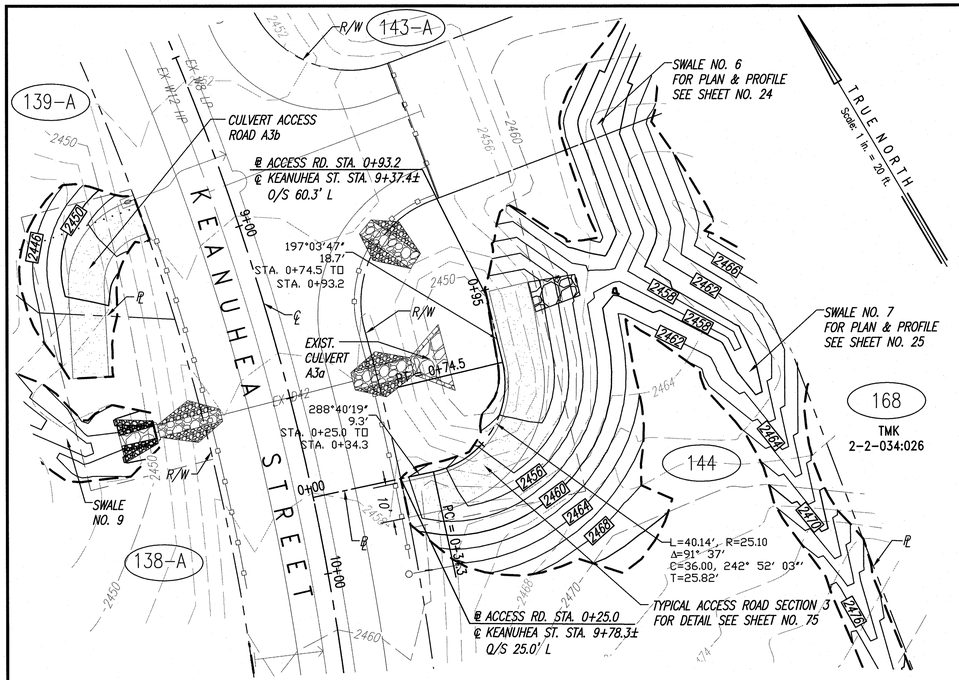
PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A2a & A2b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 64 OF 84 SHEETS

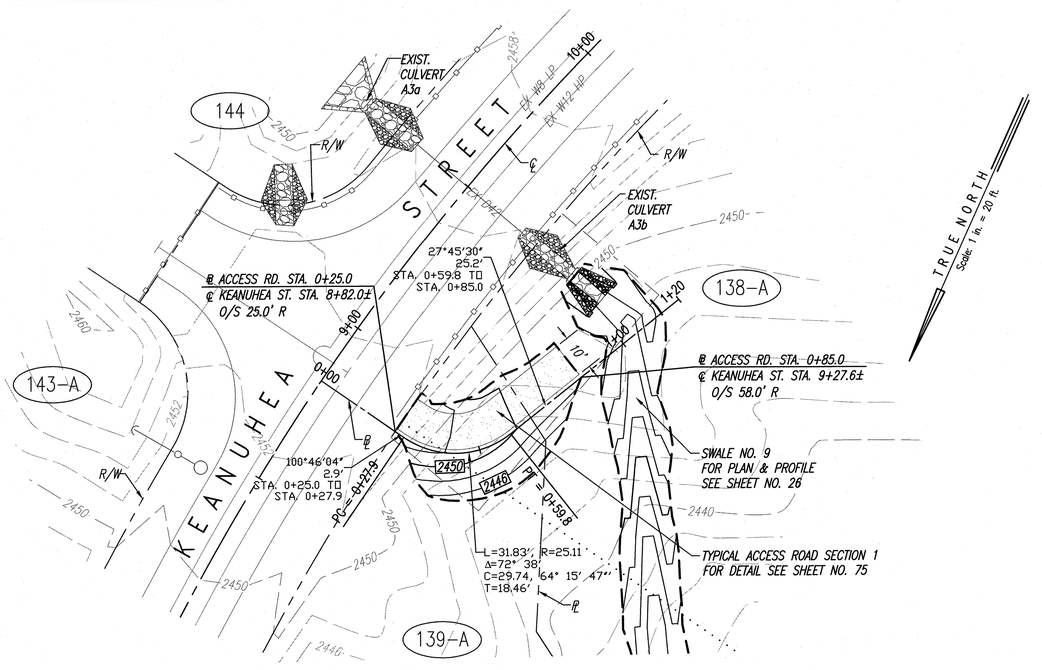
FILE	POCKET	FOLDER	NO.
		-	

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:31:51 AM, 1:1



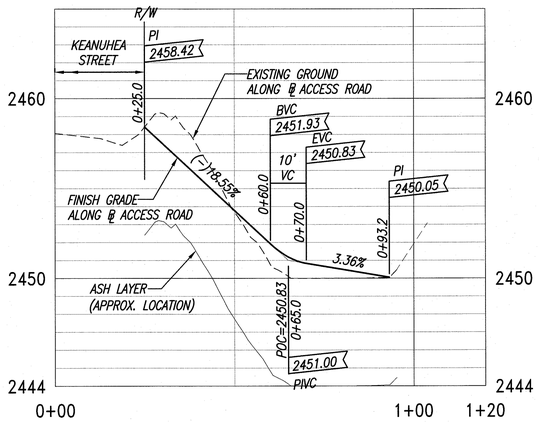
PLAN - CULVERT ACCESS ROAD A3a (LOT 144)

SCALE: 1"= 20'



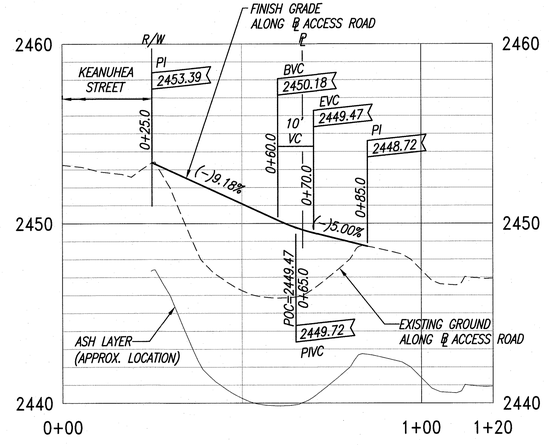
PLAN - CULVERT ACCESS ROAD A3b (LOTS 139-A & 138-A)

SCALE: 1"= 20'



PROFILE - CULVERT ACCESS ROAD A3a (LOT 144)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

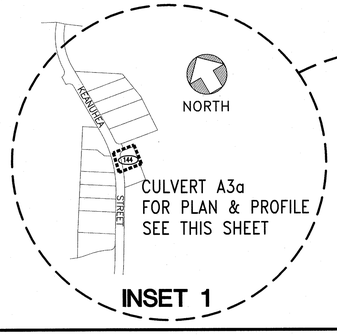


PROFILE - CULVERT ACCESS ROAD A3b (LOTS 139-A & 138-A)

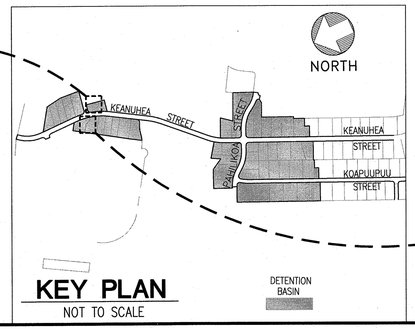
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

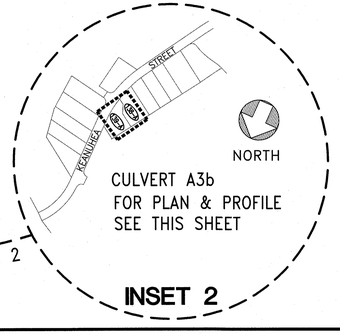
- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER
  TMK 2-2-002:014



SEE INSET 1



SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

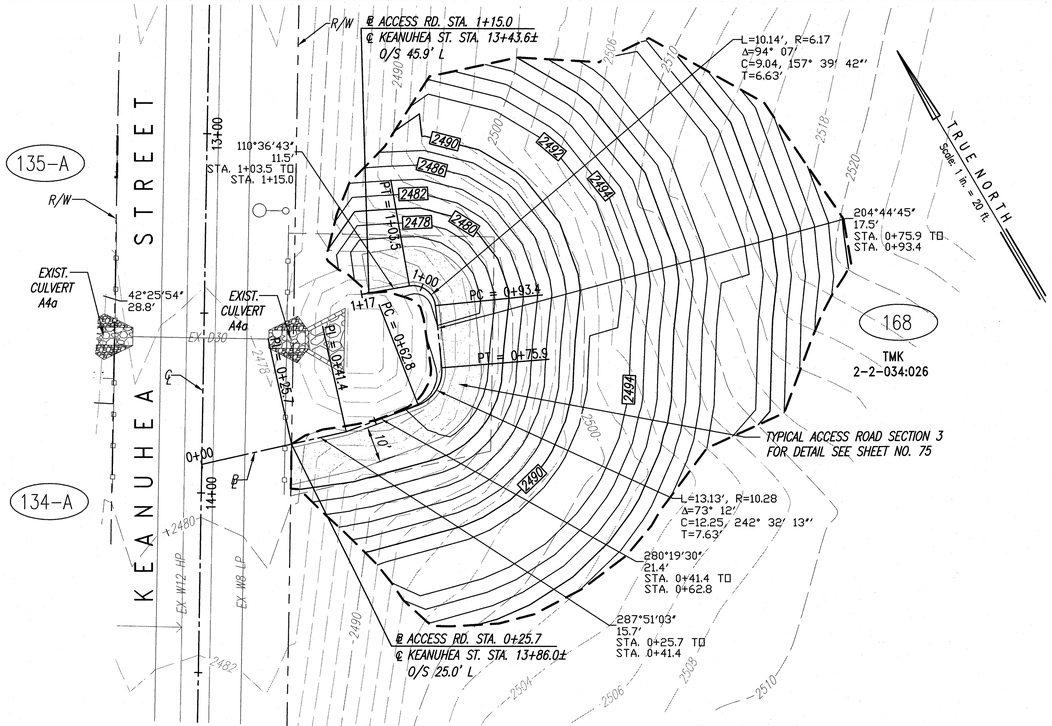
PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A3a & A3b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 65 OF 84 SHEETS

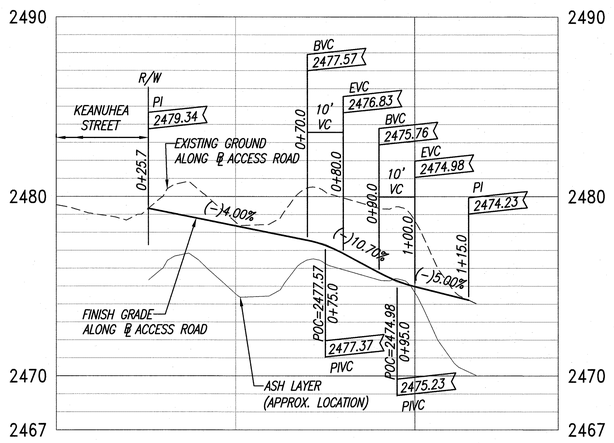
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 8:20:50 AM, 1:1



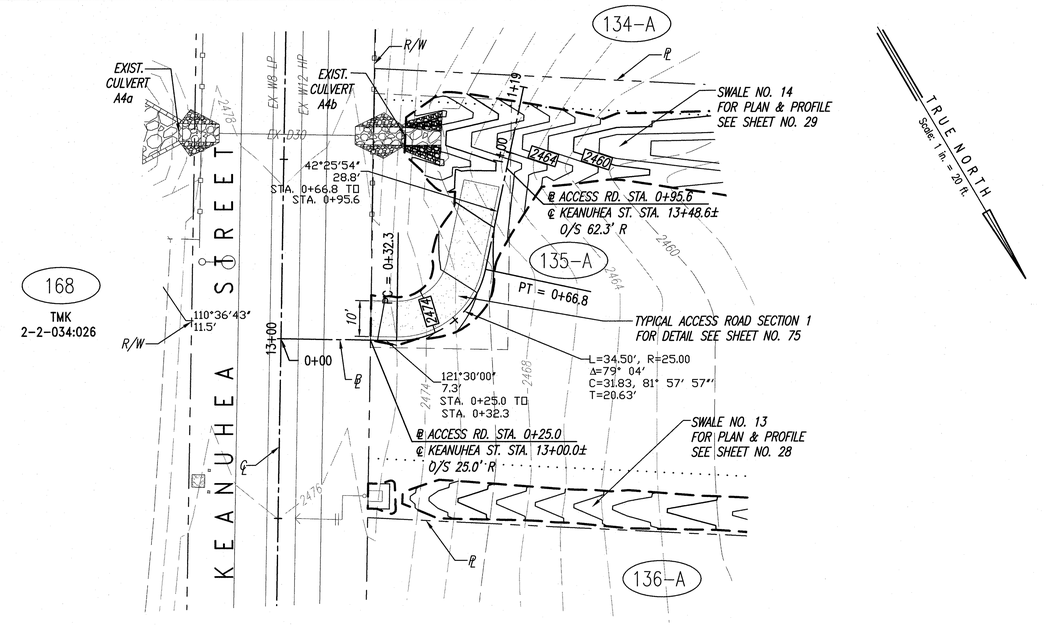
PLAN - CULVERT ACCESS ROAD A4a (LOT 168)

SCALE: 1"= 20'



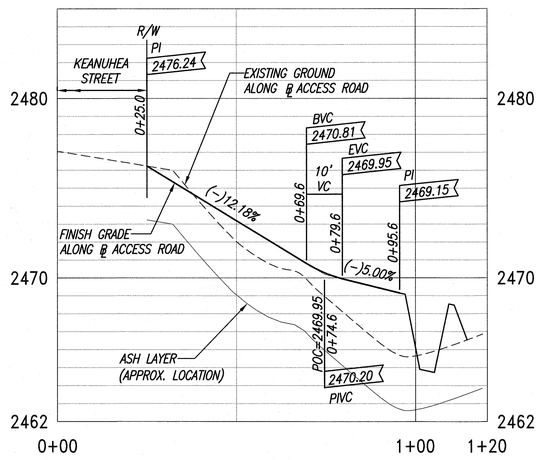
PROFILE - CULVERT ACCESS ROAD A4a (LOT 168)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD A4b (LOT 135-A)

SCALE: 1"= 20'

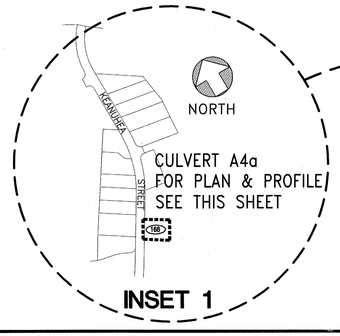


PROFILE - CULVERT ACCESS ROAD A4b (LOT 135-A)

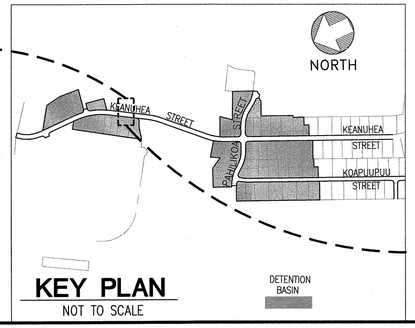
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER

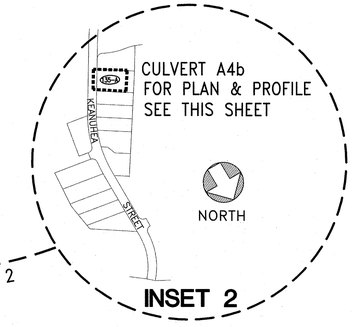


SEE INSET 1



KEY PLAN
NOT TO SCALE

SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SAKIO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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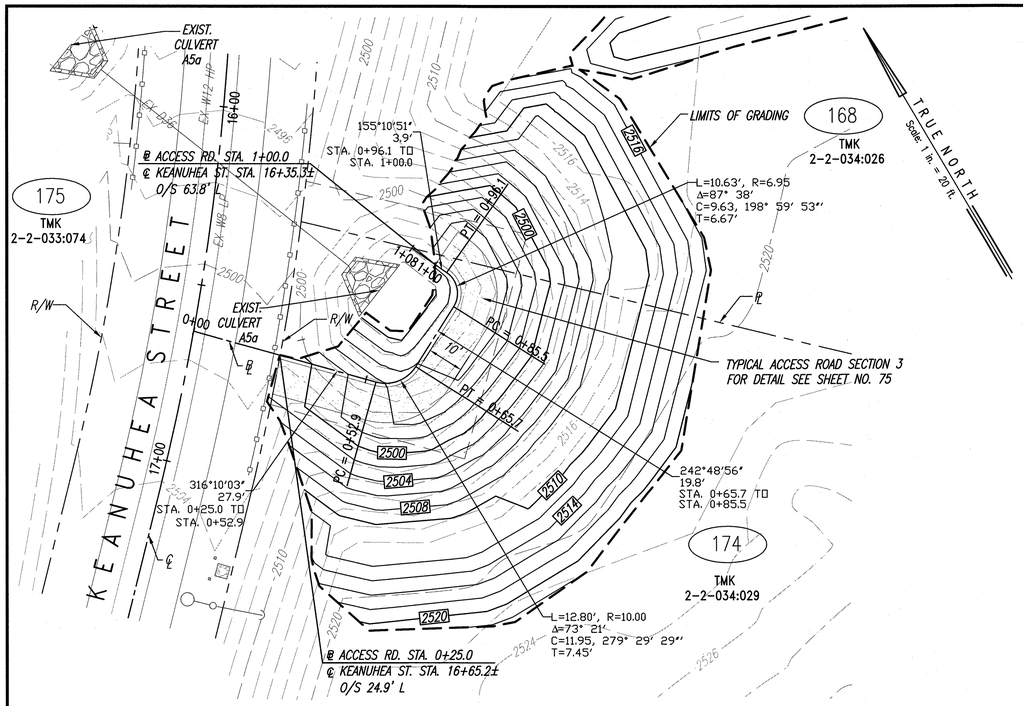
AND (2) 2-2-34: 001 TO 016, 026 & 029

ACCESS ROAD PLAN AND PROFILE DRAIN CULVERTS A4a & A4b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

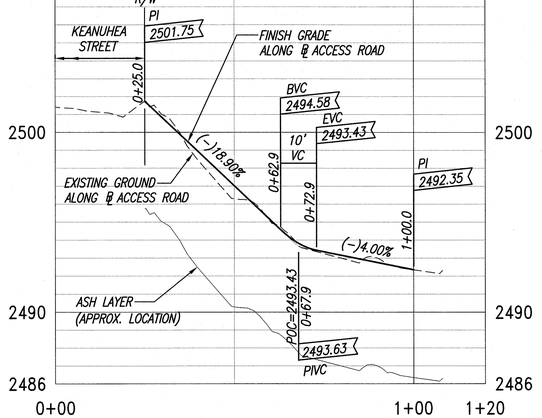
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:34:56 AM, 1:1



PLAN - CULVERT ACCESS ROAD A5a (LOTS 174 & 168)

SCALE: 1"= 20'

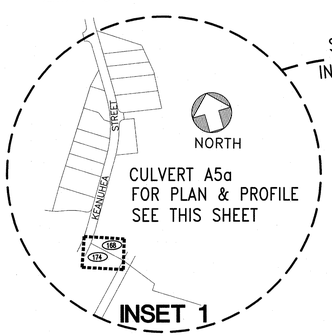


PROFILE - CULVERT ACCESS ROAD A5a (LOTS 174 & 168)

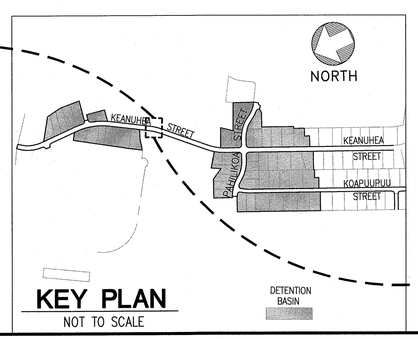
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

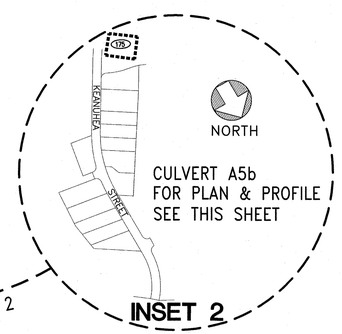
- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER

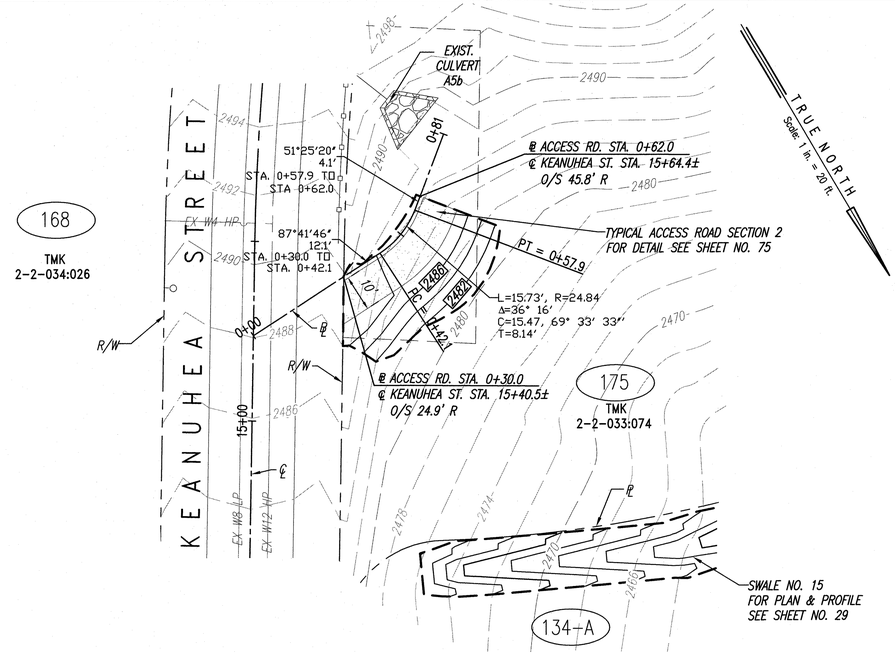


SEE INSET 1



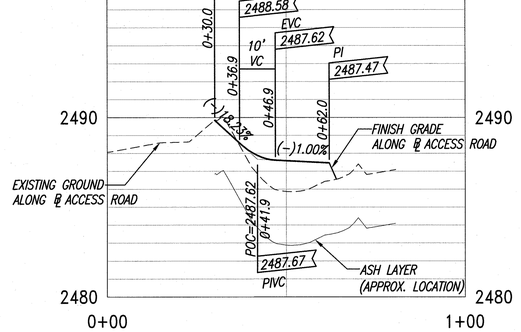
SEE INSET 2





PLAN - CULVERT ACCESS ROAD A5b (LOT 175)

SCALE: 1"= 20'



PROFILE - CULVERT ACCESS ROAD A5b (LOT 175)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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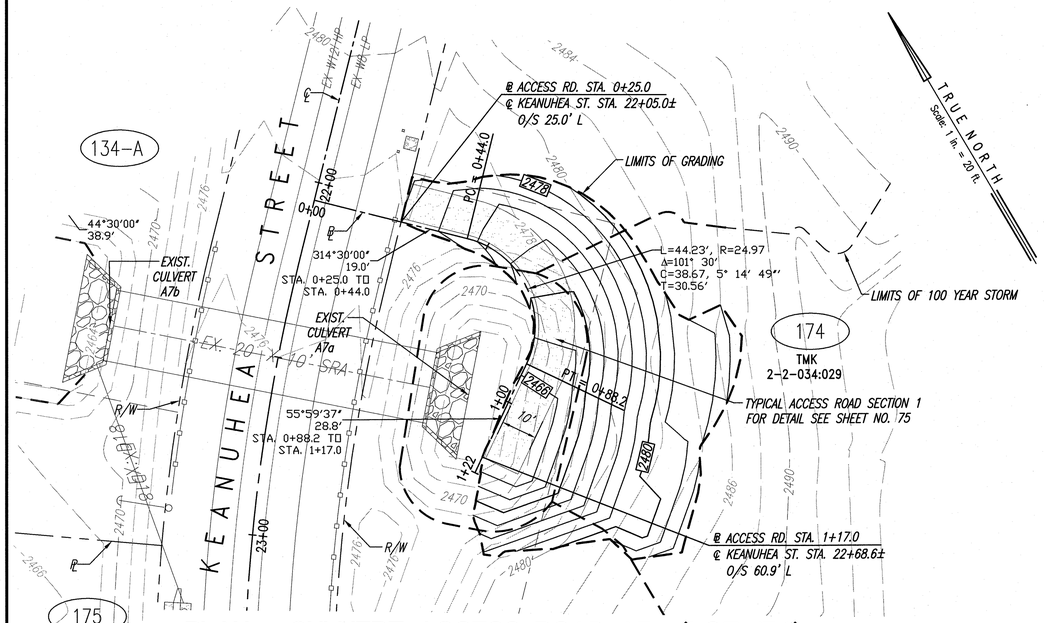
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A5a & A5b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

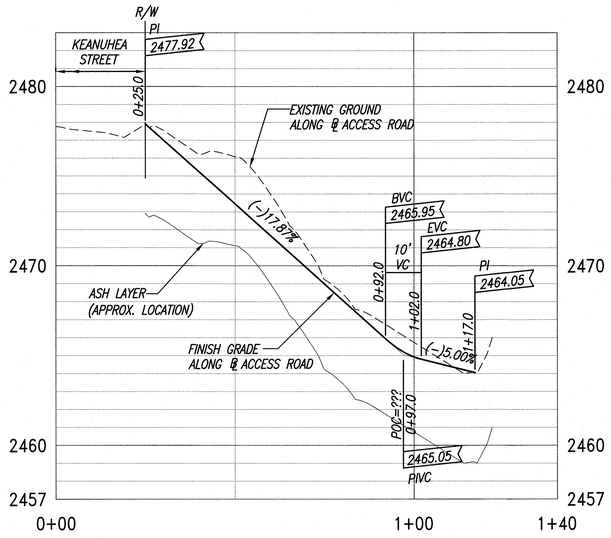
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:38:28 AM, 1:1



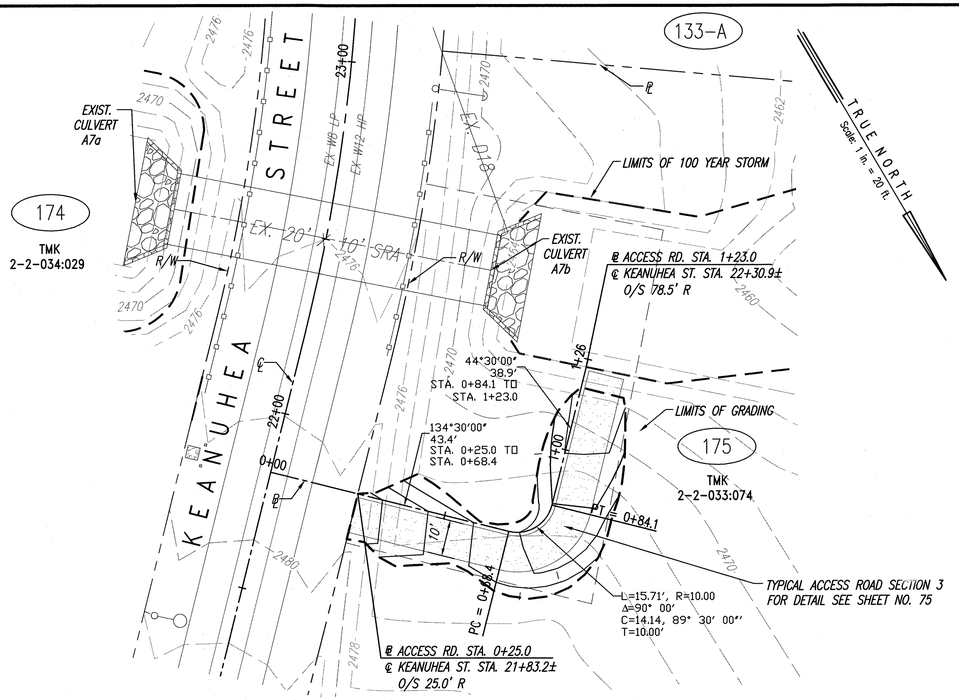
PLAN - CULVERT ACCESS ROAD A7a (LOT 174)

SCALE: 1"= 20'



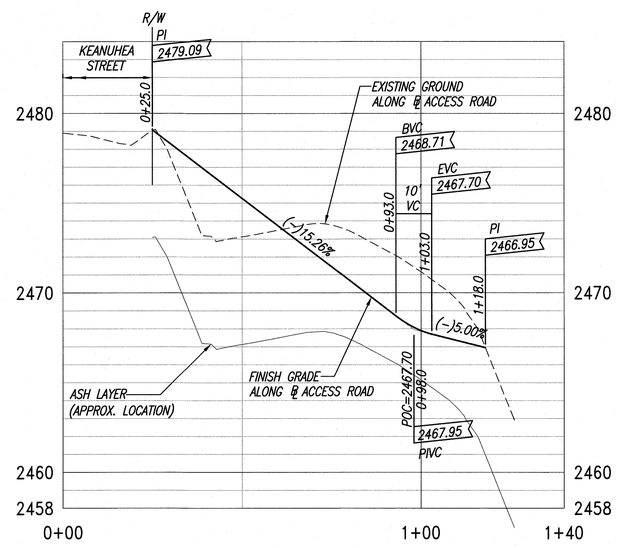
PROFILE - CULVERT ACCESS ROAD A7a (LOT 174)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD A7b (LOT 175)

SCALE: 1"= 20'

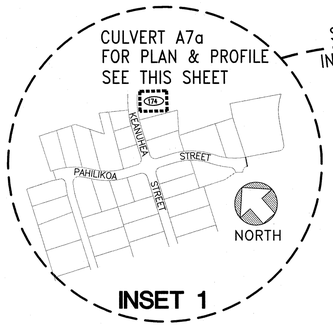


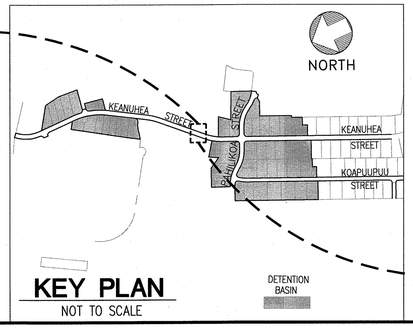
PROFILE - CULVERT ACCESS ROAD A7b (LOT 175)

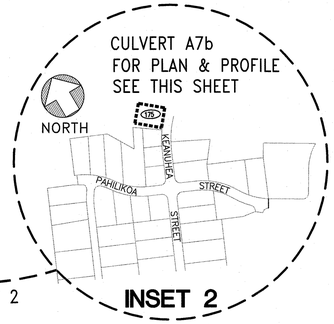
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER







20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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AND (2) 2-2-34: 001 TO 016, 026 & 029

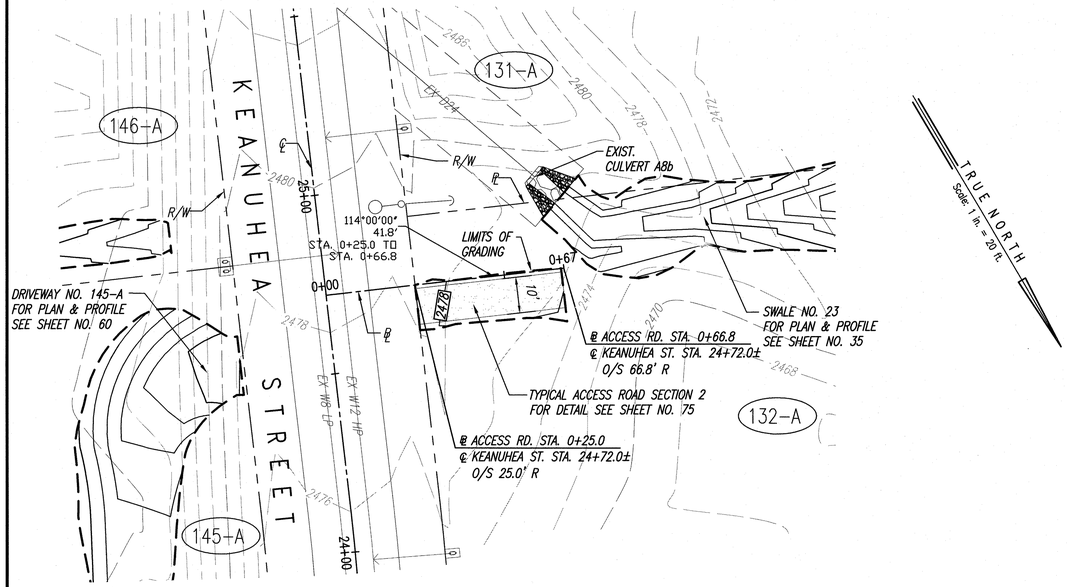
PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A7a & A7b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

SHEET 68 OF 84 SHEETS

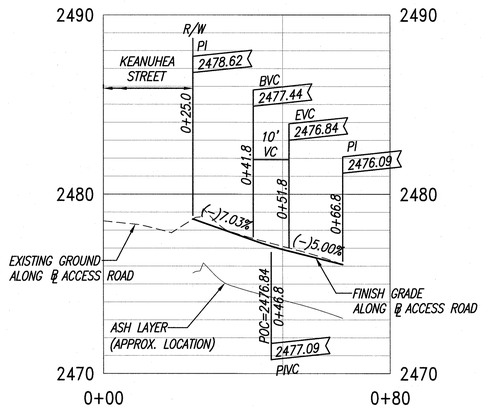
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 9:07:46 AM, 1:1



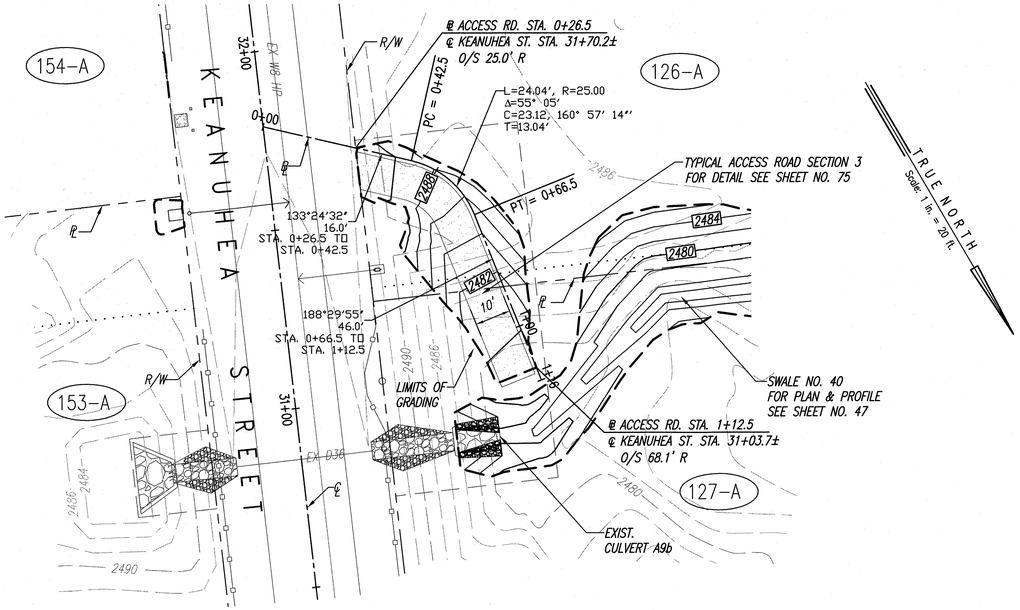
PLAN - CULVERT ACCESS ROAD A8b (LOT 132-A)

SCALE: 1"= 20'



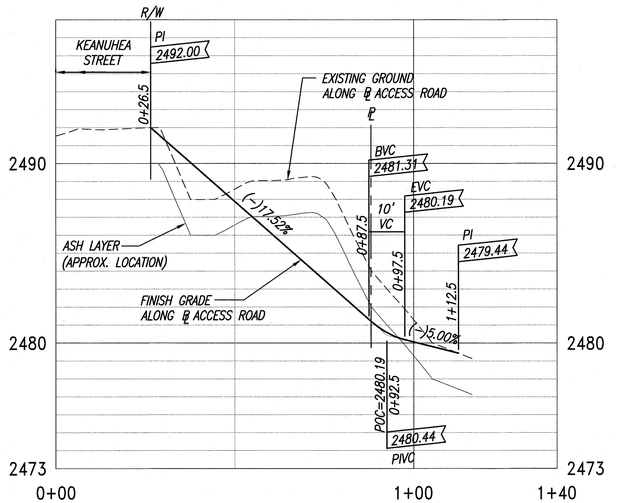
PROFILE - CULVERT ACCESS ROAD A8b (LOT 132-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD A9b (LOTS 126-A & 127-A)

SCALE: 1"= 20'



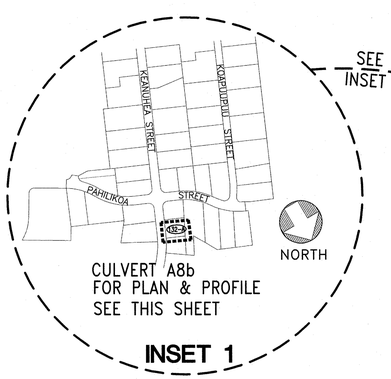
PROFILE - CULVERT ACCESS ROAD A9b (LOTS 126-A & 127-A)

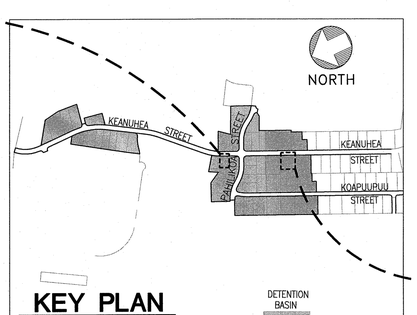
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

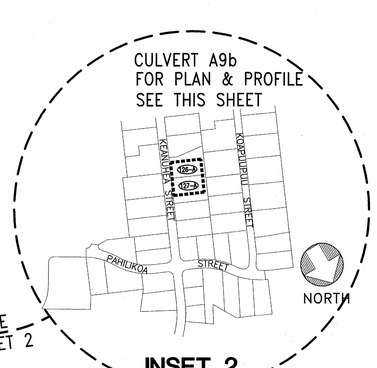
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014







20 10 0 20 40
Horizontal
6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANJO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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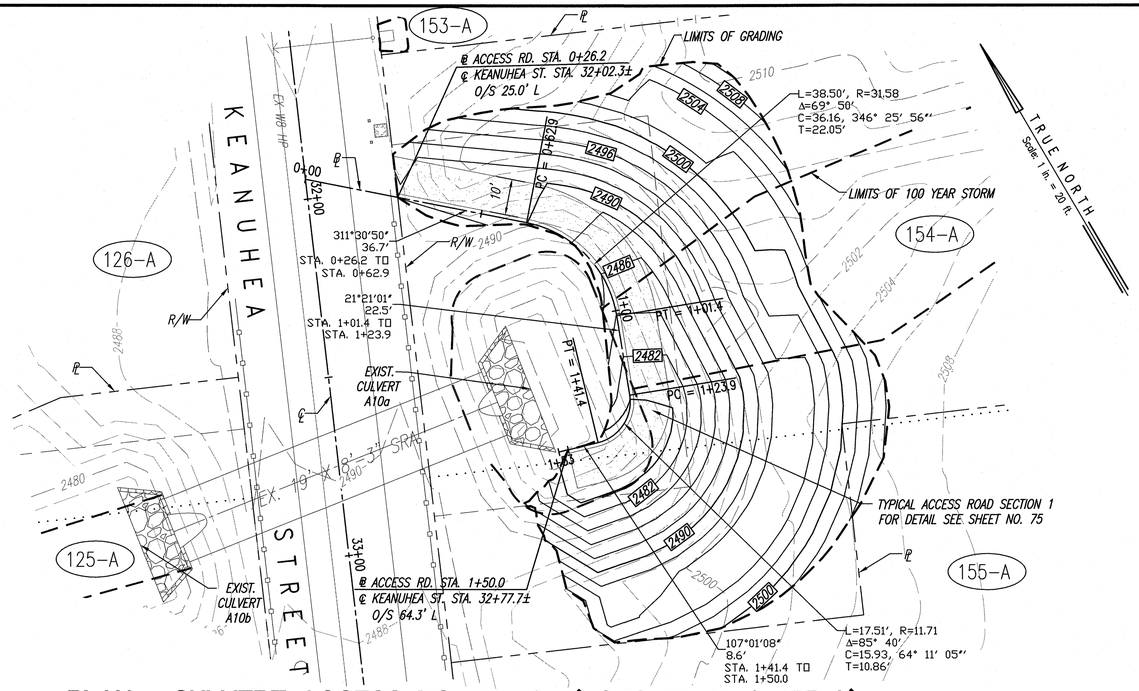
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A8b & A9b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

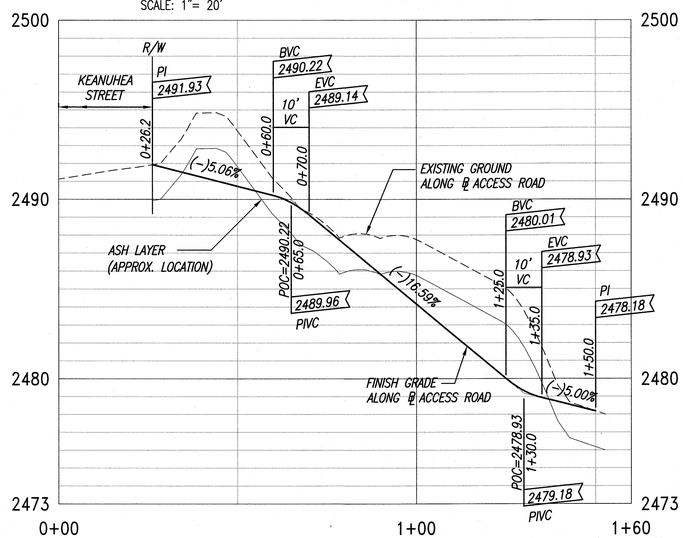
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Kaokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:41:10 AM, 1:1



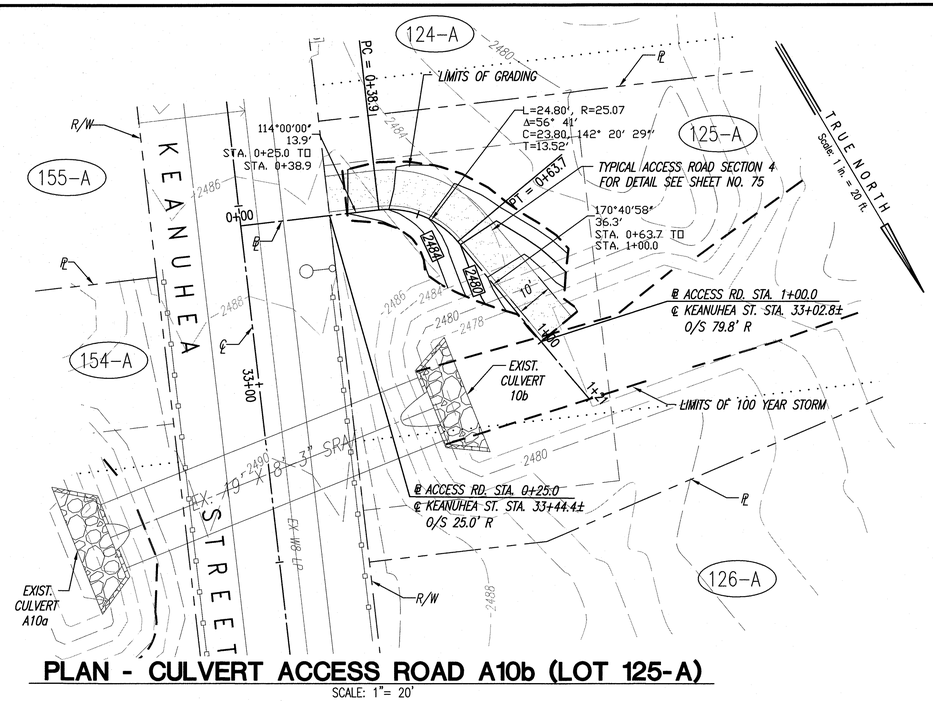
PLAN - CULVERT ACCESS ROAD A10a (LOTS 154-A & 155-A)

SCALE: 1"= 20'



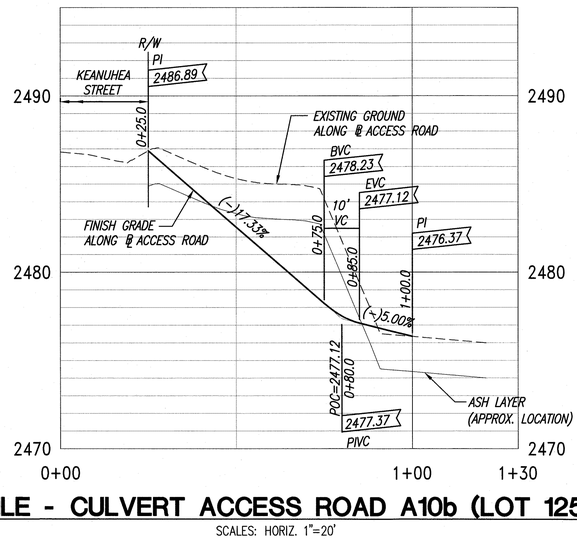
PROFILE - CULVERT ACCESS ROAD A10a (LOTS 154-A & 155-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD A10b (LOT 125-A)

SCALE: 1"= 20'



PROFILE - CULVERT ACCESS ROAD A10b (LOT 125-A)

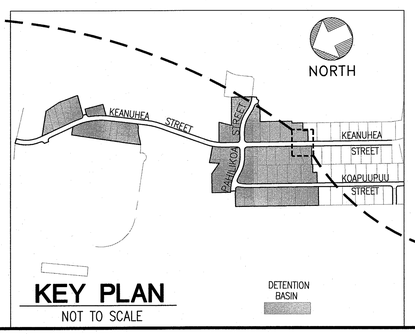
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014



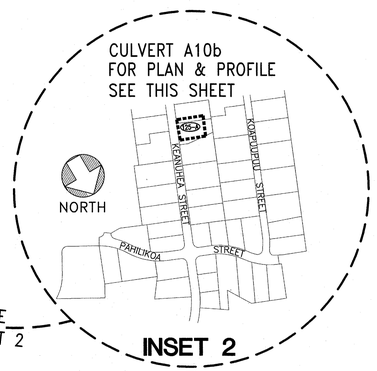


KEY PLAN

NOT TO SCALE

SEE INSET 1

SEE INSET 2



20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

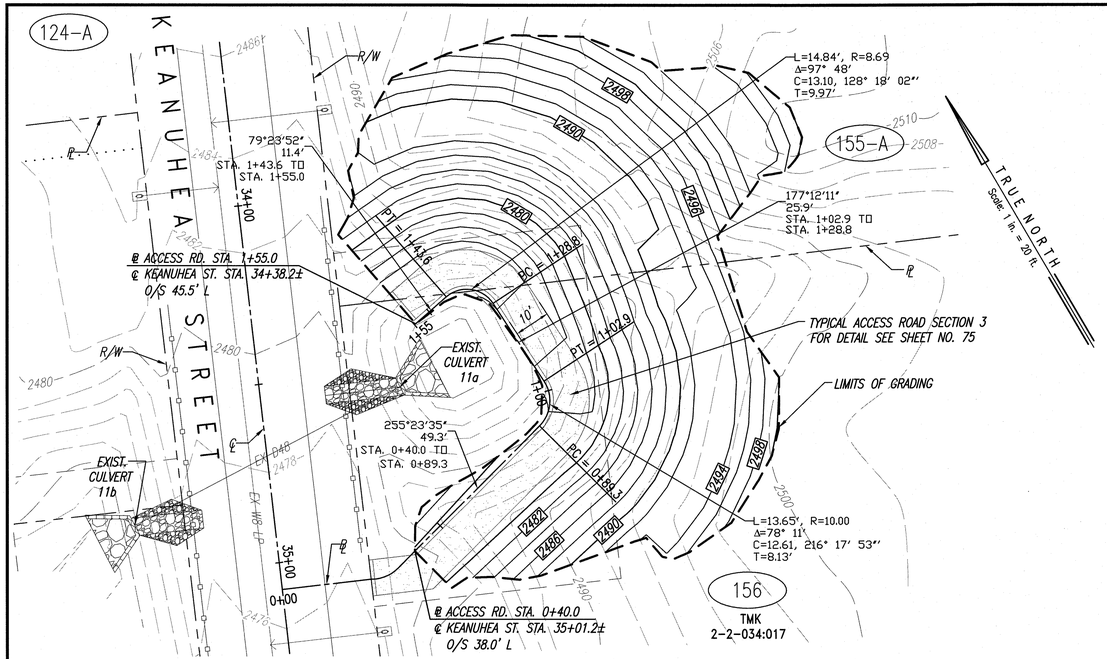
KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A10a & A10b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

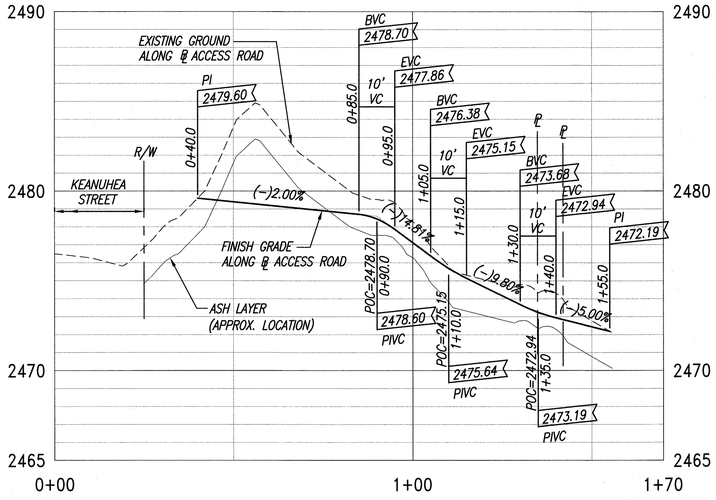
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:43:07 AM, 1:1



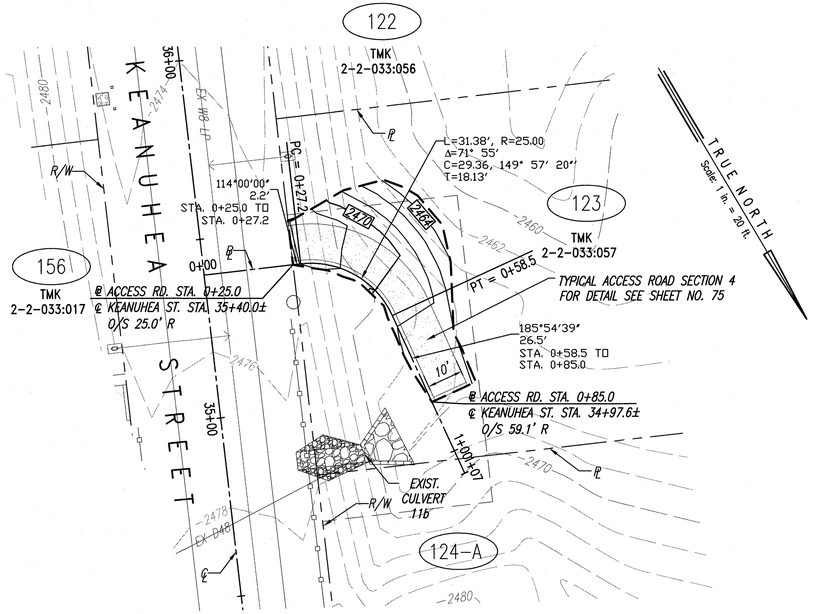
PLAN - CULVERT ACCESS ROAD A11a (LOTS 155-A & 156)

SCALE: 1"= 20'



PROFILE - CULVERT ACCESS ROAD A11a (LOTS 155-A & 156)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD A11b (LOT 123)

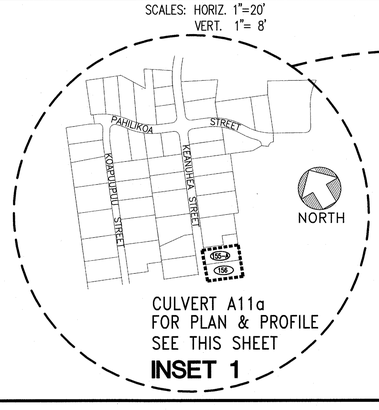
SCALE: 1"= 20'

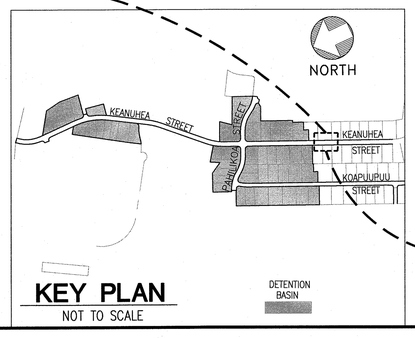
PROFILE - CULVERT ACCESS ROAD A11b (LOT 123)

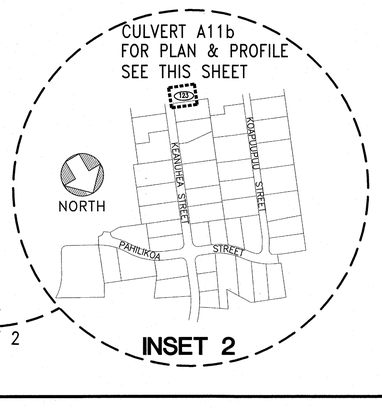
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER







Horizontal
20 10 0 20 40
Vertical
8 6 4 2 0 8 16
Graphic Scale in Feet

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS A11a & A11b

DRAWN BY:	KWNW	ENGINEER:	KWNW/MFC	CHECKED BY:	RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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SHEET 71 OF 84 SHEETS

FILE	POCKET	FOLDER	NO.

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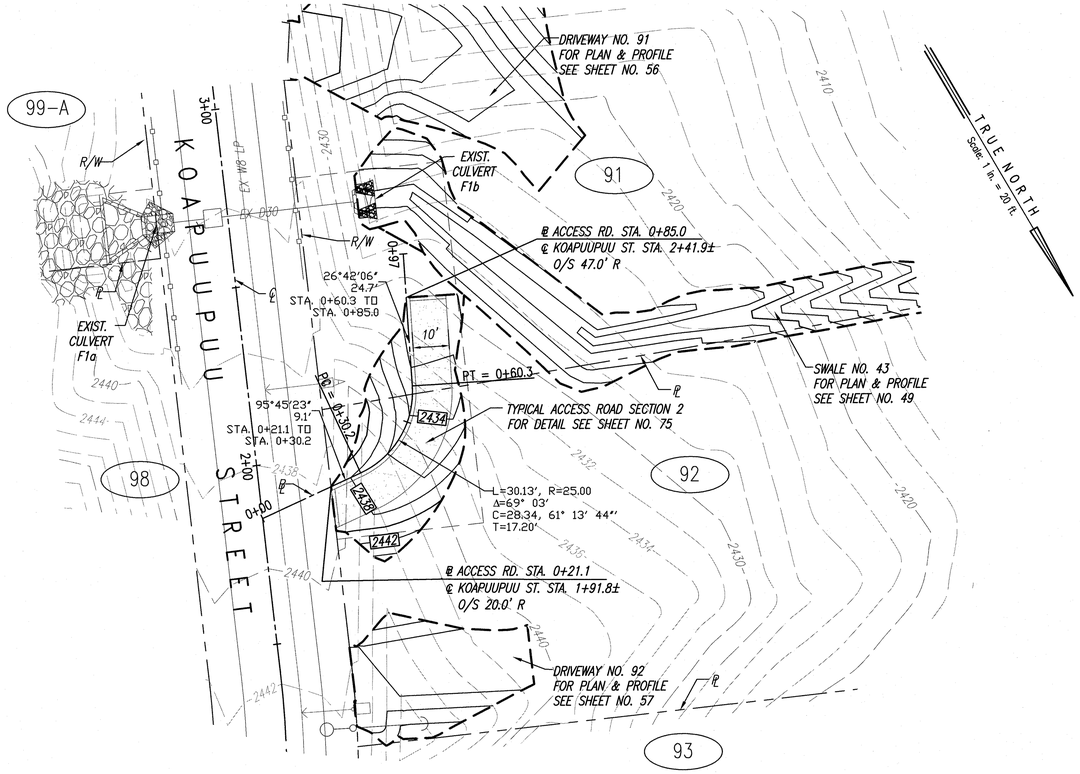
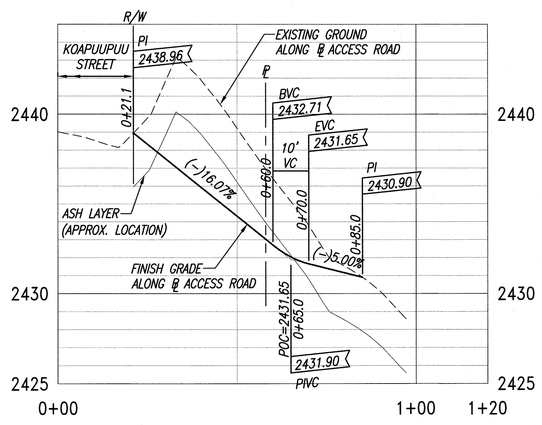


PLAN - CULVERT ACCESS ROAD F1b (LOTS 92 & 91)

SCALE: 1"= 20'

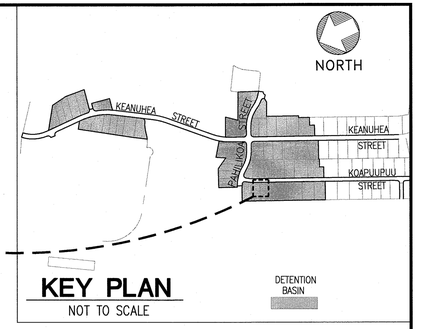


PROFILE - CULVERT ACCESS ROAD F1b (LOTS 92 & 91)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



SEE INSET



LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014

20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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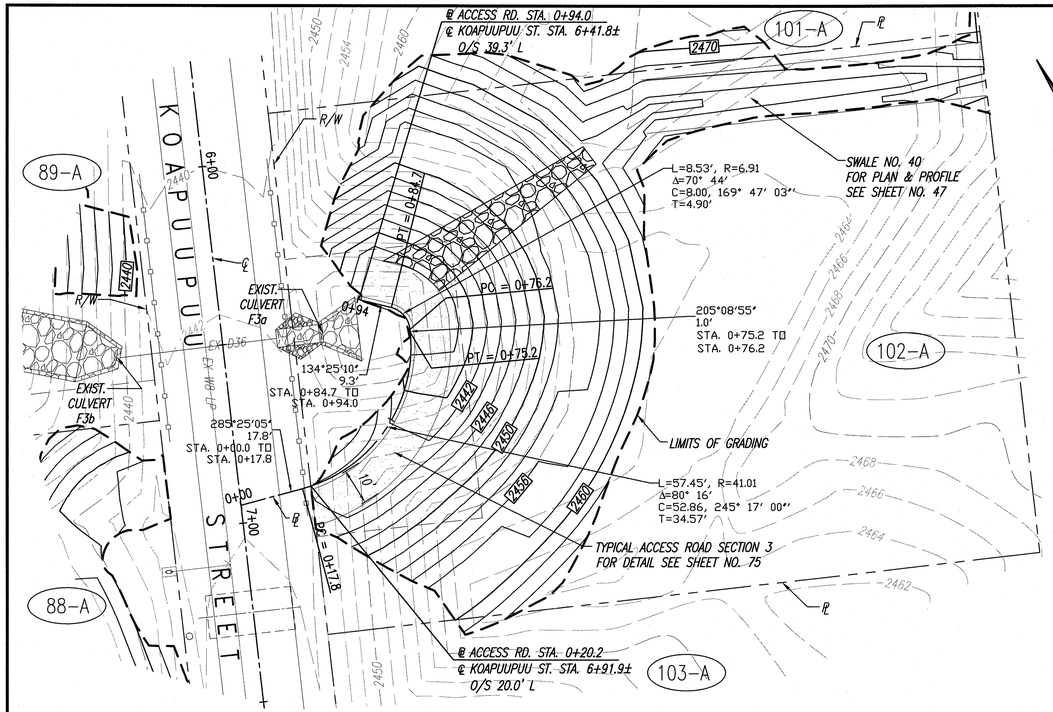
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERT F1b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

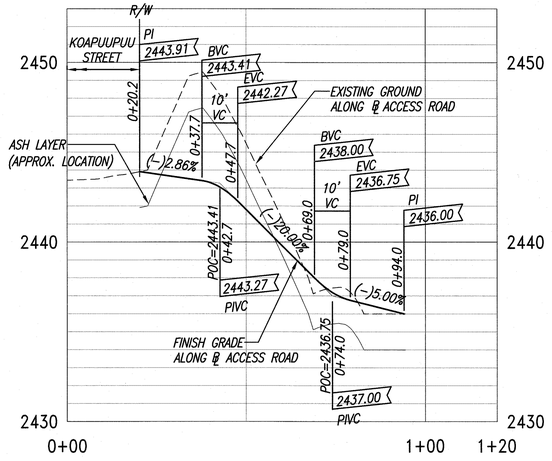
FILE	POCKET	FOLDER	NO.

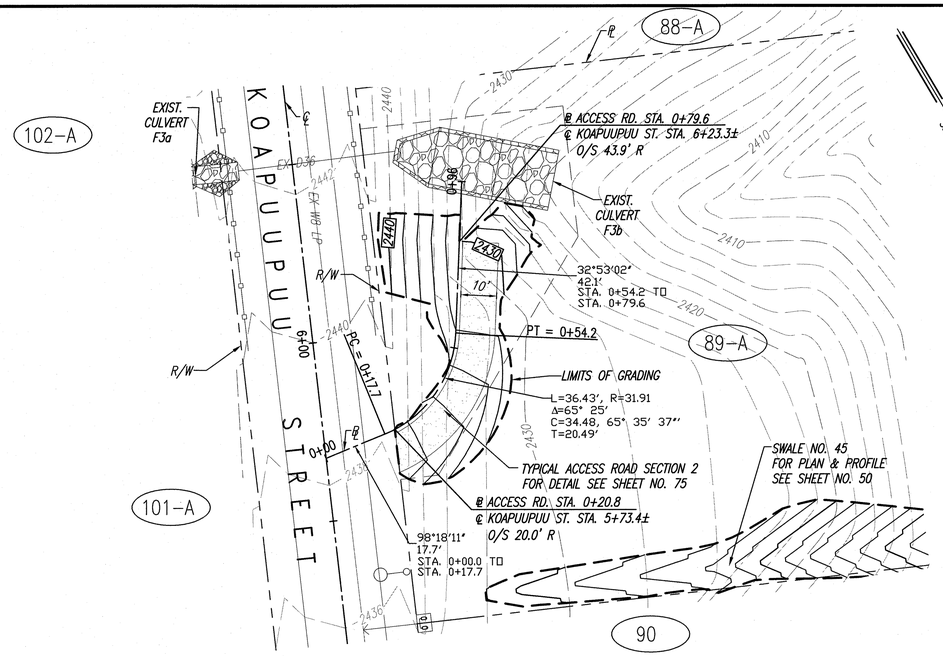
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:46:45 AM, 1:1



PLAN - CULVERT ACCESS ROAD F3a (LOT 102-A)

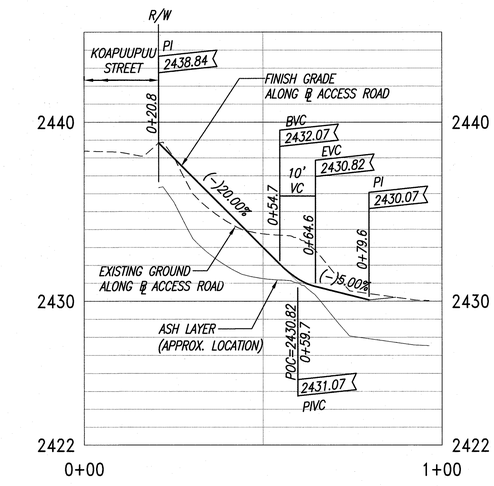
SCALE: 1"= 20'





PLAN - CULVERT ACCESS ROAD F3b (LOT 89-A)

SCALE: 1"= 20'



PROFILE - CULVERT ACCESS ROAD F3a (LOT 102-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

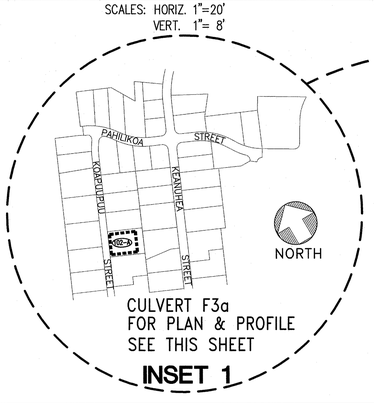
PROFILE - CULVERT ACCESS ROAD F3b (LOT 89-A)

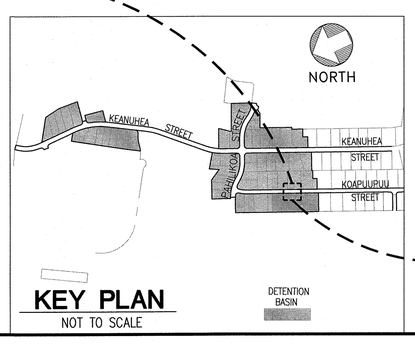
SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

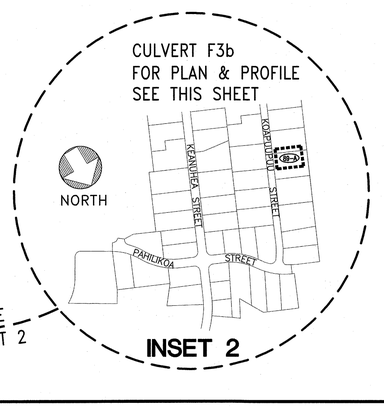
LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 EXISTING LOT NUMBER

TMK
2-2-002:014







20 10 0 20 40
Horizontal
8 6 4 2 0 8 16
Vertical
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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1286 Queen Emma Street, Third Floor Honolulu, Hawaii

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
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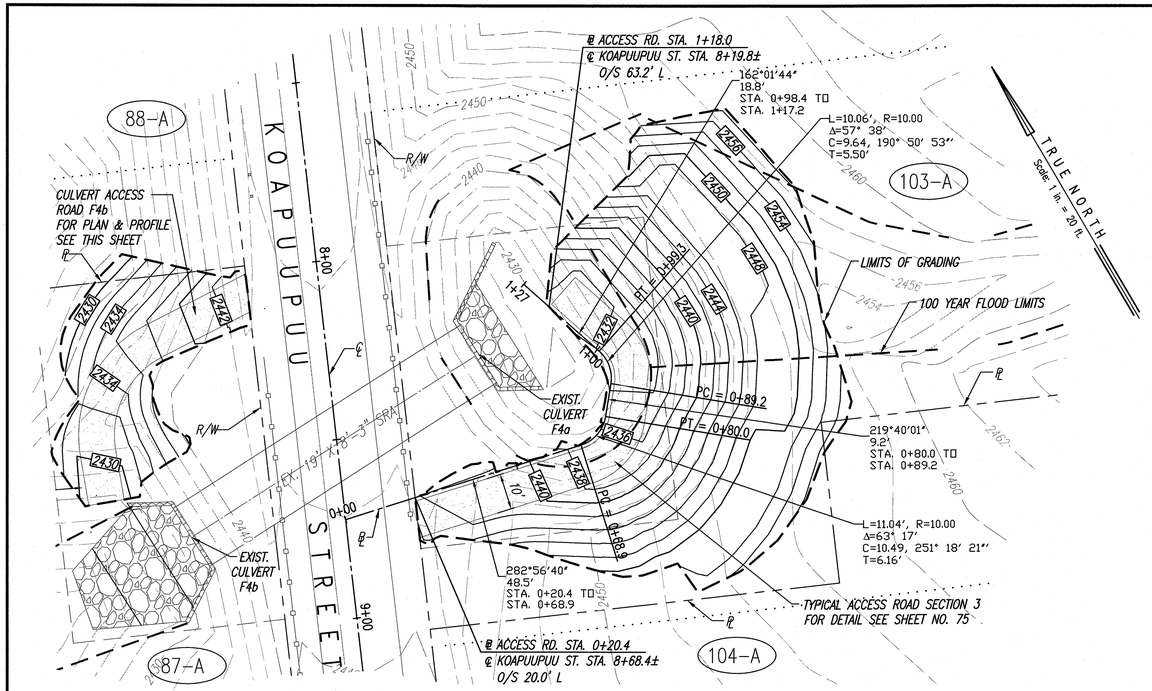
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS F3a & F3b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

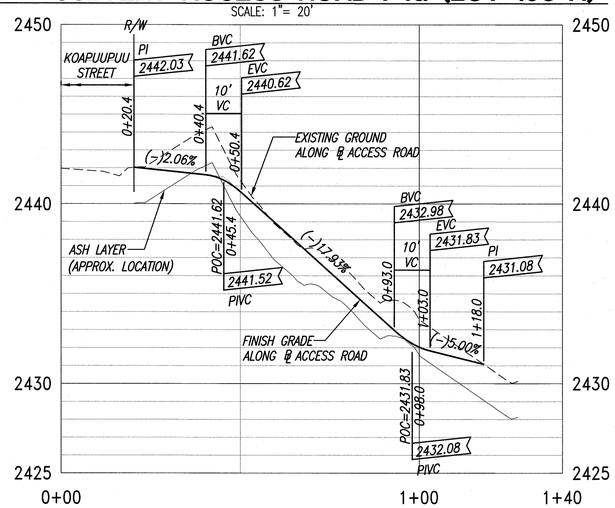
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDW\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:26:27 AM, 1:1



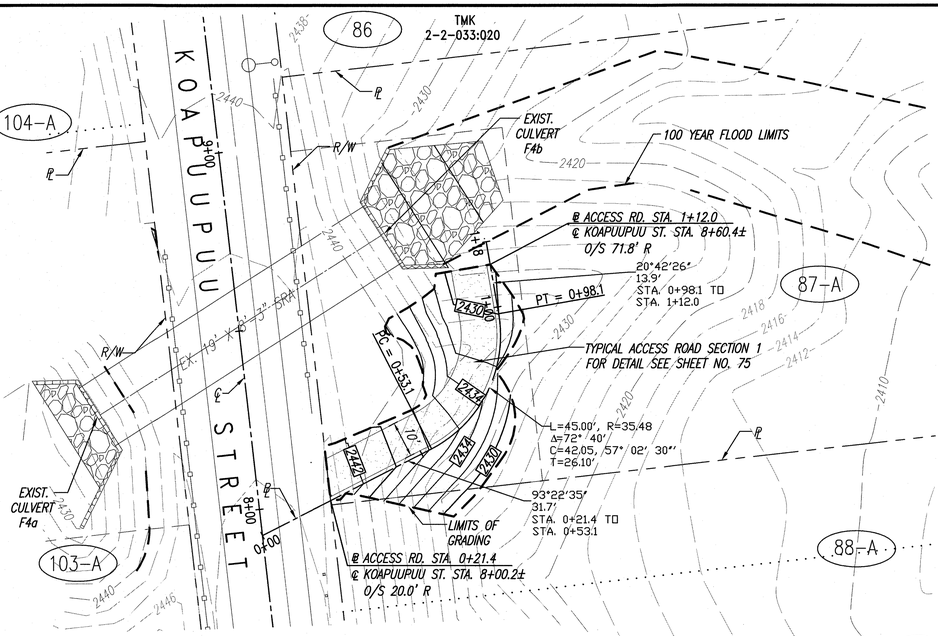
PLAN - CULVERT ACCESS ROAD F4a (LOT 103-A)

SCALE: 1"= 20'



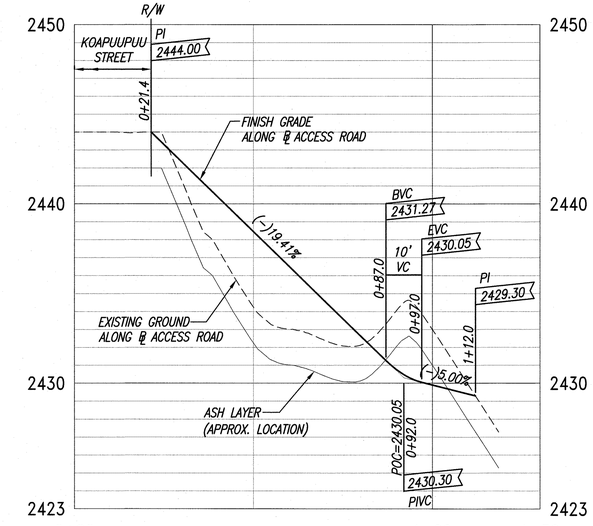
PROFILE - CULVERT ACCESS ROAD F4a (LOT 103-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'



PLAN - CULVERT ACCESS ROAD F4b (LOT 87-A)

SCALE: 1"= 20'

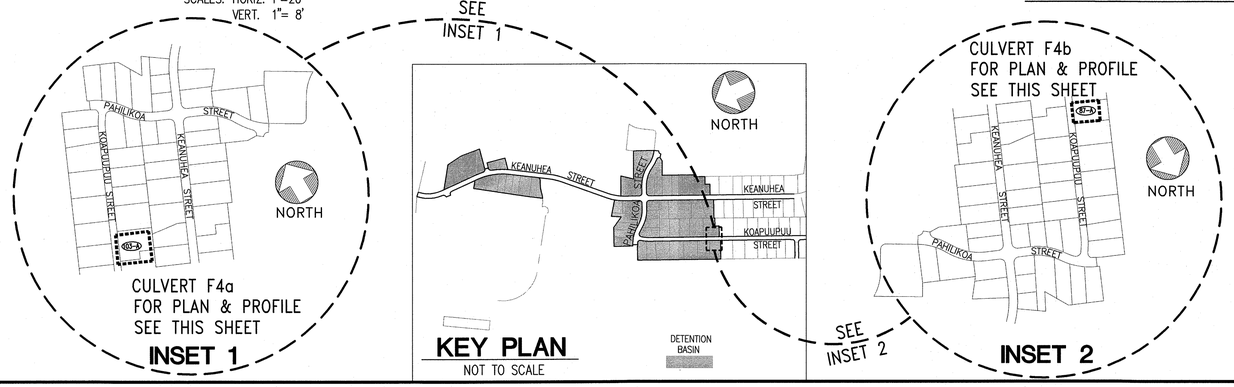


PROFILE - CULVERT ACCESS ROAD F4b (LOT 87-A)

SCALES: HORIZ. 1"=20'
VERT. 1"= 8'

LEGEND

- LIMITS OF GRADING
- 2500 EXISTING GROUND CONTOUR
- 2450 FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- EXISTING GUARD RAIL
- LIMITS OF 100 YEAR STORM
- 140-A LOT NUMBER
- 165 TMK 2-2-002:014 EXISTING LOT NUMBER



Horizontal: 20 10 0 20 40
Vertical: 8 6 4 2 0 8 16
Graphic Scale in Feet

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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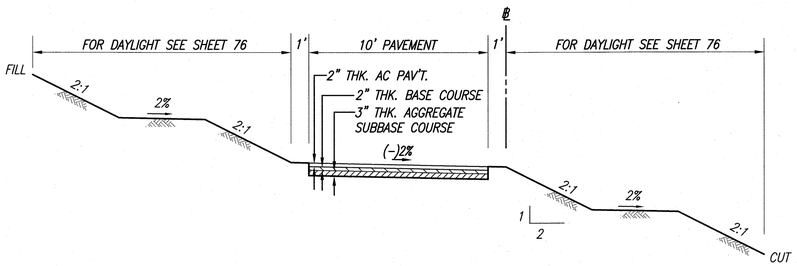
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

PLAN AND PROFILE CULVERT ACCESS ROAD DRAIN CULVERTS F4a & F4b

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

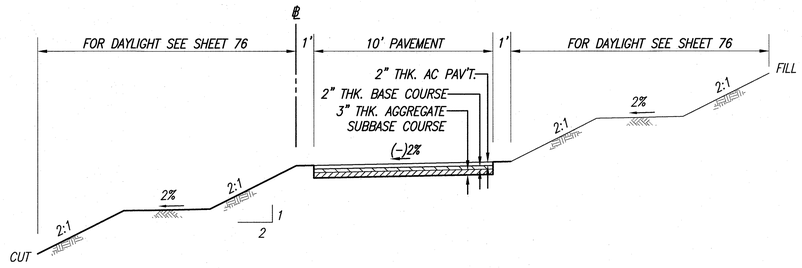
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\65-75 P&P Access Road DC All.dwg, 11/17/2014 7:28:55 AM, 1:1



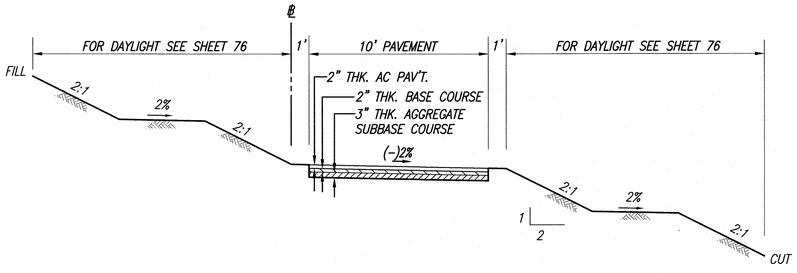
TYPICAL ACCESS ROAD SECTION 1

NOT TO SCALE



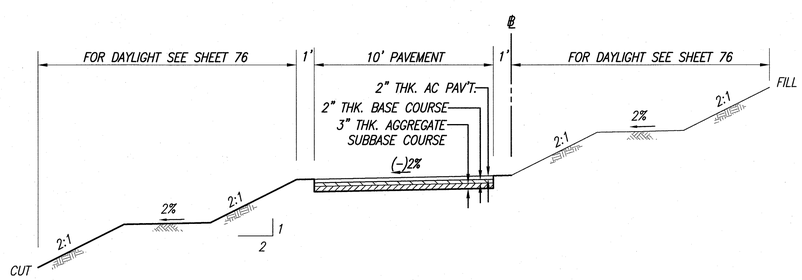
TYPICAL ACCESS ROAD SECTION 3

NOT TO SCALE



TYPICAL ACCESS ROAD SECTION 2

NOT TO SCALE



TYPICAL ACCESS ROAD SECTION 4

NOT TO SCALE

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

TYPICAL ACCESS ROAD CROSS SECTION DETAILS - 1

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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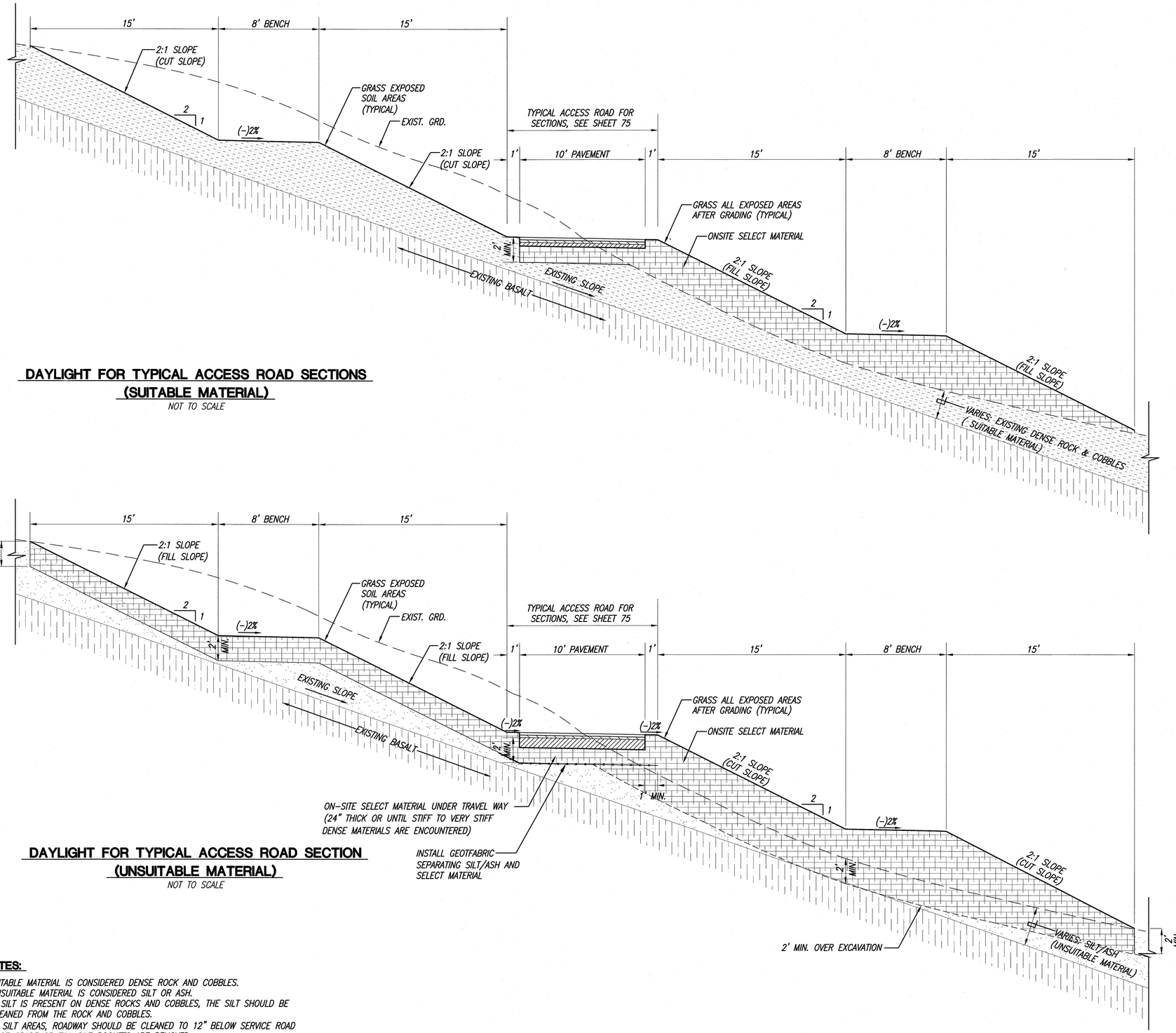
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\AIDWG\Increment 1\Current\76-77 Typical Access Road Cross Section Details.dwg, 11/17/2014 8:45:18 AM, 1:1



DAYLIGHT FOR TYPICAL ACCESS ROAD SECTIONS (SUITABLE MATERIAL)

NOT TO SCALE

DAYLIGHT FOR TYPICAL ACCESS ROAD SECTION (UNSUITABLE MATERIAL)

NOT TO SCALE

NOTES:

1. SUITABLE MATERIAL IS CONSIDERED DENSE ROCK AND COBBLES.
2. UNSUITABLE MATERIAL IS CONSIDERED SILT OR ASH.
3. IF SILT IS PRESENT ON DENSE ROCKS AND COBBLES, THE SILT SHOULD BE CLEANED FROM THE ROCK AND COBBLES.
4. AT SILT AREAS, ROADWAY SHOULD BE CLEANED TO 12" BELOW SERVICE ROAD BASE GRADE OR TILL SILT POCKETS ARE REMOVED.
5. FILL SLOPE SHALL BE CONSTRUCTED BY OVERFILLING THREE FEET, THEN CUTTING BACK TO DESIGN SLOPE.

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

TYPICAL ACCESS ROAD CROSS SECTION DETAILS - 2

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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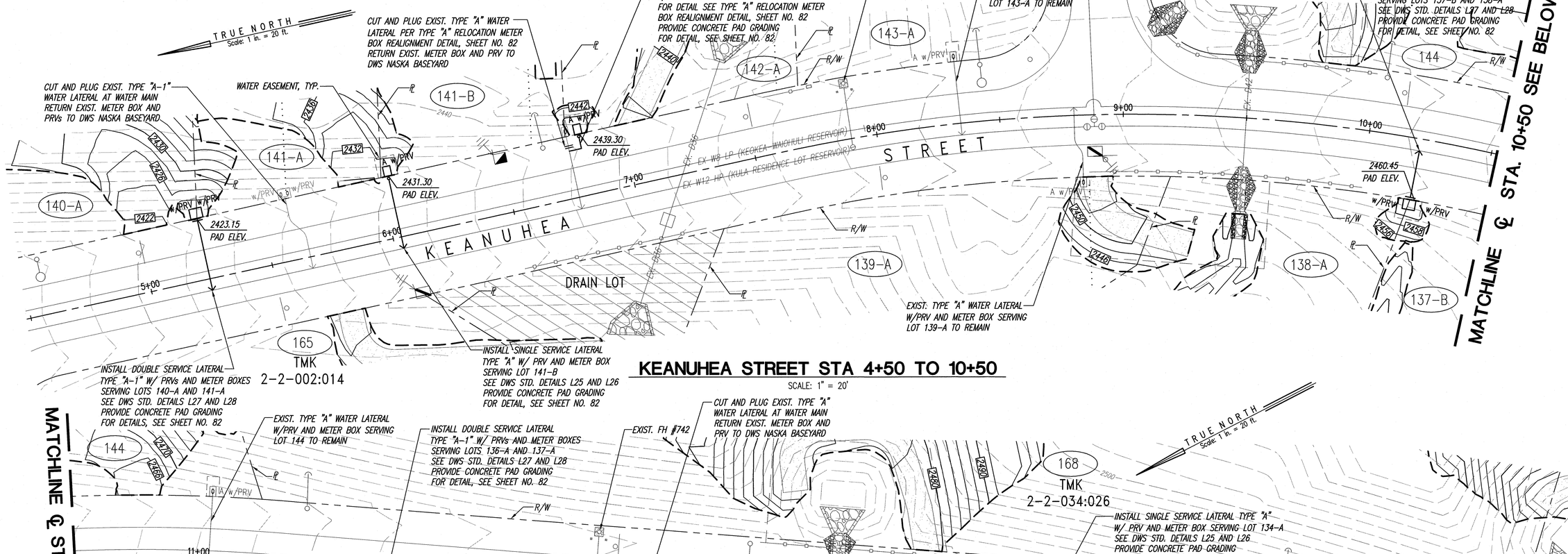
LICENSE EXPIRATION DATE: 04/30/16

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\76-77 Typical Access Road Cross Section Details.dwg, 11/17/2014 8:46:20 AM, 1:1

KEANUHEA STREET STA 4+50 TO 10+50

SCALE: 1" = 20'



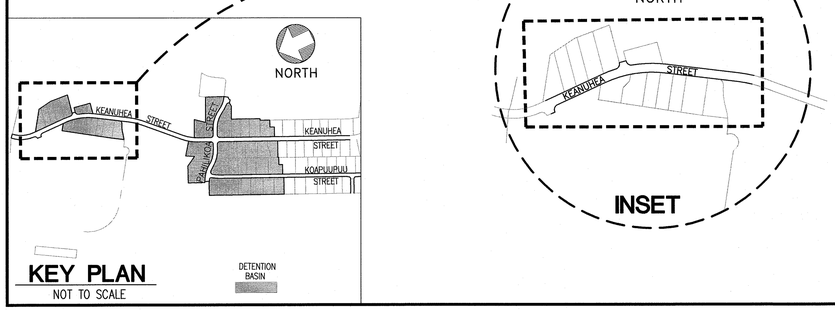
KEANUHEA STREET STA 10+50 TO 16+50

SCALE: 1"= 20'



LEGEND

- 2500 — EXISTING GROUND CONTOUR
- EX W8 — EXIST. WATER LINE
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LIMITS OF GRADING
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- WATER EASEMENT
- DRAINAGE LOT
- 140-A — LOT NUMBER
- 165 TMK 2-2-002:014 — EXISTING LOT NUMBER



Graphic Scale in Feet: 20 10 0 20 40

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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AND (2) 2-2-34: 001 TO 016, 026 & 029

WATER METER RELOCATION PLAN KEANUHEA STREET STA. 4+50 TO 16+50

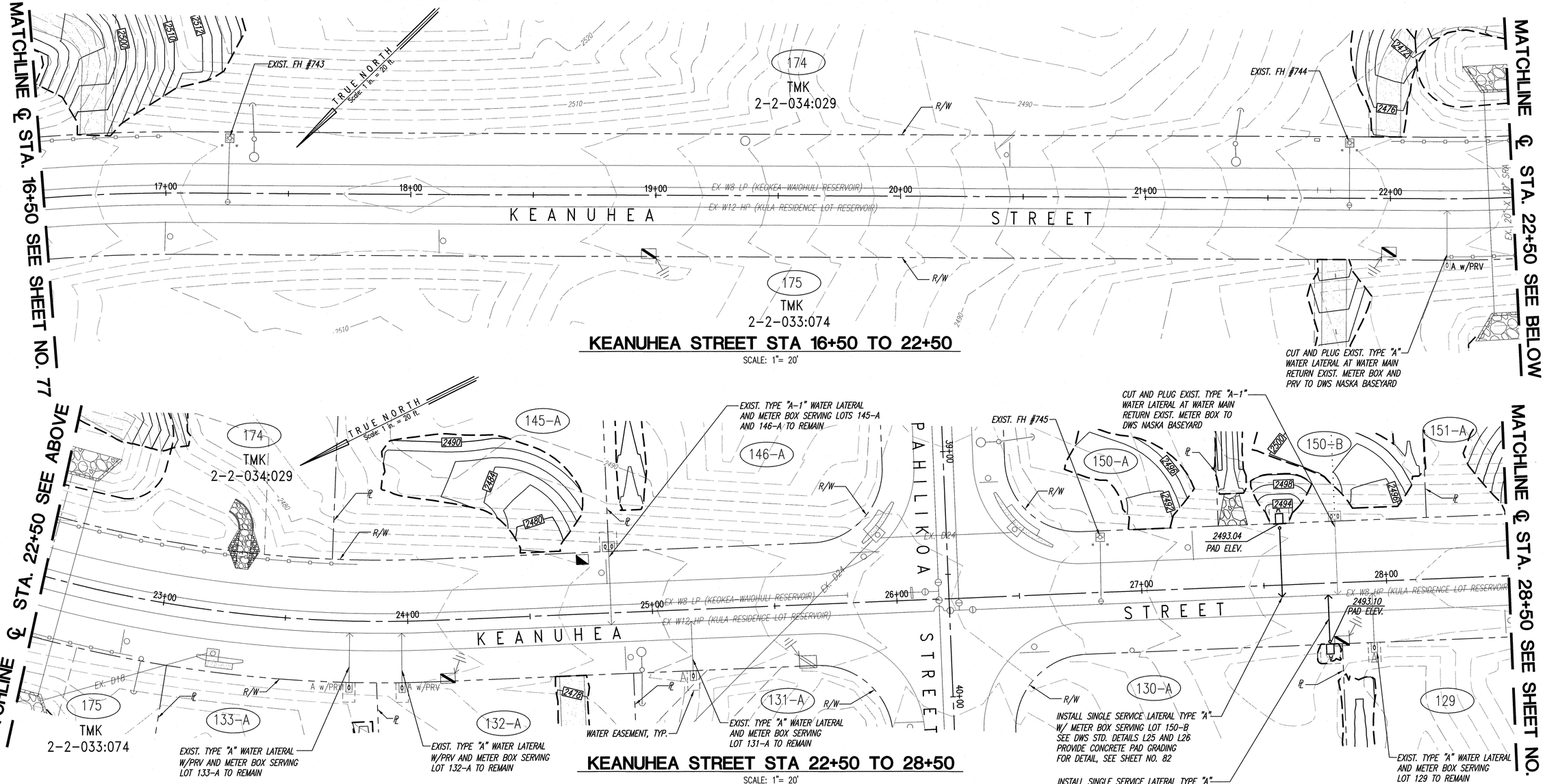
DRAWN BY: MFC	ENGINEER: MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\78-82 Water Meter Relocation Plan.dwg, 11/17/2014 7:51:56 AM, 1:1

MATCHLINE ℄ STA. 16+50 SEE SHEET NO. 77

MATCHLINE ℄ STA. 22+50 SEE BELOW



KEANUHEA STREET STA 16+50 TO 22+50

SCALE: 1"= 20'

MATCHLINE ℄ STA. 22+50 SEE ABOVE

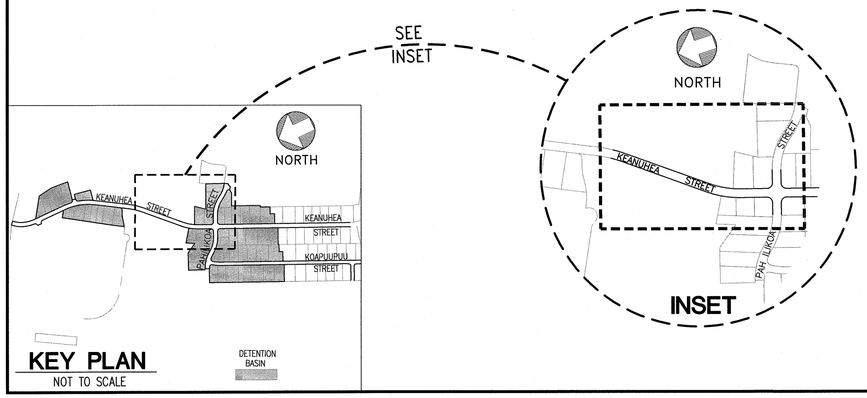
MATCHLINE ℄ STA. 28+50 SEE SHEET NO. 79

KEANUHEA STREET STA 22+50 TO 28+50

SCALE: 1"= 20'

LEGEND

- 2500 — EXISTING GROUND CONTOUR
- EX W8 — EXIST. WATER LINE
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LIMITS OF GRADING
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- WATER EASEMENT
- DRAINAGE LOT
- 140-A — LOT NUMBER
- 165 / TMK 2-2-002:014 — EXISTING LOT NUMBER



KEY PLAN
NOT TO SCALE

20 10 0 20 40
Graphic Scale in Feet

RICHARD Y. SANTO
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No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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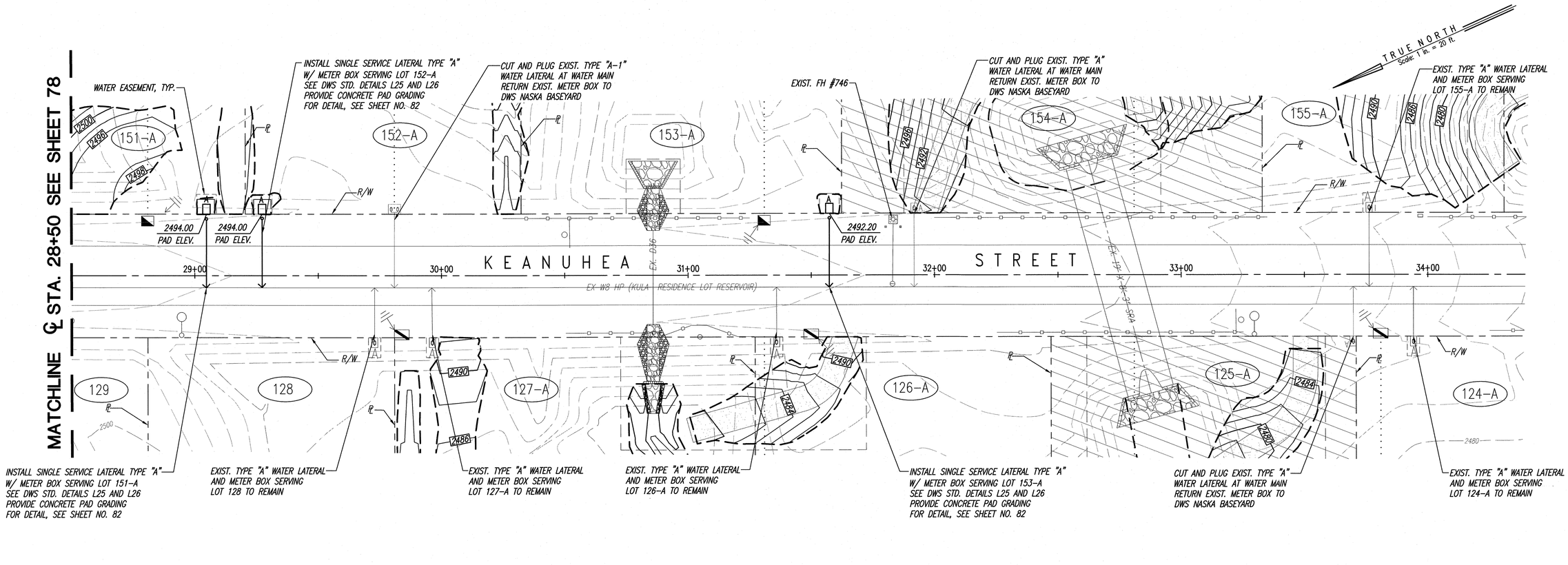
WATER METER RELOCATION PLAN KEANUHEA STREET STA. 16+50 TO 28+50

DRAWN BY: MFC	ENGINEER: MFC	CHECKED BY: RYS

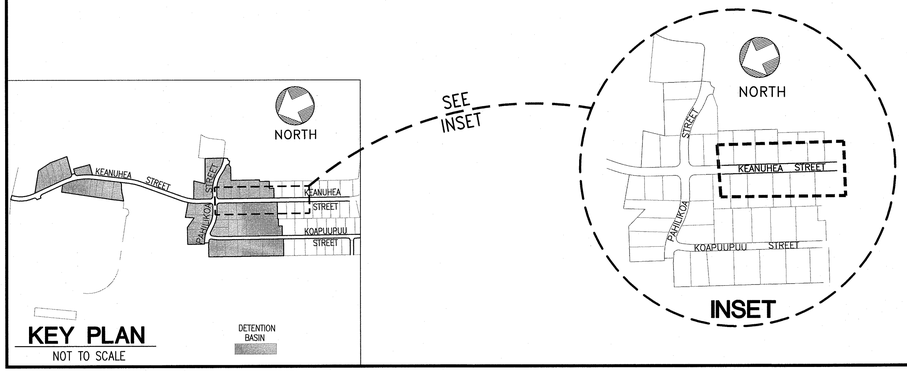
FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\78-82 Water Meter Relocation Plan.dwg, 11/17/2014 7:56:16 AM, 1:1



KEANUHEA STREET STA. 28+50 TO END

SCALE: 1" = 20'



LEGEND

- 2500 — EXISTING GROUND CONTOUR
- EX W8 — EXIST. WATER LINE
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LIMITS OF GRADING
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- WATER EASEMENT
- DRAINAGE LOT
- 140-A — LOT NUMBER
- 165 — EXISTING LOT NUMBER

TMK 2-2-002:014

20 10 0 20 40
Graphic Scale in Feet

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No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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AND (2) 2-2-34: 001 TO 016, 026 & 029

WATER METER RELOCATION PLAN KEANUHEA STREET STA. 28+50 TO END

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

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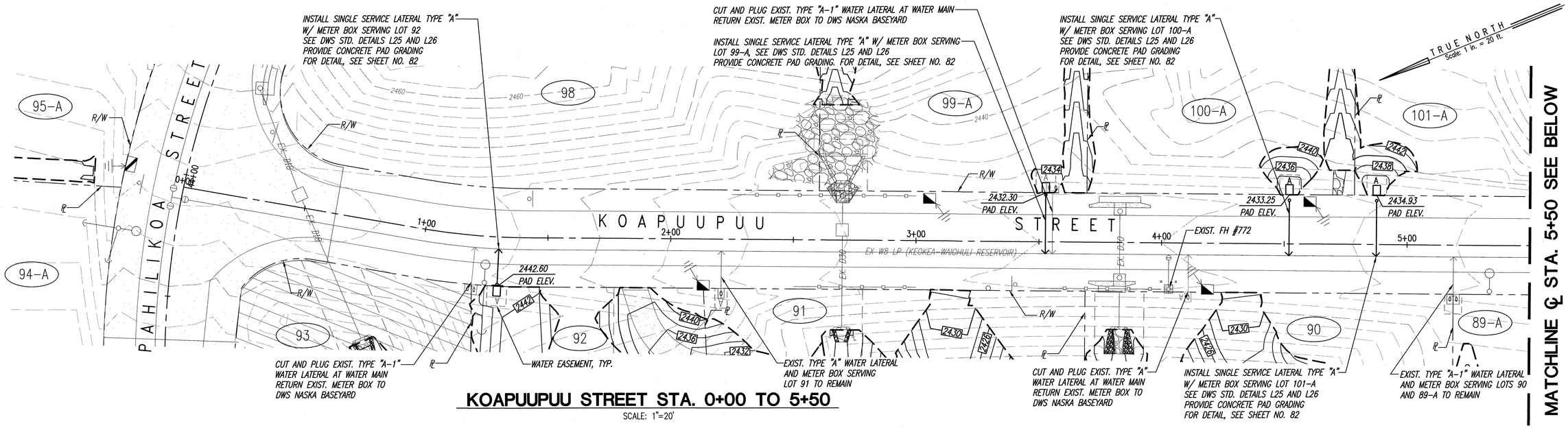
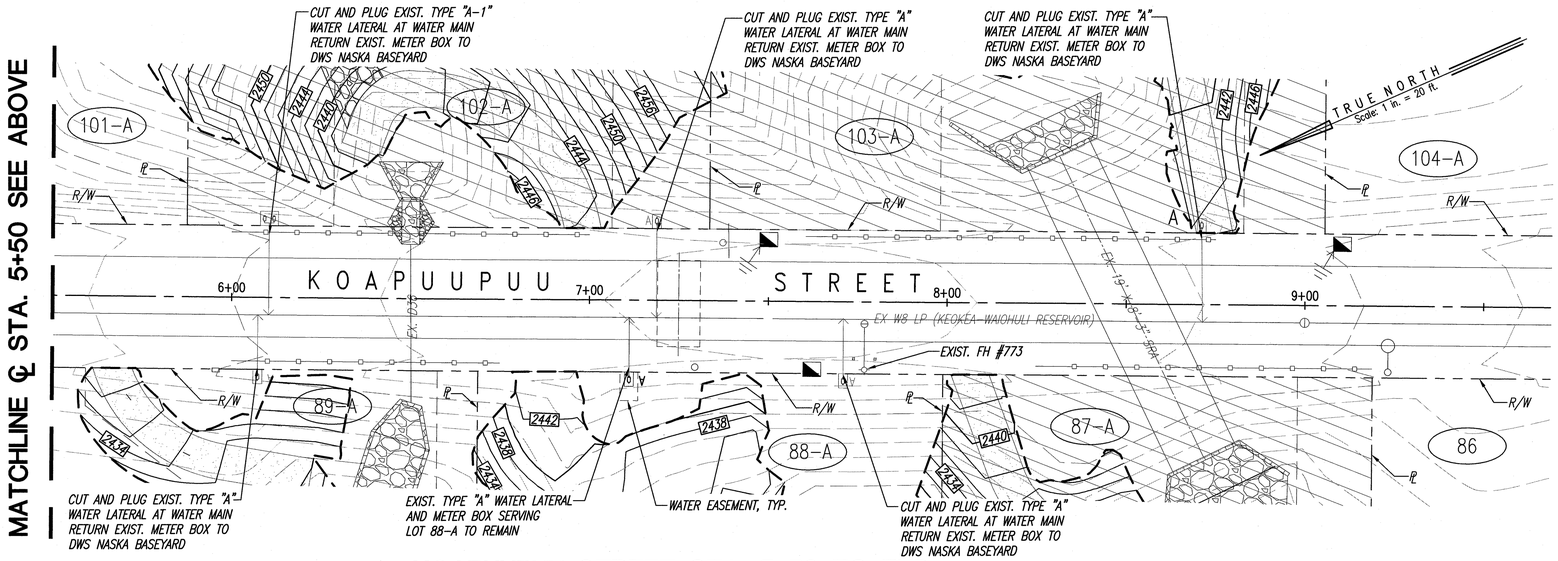


KOAPUUPUU STREET STA. 0+00 TO 5+50

SCALE: 1"=20'



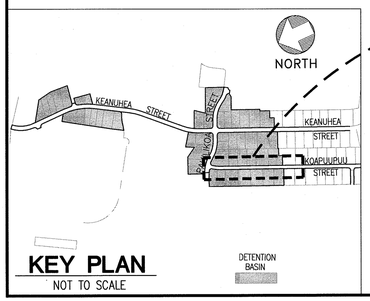
KOAPUUPUU STREET STA. 5+50 TO END

SCALE: 1"=20'

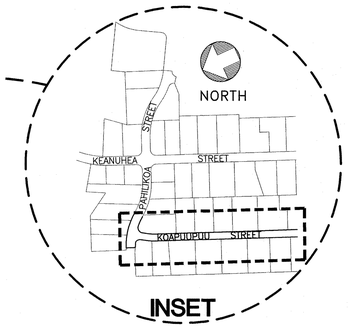
LEGEND

- 2500 — EXISTING GROUND CONTOUR
- EX W8 — EXIST. WATER LINE
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LIMITS OF GRADING
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- WATER EASEMENT
- DRAINAGE LOT
- 140-A — LOT NUMBER
- 165 — EXISTING LOT NUMBER

TMK 2-2-002:014



KEY PLAN
NOT TO SCALE



INSET

Graphic Scale in Feet: 20 10 0 20 40

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No. 8955-C
HAWAII, U.S.A.

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CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

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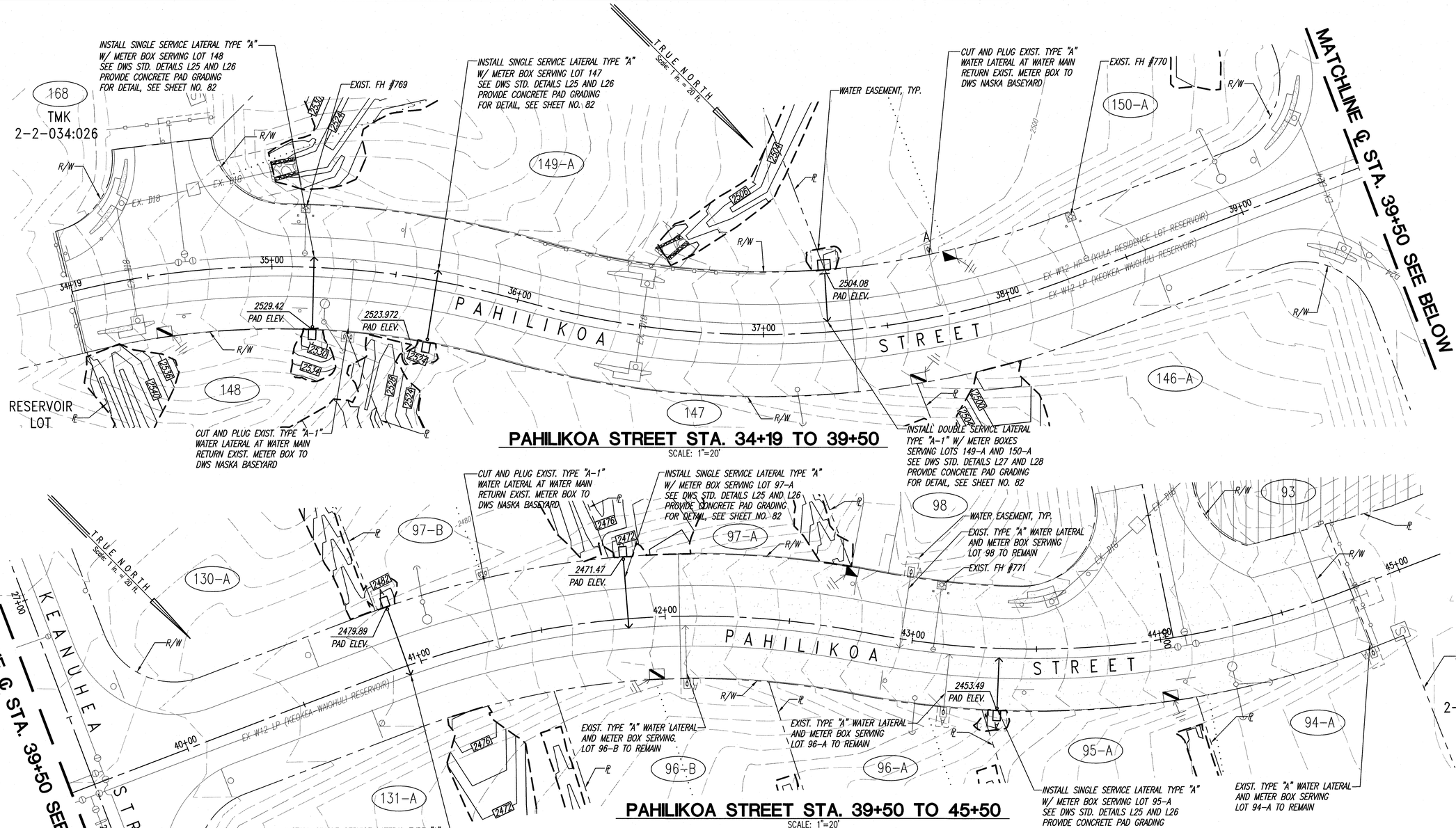
AND (2) 2-2-34: 001 TO 016, 026 & 029

WATER METER RELOCATION PLAN KOAPUUPUU STREET

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\79-82 Water Meter Relocation Plan.dwg, 11/17/2014 7:58:49 AM, 1:1

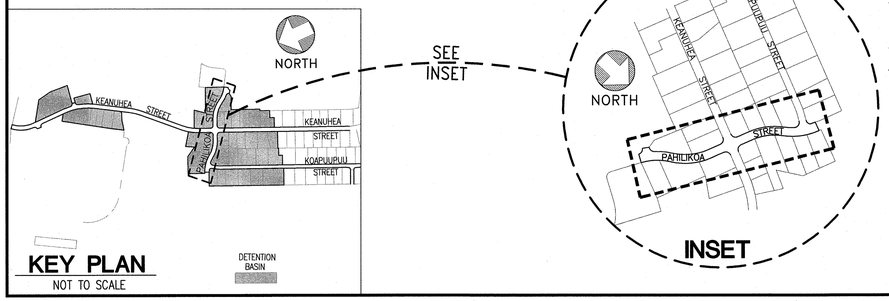


PAHILIKOA STREET STA. 34+19 TO 39+50

SCALE: 1"=20'

PAHILIKOA STREET STA. 39+50 TO 45+50

SCALE: 1"=20'



LEGEND

- 2500 — EXISTING GROUND CONTOUR
- EX W8 — EXIST. WATER LINE
- TYPE "A" SERVICE LATERAL
- TYPE "A-1" SERVICE LATERAL
- LIMITS OF GRADING
- 2450 — FINISH GRADE CONTOUR
- PROPERTY LINE
- OLD PROPERTY LINE
- LIMITS OF 100 YEAR STORM
- WATER EASEMENT
- DRAINAGE LOT
- 140-A — LOT NUMBER
- 165 TMK 2-2-002:014 — EXISTING LOT NUMBER

20 10 0 20 40
Graphic Scale in Feet

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No. 8955-C
HAWAII, U.S.A.

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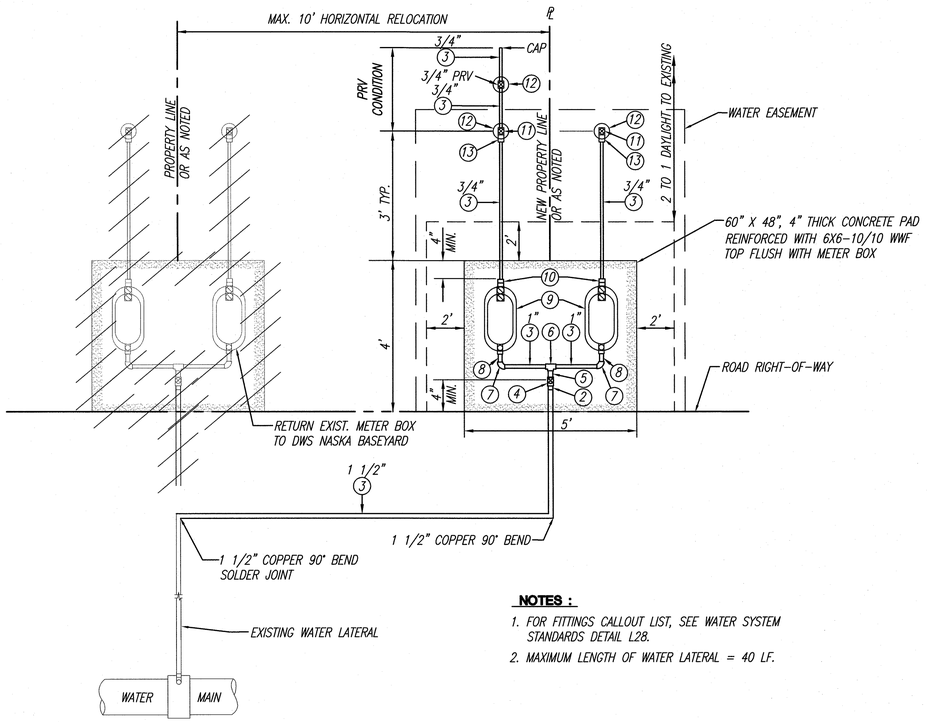
AND (2) 2-2-34: 001 TO 016, 026 & 029

WATER METER RELOCATION PLAN PAHILIKOA STREET

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\78-82 Water Meter Relocation Plan.dwg, 11/17/2014 7:50:45 AM, 1:1

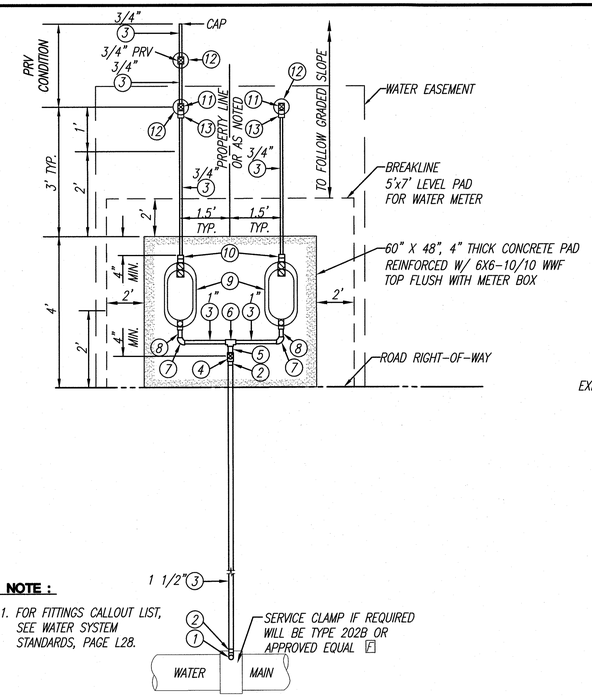


NOTES :

1. FOR FITTINGS CALLOUT LIST, SEE WATER SYSTEM STANDARDS DETAIL L28.
2. MAXIMUM LENGTH OF WATER LATERAL = 40 LF.

DOUBLE SERVICE LATERAL TYPE "A-1" METER BOX REALIGNMENT

NOT TO SCALE

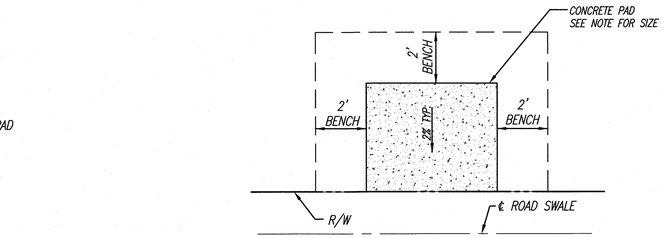


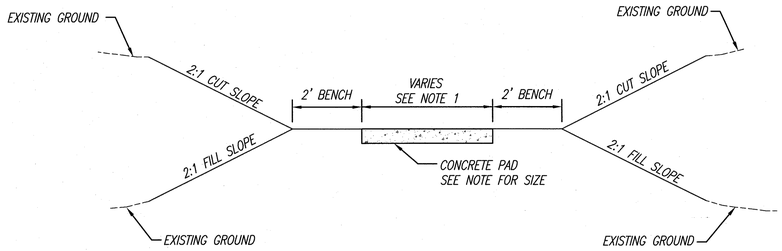
NOTE :

1. FOR FITTINGS CALLOUT LIST, SEE WATER SYSTEM STANDARDS, PAGE L28.

DOUBLE SERVICE LATERAL TYPE "A-1" METER BOX NEW INSTALLATION

NOT TO SCALE



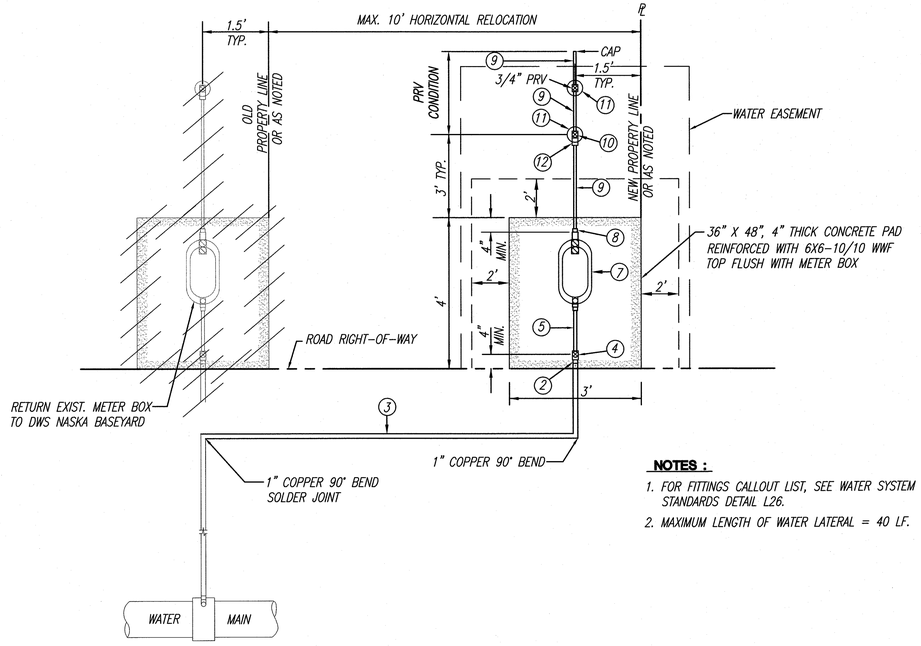


NOTE :

CONCRETE PAD DIMENSIONS
SINGLE (TYPE A) = 3' x 4'
DOUBLE (TYPE A-1)= 5' x 4'

WATER METER CONCRETE PAD GRADING DETAILS

NOT TO SCALE

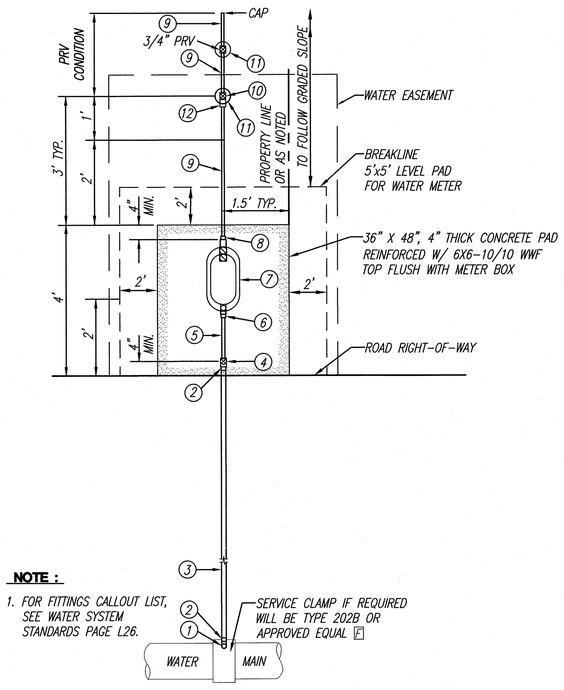


NOTES :

1. FOR FITTINGS CALLOUT LIST, SEE WATER SYSTEM STANDARDS DETAIL L26.
2. MAXIMUM LENGTH OF WATER LATERAL = 40 LF.

SINGLE WATER LATERAL TYPE "A" RELOCATION METER BOX REALIGNMENT

NOT TO SCALE



NOTE :

1. FOR FITTINGS CALLOUT LIST, SEE WATER SYSTEM STANDARDS PAGE L26.

SINGLE SERVICE LATERAL TYPE "A" METER BOX NEW INSTALLATION

NOT TO SCALE

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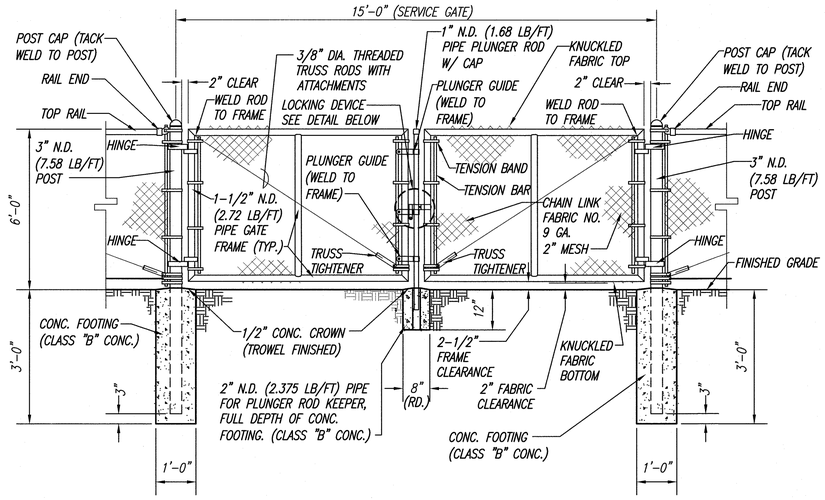
AND (2) 2-2-34: 001 TO 016, 026 & 029

WATER METER RELOCATION DETAILS

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

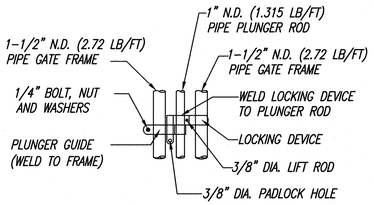
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4A\DWG\Increment 1\Current\83 Water Meter Relocation Details.dwg, 11/17/2014 8:18:12 AM, 1:1



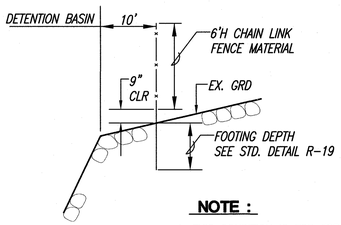
TYPICAL DOUBLE SWING GATE
NOT TO SCALE

NOTES:

1. ALL PIPES AND POST SIZES ARE NOMINAL DIAMETER (N.D.)
2. GATE FRAME SHALL BE OF WELDED PIPE CONSTRUCTION. ALL WELDING SHALL CONFORM TO THE SPECIFICATIONS OF THE AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE".
3. FOR ALL WELDED CONNECTIONS: CORNERS SHALL BE MITERED AND ALL PIPE BRACES PROPERLY COPED.
4. ALL WELDED CONNECTIONS SHALL BE PAINTED WITH TWO COATS OF Z.R.C. COLD GALVANIZING COMPOUND.
5. GATE HINGES SHALL BE TACK WELDED TO GATE POSTS AND FRAMES.
6. CHAIN LINK FABRIC SHALL BE CONTINUOUS AND FASTENED TO SIDE FRAME PIPES BY TENSION BARS WITH TENSION BANDS EVENLY SPACED AT 15" O.C. (MAX.).
7. WIRE FASTENINGS SHALL BE NO. 12 GAUGE GALVANIZED TIE WIRE.
8. CHAIN LINK FABRIC SHALL BE CONTINUOUS AND FASTENED TO SIDE FRAME PIPES BY TENSION BARS WITH TENSION BANDS EVENLY PACED AT 15" O.C. (MAX.).
9. CHAIN LINK FABRIC SHALL BE FASTENED TO TOP AND BOTTOM FRAME PIPES WITH WIRE FASTENINGS EVENLY SPACED AT 12" O.C. (MAX.).
10. CHAIN LINK FABRIC SHALL BE FASTENED TO TRUSS RODS WITH NO. 9 GAUGE HOG RINGS EVENLY SPACED AT 12" O.C. (MAX.).
11. TOP AND BOTTOM SELVAGES OF CHAIN LINK FABRIC SHALL BE KNUCKLED.
12. ALL WIRE FASTENINGS SHALL BE WRAPPED AROUND CHAIN LINK A MINIMUM OF ONE COMPLETE TURN. (HOOKING OF WIRE ENDS SHALL NOT BE PERMITTED).
13. AFTER INSTALLATION, ALL BOLT ENDS SHALL BE CUT FLUSH WITH THE NUTS AND GROUND SMOOTH.



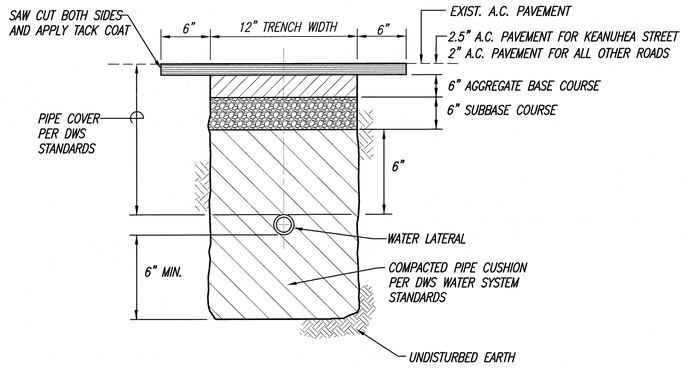
LOCKING DEVICE DETAIL
NOT TO SCALE



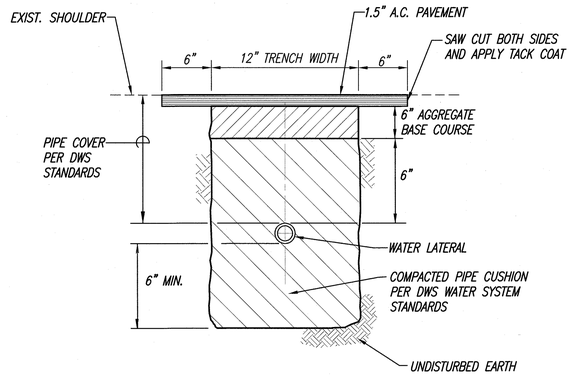
NOTE :

1. THIS CONDITION IS FOR TOP DETENTION BASIN (EAST SIDE) OTHER THREE SIDES FOLLOW STD. DETAIL R-19.

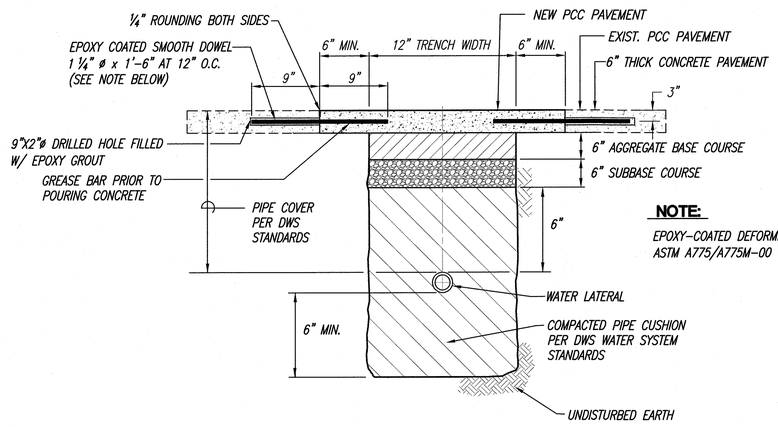
CHAIN LINK FENCE
NOT TO SCALE



A.C. ROADWAY TRENCH AND RESTORATION DETAIL
NOT TO SCALE



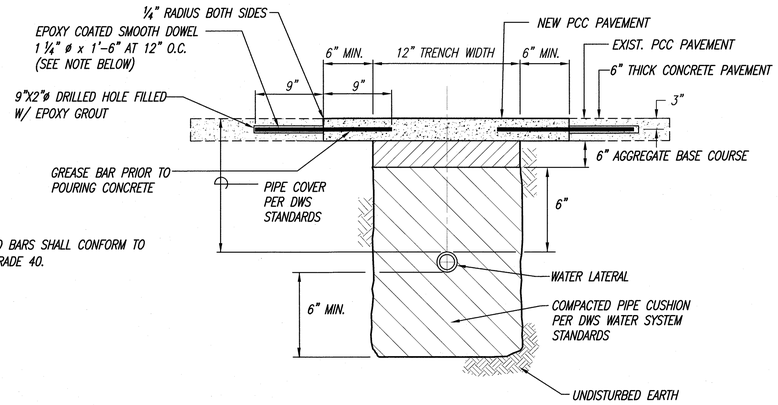
A.C. SHOULDER RESTORATION DETAIL
NOT TO SCALE



PCC ROADWAY TRENCH AND RESTORATION DETAIL
NOT TO SCALE

NOTE:

EPOXY-COATED DEFORMED BARS SHALL CONFORM TO ASTM A775/A775M-00 GRADE 40.



PCC SHOULDER RESTORATION DETAIL
NOT TO SCALE

REVISION DATE	DESCRIPTION	MADE BY	APPROVED

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

CONSOLIDATION / RE-SUBDIVISION KEOKEA-WAIOHULI DEVELOPMENT PHASE 1A

KEOKEA & WAIOHULI, MAKAWAO, MAUI
OWNER & DEVELOPER: DEPARTMENT OF HAWAIIAN HOME LANDS
TAX MAP KEYS: (2) 2-2-033: 021 TO 038 & 058-074
AND (2) 2-2-34: 001 TO 016, 026 & 029

MISCELLANEOUS DETAILS

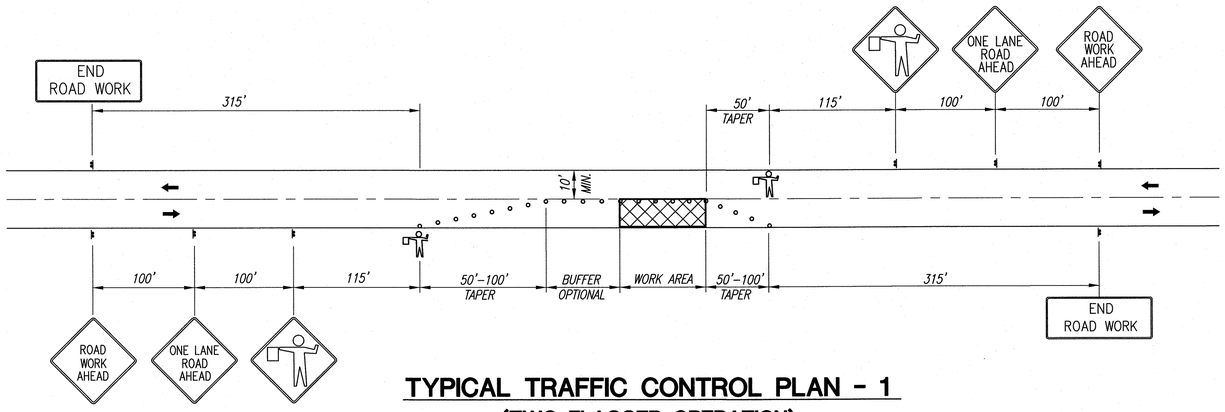
DRAWN BY: MFC	ENGINEER: MFC	CHECKED BY: RYS

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-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: 04/30/16

FILE	POCKET	FOLDER	NO.

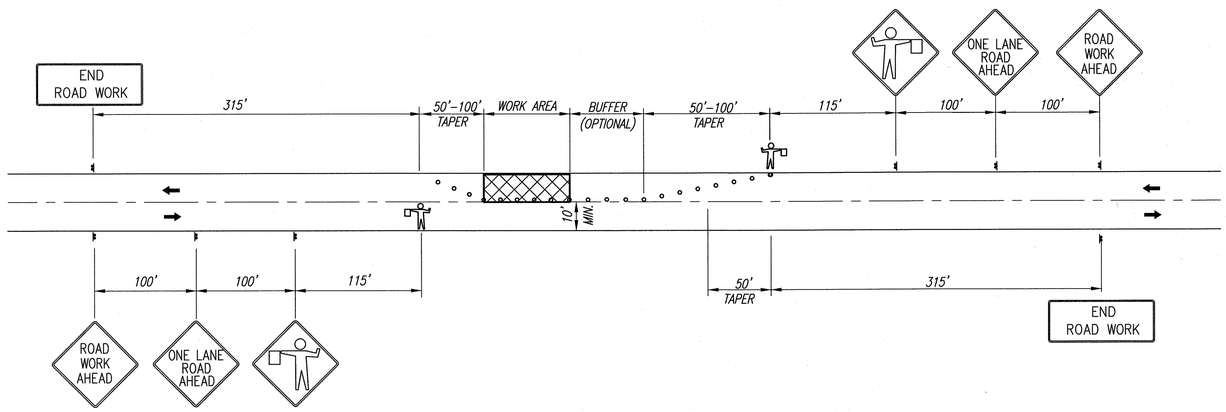
P:\Land Projects\DHHL Keokea Ph 1, 2 & 4\ADW\Increment 1\Current\84 Miscellaneous Details.dwg, 11/17/2014 8:01:27 AM, 1:1



TYPICAL TRAFFIC CONTROL PLAN - 1

(TWO FLAGGER OPERATION)

NOT TO SCALE

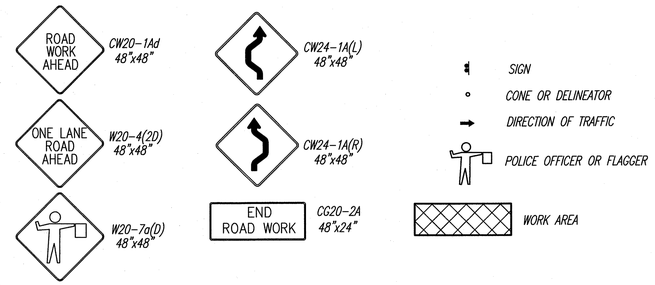


TYPICAL TRAFFIC CONTROL PLAN - 2

(TWO FLAGGER OPERATION)

NOT TO SCALE

LEGEND



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.
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 (CW24-1A(L)) SIGN.
16. BUFFER ZONE REQUIREMENTS SHALL BE DETERMINED BY THE ENGINEER.
17. ALL CONES SPACED @ 10' O.C.

RICHARD Y. SANTO
LICENSED PROFESSIONAL ENGINEER
No. 8955-C
HAWAII, U.S.A.

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TRAFFIC CONTROL PLAN

DRAWN BY: KWNW	ENGINEER: KWNW/MFC	CHECKED BY: RYS

FILE	POCKET	FOLDER	NO.

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