

GENERAL NOTES:

1. THE CONTRACTOR SHALL COMPLY WITH THE PROVISIONS OF CHAPTER 54, WATER QUALITY STANDARDS, AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH, DURING ALL PHASES OF WORK. ADEQUATE MEASURES SHALL BE TAKEN TO COMPLY WITH THESE REGULATIONS.
2. 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 CHAPTER 11-60, "AIR POLLUTION CONTROL".
3. THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
4. IF THE GRADING WORK INVOLVES CONTAMINATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
5. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE PERMITTEE. FURTHERMORE, VIOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL AND/OR CRIMINAL PENALTIES.
6. FOR WORK IN THE VICINITY OF THE STATE PARK'S DEPARTMENT WATERLINES, THE CONTRACTOR SHALL CONTACT THE STATE PARK'S CHIEF, NORMAN SHIROMA, AT PH. (808) 587-0305 FOR FIELD VERIFICATION OF WATERLINE LOCATION AND CONSTRUCTION MONITORING.

KPSTS NOTES:

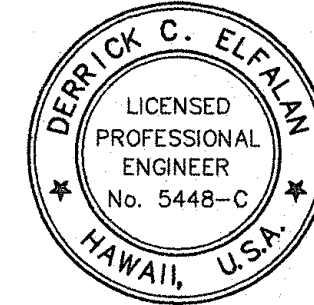
1. ENSURE KAENA POINT SATELLITE TRACKING STATION (KPSTS) IS NOTIFIED A MINIMUM OF 1 (ONE) WEEK PRIOR TO TRENCHING ACROSS THE STATIONS ACCESS ROAD. CONTACT LANCE HAYASHI AT 697-4312.
2. WHEN WORKING ON THE ACCESS ROAD CROSSING, COORDINATE ALL FULL OR PARTIAL ROAD CLOSURES WITH THE U.S. AIR FORCE GUARD IN THE KPSTS GUARD HOUSE, BUILDING 1.
3. ONE LANE SHALL BE KEPT OPEN AT ALL TIMES TO ALLOW ACCESS TO KPSTS. BOTH LANES MAY BE CLOSED FOR SHORT PERIODS OF TIME. BOTH LANES MUST BE OPEN WHEN NO WORK IS BEING DONE. COORDINATE ALL CLOSURES WITH THE ON-DUTY GUARD.
4. ANY DISTURBED SIGNS OR LANDSCAPING MUST BE RETURNED TO ORIGINAL CONDITION AT THE FRONT GATE AREA.

HAWAIIAN ELECTRIC COMPANY (HECO) NOTES:

1. THE LOCATION OF HECO'S OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT GUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
2. THE CONTRACTOR SHALL COMPLY WITH THE STATE OF HAWAII'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
3. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. REFER TO HECO'S SERVICE REQUEST NUMBER AT THAT TIME.
4. FOR VERIFICATION OF UNDERGROUND LINES OR FOR ASSISTANCE IN SUPPORTING AND PROTECTING THESE LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7345 A MINIMUM OF 72 HOURS IN ADVANCE.
5. WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR:
A. SHEETING AND BRACING THE EXCAVATION TO PREVENT SLIDES, CAVE-INS AND SETTLEMENTS.
B. PROTECTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PINNING.
6. FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO DISTRICT SUPERINTENDENT AT (KOOLAU: 261-6085, WAIU: 543-4223, WARD: 543-7745) A MINIMUM OF 72 HOURS IN ADVANCE.
7. ANY WORK REQUIRED TO RELOCATE HECO FACILITES SHALL BE DONE BY HECO AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND FOR POSSIBLE COSTS IF APPLICABLE.
8. SHOULD IT BECOME NECESSARY TO TEMPORARILY RELOCATE ANY OF HECO'S FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BORNE BY THE CONTRACTOR.
9. ANY UNFORSEEN CONFLICT THAT WOULD RESULT IN THE RE-DESIGN OR RELOCATION (EITHER TEMPORAY OR PERMANENT) OF HECO'S ELECTRICAL FACILITIES MAY BE CAUSE FOR LENGTHY DELAYS. TO AVOID SUCH DELAYS, THE CONTRACTOR MUST NOTIFY HECO OF THE CONFLICT A MINIMUM OF 30 DAYS PRIOR TO THE START OF CONSTRUCTION.
10. ANY DAMAGE TO HECO'S FACILITIES SHALL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER AT 543-7874.
11. ALL HECO OVERHEAD AND UNDERGROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACILITIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.
12. THE CONTRACTOR SHALL INDEMNIFY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES, CLAIMS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMAGES, CLAIMS OR ACTION, BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER DIRECTION OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR'S INDEMNITY SHALL NO BE APPLICABLE TO ANY LIABILITY UPON THE SOLE NEGLIGENCE OF HECO.

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR
OUTSIDE PLANT ENGINEER DATE
I HEREBY CERTIFY THAT THIS DOCUMENT WAS
PREPARED BY ME OR UNDER MY DIRECT SUPER-
VISION AND THAT I AM A DULY REGISTERED
ENGINEER UNDER THE LAWS OF THE STATE OF
HAWAII.
SIGNED *[Signature]*
DATE 9/22/99 REG. NO. 5448-C

ParEn, Inc.
dba Park Engineering
SUITE 300 KAHAMANO PLAZA
567 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-1676

PROPRIETARY
USE PURSUANT TO COMPANY INSTRUCTIONS
SPECIFICATION WT 35956
ESTIMATE 73

OWNERSHIP: -
CABLE GEO:
CABLE CLLI: WNAEHU0004

SCALE: NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA
CONSTRUCTION NOTES

WT 956P0010

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY:


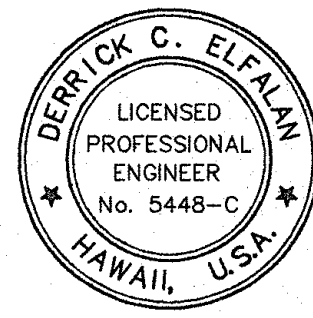
1. THE SCOPE FOR THIS PROJECT CONSISTS OF GRADING, PAVING, SIGNING, STRIPING, PAVEMENT MARKINGS, GUTTER AND SIDEWALK CONSTRUCTION AND RELOCATING ELECTRICAL POLES.
2. THE CONTRACTOR SHALL OBTAIN A PERMIT TO PERFORM WORK UPON STATE HIGHWAYS FROM THE OAHU DISTRICT ENGINEER, STATE HIGHWAYS, AT 727 KAKOI STREET, PRIOR TO COMMENCEMENT OF WORK WITHIN THE STATE'S HIGHWAY RIGHT-OF-WAY.
3. CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN THE STATE'S RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT "STANDARD SPECIFICATIONS FOR ROAD, BRIDGE AND PUBLIC WORKS CONSTRUCTION", AND THE "SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS" OF THE STATE HIGHWAYS DIVISION.
4. WORK MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:30 A.M. AND 3:00 P.M., MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS, UNLESS OTHERWISE PERMITTED BY THE DISTRICT ENGINEER. DURING WORK HOURS, ONLY ONE LANE OF TRAFFIC SHALL BE CLOSED, UNLESS OTHERWISE APPROVED IN WRITING BY THE DISTRICT ENGINEER.
5. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES, AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION, CONVENIENCE AND SAFETY OF PUBLIC TRAFFIC. ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, PART VI - STANDARDS AND GUIDES FOR TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION, MAINTENANCE, UTILITY AND INCIDENT MANAGEMENT OPERATIONS". IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO THE CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.
6. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:
4-INCH ASPHALT CONCRETE MIX NO. IV, 8-INCH AGGREGATE BASE COURSE AND 12-INCH AGGREGATE SUBBASE COURSE, OR 4-INCH ASPHALT CONCRETE MIX NO. IV, 8-INCH ASPHALT CONCRETE BASE COURSE OR ASPHALT CONCRETE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.
7. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHTS- OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DISTRICT ENGINEER.
8. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE SPECIFICATIONS FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS" AS FOLLOWS:
A. SUBBASE: ONE (1) COMPACTION TEST PER LIFT PER 200 LINEAL FEET OF ROADWAY.
B. BASE COURSE: ONE (1) COMPACTION TEST PER LIFT PER 200 LINEAL FEET OF ROADWAY.
C. ONE (1) COMPACTION TEST PER LIFT PER 300 LINEAL FEET OF TRENCH.
D. A COPY OF THE TEST RESULTS SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
9. THE CONTRACTOR SHALL PROVIDE AN ADEQUATE AND SAFE, NON-SKID BRIDGING MATERIAL, INCLUDING SHORING OVER TRENCHES IN PAVEMENT AREAS. THE BRIDGING SHALL BE ABLE TO SUPPORT ALL TYPES OF VEHICULAR TRAFFIC.

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY: (CONT'D.)

10. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A PROFILE ALONG THE CENTERLINE OF THE PROPOSED UTILITY TRENCH. THIS INFORMATION SHALL BE USED IN THE VERIFICATION OF RESTORING THE ROADWAY TO ITS ORIGINAL CONDITION. A COPY OF THE PROFILE SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
11. UNLESS OTHERWISE NOTED, NO TRENCH SHALL BE OPENED MORE THAN 300 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPELINE AND/OR DUCTLINE.
12. EXISTING DRAINAGE SYSTEMS SHALL BE FUNCTIONAL AT ALL TIMES.
13. THE CONTRACTOR SHALL EXERCISE CARE TO MINIMIZE DAMAGES TO EXISTING HIGHWAY IMPROVEMENTS. ALL DAMAGES SHALL BE REPAIRED BY THE CONTRACTOR, AT HIS EXPENSE, TO THE SATISFACTION OF THE DISTRICT ENGINEER.
14. APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF NOTIFICATION OF APPROVAL TO THE APPLICANT. IN THE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS ONE-YEAR PERIOD, THE APPLICANT WILL BE REQUIRED TO RESUBMIT THE CONSTRUCTION PLANS FOR THE DIVISION'S REVIEW AND RE-APPROVAL.
15. ALL REGULATORY, GUIDE AND CONSTRUCTION SIGNS AND BARRICADES SHALL HAVE A HIGH INTENSITY REFLECTIVE BACKGROUND.
16. THE CONTRACTOR SHALL INFORM THE STATE HIGHWAY'S PERMIT OFFICE (831-6712), AT LEAST TWO (2) DAYS PRIOR TO CLOSING ANY LANES.
17. DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTIES USING THESE RIGHTS-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
18. WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN A SAFE AND PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROVIDED. PASSAGES BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
19. THE CONTRACTOR SHALL REFERENCE TO THE SATISFACTION OF THE DISTRICT ENGINEER, ALL EXISTING TRAFFIC SIGNS, POSTS & PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS & PAVEMENT MARKINGS DISTURBED BY HIS ACTIVITIES, AT HIS EXPENSE, UNLESS DIRECTED OTHERWISE BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.
20. THE CONTRACTOR SHALL EXERCISE CARE WHEN PERFORMING WORK IN OR ADJACENT TO THE STATE HIGHWAY RIGHT-OF-WAY. DAMAGES TO EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES, AND/OR CITY OR STATE AGENCIES. THE REPAIR WORK SHALL BE DONE AT THE CONTRACTOR'S AT THE CONTRACTOR'S EXPENSE.
21. THE CONTRACTOR SHALL NOTIFY THE STATE HIGHWAYS' HIGHWAY LIGHTING AND TRAFFIC SIGNAL SUPERVISOR (837-8056), THREE (3) WORKING DAYS PRIOR TO COMMENCING WORK.
22. TRAFFIC SIGNALS SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION, AND IF DEEMED NECESSARY BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE, A TEMPORARY VEHICLE DETECTION DEVICE SHALL BE INSTALLED. ALL WORK SHALL BE DONE IN ACCORDANCE TO THE REQUIREMENTS OF THE DEPARTMENT OF TRANSPORTATION SERVICES, CITY AND COUNTY OF HONOLULU, AND PAID FOR BY THE CONTRACTOR.

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR

OUTSIDE PLANT

ENGINEER

DATE

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF HAWAII.

SIGNED

DATE 9/2/99

REG. NO. 5448-C

ParEn, Inc.

dba Park Engineering

SUITE 300, KANAMAHUA PLAZA
567 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-1676

PROPRIETARY

USE PURSUANT TO COMPANY INSTRUCTIONS

SPECIFICATION

WT 35956

ESTIMATE

73

OWNERSHIP:

-

CABLE GEO:

H10206

CABLE CLU:

WNAEHU0004

SCALE:

NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA

CONSTRUCTION NOTES

WT 956P0011

NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY: (CONT'D.)

23. THE CONTRACTOR SHALL NOTIFY OAHU TRANSIT SERVICES, INC. (OTS) ED SNIFFEN AT 848-4571, OR LOWELL TOM AT 848-4578, TWO WEEKS PRIOR TO COMMENCING ANY WORK. THE CONTRACTOR SHALL INFORM OTS OF THE LOCATION AND SCOPE OF WORK, PROPOSED CLOSURE OF ANY STREET OR TRAFFIC LANES, AND THE NEED TO RELOCATE ANY BUS STOP.
24. THE PERMIT TO PERFORM WORK UPON STATE HIGHWAYS MAY BE REVOKED BECAUSE OF DEFAULT IN ANY OF THE FOLLOWING, BUT NOT LIMITED TO, CONDITIONS:
- A. WORK PERFORMED BEFORE OR AFTER PERMITTED HOURS.
 - B. FAILURE TO MAINTAIN ROADWAY SURFACES IN A SMOOTH AND SAFE CONDITION.
 - C. FAILURE TO CLEAN UP CONSTRUCTION DEBRIS GENERATED FROM PROJECT WORK.
 - D. FAILRE TO PROVIDE PROPER TRAFFIC CONTROL.
 - E. FAILURE TO REPLACE DAMAGED PAVEMENT MARKINGS AND SIGNS.
25. THE CONTRACTOR SHALL NOTIFY THE STATE HIGHWAYS PERMIT OFFICE (831-6712) AT LEAST TWO DAYS PRIOR TO PERFORMING ANY TRENCH RESTORATION WORK. THIS WORK SHALL INCLUDE ANY BACKFILLING AND COMPACTING OF TRENCH MATERIAL; ANY PLACING AND COMPACTING OF BASE COURSE MATERIAL; AND ANY PAVING OPERATIONS. ANY TRENCH RESTORATION WORK PERFORMED BY THE CONTRACTOR THAT IS NOT WITNESSED BY A STATE REPRESENTATIVE WILL BE REQUIRED TO BE REMOVED AND RESTORED WITH A STATE REPRESENTATIVE PRESENT. ALL RESTORATION WORK WILL BE AT THE CONTRACTOR'S EXPENSE.
26. TEMPORARY COLD MIX TRENCH PATCHES WILL BE PERMITTED IN ANY GIVEN AREA FOR A MAXIMUM DURATION OF TWO WEEKS, AND SHALL BE A MINIMUM OF 2 INCHES THICK. ALL TEMPORARY PATCHES SHALL BE PLACED OVER PROPERLY PLACED AND COMPACTED BACKFILL AND BASE COURSE LAYERS. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL TEMPORARY PATCHES AND TO MAKE REPAIRS TO UNSATISFACTORY PATCHES WITHIN 24 HOURS.
27. THE CONTRACTOR WILL MAKE EVERY EFFORT TO MINIMIZE THE USE AND THE DURATION OF USE OF STEEL PLATES. ALL STEEL PLATES SHALL HAVE A ON-SKID SURFACE. THE STATE MAY REQUIRE THE BACKFILLING AND PATCHES OF TRENCHES DUE TO THE EXCESSIVE USAGE OF STEEL PLATES.

HAWAIIAN TELEPHONE COMPANY (HTCO) NOTES:

1. THE LOCATION OF GTE HAWAIIAN TELEPHONE COMPANY'S EXISTING FACILITIES ARE APPROXIMATE ONLY. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION AND SHALL MAINTAIN PROPER CLEARANCES WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF GTE HAWAIIAN TELEPHONE COMPANY FACILITIES. THE CONTRACTOR SHALL VERIFY THEIR LOCATIONS AND SHALL BE LIABLE FOR ANY DAMAGES TO GTE HAWAIIAN TELEPHONE COMPANY FACILITIES. ANY DAMAGES SHALL BE REPORTED IMMEDIATELY TO GTE HAWAIIAN TELEPHONE COMPANY'S REPAIR SECTION AT #611 (24 HOURS) OR TO THE EXCAVATION PERMIT SECTION AT PH: 840-1444 (NORMAL WORKING HOURS, MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS).
2. FOR UNDERGROUND CABLE LOCATING AND MARKING, FIVE WORKING DAYS ADVANCE NOTICE IS REQUIRED. THREE WORKING DAYS ADVANCE NOTICE IS REQUIRED FOR ANY INSPECTION BY A DESIGNATED REPRESENTATIVE.
3. THE CONTRACTOR SHALL TAKE NECESSARY PRECAUTIONS NOT TO DAMAGE ANY EXISTING CABLES OR CONDUITS. ANY WORK INVOLVING EXISTING GTE HAWAIIAN TELEPHONE COMPANY CABLES OR CONDUITS SHALL BE DONE IN THE PRESENCE OF A GTE HAWAIIAN TELEPHONE COMPANY INSPECTOR OR DESIGNATED REPRESENTATIVE.
4. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT AND TONING REQUEST FROM GTE HAWAIIAN TELEPHONE COMPANY'S EXCAVATION PERMIT SECTION, LOCATED AT 3239 UALENA STREET, THIRD FLOOR, TWO WEEKS PRIOR TO THE START OF CONSTRUCTION. HOURS OF BUSINESS ARE 7:00 A.M. TO 10:30 A.M. AND 11:30 A.M. TO 3:00 P.M., MONDAY THROUGH FRIDAY, EXCEPT HOLIDAYS.
5. THE CONTRACTOR SHALL NOTIFY GTE HAWAIIAN TELEPHONE COMPANY INSPECTOR OR DESIGNATED REPRESENTATIVE A MINIMUM OF 72 HOURS PRIOR TO EXCAVATION, BRACING OR BACKFILLING OF GTE HAWAIIAN TELEPHONE COMPANY'S STRUCTURES OR FACILITIES.
6. WHEN EXCAVATION IS ADJACENT TO OR BENEATH GTE HAWAIIAN TELEPHONE COMPANY'S EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR SHALL:
- A. SHEET AND/OR BRACE THE EXCAVATION TO PREVENT SLIDES, CAVE-INS OR SETTLEMENTS TO ENSURE NO MOVEMENT TO GTE HAWAIIAN TELEPHONE COMPANY'S STRUCTURES OR FACILITIES.
 - B. PROTECT EXISTING STRUCTURES AND/OR FACILITIES WITH BEAMS, STRUTS OR UNDERPINNING WHILE EXCAVATING BENEATH THEM TO ENSURE NO MOVEMENT TO GTE HAWAIIAN TELEPHONE COMPANY'S STRUCTURES OR FACILITIES.

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR
OUTSIDE PLANT ENGINEER DATE

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF HAWAII.

SIGNED
DATE 9/24/99 REG. NO. 5448-C

ParEn, Inc.
dba Park Engineering
SUITE 300 KAHAMAHUA PLAZA
957 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-1676

PROPRIETARY

USE PURSUANT TO COMPANY INSTRUCTIONS

SPECIFICATION WT 35956

ESTIMATE 73

OWNERSHIP: -

CABLE GEO: -

CABLE CLLI: WNAEHU0004

SCALE: NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA
CONSTRUCTION NOTES

WT 956P0012

WATER NOTES:

1. UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS" VOLUME 1, DATED 1985, THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
2. ALL PLANS APPROVED BY THE BOARD OF WATER SUPPLY ARE BASED SOLELY ON THE ADEQUACY OF WATER SUPPLY. ALL OTHER FEATURES OF THE WATER SYSTEM, SUCH AS LINES, GRADES, FITTINGS, DRAINAGE, ETC., AND OTHER FEATURES OF IMPROVEMENTS SHALL NOT BE THE RESPONSIBILITY OF THE BOARD OF WATER SUPPLY.
3. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT IS NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE AND PAY FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
4. REAPPROVAL SHALL BE REQUIRED IF THIS PROJECT IS NOT UNDER CONSTRUCTION WITHIN A PERIOD OF TWO YEARS.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL WATER LINES DURING CONSTRUCTION. THE CONTRACTOR SHALL BE ESPECIALLY CAREFUL WHEN EXCAVATING BEHIND WATER LINES, TEES, AND BENDS WHEREVER THERE IS A POSSIBILITY OF WATER LINE MOVEMENT DUE TO THE REMOVAL OF SUPPORTING EARTH BEYOND THE EXISTING REACTION BLOCKS. THE CONTRACTOR SHALL TAKE WHATEVER MEASURE NECESSARY TO PROTECT THE WATER LINES, SUCH AS CONSTRUCTING SPECIAL REACTION BLOCKS (WITH BWS APPROVAL) AND/OR MODIFYING HIS CONSTRUCTION METHOD.
6. AT THE ELECTRICAL/SIGNAL DUCTLINE WATER CROSSINGS, ADJUST ALL ELECTRICAL/SIGNAL DUCTLINE ELEVATIONS TO MAINTAIN 6" VERTICAL CLEAR SEPARATION FROM ALL WATERLINES (12" CLEAR FOR ALL ELECTRICAL/SIGNAL DUCTLINE STRUCTURES LARGER THAN 16") AT NO COST TO THE BOARD OF WATER SUPPLY.
7. MAINTAIN 3'-0" MIN. HORIZONTAL CLEAR SEPARATION BETWEEN ALL WATERLINE SYSTEMS AND NEAREST ELECTRICAL/SIGNAL DUCTLINES PARALLELING THE WATER SYSTEM AT NO COST TO THE BOARD OF WATER SUPPLY.
8. MAINTAIN 3'-0" MIN. HORIZONTAL CLEAR SEPARATION BETWEEN STREET LIGHT/TRAFFIC SIGNAL, STANDARDS (INCLUDING ANY MODULAR UNITS) AND THE NEAREST WATER SYSTEM. CONTRACTOR SHALL FIELD VERIFY FOR ANY CONFLICTS AT EACH STREET LIGHT/TRAFFIC SIGNAL STANDARD LOCATION. WHERE CONFLICTS OCCUR, THE CONTRACTOR SHALL COORDINATE WITH THE PROJECT ENGINEER TO REVISE THE STREET LIGHT/TRAFFIC SIGNAL STANDARD TO PROVIDE THE REQUIRED CLEARANCES AT NO COST TO THE BOARD OF WATER SUPPLY.
9. THE CONTRACTOR SHALL NOTIFY BWS PLANNING AND ENGINEERING DIVISION, CONSTRUCTION SECTION, ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
10. THE CONTRACTOR SHALL VERIFY ALL EXISTING SERVICE LATERAL LOCATIONS WHETHER SHOWN OR NOT SHOWN ON THE PLANS PRIOR TO COMMENCING WITH ANY WORK AND SHALL NOT ASSUME THAT WHERE NO SERVICES ARE SHOWN, NONE EXIST.

11. PRIOR TO ANY EXCAVATING, THE CONTRACTOR SHALL VERIFY IN THE FIELD THE LOCATION OF EXISTING WATER MAINS AND APPURTENANCES.
12. FOR TRENCHLESS INSTALLATION WORK (MICRO-TUNNELING, DIRECTIONAL DRILLING, PIPE RAMMING OF NEW UTILITIES SUCH AS ELECTRICAL DUCT LINES, SEWER LINES, DRAIN LINES) CROSSING OR PARALLELING OR NEAR EXISTING WATER MAINS AND UTILITIES, THE FOLLOWING ADDITIONAL REQUIREMENTS APPLY:
 - A. PROVIDE 3 FEET HORIZONTAL AND VERTICAL CLEARANCES TO EXISTING MAINS. THE UTILITY OWNER OR CONTRACTOR SHALL MAKE ADJUSTMENTS TO MEET THE MINIMUM CLEARANCES SHOULD THE UTILITY LINE BE FOUND TO BE INSTALLED CLOSER TO THE EXISTING MAINS AT NO COST TO BWS.
 - B. ALL MAPS, AS-BUILT PLANS, TONING WORK AND SITE INDICATIONS PROVIDED BY BWS ARE APPROXIMATIONS ONLY OF THE LOCATION OF THE WATER MAINS AND FACILITIES AND ARE NOT FURNISHED TO INDICATE THEIR EXACT LOCATIONS. THE CONTRACTOR SHALL HAVE THE SOLE RESPONSIBILITY TO PERFORM FIELD VERIFICATION, INCLUDING HAND DIGGING METHODS TO DETERMINE THE EXACT LOCATION AND INVERT OF THE MAINS PRIOR TO ANY DRILLING WORK AND SHALL NOT ASSUME THAT WHERE NO WATER LINES ARE SHOWN, THAT NONE EXIST.
 - C. THE CONTRACTOR SHALL SUBMIT AS-BUILT PLANS OF THE NEW UTILITY LINES.

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR _____ DATE _____
OUTSIDE PLANT _____ ENGINEER _____
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF HAWAII.
SIGNED _____
DATE 9/2/99 REG. No. 5448-C

ParEn, Inc.
dba Park Engineering
SUITE 200, KAWAHAHA PLAZA
507 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE (808) 531-1678

PROPRIETARY
USE PURSUANT TO COMPANY INSTRUCTIONS
SPECIFICATION WT 35956
ESTIMATE 73

OWNERSHIP: -
CABLE GEO: -
CABLE CLLI: WNAEHU0004

SCALE: NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA
CONSTRUCTION NOTES

WT 956P0014

APPROVED:

Michael A. ...
CHIEF, PLANNING & ENGINEERING, BWS 9/2/99 DATE

ABBREVIATIONS

ABAND	ABANDONED	E.V.C.	END VERTICAL CURVE	PL	PLACE	UG	UNDERGROUND
A.C.	ASPHALT CONCRETE	EX.	EXISTING	PLCS.	PLACES	U.O.N.	UNLESS OTHERWISE NOTED
APPROX.	APPROXIMATE	FARR.	FARRINGTON	PMP	PERFORATED METAL PIPE	U.S.	UNITED STATES
AT&T	AMERICAN TELEPHONE AND TELEGRAPH	FH	FIRE HYDRANT	P.O.P.	POINT OF PRESENCE	V.C.	VERTICAL CURVE
AVE.	AVENUE	FL	FLOW LINE	PP	POWER POLE	VLT	VAULT
BCR	BEGIN CURB RETURN	FD.	FOUND	P.R.C.	POINT OF REVERSE CURVATURE	W	WEST
BLDG.	BUILDING	FTA	FIBER TRANSMISSION "A" CABLE	P.T.	POINT OF TANGENCY	W/	WITH
B.V.C.	BEGIN VERTICAL CURVE	GALV	GALVANIZED	PT	PACIFIC TELEGRAPH	W. BARS	WATER BARS
℄	CENTERLINE	GRD	GROUND	P.V.C.	POLYVINYL CHLORIDE	WC	WALL TO CENTER
C&G	CURB AND GUTTER	HDPE	HIGH DENSITY POLYETHYLENE	P.V.I.	POINT OF VERTICAL INTERSECTION	W.L.	WATER LINE
C.B.	CATCH BASIN	HWY	HIGHWAY	P.W.	PUBLIC WORKS	WM	WATER METER
C.F.	CURB FACE	I.D.	INSIDE DIAMETER	R	RANGE OR RADIUS	W/O	WITHOUT
C.L.	CHAIN LINK	INC.	INCORPORATED	RCB	REINFORCED CONCRETE BOX	WW	WALL TO WALL
CMP	CORRUGATED METAL PIPE	I.P.	IRON PIN OR PIPE	RCP	REINFORCED CONCRETE PIPE	X-GTR	CROSS GUTTER
CNDTS.	CONDUITS	INT.	INTERMEDIATE	RD.	ROAD		
CONC	CONCRETE	INV.	INVERT	REQD.	REQUIRED		
COR.	CORNER	LN	LANE	RES:	RESOURCE		
CSG.	CASING	L	LENGTH	RGS	RIGID GALVANIZED STEEL		
CU. YD.	CUBIC YARD	LP	LIGHT POLE	RTE	ROUTE		
CUL.	CULVERT	MAX.	MAXIMUM	RR	RAILROAD		
C.W.C.	CONDUITS WITH CASING	m	METER	R/W	RIGHT OF WAY		
DBL	DOUBLE	mm	MILLIMETER	S	SOUTH		
DEPT.	DEPARTMENT	MH	MANHOLE	SD	STORM DRAIN		
DET.	DETAIL	MIN.	MINIMUM	SDR	STANDARD DIMENSION RATIO		
D.I.	DROP INLET	MIT:	MITIGATION	SEC.	SECTION		
DIA.	DIAMETER	MKR	MARKER	SMH	SEWER MANHOLE		
D.I.P.	DUCTILE IRON PIPE	M.L.	MATCH LINE	S.L.	SEWER LINE		
DIR.	DIRECTIONAL	MON.	MONUMENT	SLPB	STREET LIGHT PULL BOX		
DIST.	DISTRICT	N	NORTH OR NORTHING	SP	SPLICE		
DOC	DEPTH OF COVER	N.D.	NOMINAL DIAMETER	STA.	STATION		
DR.	DRIVE	NO.	NUMBER	ST LT	STREET LIGHT		
DWG.	DRAWING	O.D.	OUTSIDE DIAMETER	ST.	STREET		
DWY.	DRIVEWAY	O/S	OFFSET	STD.	STANDARD		
E	EAST OR EASTING	PB	PACIFIC BELL	S/W	SIDEWALK		
EG	EXISTING GROUND	P.C.	POINT OF CURVATURE	T VLT	TELEPHONE VAULT		
EL.	ELEVATION	PCC	PORTLAND CEMENT CONCRETE	TP	TOP OF PAVEMENT		
ENC.	ENCASED	PED	PEDESTAL	TSP	TRAFFIC SIGNAL POLE		
ENG.	ENGINEERING	P.I.	POINT OF INTERSECTION	TV PB	TELEVISION PULL BOX		
E.P.	EDGE OF PAVEMENT	PKWY	PARKWAY	TW	TOP OF WALL		
ETW	EDGE OF TRAVELED WAY	ℙ	PROPERTY LINE	TYP.	TYPICAL		

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR _____
OUTSIDE PLANT ENGINEER DATE _____

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED ENGINEER UNDER THE LAWS OF THE STATE OF HAWAII.

SIGNED _____
DATE 9/2/99 REG. NO. 5448-C

ParEn, Inc.
dba **Park Engineering**
SUITE 300, KANAMAKO PLAZA
607 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-1878

PROPRIETARY

USE PURSUANT TO COMPANY INSTRUCTIONS

SPECIFICATION WT 35956

ESTIMATE 73

OWNERSHIP: -
CABLE GEO: H10206
CABLE CLI: WNAEHU0004

SCALE: NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA
ABBREVIATIONS

WT 956P0020

SYMBOLS

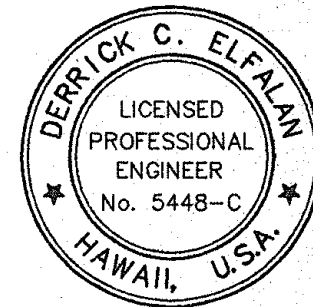
	AT&T MARKER POLE
	AT&T SPLICE MANHOLE
	AT&T INTERMEDIATE MANHOLE
	AT&T SPLICE VAULT
	AT&T INTERMEDIATE VAULT
	AT&T REGENERATOR
	BUILDING
	CASING
	CATCH BASIN
	CURVE DELTA
	DIAMETER
	ELECTRIC LIGHT POLE
	FIRE HYDRANT
	FOUND MONUMENT
	GAS METER
	GAS VALVE
	HIGHWAY MILE MARKER
	INTERSTATE
	MANHOLE - GENERAL
	PARKING METER
	SECTION CORNER
	SIGN - SINGLE POST
	SIGN - DOUBLE POST
	STATE HIGHWAY
	STATE PLANE COORD. GRID TICK
	SURVEY CONTROL POINT
	TRAFFIC SIGNAL POLE
	TREE
	U.S. HIGHWAY
	UTILITY POLE
	WATER METER
	WATER VALVE

LINE SYMBOLOGY

	ABOVE GROUND PIPING
	BRUSH\TREE OUTLINE
	CULVERT\DRAIN PIPE
	CENTERLINE ROAD
	DRAINAGE FLOWLINE
	EDGE OF GRAVEL
	EDGE OF PAVEMENT
	FACE OF CURB
	FENCE LINE
	FIBER OPTIC TELEPHONE
	GUARDRAIL
	PAVEMENT MARKINGS
	PROPERTY LINE
	RAILROAD
	RIGHT-OF-WAY
	SECTION LINE
	STEEL CASING
	TOP OR TOE
	UTILITY - ABAND. OIL LINE
	UTILITY - CABLE TELEVISION
	UTILITY - ELECTRIC
	UTILITY - GAS
	UTILITY - SANITARY SEWER
	UTILITY - STORM DRAIN
	UTILITY - SPRINT FIBER OPTIC
	UTILITY - TELEPHONE
	UTILITY - TRAFFIC SIGNAL
	UTILITY - WATER
	WALL - RETAINING

REVISIONS:

NOTES:



PREPARED FOR RECORD

APPROVED FOR _____
OUTSIDE PLANT ENGINEER DATE _____
I HEREBY CERTIFY THAT THIS DOCUMENT WAS
PREPARED BY ME OR UNDER MY DIRECT SUPER-
VISION AND THAT I AM A DULY REGISTERED
ENGINEER UNDER THE LAWS OF THE STATE OF
HAWAII.
SIGNED _____
DATE 9/27/99 REG. NO. 5448-C

ParEn, Inc.
dba **Park Engineering**
SUITE 300 KAHAWAUA PLAZA
857 SOUTH KING STREET
HONOLULU, HAWAII 96813
TELEPHONE: (808) 531-1878

PROPRIETARY
USE PURSUANT TO COMPANY INSTRUCTIONS
SPECIFICATION WT 35956
ESTIMATE 73

OWNERSHIP: -
CABLE GEO:
CABLE CLI: WNAEHU0004

SCALE: NONE

MAKAHA CABLE STATION
TO KEAWAULA CABLE STATION
LIGHTGUIDE SYSTEM

MAKAHA TO KEAWAULA FTA

SYMBOLS AND
LINE SYMBOLOGY

WT 956P0021