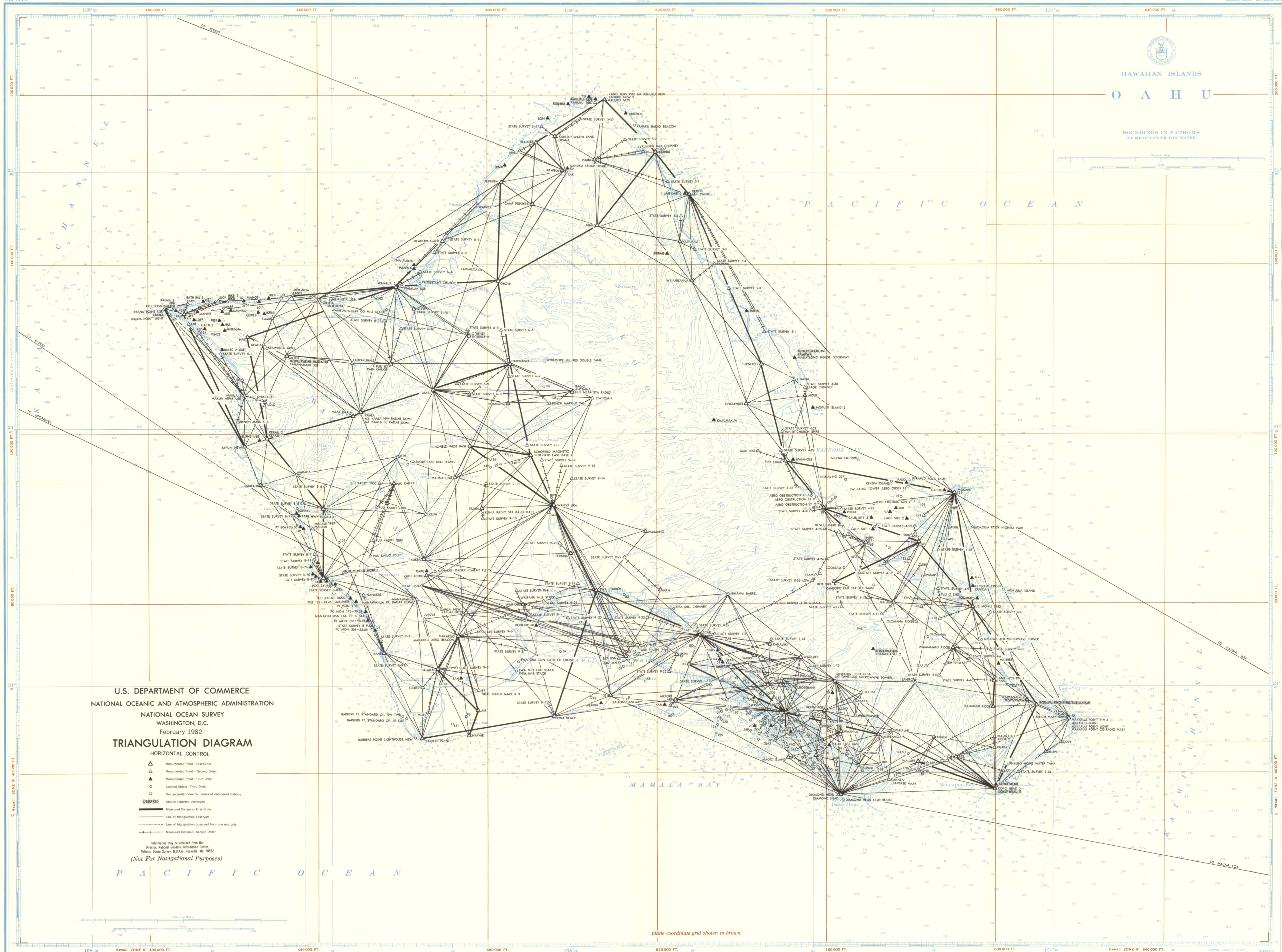




HAWAIIAN ISLANDS

O A H U

SOUNDINGS IN FATHOMS  
AT MEAN LOWER LOW WATER



U.S. DEPARTMENT OF COMMERCE  
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION  
NATIONAL OCEAN SURVEY  
WASHINGTON, D.C.  
February 1982

TRIANGULATION DIAGRAM

HORIZONTAL CONTROL

- ▲ Monumented Point - First Order
- △ Monumented Point - Second Order
- ▴ Monumented Point - Third Order
- Located Object - Third Order
- 32 See separate index for names of numbered stations

- ☒ Station reported destroyed
- Measured Distance - First Order
- Line of triangulation observed
- - - Line of triangulation observed from one end only
- Measured Distance - Second Order

Information may be obtained from the  
Director, National Geodetic Information Center,  
National Ocean Survey, N.O.S.A., Rockville, Md. 20852

(Not For Navigational Purposes)

P A C I F I C O C E A N

plane coordinate grid shown in brown

KEY TO NUMBERED STATIONS

FOR  
TRIANGULATION DIAGRAM CHART 4110  
BY THE  
NATIONAL GEODETIC SURVEY

- 1 HONOLULU CASTLE AND COOKE BLDG LIGHT
- 1 HONOLULU HAWAIIAN ELECTRIC CO NW STACK 1955
- 1 HONOLULU HAWAIIAN ELECTRIC CO NE STACK 1955
- 1 HONOLULU HAWAIIAN ELECTRIC CO SW STACK 1955
- 1 HONOLULU HAWAIIAN ELECTRIC CO SE STACK 1955
- 1 HONOLULU HAWAIIAN ELECTRIC CO N THIN STACK HIGHEST GROUP OF FIVE
- 2 AERO OBSTRUCTION LT D
- 3 FT ARMSTRONG FLAGSTAFF
- 4 FIRST NATIONAL BANK BLDG
- 4 HONOLULU HARBOR FRONT RANGE LIGHT 1964
- 5 AERO OBSTRUCTION LT K
- 6 AERO OBSTRUCTION LT E
- 7 SAND ISLAND LIGHT 1964
- 7 SAND ISLAND S BASE
- 8 FORT KAMEHAMEHA FLAGSTAFF
- 9 AERO OBSTRUCTION LT M
- 10 HONOLULU ALOHA TOWER
- 10 REAR RANGE LIGHTHOUSE
- 11 HONOLULU JUDICIARY BLDG FLAGSTAFF
- 11 HONOLULU 1887
- 11 HONOLULU FIRST HAWAIIAN BANK LIGHT
- 11 HONOLULU IOLANI PALACE FLAGPOLE
- 11 POST OFFICE NW TOWER SMALL INSTRUMENT CUPOLA
- 12 TRANSIT OF VENUS
- 13 HONOLULU NEW CITY HALL CUPOLA
- 14 RADIO STATION KUG E TOWER
- 14 RADIO STATION KUG W TOWER
- 15 PAHEEHEE NEW
- 15 PAHEEHEE USE
- 15 PAHEEHEE
- 15 DRILL HOLE CROSS ON ROCK
- 16 STATE SURVEY 2 1
- 17 AERO OBSTRUCTION LT L
- 18 AERO OBSTRUCTION LT F
- 19 AERO OBSTRUCTION LT J
- 20 USE N BASE
- 21 AERO OBSTRUCTION LT G
- 22 US QUARANTINE STATION FLAGSTAFF
- 23
- 24 HONOLULU HAWAIIAN PINEAPPLE CO TANK
- 24 RED GAS TANK CENTER
- 25 HONOLULU AMERICAN CANNERY WATER TOWER
- 26 HONOLULU ST ANDREWS CATHEDRAL HIGHEST TOWER
- 27 OAHU PEN 1925
- 27 OAHU JAIL FLAG 1928
- 28 PUNCHBOWL PUOWAINA
- 29 PUNCHBOWL EAST
- 29 HONOLULU NATIONAL CEMETERY FLAGPOLE
- 30 MC WAYNES LIGHT 1952
- 31 HONOLULU ROOSEVELT HIGH SCHOOL SPIRE
- 32 OAHU W BASE
- 33 HONOLULU CENTRAL UNION CHURCH SPIRE
- 34 UNIVERSITY OF HAWAII LIBRARY
- 35 RADIO STATION KGMB TOWER
- 35 HONOLULU TV STATION KGMB TOWER
- 36 HONOLULU NEW INCINERATOR STACK
- 36 HONOLULU KEWALO BASIN RADIO STATIONS KGU AND KULA TOWER
- 37 HONOLULU ILIKAI HOTEL CUPOLA
- 38 FORT DE RUSSEY FLAGPOLE
- 39 WAIKIKI LATITUDE ECCENTRIC
- 39 HONOLULU IMPERIAL HAWAIIAN HOTEL ANTENNA
- 40 HONOLULU ROYAL HAWAIIAN HOTEL CENTER TOWER
- 41 MOANA HOTEL FLAGSTAFF 1925
- 42 DILLINGHAM CENTER OF HOUSE
- 43 KAIMUKI FIRE STATION
- 44 STATE SURVEY 3 3
- 44 HONOLULU SACRED HEART ACADEMY CROSS
- 45 WILHELMINA RISE CENTER OF RESERVOIR SHED
- 46 FORT SHAFTER FLAGSTAFF
- 47 EWA AIR FORCE CALIB TOWER
- 48 ULT
- 49 STATE SURVEY 4 26
- 49 OBSERVATION TOWER
- 50
- 51 OAHU OVERPASS
- 52 AERO OBSTRUCTION LT C
- 53 AERO OBSTRUCTION LT C
- 54 STATE SURVEY 5 8
- 55
- 56 AERO OBSTRUCTION LT AA
- 57 AERO OBSTRUCTION LT A
- 58
- 59
- 60 TURTLE HEAD
- 61 WEST RADIO TOWER
- 61 CAMP ERDMAN FLAGPOLE
- 62 YMCA
- 63 KEAL!A USE
- 63 STATE SURVEY 6 12
- 64 PEARL HARBOR WATER TANK A
- 64 PEARL HARBOR WATER TANK B
- 64 PEARL HARBOR TANK C
- 65
- 66 AERO OBSTRUCTION LT N
- 67
- 68
- 69 PEARL HARBOR W LOCH SOUTHSIDE WATER TANK
- 70 HONOLULU RADIO STATION KAIM TOWER
- 71 HONOLULU HILTON RAINBOW TOWER HOTEL
- 71 HONOLULU KAISER HOTEL TV STATION KHVH TOWER
- 71 HONOLULU RADIO STATION KHVH TOWER
- 72 HONOLULU TV STATION KONA TOWER
- 73 HONOLULU TV STATION KULA TOWER
- 74 HONOLULU RADIO STATION KIKI TOWER
- 75 PEARL HARBOR ENTRANCE DATUM POINT
- 76 HONOLULU MORMON CHURCH SPIRE
- 77 STATE SURVEY 1 3
- 77 HONOLULU BOARD WATER SUPPLY STACK KING AND HOUGHTAUNG STS
- 78 HONOLULU TRIPLER HOSPITAL TWIN LIGHTS 1957
- 79 HONOLULU MOANALUA WATER TANK
- 80
- 81
- 82 PEARL HARBOR MAKAIAPA W RADIO TOWER
- 83 PEARL HARBOR WAIKAI HAWAIIAN ELECTRIC CO SE STACK
- 84
- 85
- 86 STATION G HONOLULU AHUA PT ATG TOWER
- 87 PEARL HARBOR ESCAPE TRAINING TOWER
- 88 WAIPIO UKA WATER TANK
- 89 WAIPAHU RADIO STATION KAHU TOWER
- 90 PEARL HARBOR FORD ISLAND CONTROL TOWER
- 91
- 92 HICKAM AFB CONTROL TOWER
- 93 RNG HONOLULU HNL
- 94 BARBERS PT NAS S RADIO TOWER OF THREE
- 95 KALIHI FIRE STATION
- 96 BARBERS PT NAS BASE CONTROL TOWER BEACON 1957
- 97
- 98 KANEIHE BAY MCAS E RADIO TOWER OF THREE
- 99
- 100 KANEIHE BAY MCAS RADIO BEAM
- 100 HAWAIILOA HILL
- 100 HAWAIILOA HILL 2
- 101 KANEIHE BAY MCAS HAWAIILOA HILL BEACON 1952
- 102 HICKAM AFB WATER TOWER
- 103 PUULO A LATITUDE STATION
- 104 KALAEPOHAKU
- 104 HONOLULU MALUHIA HOSPITAL FLAGPOLE
- 105 BM B5
- 105 KEHALO
- 105 KEHALO BASIN FRONT RANGE LIGHT 1964
- 105 KEHALO BASIN REAR RANGE LIGHT 1964
- 106 WAIKIKI
- 106 WAIKIKI 2
- 106 WAIKIKI 3
- 107 STATE SURVEY 2 2
- 108
- 109

KEY TO NUMBERED STATIONS

FOR  
TRIANGULATION DIAGRAM CHART 4110  
BY THE  
NATIONAL GEODETIC SURVEY

110 KAMEHAMEHA SCHOOL CUPOLA  
111 LILLIHAIU  
112 MARKOWITZ MOON TELESCOPE CENTER OF BASE  
112 DANJON PANJON ASTROLABE CENTER OF ROTATION  
112 HAWAII ASTRO IGY  
113 ROOF USN  
114 171 USN  
115 214 USN  
116  
117 KALIHI CHANNEL GREEN LIGHT 13 1964  
117 KALIHI CHANNEL FRONT RANGE LIGHT 1964  
118 KALIHI CHANNEL REAR RANGE LIGHT 1964  
119 KALIHI CHANNEL GREEN LIGHT 19 1964  
120 KALIHI CHANNEL RED LIGHT 12 1964  
121 KALIHI CHANNEL GREEN LIGHT 17 1964  
122 KALIHI CHANNEL RED LIGHT 20 1964  
123 KALIHI CHANNEL RED LIGHT 16 1964  
124 KALIHI CHANNEL GREEN LIGHT 9 1964  
124 KALIHI CHANNEL RED LIGHT 8 1964  
125 KALIHI CHANNEL RED LIGHT 6 1964  
125 KALIHI CHANNEL GREEN LIGHT 5 1964  
126 MOKAPU  
126 SEISMOGRAPH  
126 MOK TRAVERSE POINT A  
127 ROCKY  
127 PUEO  
128 STATE SURVEY 8 1  
129 MAILI US NAVAL RADIO STATION W TOWER OF SEVEN  
130 DILLINGHAM  
130 CROSS ON ROCK WALL  
131 BARBERS PT NAS BEACON 1969  
132 STATE SURVEY 2 10  
133 STATE SURVEY 6 13  
134 STATE SURVEY 8 2  
135 STATE SURVEY 8 10  
136 STATE SURVEY 9 12  
137 WAHIAWA USN COMM STA RADAR  
138 WAHIAWA USN COMM STA TOWER  
139 KUNIA FACILITY RADAR TOWER  
140 WHEELER AFB AFCS REC FAC TOWER  
141 WHEELER AFB CONTROL TOWER BEACON  
142 KOLEKOLE PASS USN TOWER  
143 STATE SURVEY 9 17  
144 STATE SURVEY 9 1  
145 KAILUA KANEHOE RESERVOIR  
146 WATAIAE KAHALA HILTON HOTEL STACK  
147 STATE SURVEY 3 4  
147 HONOLULU FOSTER TOWER HOTEL LIGHT  
148 HONOLULU ALA MOANA BLDG OBSTRUCTION LIGHT 1963  
149 SAND ISLAND ARTILLERY FIRE CONTROL TOWER  
150 HONOLULU INTERNATIONAL AIRPORT CONTROL TOWER BEACON NEW 1964  
151 KALIHI  
151 KALIHI 2  
151 HYDRANT 4859  
151 NAVY BDY MARKER  
151 STREET MARKER SPIKE  
151 PROPERTY CORNER MK PIPE  
152 LUCAS  
152 KUPAUA  
152 KULIOUO  
152 NIU LONGITUDE  
152 NIU WATER TANK  
153 ARP  
153 BM F 10  
154 STATE SURVEY 1 1  
155 STATE SURVEY 2 3  
156 STATE SURVEY 1 8  
157 STATE SURVEY 2 4  
158 STATE SURVEY 1 9  
159 STATE SURVEY 1 6  
160 STATE SURVEY 1 11  
160 HONOLULU ZEN BUDDHIST MISSION CENTER TOWER  
161 STATE SURVEY 1 7  
162 STATE SURVEY 1 7  
163 STATE SURVEY 2 6  
164 STATE SURVEY 2 9  
165 STATE SURVEY 2 8  
166 STATE SURVEY 2 12  
167 STATE SURVEY 3 5  
168 STATE SURVEY 2 5  
169 STATE SURVEY 3 7  
170 STATE SURVEY 3 6  
171 STATE SURVEY 3 12  
172 STATE SURVEY 3 8  
173 STATE SURVEY 3 10  
174 STATE SURVEY 4 1  
175 STATE SURVEY 4 2  
176 STATE SURVEY 4 10  
177 STATE SURVEY 4 7  
178 STATE SURVEY 4-3  
179 STATE SURVEY 4 14  
180 STATE SURVEY 4 16  
181 STATE SURVEY 4 23  
182 STATE SURVEY 4 17  
183 STATE SURVEY 4 18  
183 KANEHOE NEW  
183 KANEHOE  
184 STATE SURVEY 4 20  
185 ALIAMANU HONOLULU BOARD OF WATER SUPPLY TANK  
186 PAPAA 2  
186 PAPAA  
186 KANEHOE HAWAIIAN TEL CO MICROWAVE TOWER  
187 BELLOWS AFB MICROWAVE TOWER  
188 KAIMUKI LIBERTY HOUSE FLAGPOLE  
189 BM K 2  
189 KAIMUKI KAHALA TOWER APT ANTENNA  
190 HONOLULU CIRCLE JADE APT BLDG ANTENNA  
191 HONOLULU ST LOUIS HIGH SCHOOL FLAGPOLE  
192 HONOLULU UNIVERSITY OF HAWAII ELEC ENGR LAB TOWER  
193 HONOLULU UNIVERSITY OF HAWAII FLAGPOLE  
194 HONOLULU MOILILI BUDDHIST CH SPIRE  
195 HONOLULU WAIKIKI BUSINESS PLAZA FLAGPOLE  
196 DERUSSY  
196 STATE SURVEY 2 11  
196 HONOLULU WAIKIKI SHORE APT SE FLAGPOLE  
197 HONOLULU TV STA KHVH  
198 HONOLULU CITY HALL PAWAA ANNEX TOWER  
199 HONOLULU C AND C BOARD OF WATER SUPPLY STACK  
200 HONOLULU ACADEMY TOWER ELEVATOR SHAFT  
201 HONOLULU HAWAIIAN GRAIN CORP ELEVATOR  
202 HONOLULU 999 WILDER BLDG ELEVATOR SHAFT  
203 HONOLULU MC KINLEY HIGH SCHOOL ADM BLDG CUPOLA  
204 HONOLULU KAPALAM INCIN PLANT STACK  
205 HONOLULU RADIO STA KCCN MAST  
206 HONOLULU ST THERESAS CH CROSS  
206 KAHUKU WATER TANK  
206 KAHUKU RADAR DOME