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**APPENDIX D**

**SBCT PROJECT DETAILS**



USARHAW

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Figure D-1

Urban Assault Course and Training Facility

**Graphics Code:** S1

**Project #:** 58143

**Project Title:** Urban Assault Course and Training Facilities

**Project Location:** SBMR

**Project Size:** 1,742 square feet of structures and 14 acres of training area

**Construction Timeframe:** December 2005 to December 2006

**Background:** The Military Operations on Urbanized Terrain Assault Course at SBMR is not designed to support the Army's urban operations training strategy. Training facilities in Hawai'i are inadequate to satisfy the training requirements for the Mobile Gun System, Light Armored Vehicle, and Reconnaissance Armored Vehicle. Hawai'i-based units are unable to train to standards because they do not have an urban assault course, breach facility, and live-fire shoothouse.

**Project Description:** Construct a state-of-the-art Urban Assault Course, including a breach facility, an urban assault training facility, and a live-fire shoothouse. The breach facility would be used to train soldiers in the proper techniques to enter buildings through doors, windows, and walls. The urban assault training facility would train soldiers in other techniques associated with urban combat, including underground training. The live-fire shoothouse would be used to train individuals, squads, and platoons on the proper techniques to enter and clear a building. The shoothouse is the culmination of the training at the breach facility and the urban assault training facility and is required to support the combined arms urban operations training strategy for conducting full spectrum operations (offense, defense, stability, and support). Range operations facilities will include a small After Action Review (AAR) building, a latrine, and an operations/storage building. Simulated overhead power lines would be run from building to building throughout the "city" training objective but would not be connected or energized. Range operational supporting facilities include a new access road and temporary parking area for privately owned and tactical vehicles, primary and secondary power, and data distribution systems. Storm drainage, site improvements, and berms will be provided as necessary. This facility would replace the military assault course on the Kolekole Ranges at SBMR and would be sited 100 yards north of Trimble Road, approximately one-and-a-quarter miles west of the intersection of Beaver and Trimble roads. The project would be oriented to the north using the current range impact area.

**Estimated Utility Requirements:** This project would require connection to the primary power distribution system. Electrical lines (12.47-kilovolt, three-phase) are available 1,640 feet away. A 120/240-volt secondary power line would be run underground from the small AAR Building power panel to the outlying structures (the shoothouse and other appropriate facilities). Air conditioning requirements are estimated at 20 tons. Heating is not required. All sewage on the site would be collected in the aerated vault latrine and removed by pumper truck, so no sewage lines or septic field would be required. Water would be trucked to the site, so no waterline, distribution systems, or well would be required. Telephone and LAN service can be had approximately 10,000 feet from the project site at the Information Systems Facility (ISF). Approximately 1500 feet of aerial cable will be run from the AAR building to the Information Installation Infrastructure (I3A) to provide connectivity for this project. The cable would be attached to a new power pole line. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AAR building. The availability of these utilities is expected to continue.

**Figure D-2**  
Virtual Fighting Training Facility

**Graphics Code:** S2

**Project #:** 57404

**Project Title:** Virtual Fighting Training Facility

**Project Location:** SBMR

**Project Size:** 11,496 square feet

**Construction Timeframe:** After March 2009

**Background:** The Army has identified a new requirement for a consolidated and virtual training facility. Facilities considered for renovation are too small, lack infrastructure, and have inadequate fire protecting provisions to house the type of sophisticated simulator equipment necessary to train 2<sup>nd</sup> Brigade units to cover their strategic, operational, and tactical missions.

**Project Description:** Construct an 11,496-square-foot, single-story, state-of-the-art virtual fighting training facility to house war-fighting simulation operations to support small arms marksmanship and dismounted weapons system training. The facility would include 50 engagement skills trainer lanes (video game-like weapons simulators), an AAR room, a conference area, a break area, administrative office space, storage, restrooms, a telecommunications room, a mechanical room, a classroom, and an electrical room. Support facilities would include water, sanitary sewer, storm drainage, electric service, fire protection and alarm systems, telephone, paving, walks, curbs, gutters, parking, information systems, state-of-the-art intra-communications and intercommunications systems, and site improvements. The building would be constructed on the south side of Trimble Road, approximately half a mile west of the intersection of Beaver Road and Trimble Road.

**Estimated Utility Requirements:** Electrical power is estimated to be 148 KVA. Energy consumption is estimated at 370,000-kilowatt hours per year. Air conditioning requirements are estimated at 40 tons. Heating is not required. Water supply is estimated at 4,000 gallons per year. The sanitary sewer will connect to the existing installation sewer system by gravity flow. Telephone and LAN service can be had approximately 3,000 feet from the project site at the ISF. Approximately 100 feet of underground duct would be installed from the Virtual Fighting Training Facility building to the I3A to provide connectivity for this project.

Figure D-3  
Range Control Facility

**Graphics Code:** S3

**Project #:** 56923

**Project Title:** Range Control Facility

**Project Location:** SBMR

**Project Size:** 22,133 square feet

**Construction Timeframe:** After March 2009

**Background:** Range Division Hawai'i commands and controls operations at all Army training areas on O'ahu. Operations are dispersed among eight buildings at SBMR and Wheeler Army Airfield (WAAF). The Range Control Facility (Building 1150), the only permanent-construction facility of the eight buildings, was converted from a simulator building on this site. Customers must stand outdoors while talking with staff. The other seven buildings used for range operations and maintenance are semi-permanent or temporary construction and have long since exceeded their useful lifespan. The welding shop lacks a sprinkler system and adequate ventilation, which means all welding must be done outdoors. Locating the carpentry shop, electronics shop, supply/storage, and administrative space together means all personnel must wear earplugs because noise levels exceed 85 decibels. The Range Safety Office is at WAAF, a site that has no ranges. This dispersion of personnel and function impairs efficiency and causes extensive travel time and miscommunication.

**Project Description:** Construct a Consolidated Range Control Complex to support consolidated command and control and other operations, especially range maintenance operations, for range activities at all Army training areas on O'ahu. The project would add 22,133 square feet of new facilities and would involve demolishing eight facilities with a total area of 35,867 square feet. The demolished facilities would include buildings 1124, 1125, 1150, 1181, 2108, 2056, 2276, and 1192. Supporting facilities would include water, sewer, and electrical service, paving, walks, parking, security fencing, information systems, and site improvements. The facility would be constructed on an open field on the west side of Beaver Road, approximately half a mile north of the intersection of Trimble and Beaver roads. The project will include administrative space for Range Division and Range Control, a carpentry shop, a welding shop, target and raw material storage, and parking for personally operated vehicles, tactical vehicles, and equipment.

**Estimated Utility Requirements:** Electrical lines are available approximately 160 feet west of the project site. Power requirements to operate building systems and equipment include single phase, 250-amp service in the administrative space; three-phase/four-wire, 250-amp service in the carpentry shop; and three-phase/four-wire, 400-amp service in the welding shop. A 150-KVA transformer is also required. Air conditioning, estimated at 25 tons, would be provided for administrative space only. Mechanical ventilation would be provided in the warehouse and shop areas. Heating is not required. Water would be provided through a connection to an existing six-inch line, approximately 180 feet east of the proposed site. Sanitary sewage discharge would be collected and treated through a connection to the on-site sanitary sewer system. These resources are expected to continue to be available. Telephone and LAN service can be had approximately 2,900 feet from the project site at the ISF. Approximately 500 feet of underground duct would be installed from the Range Control Building to the I3A to provide connectivity for this project.

Figure D-4  
Battle Area Complex

**Graphics Code:** S4

**Project #:** 58144

**Project Title:** Battle Area Complex (BAX)

**Project Location:** SBMR

**Project Size:** 8,063 square feet of support structures and 2,075 acres of training area

**Construction Timeframe:** September 2005 to December 2006

**Background:** Current range facilities on O‘ahu and the island of Hawai‘i were designed and constructed to support either the current configuration of light infantry or armored forces previously stationed in Hawai‘i. No facilities in Hawai‘i provide a realistic battle area for mounted infantry units in need of live-fire training.

**Project Description:** Construct a BAX designed for company-level weapon proficiency training. The range would also support dismounted infantry platoon tactical live-fire operations with or without supporting vehicles. Training objective features would include four course roads, 30 stationary armor targets, six moving armor targets, 174 stationary infantry targets, 14 moving infantry targets, 17 machine gun/observation bunkers, two grenade/breaching obstacles, three helicopter landing zones, 18 mortar simulation devices, 8 hull-down defilades, and vehicle firing positions. Range operations support facilities would include a dual sex dry-vault latrine, bleacher enclosure, covered mess area, range operations center, storage building, ammunition-loading dock, and AAR building. Supporting facilities would include site improvements, erosion control, a bivouac (temporary camp) area, electrical service, and security fencing and gates. The range would be sited on the west side of Beaver Road north of Trimble Road, on the range complex and range impact area of the SBMR range area.

**Estimated Utility Requirements:** This project would require connecting to the primary power distribution system. The nearest available power (12.47-kilovolt, three-phase) is 980 feet (300 meters) away. A new 12.47-kilovolt, three-phase primary line would be constructed to bring primary power to the range site. Once at the site, primary power would be run underground to feed a pad-mounted transformer near the control tower. All buildings would be supplied with underground 120/240-volt, single-phase, secondary power from the transformer. Air conditioning, estimated at 20 tons, would be provided. Heating is not required. All sewage on the site would be collected in the aerated vault latrine and removed by pumper truck, so no sewage lines or septic field would be required. Water would be trucked to the site, so no water line, distribution systems, or well would be required. Telephone and LAN service can be had approximately 4,000 feet from the project site at ISF. Approximately 1500 feet of aerial cable will be run from the AAR building to the I3A. Cable will be attached to a new power pole line. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AAR Building.

Figure D-5  
Motor Pool

**Graphics Code:** S5

**Project #:** 57421

**Project Title:** Motor Pool

**Project Location:** SBMR

**Project Size:** 167,775 square feet of building space and 1,293,725 square feet (34 acres) of hardened surface

**Construction Timeframe:** September 2005 to September 2007

**Background:** Vehicle maintenance facilities at SBMR are inadequate to meet the requirements of the 2<sup>nd</sup> Brigade. The facilities do not meet Army standards due to deteriorated condition, substandard size, and failure to meet standard design. The additional demands from Army transformation will worsen these inadequacies.

**Project Description:** Construct a 167,775-square-foot motor pool facility, including new tactical equipment maintenance shops with repair bays; separate administrative area; shop control; overhead cranes; petroleum, oil and lubricants facilities; oil-water separators; hardstand and organizational vehicle parking areas; arms rooms; communication rooms; deployment storage facilities; hazardous material storage facility; and telecom shelter. Supporting facilities would include a new water tank on Trimble Road, sanitary sewer, storm drainage, electric service, phone system, exterior lighting, fire protection and alarm systems, paving, walks, curbs and gutters, parking, roadways, information systems, and site improvements. This motor pool would be sited on agriculture fields within the proposed SRAA. The USARHAW is conducting informal discussions with the owner to identify a location that is satisfactory to both parties and that reduces potential impacts. Two deployment storage buildings would be placed approximately 8,000 feet down Lyman Road.

**Estimated Utility Requirements:** The present power grid distribution system would be used and could provide the required additional power. It is expected to continue to be available. Estimated energy usage is 12,480,000 kilowatt hours per year. Air conditioning, estimated at 170 tons, would be provided by a chilled water system. Heating is not required. The existing water distribution system is adequate for domestic water flow and fire demand requirements, estimated at 17,600,000 gallons per year. The gravity sewer collection system is adequate. Telephone and LAN service can be had approximately 4,400 feet from the project site at the ISF. Approximately 1,000 feet of underground duct would be installed from the TEM 7 maintenance building to the I3A to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the TEM 7 maintenance building.

**Figure D-6**  
Tactical Vehicle Wash at East Range

**Graphics Code:** S6

**Project #:** 57416

**Project Title:** Tactical Vehicle Wash Facility

**Project Location:** SBER

**Project Size:** unavailable

**Construction Timeframe:** September 2005 to September 2006

**Background:** No wash facility on SBMR can support the Stryker Interim Armored Vehicle.

**Project Description:** Construct a tactical vehicle wash facility with six wash stations. The bays will be sized to support 18.3-meter (60 feet) long by 3.7-meter (12 feet) wide vehicles. The primary facility will consist of the preparation area and wash stations. The wash stations will use a high-pressure wash system and will recycle water to minimize wastewater disposal. The water will flow through a water sediment basin, an equalization basin, and oil-water separators and then be deposited into a water supply reservoir. Treatment will include oil and grease removal, grit removal, and organic control. A structure will be provided to house the mechanical secondary treatment units and the control panels necessary for the facility. The structure will be approximately 12 meters (40 feet) by 9 meters (30 feet), will require louvers, and will have a large door for equipment installation and maintenance. Supporting facilities include utilities, paving, fencing, curbing, and site improvements. The islands at the wash facility will be double-tower to ensure the ability to cover an 18.3-meter (60 feet) vehicle. Concrete curb will be provided at the wash facility to control the flow of wastewater. Trench drains will lie perpendicular, at the center of the wash station, and will cover the entire width of the facility.

**Estimated Utility Requirements:** This project would require connecting to the primary power distribution system, which is believed adequate to meet the project requirements. Energy consumption is estimated at 80,119 kilowatt hours per year. Heating is not required. Water supply is estimated at 600,000 gallons per year, with wash water to be recycled as described above.

[Figure D-7](#)  
Fixed Tactical Internet on O‘ahu

**Graphics Code:** S7

**Project #:** None

**Project Title:** Fixed Tactical Internet (FTI)

**Project Location:** Fourteen antenna locations throughout Army training ranges on O'ahu

**Project Size:** 500 square feet per antenna location

**Construction Timeframe:** FY05 through FY06

**Background:** An FTI will provide necessary tactical communications infrastructure, enabling units to train at any hour of the day or night without deploying to the field. When linked to the I3A, FTI could also provide connectivity for the command and control integration of live-fire and simulation training.

**Project Description:** Install a group of antennas strategically placed throughout the installation and training areas that will allow radios within military vehicles to receive and process both voice and data signals. Four antennas will be installed at each proposed site located on O'ahu. The antennas are vertical whips (see configurations on page D-58). Two will be approximately 4 feet long and 2 inches in diameter and two will be approximately 10 feet long and 2 inches in diameter. Antennas will be mounted on masts or existing support structures (new support structures would be required, except at the locations noted in Table D-1). Because none of the proposed antennas would exceed 102 feet in height, no red warning lights would be required. Each fenced site area will be 20 feet by 25 feet, including a 15-foot by 20-foot concrete pad for the support structure and shed. Sites will be accessed via existing roads in all cases. Personnel will visit the sites prior to and after Army training sessions. No security lighting will be installed at the sites. Equipment sheds will house four radios and four batteries. Antennas at Dillingham Ridge, Kawela (Kahuku) 1, Kawela (Kahuku) 2, Kolekole, Mt. Ka'ala East, and Mt. Ka'ala West would be sited adjacent to existing communications facilities.

**Estimated Utility Requirements:** The project will use the existing power grid distribution system, which is expected to continue to be available. Estimated energy usage is 5,915 kilowatt hours per year.

Table D-1

Location	Latitude	Longitude	UTM	Elevation (feet)	Total Height (feet) <sup>1</sup>	Equipment Shed <sup>2</sup>	Electric Power Source
Dillingham ARPT	213440N	1581228W	04 582019 02386304	17	42	New	Commercial
Dillingham P1	213438N	1581203W	04 582742 02386248	20	42	New	Solar <sup>4</sup>
Dillingham Ridge	213244N	1581141W	04 583373 02382745	2,025	30	New	Commercial
East Range 1	213024N	1575906W	04 605132 02378565	1,218	102	New	Commercial
East Range 2	212956N	1575940W	04 604159 02377698	1,096	102	New	Solar <sup>4</sup>
Kawela (Kahuku) 1	213958N	1580000W	04 603465 02396204	1,006	102 <sup>5</sup>	New <sup>3</sup>	Commercial
Kawela (Kahuku) 2	213952N	1580002W	04 603408 02396019	1,034	102 <sup>5</sup>	New	Commercial
Kolekole	212826N	1580647W	04 591188 02374856	1,715	102 <sup>5</sup>	New	Generator
Mt. Ka'ala East	213027N	1580831W	04 588887 02378548	4,022	25	Existing	Commercial
Mt. Ka'ala West	213031N	1580853W	04 588236 02378666	3,962	25	New	Commercial
MSTF/ISF - Schofield 1	212935N	1580448W	04 595300 02376997	986	102	Existing	Commercial
Schofield 2	213015N	1580406W	04 596501 02378234	807	102 <sup>5</sup>	New	Commercial
West Range MF201	213023N	1580506W	04 594773 02378470	946	60	New	Commercial
West Range MF501	213044N	1580508W	04 594712 02379116	833	60	New	Commercial

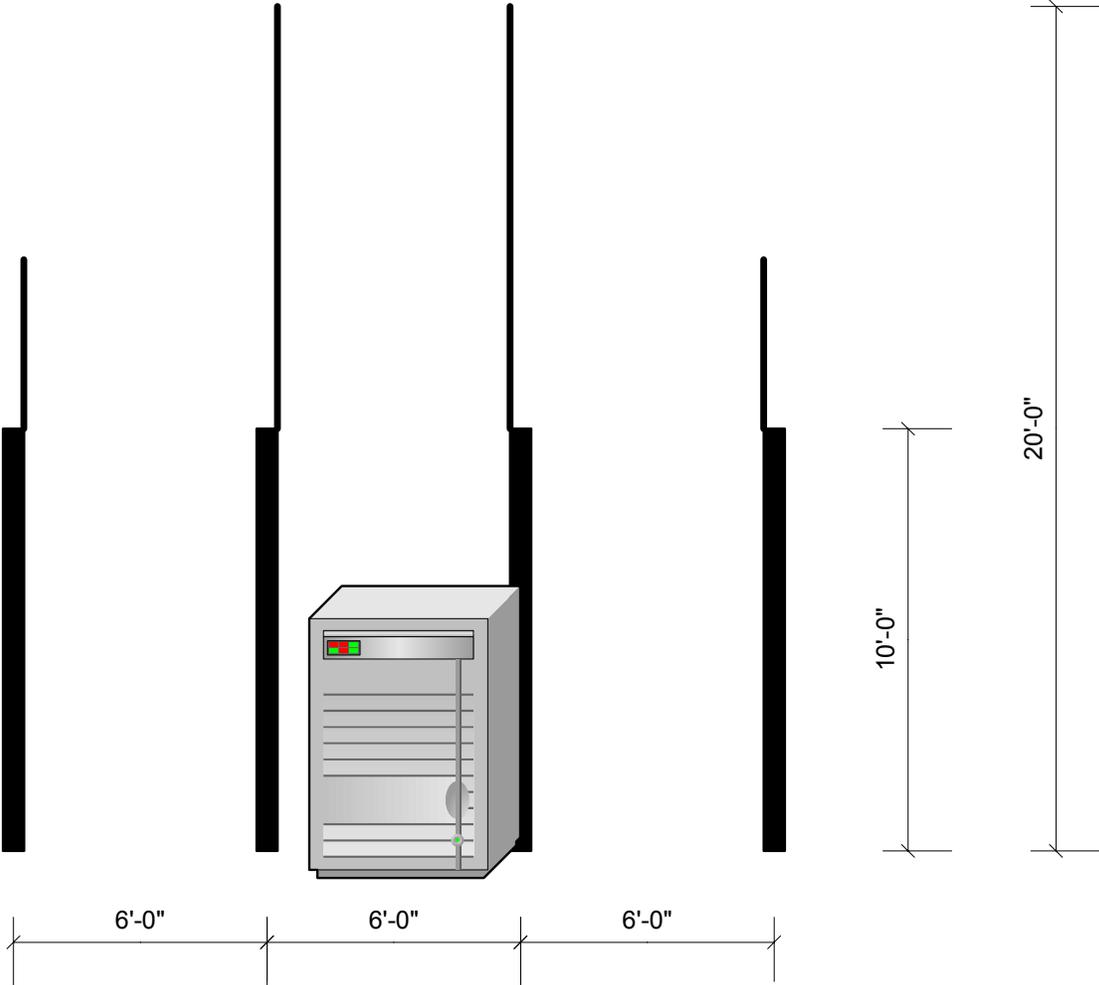
<sup>1</sup> Total Height includes antenna and antenna mast

<sup>2</sup> New equipment shed dimensions are 4 x 4 x 6 feet (W x D x H)

<sup>3</sup> Equipment shed for Kawela is 5 x 8 x 8 (W x D x H)

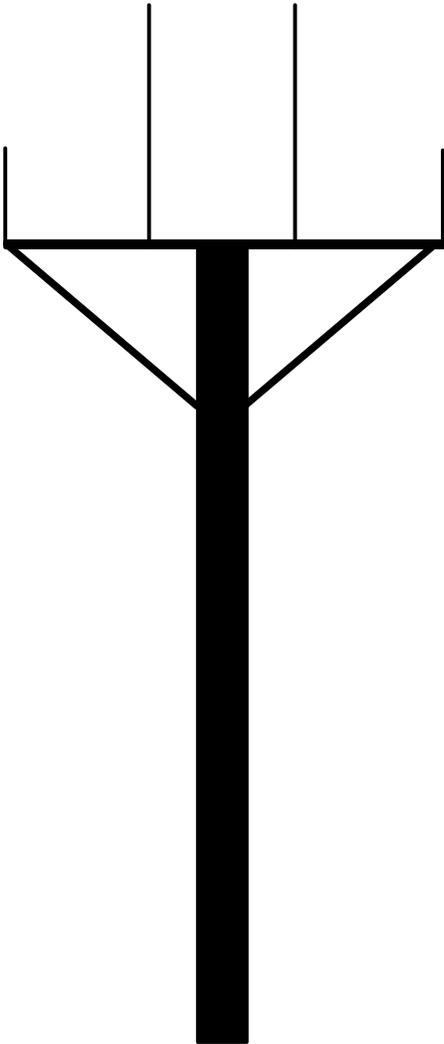
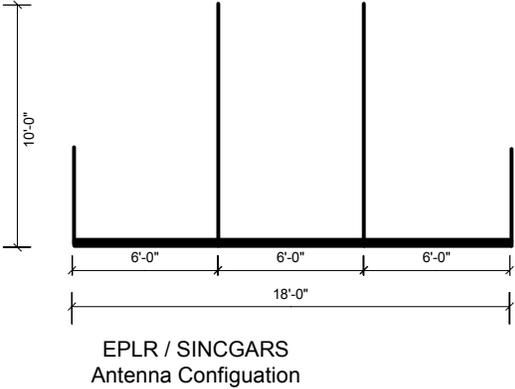
<sup>4</sup> Two solar panels - dimensions are 6 x 6 feet (L x W) each

<sup>5</sup> Mounted on existing antennae structure



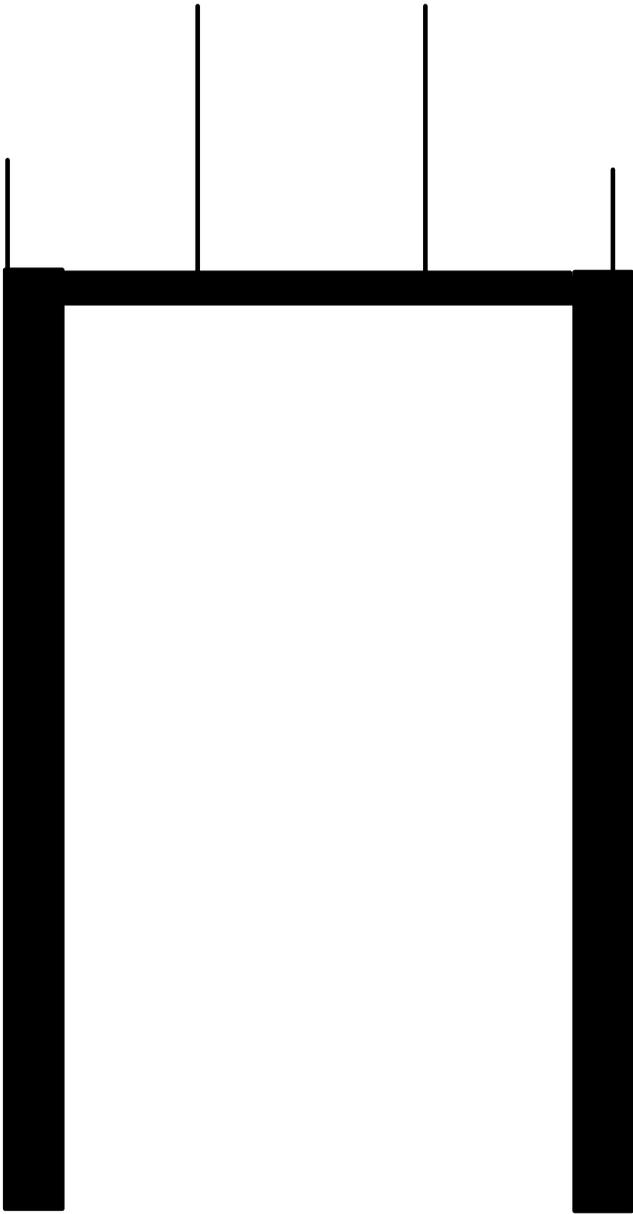
**Fixed Tactical Internet  
Antenna Configuration  
for High Elevation Locations.  
(e.g. Pu'u's)**

Figure D-8 FTI Antenna Configuration for High Elevations



**Fixed Tactical Internet  
Antenna Configuration for  
MonoPole (paint to match)  
Option 1.**

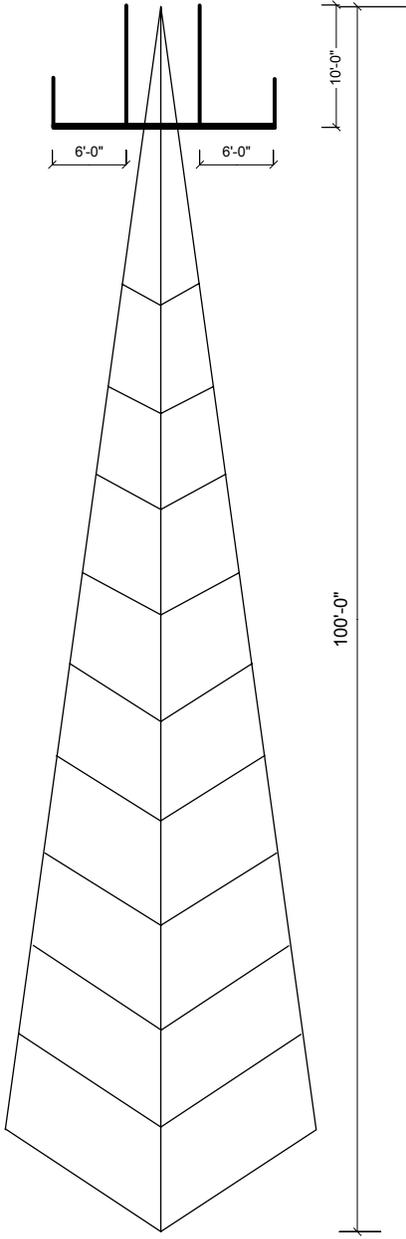
Figure D-9 FTI Antenna Configuration for Monopole



**Fixed Tacftical Internet  
Antenna Configuration for  
Two MonoPoles (paint to  
match)  
Option 2**

- Increase Antenna Separation
- Increase in Stability

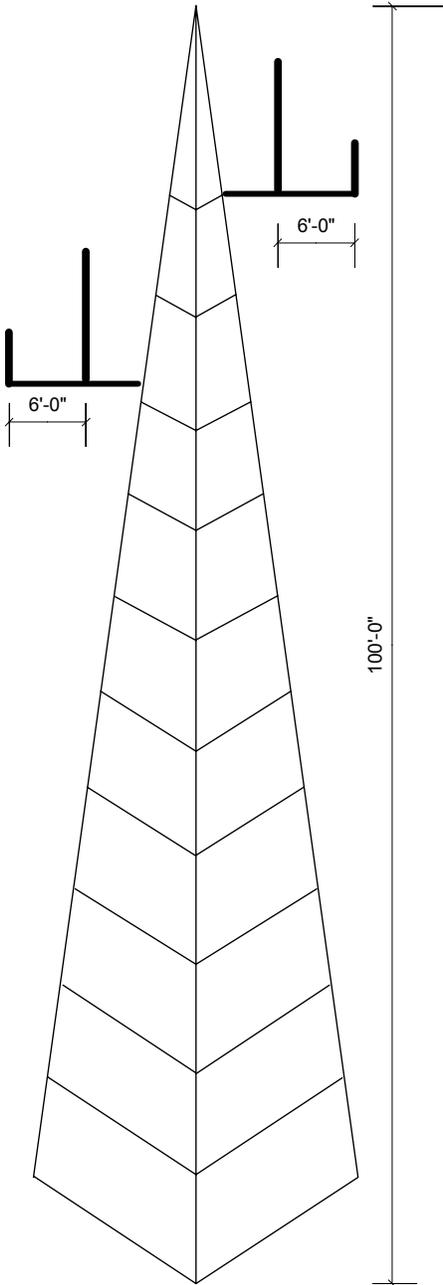
Figure D-10\_ FTI Antenna Configuration for Two Monopoles



- Separation distance between the two inner antennas will vary, depending on towerwidth.

**Fixed Tactical Internet  
Antenna Configuration  
for Tower, Option 1**

Figure D-11 FTI Antenna Configuration for Tower, Option 1



- Vertical Separation between similar antennas increases isolation between similar radios.

**Fixed Tactical Internet  
Antenna Configuration  
for Tower, Option 2**

Figure D-12 FTI Antenna Configuration for Tower Option 2

**Figure D-13**  
South Range Acquisition Area

**Graphics Code:** S8

**Project #:** 55270

**Project Title:** South Range Land Acquisition

**Project Location:** SBMR South Range Acquisition Area

**Project Size:** 1,400 acres

**Construction Timeframe:** September 2004 to June 2005

**Background:** According to the land use and requirements study of February 2002, there is a 32,249-acre shortfall in contiguous training and maneuver land for the 25<sup>th</sup> ID(L). The range infrastructure is old and requires significant upgrading for greater efficiency and maneuverability. A motor pool study completed in June 2000 categorized most of the motor pools as substandard because they lack the necessary building and hardstand space to perform required vehicle maintenance. To bring the motor pool facilities to Army standards, additional acreage is needed for expansion and upgrades. SBMR does not have available open acreage for these expansions.

**Project Description:** Acquire approximately 1,400 acres of fee simple land from Campbell Estate adjacent to the south boundary of SBMR. The land would be used for roadway easements, a motor pool, a pistol and rifle qualification training range, and roadway easements and utility infrastructure between SBMR and proposed facilities on this land. The proposal also would allow USARHAW to control the aircraft clear zone and accident prevention zone number one west of WAAF. The area would also be used for limited types of maneuver training.

**Estimated Utility Requirements:** None

**Figure D-14**  
Qualification Training Range 1

**Graphics Code:** S9

**Project #:** 57461

**Project Title:** Qualification Training Range 1 (QTR1)

**Project Location:** SBMR

**Project Size:** 5,154 square feet of support structures and 120 acres of training range

**Construction Timeframe:** September 2004 to December 2005

**Background:** Small arms ranges at McCarthy Flats are spread across a wide area, requiring units to occupy numerous ranges to accomplish all of their weapons qualifications. The layout and separation between the ranges increases logistical requirements, and the ranges are antiquated and lack modernized facilities for training. The range configuration does not provide an opportunity for maneuver training at SBMR.

**Project Description:** Construct a non-standard Qualification Training Range at McCarthy Flats, consisting of 12 lanes of Combat Pistol/MP Firearms Qualification Course, 24 lanes of Modified Record Fire Range, 12 lanes of Multipurpose Machine Gun/Sniper Range, and 50 lanes of Basic 10/25 Meter Firing Range (Zero). Other primary facilities include stationary infantry target emplacements, moving infantry target emplacements, zero panel emplacements, and standing silhouette emplacements. Supporting facilities include all construction within the perimeter of the range complex, which consists of information systems requirements, demolition, earthwork electrical service, limit markers, fencing, lighting, berms, parking, service roads, site drainage, erosion control, and site improvements. Proposed range support facilities include an operations/storage building (796 square feet), two general instruction buildings (1,593 square feet), three zero control stations (192 square feet), two ammunition breakdown buildings (237 square feet), a latrine (204 square feet), an indoor mess hall (764 square feet), and a bleacher enclosure (592 square feet).

**Estimated Utility Requirements:** This project will require connecting to the primary power distribution system. The nearest available power (12.47-kilovolt, three-phase) is 1,220 meters away. A 100 kVA, single-phase primary line will be constructed to bring primary power to the range site. Once at the site, primary power will be run underground to feed a pad-mounted transformer located near each control tower. All buildings will be supplied with 120/240-volt, single-phase, secondary power underground from the pad-mounted transformers. Secondary power of 120/240 volts will be run from each control tower power panel underground to the target cable junction boxes. Range targets will be fed using 240-volt, single-phase secondary power. The heated/illuminated range limit markers at 300 meters on the modified record fire range require 120-volt circuits. The heated/illuminated range limit markers at 31 meters on the pistol range require a 120-volt circuit. Nineteen AWG twisted pair copper cables will be required to operate the range target systems. The controls for targets require 120/240 volts. Voltage available to each target will be no less than 95 percent of its rated operating voltage. A separate 120-volt outlet is required in each target emplacement for target thermalization. Air conditioning, estimated at 20 tons, will be provided in the instruction buildings and range control towers. Telephone service is available within approximately 2,400 meters of the site at the Information Systems Facility (ISF). Lines will be run overhead from the I3A to the site with the primary power line and then underground between buildings. Telephone service will be provided at the control towers and other applicable buildings. All sewage on the site will be collected in the aerated vault latrines and removed by pumper truck, so no sewage lines or septic field would be required. All water needed will be trucked in, so no water line, distribution systems, or wells would be required. The availability of these utilities is expected to continue.

**Figure D-15**  
Qualification Training Range 2

**Graphics Code:** S10

**Project #:** 57462

**Project Title:** Qualification Training Range 2 (QTR2)

**Project Location:** SBMR South Range

**Project Size:** 4,768 square feet of support buildings and 120 acres of training range

**Construction Timeframe:** September 2005 to September 2006

**Background:** Ranges used for modified record fire and combat pistol qualification on SBMR are considered non-standard, have excessive maintenance costs, or conflict with higher priority ranges or future range projects.

**Project Description:** Construct a modified Qualification Training Range (QTR) designed for modified record fire and combat pistol qualification and training by the Stryker Brigade Combat Team and Legacy Force of the 25<sup>th</sup> ID(L) at SBMR. QTR2 training objective features will include 10 lanes of modified record fire targetry and 12 lanes of automated Combat Pistol Qualification Course targetry. Primary facilities include all construction within the perimeter of the range complex: electrical service, firing positions, target service roads, target maintenance trails, limit markers, lane markers, site improvements, earthwork, site drainage, erosion control, and information systems. Supporting facilities within the Range Operations Control Area (ROCA) include two control towers, an operations/storage building, two general instruction buildings, two ammunition breakdown building, dual sex dry-vault latrine, covered mess, bleacher enclosure, electric service and transformers, security fencing, range flagpole, area and security lighting, storm drainage, information systems (telephone), and site improvements.

**Estimated Utility Requirements:** This project will require connecting to the primary power distribution system. Electrical power (12.47 kV, 3-phase) is available 3,937 feet away. Secondary power of 120/240 volts will be run from each control tower power panel underground to the target cable junction boxes. Range targets will be fed using 240-volt, single-phase secondary power. The heated/illuminated range limit markers at 300 meters on the modified record fire range require 120-volt circuits. The heated/illuminated range limit markers at 31 meters on the pistol range require a 120-volt circuit. Air conditioning, estimated at 7 tons, will be provided for the control towers, with mechanical ventilation in other structures at the rate of 142 cubic meters (5,000 cubic feet) per minute. Heating is not required. All sewage would be collected in an aerated vault latrine and removed from the site by pumper truck, so no sewage lines or septic field would be required. Water would be trucked to the site, so no waterline, distribution system, or well would be required. These utilities are expected to continue to be available. Telephone and LAN service can be had approximately 7,800 feet from the project site at the ISF. Approximately 2,040 feet of underground duct would be installed from the Operations Building to the I3A to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the Operations Building.

**Figure D-16**

Multiple Deployment Facility at WAAF

**Graphics Code:** S11

**Project #:** 57422

**Project Title:** Multiple Deployment Facility

**Project Location:** WAAF (adjacent to SBMR)

**Project Size:** 90,697 square feet

**Construction Timeframe:** March 2005 to March 2006

**Background:** The facilities are temporary structures and are not efficient for deploying troops to combat from multiple airfields.

**Project Description:** Construct a Multiple Deployment Facility (MDF) to support deployments from multiple airfields. The facility includes a deployment marshalling area, pre-fabricated guardhouses and document control station, wash rack, de-fuel shed, scale houses, joint inspection area, vehicle maintenance shelter, vehicle holding area, alert holding area (AHA), and contingency warehouse. An additional ASP is provided to support Stryker vehicles that are processed through the MDF and then directed to the ASP site to be loaded with ammunition. These vehicles are reweighed at the ASP scale area; the information is processed at Building 1551 and transmitted to the AHA facility. The AHA facility will be accessible for the disabled. Three buildings will be demolished as part of this project. Supporting facilities include water, sanitary sewer, storm drainage, electric service, exterior lighting, fire protection alarm systems, telephone, paving, fencing, parking, information systems, and site improvements. The MDF would be on a previously disturbed site south of Airdrome Road, on an abandoned WAAF airstrip.

**Estimated Utility Requirements:** Electrical power is estimated at 1,012 KVA, for an estimated energy consumption of 5,795,066 kilowatt hours per year. The present systems are believed adequate to support the new facility. Telephone and LAN service can be had approximately 12,338 feet from the project site at Wheeler buildings 102/104. Approximately 8,508 feet of underground duct would be installed from the AHA facility to infrastructure on WAAF to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AHA facility. Air conditioning requirements are estimated at 10 tons. Heating is not required. Water supply requirements are estimated at 770,000 gallons per year, and the use of solar hot water is being considered. The sanitary sewer will connect to the installation's sewer system by gravity flow.

Figure D-17

Airfield Upgrade for C-130 Operations at WAAF

**Graphics Code:** S12

**Project #:** 57405

**Project Title:** Upgrade Airfield for C-130 Aircraft Operations

**Project Location:** WAAF (adjacent to SBMR)

**Project Size:** 54,006 square meters (64,600 square yards)

**Construction Timeframe:** After March 2009

**Background:** Apron pavement at WAAF is deteriorated due to age and usage. C-130 transport aircraft use the facility in support of the SBCT, 25<sup>th</sup> ID(L) training and rapid deployment. The apron areas are structurally inadequate for loading C-130 aircraft. The present condition of the pavement restricts and raises costs of airfield operations.

**Project Description:** Repair the existing 212-meter by 255-meter (694-foot by 837-foot) aircraft parking apron. Repair would strengthen the apron to accommodate C-130 aircraft staging operations for the proposed life cycle of WAAF. Also included are strengthening the taxiway and parking pad. An apron is roughly an airfield equivalent to a shoulder on a roadway. The apron, like a roadway shoulder, frees the runway for continuous use during loading and unloading. This project would be sited on the apron on the west side of WAAF just north of Airdrome Road.

**Estimated Utility Requirements:** None

**Figure D-18**

Land Easement/Road Construction between SBMR and DMR

**Graphics Code:** D1

**Project Number:** 58161

**Project Title:** Land Easement/Road Construction between SBMR and DMR

**Project Location:** SBMR route to DMR

**Project Size:** 36 acres along 12.4 miles

**Construction Timeframe:** After March 2009

**Background:** Access to DMR from SBMR is via state and county public roads, with only a single two-lane public road connecting the two locations. Military convoys using this road slow the flow of traffic and create potentially dangerous situations when cars attempt to pass the military vehicles.

**Project Description:** Acquire a perpetual easement of approximately 36 acres (15 hectares) and construct a 15-foot-wide (5 meter) gravel road with 3-foot-wide (1 meter) gravel shoulders on both sides. The road would run 12.4 miles (20 kilometers) from SBMR to DMR and would provide military vehicle access to both installations. Work would include grading, paving, improving drainage, and installing culverts at stream crossings and guardrails at drop-offs. Storm drainage structures and lines would be installed to prevent excessive amounts of stormwater runoff from water flowing over the road and endangering traffic. Telecommunication lines would be provided alongside the new road during construction. Road grades steeper than 10 percent would be paved with asphalt or concrete and the sides would be supported with shotcrete, guardrails, retaining walls, drainage structures (for example, concrete and grass swales), and signs.

**Estimated Utility Requirements:** None

Figure D-19

Tactical Vehicle Wash at Kahuku Training Area

**Graphics Code:** K1

**Project #:** 57415

**Project Title:** Tactical Vehicle Wash Facility

**Project Location:** Kahuku Training Area (KTA)

**Project Size:** Unavailable

**Construction Timeframe:** June 2007 to June 2008

**Background:** The vehicle wash facility at KTA is inoperable, and the drainage system is clogged and silted. Military vehicles at KTA pick up nonnative grass seeds that may be spread to areas outside the range. The vehicles also accumulate soil that may be tracked onto state highways when the vehicles return to the SBMR garrison area.

**Project Description:** Construct a tactical vehicle wash facility with six wash stations and a new off-site water system. The water system will include two pump-only stations with motors and controls and a mid-point pump station with a tank and level controls for the operation of the pumps. The pumps and tank will be installed inside pump houses with natural ventilation. The pump-only pump houses will be approximately 3 meters by 3 meters (10 feet by 10 feet), while the mid-point pump house will be approximately 3 meters by 4.6 meters (10 feet by 15 feet). Each wash station will be sized to support vehicles 18.3 meters (60 feet) long by 3.7 meters (12 feet) wide. The primary facility will consist of the preparation area and wash stations. The wash stations will use a high-pressure wash system and recycle water to minimize wastewater disposal. The water will flow through a water sediment basin, an equalization basin, and oil-water separators, and then be deposited into a water supply reservoir. Treatment will include oil and grease removal, grit removal, and organic control. A mechanical equipment building will house the mechanical secondary treatment units and the control panels necessary for the facility. The structure will be approximately 12 meters (40 feet) by 9 meters (30 feet), will require louvers, and will have a large door for equipment installation and maintenance. Supporting facilities include utilities, paving, fencing, curbing, and site improvements. The islands at the wash facility will be double-tower to ensure the ability to cover an 18.3-meter (60-foot) vehicle. Concrete curb will be provided at the wash facility to control the flow of wastewater. Trench drains will lie perpendicular, at the center of the wash station, and cover the entire width of the facility.

**Estimated Utility Requirements:** Electrical power is estimated at 95.4 KWN, with energy consumption estimated at 12,906 kilowatt hours per year. The present systems are believed adequate to support the new facility under this project. Air conditioning and heating are not required. Water supply is estimated at 600,000 gallons per year, with wash water to be recycled as described above. A new off-site water system will be constructed as described above.

Figure D-20

Combined Arms Collective Training Facility at KTA

**Graphics Code:** K2

**Project #:** 57305

**Project Title:** Combined Arms Collective Training Facility (CACTF)

**Project Location:** KTA

**Project Size:** 106,110 square feet of CACTF structures, 11,851 square feet of support structures, and 560 acres of training area

**Construction Timeframe:** September 2005 to December 2006

**Background:** Hawai'i-based units lack a large range to train soldiers, small units, and unit commanders in an urban environment under simulated conditions. The MOUT assault course at SBMR no longer supports urban operations training strategy. Basic design and targetry are inadequate to efficiently train close quarters marksmanship skills. Training will require SRTA live-fire ammunition.

**Project Description:** Construct a 24-building live-fire CACTF and range operation support facilities. Mock city structures would include two warehouses, a municipal building, an office building, a service station, four business buildings, one hotel, a police station/jail, a church and cemetery, a bank, a townhouse, nine residences, one school, four dual-sex dry vault latrines, an underground trainer, and a soccer field/playground. Range support facilities would include a combined command control and AAR building, a storage building, an ammunition breakdown building latrine, a covered mess hall, and an access road. The proposal includes renovating ten structures and demolishing two buildings (guard towers S150 and S151), totaling 280 square feet. The project would be sited approximately two-and-a-half miles west of Kahuku in the KTA.

**Estimated Utility Requirements:** This project would require connection to the existing primary power distribution system. The nearest available power is approximately 4 miles (6 kilometers) from the site. (The old Nike Command Site has power that would be replaced with new construction.) A new 12.47-kilovolt, three-phase primary line would be constructed to bring primary power to the site. Once at the site, primary power would be run underground to feed a pad-mounted transformer near the Operations Storage Building and a pad-mounted transformer at the AAR building. All buildings would be supplied with 120/240-volt, single-phase, secondary power underground from the transformers. All sewage would be collected in the aerated vault latrine and removed by pumper truck, so no sewage lines or septic field would be required. Water would be trucked to the site, so no waterline, distribution systems, or well would be required. Telephone and LAN service can be had at Building 886. Approximately 3,000 feet of underground duct would be installed from the AAR building to a maintenance hole installed on the Drum Road project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AAR building. Air conditioning requirements are estimated at 20 tons.

**Figure D-21**

Easement/Road Construction between SBMR and Helemanō Military Reservation

**Graphics Code:** K3/K4

**Project #:** 57802/57406

**Project Title:** Easement/Road Construction between SBMR and HMR

**Project Location:** Road from SBMR to HMR on the route to KTA

**Project Size:** 13 acres along 6 miles of road

**Construction Timeframe:** September 2004 T March 2005 (easement) to September 2005 to December 2006 (construction)

**Background:** Military convoys travel from SBMR to HMR on Wilikina Drive onto Kamananui Road, then to Kamehameha Highway to KTA and KLOA to conduct military training exercises. Wilikina Drive, Kamananui Road, and Kamehameha Highway are only two-lane public roads, used by both local residents and tourists. The elevation/grade from SBMR on Kamehameha Highway to both training areas are relatively steep, and when returning from training at KTA or KLOA the heavy military vehicles are traveling well below posted speed limit designations. Use of the existing highway is also creating traffic congestion and damage to the roads. Military convoys traversing this public road slow down the flow of all traffic and create dangerous situations when cars attempt to pass the large caravan, creating the potential for head-on crashes. Dirt, rocks, and debris from the vehicles are deposited on public roads, creating hazardous driving conditions to the general public. The Army is preparing to upgrade Drum Road, a military road from HMR to KTA and KLOA training areas. The new road in this project would tie into Drum Road and reduce heavy military vehicles from public roads.

**Project Description:** Acquire approximately 13 acres (5 hectares) of land in a perpetual easement and construct a 15-foot-wide gravel road with 3-foot-wide gravel shoulders on both sides that would provide military vehicle access between SBMR and HMR. In conjunction with Drum Road, this project would provide a road network from SBMR to KTA. The road would run approximately 6 miles (4 kilometers) (from SBMR to HMR. It would be north of Wahiawa and would use as much of the agriculture roadways as possible. Work includes grading, paving, drainage improvements, culverts at stream crossings, guardrails, shotcrete, retaining walls, concrete swales, grass swales, signage, and storm drainage structures and lines to preclude excessive amounts of storm runoff from water flowing over the road and endangering traffic. Work will also include provisions for telecommunication lines to run alongside the new paved road. Road grades steeper than 10 percent will be paved with asphalt or concrete. Supporting facilities includes provisions for information systems.

**Estimated Utility Requirements:** Approximately 6.5 miles (4 kilometers) of fiber cable will be direct buried between SBMR, McNair Gate and Pupukea Road leading to Helemanō. Additionally, a direct buried cable will be installed along Pupukea Road and a duct system will be installed to building P1 at Helemanō. Also, a duct system will be installed from McNair gate to Building 886 on SBMR.

**Figure D-22**  
Battle Area Complex at PTA

**Graphics Code:** P1

**Project #:** 57197

**Project Title:** Battle Area Complex (BAX)

**Project Location:** Pōhakuloa Training Area

**Project Size:** 11,808 square feet of structures and 2,075 acres of training area

**Construction Timeframe:** May 2007 to May 2008

**Background:** No facility of this type exists in Hawai'i, and the light infantry brigades of the 2<sup>nd</sup> Brigade cannot accomplish required mounted combined arms live-fire exercises. No ranges exist for gunnery training for the MGS, Interim Armored Vehicle infantry carrier vehicle, or Interim Armored Vehicle reconnaissance vehicle. Facilities on O'ahu and the island of Hawai'i were designed and constructed to support either the current light infantry configuration or armored forces previously stationed in Hawai'i. Implementation of evolving Department of the Army and TRADOC Combat Doctrine and Training Strategies in Hawai'i will affect the ability to train the SBCT and 25<sup>th</sup> ID(L) using existing range facilities. The unique vehicle design and expected mission requirements of this medium force are not met by current range facilities. The combination of the types, densities, and distance to targets, obstacles, and landing zones are not available on standard range designs.

**Project Description:** Construct a BAX designed for live-fire, maneuver gunnery training and qualification requirements of the weapons systems for the proposed SBCT and the division's Legacy Force at PTA on the island of Hawai'i. This range will also support company-level mounted and dismounted combined arms live-fire exercises, dismounted infantry platoon tactical live-fire operations, with or without supporting vehicles, as well as Army aviation, close air support, artillery, and air defense artillery gunnery and live-fire maneuver gunnery training operations. The project will be sited along Lava Road, approximately five miles from the entry into the PTA and approximately half a mile south of BAAF. The range project will be oriented south toward the existing impact area and built over Range 12 on the eastern portion of PTA. The training assets at Range 12 will be demolished so the new layout can be overlaid and accommodated. The primary features of the range will include four course roads with crossover capability, 30 reconfigurable stationary armor targets (SAT), six moving armor targets (MAT), 174 reconfigurable stationary infantry targets (SIT), 14 moving infantry targets (MIT), 17 machine gun/observation bunkers, two gunnery/breaching obstacles, 18 mortar simulation devices (MSD), 16 hulldown defilades, three landing zones, vehicle firing positions, grenade/breach facades/trench complexes, military vehicle trails, and service roads. Other range operations facilities will include observation tower, range control center, AAR facility, operations/storage building, ammunition breakdown building, ammunition loading dock, latrine, bleacher enclosure, covered mess, bivouac concrete pads, and flagpole. All targets will be fully automated; the event specific target scenario is computer driven and scored from the Range Control Center. The reconfigurable stationary infantry target and reconfigurable stationary armor target will be solar powered, radio-controlled targets with target coffins. The range operating system will be fully capable of receiving, transmitting, and capturing digital traffic to/from the using participants. This captured data is compiled and available to the unit during the AAR. Storm drainage, service roads, site improvements, and berms will be provided as necessary. Range support facilities include electrical service; paving, walks, curbs and gutters; site improvements; and demolition.

**Estimated Utility Requirements:** Primary power would come from 12.47-kilovolt lines extended overhead from the weather tower to the downrange pad-mounted transformers in the power centers. Range targets would be fed underground using 480-volt, three-phase, or 240-volt single-phase

secondary power from the closest power center. Each downrange, lighted and heated range limit marker and each video camera would require 120-volt power fed underground from the nearest power source. Air conditioning, estimated at 20 tons, would be provided for the support buildings by self-contained units. All sewage on the site would be collected in aerated vault latrines and portable toilets and would be removed by pumper truck, so no sewage lines or septic fields would be required. Water would be trucked to the site and stored in a tank, so no waterline, distribution systems, or wells would be required. Telephone and LAN service can be had approximately 41,000 feet from the project site at the PTA cantonment area. Approximately 1,000 feet of aerial cable would be installed from the AAR building to the I3A to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AAR building.

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**Figure D-23**

Anti-Armor Live-fire and Tracking Range (AALFTR)

**Graphics Code:** P2

**Project #:** 57183

**Project Title:** Anti-Armor Live-fire and Tracking Range (AALFTR)

**Project Location:** PTA

**Project Size:** 16,030 square feet of structures and 750 acres of training area

**Construction Timeframe:** September 2009 to September 2010

**Background:** Brigades of the 25<sup>th</sup> ID(L) have no range for anti-armor live fire and tracking. Such a facility is required for support of the light armored vehicle, mobile gun system, and reconnaissance armored vehicle, as well as anti-armor forces firing from HMMWVs. Present forces and the proposed SBCT need a range that enables individual and collective gunnery training that simulates sweeping gunfire (enfilading) during movement along the flank of an opposing force.

**Project Description:** Construct a modified Anti-Armor Live-Fire and Tracking Range (AALFTR) on ranges 3, 8, and 10 at PTA. The AALFTR will include 21 Stationary Armor Targets (SAT) and eight Armor Moving Targets (AMT). All targets will be fully automated; the event-specific target scenario is computer-driven and scored from the control towers. Other range features include baseline firing positions, primary and secondary power and data distribution systems, and heated and illuminated limit markers. The AALFTR will allow anti-armor forces to simulate enfilading fire as they move along the flank of an opposing force before joining the larger force at the programmed BAX, much as they would in an actual battle. Range 8 will be developed as a complete ROCA; minimal ROCA facilities will be developed at ranges 3 and 10. Facilities required at each range include three control towers, three AAR facilities, and three general instruction buildings. Range 8 facilities will also include an ammo breakdown building, an ammo loading dock, an operational/storage building, a dual sex dry-vault latrine, a covered mess, a bleacher enclosure, and a range maintenance building. Support facilities include electric service, access roads, parking, maintenance area, unit staging area, earthwork, concrete tent pads, range flagpoles, fencing and gates, and information systems (telephones). Demolition of one small observation tower at Range 8 will be required. While no downrange demolition is anticipated, other possible demolition may include existing concrete slabs and foundations, utility poles, utilities, and fencing located within ROCA. Because the land surface at the site is primarily made up of smooth lava, firing areas, maneuver lanes, service roads, target positions, and troop assembly areas within the ROCA will require surface conditioning. Grading will also be required to achieve positive drainage around all buildings and assembly areas within the ROCA.

**Estimated Utility Requirements:** Supply downrange of 12.47-kilovolt, 480/277-volt and 240/120-volt power distribution would be required. The project would include providing power from the overhead 12.47-kilovolt, three-phase primary line near the weather tower, approximately 29,857 feet from the project site. A 12.47-kilovolt overhead power line would be built from the weather tower to existing and new AALFTR locations. Underground 12.47-kilovolt power would be run from the new line to each AALFTR range, to a pad-mounted transformer near each control tower. These transformers would provide underground secondary (240/120-volt) to each range control tower. All facilities would be provided with 240/120-volt power from a panel in each control tower. Telephone and LAN service can be had approximately 39,500 feet from the project site at the PTA cantonment area. Approximately 500 feet of aerial cable would be installed from the AAR building to the I3A to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the AAR building. All sewage would be collected in aerated vault latrines and portable toilets and removed by pumper truck, so no sewage

lines or septic fields would be required. Water would be trucked to the site and stored in a tank, so no water lines, wells, or distribution system would be required.

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**Figure D-24**

Easement/Construct Tank Trail between Kawaihae Harbor and PTA

**Graphics Code:** P3/P4

**Project #:** 58273

**Project Title:** Easement/Construct Vehicle Trail between Kawaihae Harbor and PTA

**Project Location:** PTA

**Project Size:** 132 acres along 27 miles of road

**Construction Timeframe:** September 2009 to September 2010

**Background:** Military convoys travel from Kawaihae Deep Draft Harbor to PTA on state and county two-lane public roads. A convoy first travels on Kawaihae-Waimea Road and then on Mamalahoa Highway and onto Saddle Road. Some of the convoys also transport ammunition to PTA for the howitzers. Both local residents and tourists use the roadways. The elevation/grade from Kawaihae Deep Draft Harbor to the training area using Kawaihae-Waimea Road and Saddle Road is relatively steep, and the heavy military vehicles travel well below posted speed limit designations. Use of the highway also creates traffic congestion and damage to the roads. Military caravans traversing public roads slow down the flow of all traffic and create dangerous situations when cars attempt to pass the large caravan, creating the potential for head-on crashes. Dirt, rocks, and debris from the vehicles are deposited on the public roads. Combined with the transportation of ammunitions, this creates hazardous driving conditions to the general public. The new road will remove all heavy military vehicles from public roads.

**Project Description:** Acquire a perpetual easement of approximately 132 acres to construct a 18-foot-wide gravel road with 3-foot-wide gravel shoulders and 8-foot-wide right-of-way on both sides, totaling 40 feet in width, that would run from Kawaihae Harbor to PTA. This road would run for approximately 27 miles and provide access for military vehicles transporting troops, ammunition, and equipment between Kawaihae Harbor and PTA without using public roads. The road would replace the military vehicle trail but may not follow the current route. Information systems are not required. Work includes grading, paving, drainage improvements, culverts at stream crossings, guardrails at drop offs, and storm drainage structures and lines to preclude excessive amounts of storm runoff from water flowing over the road and endangering traffic. Road grades steeper than 10 percent will be paved with asphalt or concrete. Supporting facilities includes provisions for shotcrete, guardrails, retaining walls, concrete swales, grass swales, drainage structures, and signage.

**Estimated Utility Requirements:** None

**Figure D-25**  
Ammunition Storage at PTA

**Graphics Code:** P5

**Project #:** 57417

**Project Title:** Ammunition Storage Area

**Project Location:** PTA

**Project Size:** 6,750 square feet

**Construction Timeframe:** After March 2009

**Background:** PTA has eight ammunition storage igloos. These igloos, operated at capacity, are too small to accommodate additional training requirements that would arise upon conversion of the 2<sup>nd</sup> Brigade to an SBCT.

**Project Description:** Construct three earth-covered ammunition igloos totaling 6,750 square feet at the ammunition storage facility. An ammunition holding area for daily distribution of ammunition would be constructed to safely hold loaded vehicles. Work would also include installing pole-mounted security lights, floodlights above each entrance, and telephone and computer systems. Supporting facilities would include utilities, electric service, stormwater drainage, paving, and access roads.

**Estimated Utility Requirements:** Electrical power requirements are estimated at 4873 VA and energy consumption at 32,564 kilowatt hours per year. Telephone and LAN service can be had approximately 5,660 feet from the project site at the PTA cantonment area. An existing aerial pole will provide the pathway to the location. An underground duct system will connect the pole to a new administrative building. Three igloos within the project site would be connected via an underground duct system to the administrative building. Water supply needs are estimated at 18,000 gallons per year.

**Figure D-26**  
Tactical Vehicle Wash at PTA

**Graphics Code:** P6

**Project #:** 57414

**Project Title:** Tactical Vehicle Wash Facility

**Project Location:** PTA

**Project Size:** unavailable

**Construction Timeframe:** March 2006 to March 2007

**Background:** Military vehicles at PTA accumulate soil that may be tracked onto roads and on the transport ship when they return from the island of Hawai'i to O'ahu. They may also transport nonnative vegetation between ranges. The existing vehicle wash facility is too small and is in the safety zone of Bradshaw Army Airfield.

**Project Description:** Construct a tactical vehicle wash facility with four wash stations sized to support vehicles 18.3 meters (60 feet) long by 3.7 meters (12 feet) wide. The primary facility will consist of the preparation area and wash stations. The wash stations will use a high-pressure wash system and will recycle water to minimize wastewater disposal. The water will flow through a water sediment basin, oil-water separators, and an equalization basin and then be deposited into a water supply reservoir. Treatment will include oil and grease removal, grit removal, and organic control. An oil-water separator will be provided to treat any residual water that does not go through the main system. A structure will be provided to house the mechanical secondary treatment units and the control panels necessary for the facility. This structure will be approximately 12 meters (40 feet) by 9 meters (30 feet), will require louvers, and will have a large door for equipment installation and maintenance. Supporting facilities include utilities, paving, curbing, and site improvements. The islands at the wash facility will be double-tower to ensure the ability to cover an 18.3-meter (60 feet) vehicle. Concrete curb will be provided at the wash facility to control the flow of wastewater. Trench drains will lie perpendicular, at the center of the wash station. The trench drain will cover the entire width of the facility.

**Estimated Utility Requirements:** Estimated energy consumption is 32,107 kilowatt hours per year. The present distribution system is believed adequate to meet the project requirement without enlargement. Air conditioning and heating are not required. Water use is estimated at 500,000 gallons per year, with wash water to be recycled as described above.

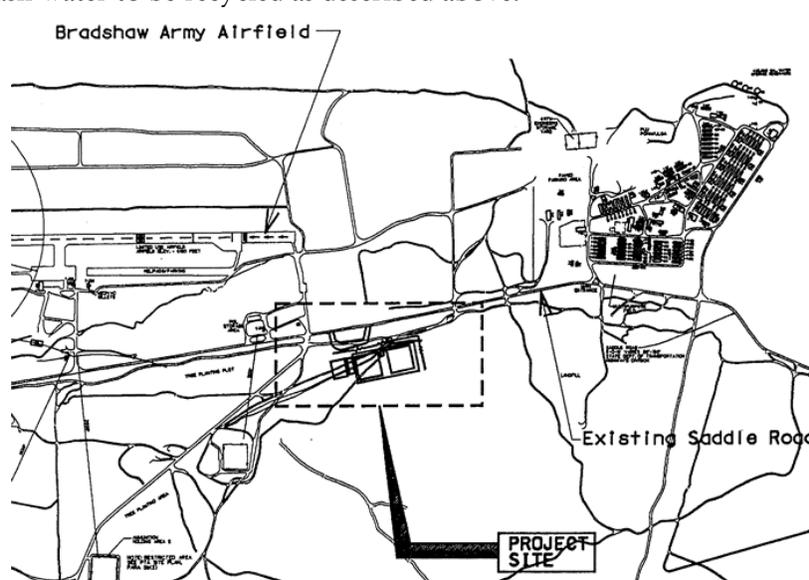


Figure D-27  
West PTA Acquisition Area

**Graphics Code:** P7

**Project #:** 57411

**Project Title:** West PTA Maneuver Training Area Land Acquisition

**Project Location:** PTA

**Project Size:** 22,675 acres

**Construction Timeframe:** May 2005 to May 2008

**Background:** According to the land use and requirement study of February 2002, there is a 32,249-acre shortfall in contiguous training and maneuver land for use by 25th ID(L). PTA consists of approximately 108,792 acres, only 19,148 of which are considered to be suitable for maneuver training purposes. Additional land is needed adjacent to PTA to expand the total maneuver area. To the north of PTA is Mauna Kea, an inactive volcano, the lower slopes of which contain some endangered species. The southern boundary is Mauna Loa, which consists of mostly volcanic rock that is not conducive to maneuver training exercises. The only area available for expansion is northwest, the area proposed for acquisition. The present uses of PTA are maneuver and live-fire training, and drop zone use.

**Project Description:** Acquire approximately 23,000 acres of fee simple land adjacent to PTA from Richard Smart Trust (Parker Ranch), Hawai'i. The land would be used for a brigade task force maneuver training area, vehicle maneuver training, and a paratrooper drop zone. The Army has been using the property on an interim basis for maneuver training. In the late 1940s portions of the area were used as artillery firing ranges and the site is part of the Waikoloa Study Area currently being assessed for UXO cleanup (see Chapter 9 for more information). The land proposed for acquisition is contiguous to PTA and is relatively flat, open country with little forested area, making it ideal for maneuver training.

After acquisition of the parcel is complete, the Army plans to construct about 28 miles of gravel training roads on the acquired property. The location of these gravel-training roads is as yet undetermined. The Army will comply with all applicable environmental statutes including but not limited to NEPA, the ESA, and the NHPA, in determining the location and potential impacts of these roads before construction. The Army will also consult with adjacent and near by property owners and other interested parties on the location of the proposed training roads in order to address and resolve potential air quality and dust concerns.

**Estimated Utility Requirements:** None.

**Figure D-28**

PTA Range Maintenance Facility Location

**Graphics Code:** P8

**Project #:** 56994

**Project Title:** Range Maintenance Facility

**Project Location:** PTA

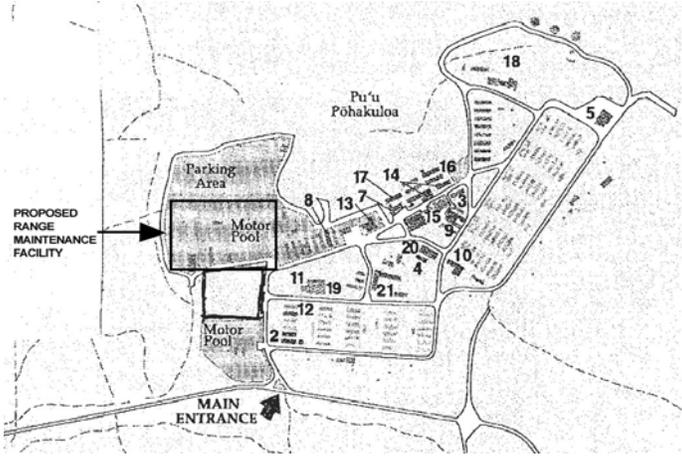
**Project Size:** 16,011 square feet

**Construction Timeframe:** After March 2009

**Background:** Range Division Hawai'i is responsible for command and control of operations at all Army training areas on the island of Hawai'i, primarily PTA. Range control and maintenance operations are housed in eight temporary buildings dispersed throughout the PTA cantonment area, leading to inefficiencies, excessive travel, reduced response times, and miscommunication between different range elements. Most of these facilities are Quonset huts built in 1957, with characteristic curved roofs that render much of their interior space useless. Electrical and mechanical systems are antiquated and require excessive maintenance funding. The shop facilities lack adequate ventilation and operating sprinkler systems. As a health and safety issue, all welding must be conducted outside by order of the fire department. Dispersal of maintenance activities has reduced the quality of service provided to range users due to inefficient split functions. The poor quality of the facilities also worsens the difficult task of recruiting qualified laborers at this remote location.

**Project Description:** Construct a Consolidated Range Maintenance Facility for PTA on a previously developed site within the installation's cantonment area. The project will include administrative space for range maintenance, a carpentry shop, a welding shop, target and raw material storage, and parking for personally operated vehicles and other vehicles and equipment. Supporting facilities include potable water system, septic system, electric service and 150-kVA, three-phase transformer, paving, walks, parking, security fencing, information systems, and site improvements. Access for the handicapped will be provided in all areas. Three buildings (T17, T19 and T20) will be demolished and replaced by the proposed complex.

**Estimated Utility Requirements:** Existing electrical lines are approximately 100 feet north of the project site, and these resources are expected to continue to be available. Power requirements to operate building systems and equipment would include single-phase, 250-amp service in the administrative space, three-phase/four-wire, 250-amp service in the carpentry shop, and three-phase/four-wire, 400-amp service in the welding shop. A 150-kilovolt transformer would also be required. Air conditioning, estimated at 10 tons, would be provided for administrative space only. Mechanical ventilation would be provided in the warehouse and shop areas. Water would be connected to an existing line approximately 150 feet north of the proposed site. Sewage would be collected and treated by a standard septic system, including septic tank and leach fields, to be located immediately to the west of the site. Telephone service can be had approximately 1,000 feet away at building 106. LAN service can be had approximately 1,150 feet away at building 179. A 100-foot underground duct would be installed from the Range Maintenance Building to the I3A to provide connectivity for this project.



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Figure D-29  
Bradshaw Army Airfield Upgrade

**Graphics Code:** P9

**Project #:** 57408

**Project Title:** Upgrade and Reorient Bradshaw Army Airfield (BAAF) Runway

**Project Location:** PTA

**Project Size:** 451,960 square feet

**Construction Timeframe:** After March 2009

**Background:** BAAF, located at PTA, is used for deploying, redeploying, and resupplying all military units training on the island of Hawai'i. The airfield has one runway, 3,700 feet long from east to west, with a total of 1,100 feet of overruns. The airfield's relatively high elevation of 6,200 feet above mean sea level impedes aircraft performance and limits the weight of cargo aircraft can safely carry. The airfield operates under substandard conditions. The combination of runway length, mountainous terrain, man-made obstructions to the east, winds from the east that increase throughout the day, and maximum tailwind landing restrictions for the C-17 (10 knots) and C-130 (15 knots) aircraft impede mission accomplishment. Current operations are limited to visual flight rules and approaches and departures only from the west. The pavement is deteriorated in many areas and is structurally inadequate for C-17 and C-130 loading operations.

**Project Description:** Construct a 5,600-foot-long full strength paved runway with 300-foot-long full strength paved overruns on each end (type A traffic area). Total length of full strength pavement will be 6,200 feet long. The runway will be 100 feet wide with 25-foot-wide paved shoulders. The first 500 feet of each end of the runway and the hammerheads will be paved with rigid pavement. The remainder of the runway and shoulder pavements will be flexible pavement. This configuration will create a Class A Army airfield with the capabilities to operate as a training assault runway for C-17 and C-130 aircraft. A new runway threshold and visual approach slope indicator lighting system and edge lighting will also be required for the extension. Construction mobilization and demobilization requirements are part of the primary facility cost. PTA's remoteness from major commercial centers presents special logistic demands in transportation to and from the project site, including heavy equipment, project office trailer, telephone communication connection, restroom facilities, and other miscellaneous requirements. Supporting facilities will include site preparation (clear/grubbing, excavation, grading, and storm drainage), a mobile asphalt concrete batching plant, water supply source, and extension of the primary electrical service line from the base camp. The runway will be designed and lengthened to accommodate C-130 and C-17 aircraft under assault landing zone criteria.

**Estimated Utility Requirements:** Electrical power is estimated at 1.8 KW, with estimated energy consumption 15,768 kilowatt hours per year. The present distribution system is believed adequate to meet the project requirement without enlargement. Air conditioning and heating are not required. Water use is estimated at 2,600,000 gallons per year. A sanitary sewer will connect to the existing system by gravity flow. Telephone and LAN service can be had approximately 18,588 feet from the project site at the PTA cantonment area. Approximately 9,035 feet of underground duct would be installed from the Consolidated Building (operations/weather/medevac) to the I3A to provide connectivity for this project. The remaining buildings within the project requiring telecom services would be connected via an underground duct system to the Consolidated Building.

Figure D-30

Fixed Tactical Internet at PTA

**Graphics Code:** P10

**Project #:** None

**Project Title:** Fixed Tactical Internet (FTI)

**Project Location:** Eleven antenna locations throughout PTA

**Project Size:** 500 square feet per antenna location

**Construction Timeframe:** FY05 through FY06

**Background:** The training ranges that would be used by the SBCT are in dispersed areas that have either substandard or no telecommunications. Much of the cabling is aerial, air-core, or lead-sheathed cables that do not support minimum bandwidth necessary to sustain current operations. Much of the infrastructure is damaged from the environment.

**Project Description:** Install an FTI that would provide necessary tactical communications infrastructure, enabling units to train at any hour of the day or night without deploying to the field. When linked to the I3A, FTI could also provide connectivity for the command and control integration of live-fire and simulation training. The FTI will consist of a group of antennas strategically placed throughout the installation and training areas that will allow radios within military vehicles to receive and process both voice and data signals. Four antennas will be installed at each proposed site located on the island of Hawai'i. The antennas are vertical whips. Two will be approximately 4 feet long and 2 inches in diameter and two will be approximately 10 feet long and 2 inches in diameter. All antennas on PTA will require new support structures. No red warning lights would be required. Each fenced site area will be 20 feet by 25 feet, including a 15-foot-by-20-foot concrete pad for the support structure and shed. Sites will be accessed via existing roads in all cases. Personnel will visit the sites prior to and after Army training sessions. No security lighting will be installed at the sites. Equipment sheds will house 4 radios and 4 batteries. Antennas at Mauna Loa Observatory would be sited adjacent to existing communications towers and equipment.

**Estimated Utility Requirements:** Estimated energy usage is 5,915-kilowatt hours per year. The existing power grid distribution system will be used. Continued availability of these services is anticipated.

**Table D-2**

Location	Latitude	Longitude	UTM	Elevation (feet)	Total Height <sup>1</sup> (feet)	Equipmen t Shed <sup>2</sup>	Electric Power Source
Anti Armor Range 8	194103N	1553245W	05 233097 02178530	6,412	40	Existing	Commercial
Auwaiakeakua WT	195215N	1554326W	05 214752 02199494	2,559	42	New	Solar <sup>3</sup>
Kawaihae	200152N	1554946W	05 203991 02217429	5	42	Existing	Commercial
Koloa WT	195014N	1554021W	05 220078 02195685	4,176	42	New	Solar
Mauna Loa Observatory	193212N	1553430W	05 229791 02162242	11,112	20	Existing	Commercial
Puu Ahi	194453N	1553539W	05 228145 02185676	5,978	20	New	Solar <sup>3</sup>
Puu Kailua	194231N	1553244W	05 233138 02181268	6,515	20	New	Solar <sup>3</sup>

Location	Latitude	Longitude	UTM	Elevation (feet)	Total Height <sup>1</sup> (feet)	Equipmen t Shed <sup>2</sup>	Electric Power Source
Puu Kanalopakanui	194937N	1553932W	05 221482 02194531	5,040	20	New	Solar <sup>3</sup>
Puu Keekee	194655N	1553813W	05 223700 2189517	5,758	20	New	Solar <sup>3</sup>
Puu Pōhakuloa	194534N	1553210W	05 233921 02186856	6,470	20	New	Commercial
Range Maintenance Facility	194527N	1553219W	05 233976 02186640	6,321	67	Existing	Commercial

<sup>1</sup> Total Height includes antennas and antenna mast

<sup>2</sup> New equipment shed dimensions are 4 x 4 x 6 feet (W x D x H)

<sup>3</sup> Two solar panels - dimensions are 6 x 6 feet (L x W) each

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**Figure D-31**

Installation Information Infrastructure Architecture at PTA

**Graphics Code:** P11

**Project #:** None

**Project Title:** Installation Information Infrastructure Architecture (I3A)

**Project Location:** PTA

**Project Size:** Approximately 62,000 feet of communications pathway.

**Construction Timeframe:** 2005

**Background:** I3A is required to upgrade the telecommunications infrastructure to support transformation projects throughout PTA. The telecommunications infrastructure is not sufficient to support the heavy IT demands required to train a SBCT.

**Project Description:** Install fiber optic and copper cabling within the cantonment area, training ranges, and other support facilities. This IT backbone will provide sufficient access between the various transformation projects and the voice and data network within the cantonment area at PTA and eventually back to the Mission Support Training Facility on SBMR. This connectivity is required to conduct sophisticated war-fighting simulation exercises. The pathway within the cantonment area will consist of an underground duct system, fiber cables and copper cables. The pathway outside the cantonment area will consist of an aerial pole, fiber cables and copper cables.

**Estimated Utility Requirements:** I3A will provide the telecom utility requirements. There are no power requirements for the I3A pathway.

**Figure D-32**

Reduced Land Acquisition Area for South Range

**Graphics Code:** S8

**Project #:** 55270

**Project Title:** South Range Land Acquisition

**Project Location:** SBMR South Range Acquisition Area

**Project Size:** Approximately 100 acres

**Construction Timeframe:** September 2004 to June 2005

**Background:** A motor pool study completed in June 2000 categorized most of the motor pools as substandard because they lack the necessary building and hardstand space to perform required vehicle maintenance. To bring the motor pool facilities to Army standards, additional acreage is needed for expansion and upgrades. SBMR does not have available open acreage for these expansions.

**Project Description:** Acquire approximately 100 acres of fee simple land from Campbell Estate adjacent to the south boundary of SBMR. The land would be used to construct a motor pool (Project 57421), with associated vehicle parking areas, administrative and maintenance facilities, and required storm drainage facilities.

**Estimated Utility Requirements:** No utility service is required as a part of this project; however, project 57421, Motor Pool, will be built on this site and supplied with utilities from the existing SBMR utility grid.

**Figure D-33**

Qualification Training Range QTR2 at Pōhakuloa Training Area

**Graphics Code:****Project #:** 57461**Project Title:** Qualification Training Range (QTR2)**Project Location:** PTA**Project Size:** 5,154 square feet of support structures and 120 acres of training range**Construction Timeframe:** September 2005 to September 2006

**Background:** Sufficient throughput capacity to support qualification training of soldiers in the 2nd Brigade and the balance of the 25th Infantry Division does not now exist. This project, in conjunction with construction of QTR1 at Schofield Barracks, will provide the required capacity.

**Project Description:** Construct a standard Qualification Training Range near Range 8 at Pōhakuloa Training Area, consisting of 12 lanes of Combat Pistol/MP Firearms Qualification Course, 24 lanes of Modified Record Fire Range, 12 lanes of Multipurpose Machine Gun/Sniper Range, and 50 lanes of Basic 10/25 Meter Firing Range (Zero). Other primary facilities include stationary infantry target emplacements, moving infantry target emplacements, zero panel emplacements, and standing silhouette emplacements. Supporting facilities include all construction within the perimeter of the range complex, which consists of information systems requirements, demolition, earthwork electrical service, limit markers, fencing, lighting, berms, parking, service roads, site drainage, erosion control, and site improvements. Proposed range support facilities include an operations/storage building (796 square feet), two general instruction buildings (1,593 square feet), three zero control stations (192 square feet), two ammunition breakdown buildings (237 square feet), a latrine (204 square feet), an indoor mess hall (764 square feet), and a bleacher enclosure (592 square feet).

**Estimated Utility Requirements:** This project will require connecting to the primary power distribution system. The project would include providing power from the overhead 12.47-kilovolt, three-phase primary line near the weather tower, approximately 29,857 feet from the project site. A 100 kVA, single-phase primary line will be constructed to bring primary power to the range site. Once at the site, primary power will be run underground to feed a pad-mounted transformer located near each control tower. All buildings will be supplied with 120/240-volt, single-phase, secondary power underground from the pad-mounted transformers. Secondary power of 120/240 volts will be run from each control tower power panel underground to the target cable junction boxes. Range targets will be fed using 240-volt, single-phase secondary power. The heated/illuminated range limit markers at 300 meters on the modified record fire range require 120-volt circuits. The heated/illuminated range limit markers at 31 meters on the pistol range require a 120-volt circuit. Nineteen AWG twisted pair copper cables will be required to operate the range target systems. The controls for targets require 120/240 volts. Voltage available to each target will be no less than 95 percent of its rated operating voltage. A separate 120-volt outlet is required in each target emplacement for target thermalization. Air conditioning, estimated at 20 tons, will be provided in the instruction buildings and range control towers. Telephone service is available within 1,220 meters of the site. Lines will be run overhead to the site with the primary power line and then underground between buildings. Telephone service will be provided at the control towers and other applicable buildings. All sewage on the site will be collected in the aerated vault latrines and removed by pumper truck, so no sewage lines or septic field would be required. All water needed will be trucked in, so no water line, distribution systems, or wells would be required. The availability of these utilities is expected to continue.