TETRA TECH

Environmental Hazard Management Plan
Hickam Communities Property

Hickam Communities
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

June 7, 2012

complex world

CLEAR SOLUTIONS™

Environmental Hazard Management Plan
Hickam Communities Property

Hickam Communities
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

Prepared for:

Hickam Communities, LLC

211 Mercury Street
Honolulu, HI 96818

Prepared by:

Tetra Tech

737 Bishop Street, Suite 3020
Honolulu, HI 96813
(808) 533-3366
Fax (808) 533-3306
Tetra Tech Project No. T28834

June 7, 2012

DCN: 2883401.0001.F03

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

2006 HHRA Standard	*Summary of Human Health Risk Assessment of Chlordane (including Heptachlor and Heptachlor Epoxide), Dieldrin, and Aldrin in Soil, Hickam Community Housing Areas*
2009 Program Manual	*Pesticide-Impacted Soils Investigation and Management Program Manual* (developed in 2009).
2010 APRA Standard	*Revised Analysis of Potential Removal Alternatives*
2011 HHRE Standard	*Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities*
CES	Civil Engineer Squadron
COPC	chemicals of potential concern
CY	cubic yard
D/B	design/build
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DEAL	direct exposure action level
DU	decision unit
EAL	environmental action level
ECOM	extended change of occupancy maintenance
ECR	Environmental Closure Report
EHE	*Environmental Hazard Evaluation, Hickam Communities Remedial Action Site.*
EHMP	Environmental Hazard Management Plan
EPA	US Environmental Protection Agency
EPOC	Environmental Point of Contact
Fence Packet	*Hickam Communities Fence Policy Packet*
FGO	Field Grade Officer
ground lease	The lease between HC and the USAF. The dates of the ground lease are February 1, 2005 through July 31, 2057 for Construction Phase I housing and August 1, 2007 through July 31, 2057 for Construction Phase II housing.
HAFB	Hickam Air Force Base
HAZCOM	hazard communication
HC	Hickam Communities LLC (formerly Hickam Community Housing LLC)
HC project company	The HC project company serves as the lessee and has certain responsibilities under the lease (development, property management and maintenance). As the lessee, the project company has overall responsibility for the project sites. The USAF, as lessor, maintains a review and coordination role for all activities conducted at the project sites.
HC project sites	Neighborhoods where redevelopment, construction, and/or

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS (continued)

	renovations are ongoing or completed.
HC property	Residential property at Joint Base Pearl Harbor-Hickam that is managed by HC under the 50-year ground lease between HC and the USAF.
HDOH	Hawai‘i Department of Health
HEER	hazard evaluation and emergency response
HHD	Historic Homes District
HI	hazard index (cumulative non-cancer risk number)
HOMF	HC Housing Office and Maintenance Facility
IRP	Installation Restoration Program
JBPHH	Joint Base Pearl Harbor-Hickam
JNCO	Junior Non-Commissioned Officer
Lend Lease	Lend Lease Americas LLC (formerly Actus Lend Lease LLC)
LUC	land use control
LUCID	*Land Use Control Inventory Document*
LUCIP	*Land Use Control Implementation Plan*
LTMP	*Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms*
MFHPI	Military Family Housing Privatization Initiative
MI	multi-incremental
Monitoring Plan	*Long-Term Monitoring Plan for Hickam Communities Property*
MPPIS	*Management Plan for Pesticide-Impacted Soils*
NCO	Non-Commissioned Officer
OC	organochlorine
PI	pesticide-impacted
PI soil	Pesticide-impacted soil is defined as soil having organochlorine pesticide concentrations, specifically aldrin, chlordane, and dieldrin, exceeding the applicable site-specific risk criteria established for HC.
POC	point of contact
Program Manual	*Pesticide Impacted Soil Investigation and Management Program Manual*
Resident Guide	*Hickam Communities Resident Guide and Community Standards Handbook*
RAA	*Remedial Alternatives Analysis, Hickam Communities Remedial Action Site*
RAM	*Remedial Action Memorandum, Hickam Communities Remedial Action Site*
RAR	*Removal Action Report, Actions Implemented Under Removal Actions No. 1, No. 2, and No. 3*
RI Report	*Remedial Investigation Report*
RO	removal action

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS (continued)

SI	Site Investigation
Site	The HC Remedial Action Site. The Site includes the Earhart 1-2, Earhart I-3, Hale Na Koa I-1, and Onizuka II-1 neighborhoods.
SMP	soil management plan
SNCO	Senior Non-Commissioned Officer
SOP	standard operating procedure
TCLP	Toxicity Characteristic Leaching Procedure
technical chlordane	Technical chlordane (referred to as “chlordane”) is a mixture of more than 140 related compounds. Major constituents of technical chlordane include alpha- and gamma-chlordane, chlordane, and heptachlor.
TGM	*Technical Guidance Manual – Interim Final*
USAF	US Air Force
WCR	work clearance request

1.0 INTRODUCTION AND PURPOSE

This Environmental Hazard Management Plan (EHMP) was prepared on behalf of Hickam Communities (HC; legacy Hickam Community Housing LLC) for residential property managed by HC at Joint Base Pearl Harbor-Hickam (JBPHH; formerly Hickam Air Force Base) (Figure 1-1). The scope of this EHMP also includes the Remedial Action Site which consists of the neighborhoods Hale Na Koa I-1, Earhart I-2, Earhart I-3, and Onizuka II-1 (Figure 1-2). The purpose of the EHMP is to provide information regarding the location and the long-term management plan for pesticide-impacted (PI) soil[1] that will remain at HC following the completion of PI soil management and mitigation procedures conducted during (1) ongoing redevelopment, new construction and renovations; and (2) the Remedial Action. Pesticide-impacted soil at the Site refers to soil with concentrations of organochlorine (OC) pesticides exceeding the criteria for unrestricted use at HC.[2]

The EHMP for the Site was implemented as part of the Remedial Action process that was conducted under the *Voluntary Agreement for Environmental Response Actions (Voluntary Agreement)* between the Hawai‘i Department of Health (HDOH) and HC[3]. The EHMP is intended to be a critical element of the institutional controls selected for the final Site remedy, which is presented in the *Remedial Action Memorandum, Hickam Communities Remedial Action Site* (*RAM*)[4]. Based on the guidance provided in the Hawai‘i Department of Health (HDOH) *Technical Guidance Manual – Interim Final (TGM)*[5], under a restricted use closure, an EHMP must be prepared to manage environmental hazards identified by an Environmental Health Evaluation completed for a site. Based on an agreement between HDOH and HC, the scope of the EHMP was expanded to include all of HC property[6], and specifically addressing the Remedial Action Site at HC which consists of the neighborhoods Hale Na Koa I-1, Earhart I-2, Earhart I-3, and Onizuka II-1 (hereinafter the “Site”) (Figure 1-2). In conjunction with the EHMP, the long-term management procedures, for residual PI soil permanently managed or left in place at HC property are provided in the *Land Use Controls Inventory Document for Hickam Communities Property* (*LUCID*)[7]. The *LUCID* is targeted to HC maintenance and construction workers and includes detailed standard operating procedures (SOPs) for planning work in PI soil areas and emergency response efforts. The *LUCID* is referenced throughout this EHMP, and the scope is discussed in detail in Section 8.2.2.

1.1 Overview: Environmental Hazard Management Plan

As part of the Department of Defense Military Family Housing Privatization Initiative (MFHPI), the US Air Force (USAF) selected Lend Lease Americas LLC (Lend Lease; legacy Actus Lend Lease LLC) to develop, design, and construct 1,182 new homes and to renovate 1,260 homes at JBPHH under a 50-year ground lease with the USAF. A project company, Hickam Community Housing LLC, was created in 2005 to manage the residential property under the 50-year ground lease. The project company is an affiliate of Lend Lease, and leases property at JBPHH from the USAF through the contract of the ground lease. The project company serves

[1] Pesticide-impacted soil is defined as soil having organochlorine pesticide concentrations, specifically aldrin, chlordane, and dieldrin, exceeding the applicable site-specific risk criteria established for HC.
[2] (Tetra Tech 2011d)
[3] (HC 2011a)
[4] (Tetra Tech 2012b)
[5] (HDOH 2009)
[6] (HDOH 2012)
[7] (Tetra Tech 2012d)

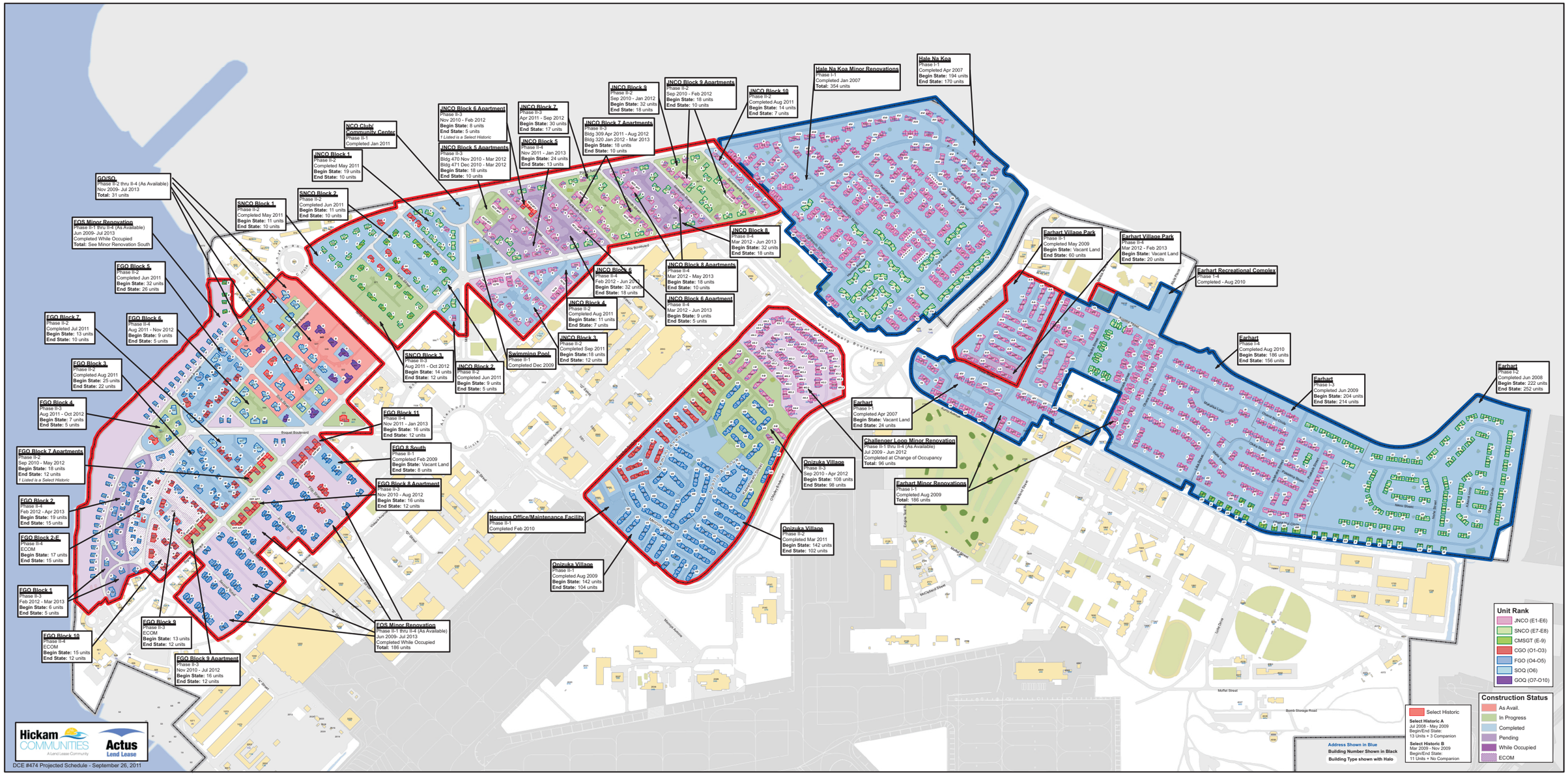
as the lessee and has certain responsibilities under the lease (development, property management and maintenance). As the lessee, the project company has overall responsibility for the project sites. The USAF, as lessor, maintains a review and coordination role for all activities conducted at the project sites[8]. The dates of the ground lease are February 1, 2005 through July 31, 2057 for Construction Phase I housing and August 1, 2007 through July 31, 2057 for Construction Phase II housing. The project company Hickam Community Housing LLC changed its name to HC in 2010.

Currently, there are two construction phases of redevelopment/construction and renovation that are either completed or ongoing at HC. Construction Phase I included demolition and replacement of housing units in the Hale Na Koa and Earhart Village neighborhoods, and Construction Phase II includes demolition and construction at the Onizuka Village neighborhood, construction of new homes on vacant land at the Earhart Village Park neighborhood, and renovation of the Challenger Loop neighborhood and historic homes at the Historic Homes District (HHD).

During due diligence activities prior and subsequent to entering into the 50-year lease with the USAF, Lend Lease and HC identified the presence of organochlorine pesticides in Site soil, specifically in the Construction Phase I area. To manage PI soil at these project sites, HC developed the *Pesticide Impacted Soil Investigation and Management Program Manual (Program Manual)*[9]. The *Program Manual* presents specific guidelines and procedures for investigating and managing PI soil at HC, and for verifying that PI soil is not present surface soil at an HC project site following completion of construction and soil management activities. Part of the preparation of the *Program Manual* included the development of the *Summary of Human Health Risk Assessment of Chlordane (including Heptachlor and Heptachlor Epoxide), Dieldrin, and Aldrin in Soil, Hickam Community Housing Areas (2006 HHRA Standard)*[10]. The *2006 HHRA Standard* presented site-specific Environmental Action Levels (EALs) for the contaminants of potential concern (COPCs), identified at HC project sites, which are the organochlorine pesticides aldrin, technical chlordane (referred to as "chlordane")[11], and dieldrin. A complete list of COPCs is provided in Table 4-1.

In 2007, post construction testing of soil in open areas at Hale Na Koa I-1 detected the presence of PI soil in some areas of this neighborhood the exceeding the 2006 HHRA Standard. The PI soil at the Hale Na Koa I-1 was mitigated in 2007. In 2010, it was discovered that soil in four neighborhoods at HC had organochlorine pesticides present in surface soil at concentrations exceeding the *2006 HHRA Standard*. These neighborhoods are Earhart I-2, Earhart I-3, Earhart I-4, and Onizuka II-1.[12] The PI surface soil at Earhart I-4 was mitigated in 2010[13]; however, the remaining three neighborhoods (Earhart I-2, Earhart I-3, and Onizuka II-1) are being addressed by the Remedial Action. To date, a Site Investigation (SI) of surface soil has been implemented which in turn initiated three removal actions (ROs) which are documented in the *Removal Action Report, Actions Implemented Under Removal Actions No. 1, No. 2, and No. 3, Hickam Communities Remedial Action Site* (*RAR*)[14]. Part of the RO process involved the development of interim site-specific EALs presented in the *Revised*

[8] Neighborhoods where redevelopment, construction, and/or renovations are ongoing or completed.
[9] (Tetra Tech 2011d)
[10] (Tetra Tech 2006b)
[11] Technical chlordane is a mixture of more than 140 related compounds. Major constituents of technical chlordane include alpha- and gamma-chlordane, chlordane, and heptachlor.
[12] (Tetra Tech 2010e, 2010f, 2010g and 2010h)
[13] (Tetra Tech 2010a, 2010d, 2010e, 2010i, and 2010L)
[14] (Tetra Tech 2012e)



r:\new\26535\CorelEHMP\Site Location.cdr - 3/27/12 - YE

Construction Phase I

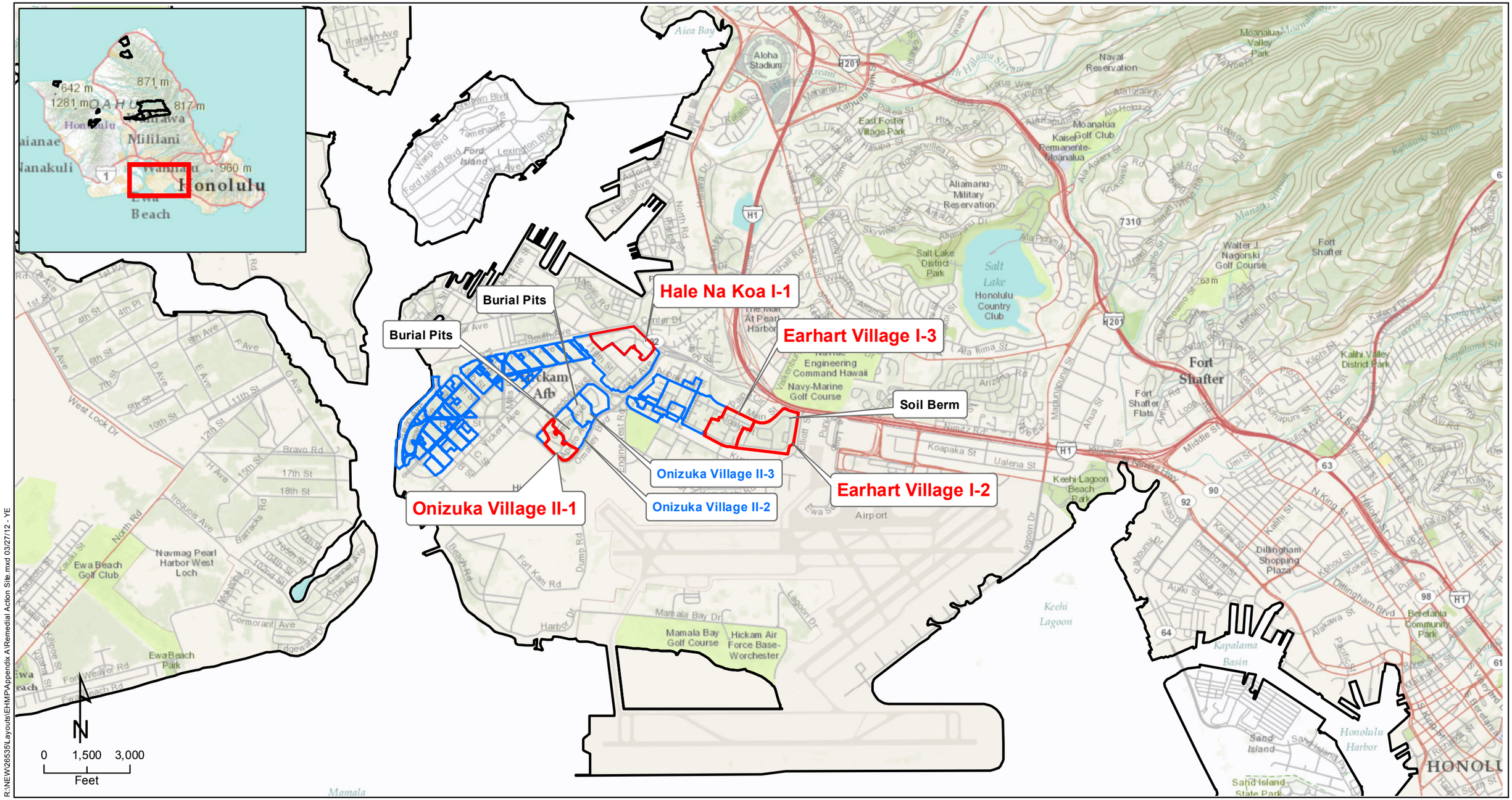
Construction Phase II

TETRA TECH

Site Location
Hickam Communities Property

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure 1-1



R:\NEW\26535\Layouts\EHMPAppendix A\Remedial Action Site.mxd 03/27/12 - YE

Remedial Action Site
Hickam Communities

Remedial Action Site

Hickam Communities Project Boundary

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

TETRA TECH

Figure 1-2

Analysis of Potential Removal Alternatives Memorandum (*2010 APRA Standard*)[15] and the *Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities (2011 HHRE Standard)*[16]. Under the Remedial Action, an *Environmental Hazard Evaluation, Hickam Communities Remedial Action Site (EHE)* was developed and presented as an appendix to the *Remedial Investigation Report, Hickam Communities Remedial Action Site* (*RI Report*)[17], which also includes the results of the SI. Based on the results of the *EHE*, a *Remedial Alternatives Analysis, Hickam Communities Remedial Action Site (RAA)*[18] was prepared to address PI soil remaining at these neighborhoods following the completion of the ROs. The selection of the remedy is presented in the draft *RAM*, and this EHMP is a critical element of the implementation of the institutional controls that will be presented in the *RAM*[19].

1.2 Document Organization

The EHMP is organized as follows:

Section 1.0: Introduction and Purpose. Introduces the purpose and objectives of the EHMP and a summary of the Remedial Action process implemented at the Site.

Section 2.0: Background. Presents the background information for the Site including the environmental setting, historic and current land use, and previous investigations.

Section 3.0: Magnitude and Extend of Remaining Pesticide-Impacted Soil. Provides a discussion of the extent and magnitude of remaining PI soil at HC, and further describes the use of GIS maps to depict these PI soil areas.

Section 4.0: Summary of Potential Environmental Hazards. This section presents a summary of the potential environmental hazards, and includes a presentation of the COPCs and the Conceptual Site Model (CSM).

Section 5.0: Institutional Controls and Soil Management: Requirements and Implementation. Presents the appropriate administrative measures and management practices for HC property.

Section 6.0: Long-Term Monitoring Requirements. Describes the long-term monitoring requirements for HC property.

Section 7.0: Soil and Groundwater Management for Future Site Activities. Describes soil and groundwater management for future site activities.

Section 8.0: Exposure Management. Provides the exposure management procedures for HC property.

Section 9.0: References. This section presents all of the references cited in the EHMP.

Appendices A through E are provided at the end of this report.

[15] (Tetra Tech 2010n)
[16] (Tetra Tech 2011a)
[17] (Tetra Tech 2012c)
[18] (Tetra Tech 2012a)
[19] (Tetra Tech 2012b)

This page intentionally left blank.

2.0 BACKGROUND

2.1 Environmental Setting

2.1.1 Soils/Geology

Joint Base Pearl Harbor-Hickam lies on the coastal plain on the leeward side of the Koʻolau Range, immediately east of Pearl Harbor. The Pearl Harbor coastal plain is underlain by a succession of terrestrial alluvial and marine sedimentary layers. As the island subsided over thousands of years, alluvial sediments interspersed with volcanic flows and volcanic ash were deposited on the margin of the island, building a reef platform. During periods of lower sea levels, the reef was exposed. This so-called caprock (because it caps the underlying volcanic rock, which contains the basal aquifer), contains strata of alluvium, lagoonal mud, beach sands, volcanic tuff, and corals. At depth, these strata overlay volcanic bedrock of the Honolulu volcanic series.

Most of JBPHH soils are mapped as fill, comprising material dredged from the ocean or hauled in from elsewhere. In addition to the fill, there are five naturally occurring soil types present (Māmala stony silt clay loam, Makalapa clay, Keaʻau stony clay, Jaucus sand, and coral outcrop) that are associated with the coastal plain and coral reef substratum over which the base lies. The fill and naturally occurring soil types are considered poor for vegetation growth, and high-maintenance landscaping areas usually contain topsoil fill from off-base sources. The erosion potential for the JBPHH soils is generally slight to moderate, with the exception of Jaucus sand, which is highly erodible.[20]

2.1.2 Surface Water

There are no natural lakes, rivers, or streams on the Site; however, Manuwai Canal, which provides storm drainage for the eastern third of JBPHH, flows adjacent to the southern boundary of the Earhart neighborhood (Figure 1-1). The Manuwai Canal empties into Māmala Bay to the south.

The housing areas are not within the area on JBPHH designated as a potential flood inundation zone. The housing areas utilize a storm drainage system that collects surface water and sends it to a series of canals that eventually empty to Māmala Bay. The sedimentary deposits are intermittent with the volcanic basalts that make up the land mass of the Hawaiian Islands.

Wetlands. No wetlands are present on Hickam Communities property at JBPHH. The Manuwai Canal, which flows adjacent to the southern boundary of the Earhart neighborhood, has been classified by the National Wetland Inventory as an estuarine, open water, subtidal inundation, and excavated wetland.[21]

[20] (USAF 2002)
[21] (USAF 2002)

2.1.3 Groundwater

There are two groundwater aquifers below JBPHH. Most of the installation is underlain at shallow depth by two brackish aquifers that are not suitable for commercial, residential, or recreational use. General groundwater flow in the area is toward the Pacific Ocean to the south. At greater depth, a small portion of JBPHH is underlain by a protected freshwater aquifer and has stringent requirements for water quality protection. Potable water is supplied to JBPHH from off-site US Navy storage tanks.[22]

Joint Base Pearl Harbor-Hickam is in the lower portion of the Southern Oʻahu Groundwater Flow System, which extends from the Koʻolau Mountains and the dike-impounded central highlands, to Pearl Harbor and the Pacific Ocean. In the low-elevation areas surrounding Pearl Harbor, high quality groundwater occurs mainly in the basal aquifer, where it is confined by 1,000 feet or more of sedimentary caprock, consisting largely of interbedded ancient reefs and volcanic deposits.[23]

Joint Base Pearl Harbor-Hickam lies within the Moanalua Aquifer System of the greater Honolulu Aquifer Sector, and comprise two aquifers identified with aquifer codes 30104116 and 30104121. The upper, basal aquifer (aquifer code 30104116) is comprised of fresh water in contact with salt water, and it is unconfined and occurs in sedimentary (non-volcanic) deposits. This upper, basal aquifer is described as having potential for use, without specific utility, moderately saline (1,000 to 5,000 milligrams per liter chloride), replaceable, and highly vulnerable to contamination. The lower, high level aquifer (aquifer code 30103121) is comprised of freshwater not in contact with salt water, confined (under caprock) and located in flank lithology (horizontally extensive lavas).[24]

2.2 Description of Hickam Communities (HC) Property

Hickam Communities property is leased property located within the boundary of JBPHH. The JBPHH is situated on approximately 2,700 acres of the Pearl Harbor coastal plain on the southern coast of Oʻahu, Hawaiʻi and includes the former Fort Kamehameha area and the area occupied by the Hawaiʻi Air National Guard.[25] Hickam Communities leased property is almost entirely developed and consists of both enlisted and officer-grade multiplex military family housing, historical homes, the HC Housing Office and Maintenance Facility (HOMF; located within the boundary of the Onizuka II-1 neighborhood), and support facilities such as swimming pools, playgrounds, parks, and recreational centers. The housing area is broken up into several neighborhoods including Earhart Village, Earhart Village Park, Onizuka Village, Hale Na Koa (formerly “Capehart”), Challenger Loop, and the HHD. Hickam Communities property consists of fully developed multiplex military housing, areas undergoing construction and renovation, and undeveloped property.

2.3 Historical Use of HC Property

The Site is part of HC leased property located within the boundary of JBPHH, formerly Hickam Air Force Base (HAFB). The Site has been used for military purposes for more than 50 years.

[22] (USAF 1998)
[23] (Nichols et al. 1996)
[24] (Mink and Lau 1990)
[25] (Waller 2007)

Development of the base began in 1928, when the War Department identified the area to improve air defenses for Hawaiian territories.[26] Prior to acquisition by the War Department, the area that now contains HAFB was used for agriculture and fish ponds.[27] In 1935, approximately 2,225 acres of brush and sugar cane fields were developed into Hickam Field and the Base was activated in 1938. Hickam Field was renamed HAFB in 1943. The Hickam Field Officer Quarters (part of the HHD) were constructed between 1939 and 1947.[28]

The Fort Kamehameha housing area (part of the HHD) was acquired by USAF in March of 1993. Constructed in 1917, they are the oldest units at JBPHH. In addition to their historical significance as the earliest remaining military family housing units established on the island, Fort Kamehameha is archaeologically significant as pre and post-contact remains have been recovered within the area.

With the exception of the HHD, most of the original housing at the Site was constructed in the 1950s through the 1970s. The Earhart Village housing property was acquired in two phases (1942 and 1968) and developed for residential purposes. Onizuka Village was originally constructed in 1975, overlaying what was once part of the airfield.[29]

2.4 Current Use of HC Property

The project company HC was created to manage the residential construction projects and to manage the long-term operations, including property management and facility maintenance. Under the MFHPI program, HC manages residential property under a 50-year ground lease by HC, which has responsibility redeveloping, renovating, and maintaining the buildings and grounds. The dates of the ground lease are February 1, 2005 through July 31, 2057 for Phase I housing and August 1, 2007 through July 31, 2057 for Phase II housing.[30]

Hickam Communities property consists of Phase I and Phase II residential housing that is currently undergoing various stages of redevelopment (demolition of older homes, construction of replacement homes), construction of new homes on vacant parcels, and renovations to existing and historic homes. Construction for Phase I of the project was awarded to HC in 2004 and completed in August 2010, and construction for Phase II was awarded in 2007 with planned completion of all of the subphases by the summer of 2013. The Phase I and Phase II construction projects at HC property described by subphase below, and shown in Figure 1-1.

2.4.1 Construction Phase I Housing

Hale Na Koa. The Hale Na Koa neighborhood (formerly known as “Capehart Village”) is located south of the intersection of South Avenue and North Road and Earhart Village Park to the southeast, and Onizuka Village to the southwest. The Hale Na Koa Phase I-1 area was divided into two project areas: minor renovations of 354 multiplex units completed in January 2007, and redevelopment for 170 multiplex units completed in April 2007.

[26] (Waller 2007)
[27] (KJC 1991)
[28] (Tetra Tech 2007)
[29] (Waller 2007)
[30] (HC 2011c)

Earhart Village. The Earhart Village (Earhart) neighborhood encompasses approximately 130 acres on the northern portion of JBPHH. There are four subphases of construction of multiplex units at the Earhart neighborhood: Earhart I-1, Earhart I-2, Earhart I-3, and Earhart I-4. The two areas that comprise Earhart subphase I-1 include a formerly vacant parcel between Liliwai Street to the north and Kuntz Avenue to the south that was developed with 24 multiplex units completed in April 2007, and minor renovations to 186 multiplex units completed in August 2009.

The eastern portion of the Earhart neighborhood consists of the three remaining construction subphases; this boundary is mostly delineated by Ohana Nui Circle, which is the outermost street that loops through the neighborhood. These are subphase I-2 in the easternmost portion of the neighborhood, subphase I-3 in the east-central portion, and subphase I-4 in the west-central portion (Figure 1-1). Subphase I-2 consisted of redevelopment for 282 multiplex units completed in June 2008, subphase I-3 consisted of redevelopment for 214 multiplex units completed in June 2009, and subphase I-4 consisted of redevelopment for 156 multiplex units completed in June 2010, and the Earhart Recreational Complex completed in August 2010.

2.4.2 Construction Phase II Housing

Earhart Village Park. The Earhart Village Park neighborhood is located on the western boundary of the Earhart neighborhood. Redevelopment of this location consists of two subphases, Earhart Village Park II-1 and II-4. Earhart Village Park II-1 consisted of the development of 60 multiplex units on vacant land completed in May 2009, and Earhart II-4 will consist of the development of 20 multiplex units on vacant land planned for March 2012 through February 2013.

Onizuka Village. The Onizuka Village neighborhood encompasses approximately 74 acres of JBPHH[31]. There are three subphases designated for redevelopment at the Onizuka neighborhood: Onizuka II-1, Onizuka II-2, and Onizuka II-3. Onizuka subphase II-1 subphase is located in the southwestern portion of Onizuka Village and was redeveloped for 104 multiplex units completed in August 2009, and the redevelopment of the HC HOMF completed in February 2010. The Onizuka II-2 subphase is located in the central portion of the Onizuka neighborhood and was redeveloped for 102 multiplex units which were completed in March 2011. The Onizuka II-3 subphase is located in the northeastern portion of the Onizuka neighborhood and is being redeveloped for 82 multiplex units with planned completion in April 2012.

Challenger Loop. The Challenger Loop neighborhood is an existing neighborhood that was constructed in 1992 and 1993.[32] There are four subphases of minor renovations planned for 96 multiplex units at Challenger Loop, subphase II-1 through II-4. These renovations are being conducted as the units became available during changes in occupancy with planned completion for June 2012.

Historic Homes District. The HHD consists of historic homes that are primarily undergoing renovation in four subphases: Historic Block II-1, Historic Blocks II-2, Historic Blocks II-3, and Historic Blocks II-4. Minor renovations of 186 Field Officer South and 31 General Officer/Senior Officer units are being conducted during all four subphases at the HHD between June 2009 and

[31] (Waller 2007)
[32] (Tetra Tech 2007)

July 2013. Currently, the only demolition activities at the HHD consist of removal of non-historic building additions and lanais. The subphase renovations for Historic Blocks II-1 through II-4 are described below:

- Historic Blocks II-1. The only new construction at the HHD was for subphase II-1 and consisted of the construction of eight multiplex Field Grade Officer (FGO) South units between May 2008 and February 2009. Part of subphase II-1 includes renovation of the Non-Commissioned Officer (NCO) Club and Community Center completed in January 2011, and the swimming pool, completed in December 2009.

- Historic Blocks II-2. Subphase II-2 consists of renovations to FGO Block 3 (22 final units; completed August 2011), Block 5 (26 final units; completed June 2011), Block 7 (ten final units; completed July 2011), Block 7 Apartments (twelve final units; completion planned for April 2012). The Junior Non-Commissioned Officer (JNCO) Block 1 (ten final units; completed May 2011), Block 2 (five final units; completed June 2011), Block 3 (twelve final units; completed September 2011), Block 4 (seven final units; completed August 2011), Block 9 (eighteen final units; planned completion January 2012), Block 9 Apartments (ten final units; planned competition February 2012), Block 10 (seven final units; completed August 2011). The Senior Non-Commissioned Officer (SNCO) Block 1 (ten final units; completed May 2011), Block 2 (ten final units; completed June 2011),

- Historic Blocks II-3. Subphase II-3 consists of renovations to FGO Block 1 (five final units; planned completion March 2013), Block 4 (five final units; planned completion 2012), Block 8 Apartments (twelve final units; planned completion August 2012), Block 9 (twelve final units, extended change of occupancy maintenance [ECOM]), Block 9 Apartments (twelve final units; completion planned for July 2012). The JNCO Block 5 Apartments (ten final units; completion planned for March 2012), Block 6 Apartments (five final units; planned completion February 2012), Block 7 (seventeen final units; planned completion September 2012), Block 7 Apartments (ten final units; planned completion March 2013). The SNCO Block 3 (twelve final units; planned completion 2012).

- Historic Blocks II-4. Subphase II-4 consists of renovations to FGO Block 2 (fifteen final units; planned completion April 2013), Block 2-E (fifteen final units; ECOM), Block 6 (five final units; planned completion November 2012), Block 10 (twelve final units; ECOM), Block 11 (twelve final units; planned completion January 2013). The JNCO Block 5 (thirteen final units; planned completion 2013), Block 6 (eighteen final units; planned completion June 2013), Block 6 Apartments (ten final units; planned completion May 2013), Block 8 (eighteen final units; planned completion June 2013), Block 8 Apartments (ten final units; planned completion May 2013).

2.5 Pesticide-Impacted Soil Management at HC Property

Prior initiating the MFHPI at JBPHH, the USAF prepared reports documenting known or potential environmental issues affecting the residential property to be transferred or leased. In addition, as part of its due diligence process, Lend Lease also assessed known or potential environmental issues. As a result, a series of management practices were initiated at HC in 2004 since any PI soil detected at a HC project site would require management to prevent

exposure of HC workers, residents and guests from potential PI soil disturbed during demolition, renovation, and/or construction of military housing.

The first plan developed for HC was the *Management Plan for Pesticide-Impacted Soils* (*MPPIS*) which was implemented at HC in 2006.[33] To capture changes in the HC redevelopment and construction processes, the *MPPIS* was updated and renamed the *Pesticide-Impacted Soils Investigation and Management Program Manual* in 2009 (*2009 Program Manual)*[34]. The *2009 Program Manual* presented detailed guidelines for planning pre- and post-demolition soil sampling, development of site-specific Soil Management Plans (SMPs), and a combination of environmental oversight procedures and confirmation soil sampling once construction is completed, and preparation of Environmental Closure Reports (ECRs).

Based on updated soil management and risk criteria, the *2009 Program Manual* was updated on August 31, 2011.[35] Under this recent version, referred to as the *Program Manual*, updated permanent soil management procedures are provided that call for excavation of PI soil to a depth of at least 1-foot below final grade in areas that would not be covered by hardscapes after new construction is completed. The excavated areas are then covered with a marker layer of orange geotextile fabric and then capped by at least 1-foot of clean soil to bring the HC project site to final grade. Any PI soil already present under existing hardscapes (e.g. roads, building foundations, sidewalks, driveways, and parking lots), would not need to be removed because the hardscapes provide a long-term barrier to exposure. Since no PI soil is exported off of HC property, it is managed on-site through placement of excavated PI soil under new hardscapes, or into burial pits and soil berms and capped with orange geotextile and a minimum 1-foot of clean soil. These methods permanently manage PI soil at HC and prevent the exposure pathways of direct contact, inhalation, and ingestion that may be associated with exposed soil. The *Program Manual* is discussed in Section 8.2.1.

Hickam Communities project sites where PI soil is managed in accordance with the *Program Manual* are documented in the individual ECRs, the *LUCID*[36], and this EHMP. Both the LUCID and this EHMP include the soil mitigated at the Site during the Remedial Action process. Maps depicting the location of PI soil either permanently managed or left in place for the entire HC project area, including the Site, are discussed in Section 3.0, and provided in Appendix A.

2.6 History of Contaminant Releases at HC Property

The release at the Site occurred during redevelopment activities when PI soil that originated from excavating footprints of former buildings was improperly placed or graded into open areas, and not subsequently covered by hardscapes. This PI soil was not detected until after construction at the Site was completed or nearing completion. The PI soil at the Hale Na Koa I-1 and Earhart I-4 neighborhoods was mitigated in 2007 and 2010, respectively, prior to the Remedial Action process implemented by HC and HDOH in July 2010. As part of the Remedial Action, a SI was conducted at the remaining three neighborhoods Earhart I-2, Earhart I-3, and Onizuka II-1. Based on the preliminary results of the SI, HC implemented three ROs to address the immediate risk posed by exposed PI soil at the Earhart I-2 and Earhart I-3 neighborhoods. The results of the previous investigations relating to this release, including the SI, are

[33] (Tetra Tech 2006c)
[34] (Tetra Tech 2009a)
[35] (Tetra Tech 2011d)
[36] (Tetra Tech 2012d)

summarized in Sections 2.7.2, 2.7.3, and 2.7.4. The results of the SI are provided in their entirety in the *RI Report*.[37] The ROs are summarized in Section 2.7.5 and detailed in the *RAR*.[38]

To date, the affected areas at the Site have been addressed, and the residual PI soil at the Site, which does not pose imminent threat, are addressed by the *EHE*[39] and the *RAA*[40]; these areas of residual PI soil will be further addressed by the selected remedy presented in the *RAM*[41].

2.7 Investigations Conducted at HC Property

In accordance with the *Program Manual*, soil at HC project sites has been evaluated for the presence of pesticides as part of the development of the Phase I and Phase II housing. During this evaluation, soil sampling was conducted at the existing neighborhoods prior to demolition and redevelopment consisting primarily of multi-incremental (MI) soil sampling of open area decision units (DUs) around the existing homes, and pre- and post-demolition MI soil sampling of building footprints DUs. Based on the results of this soil sampling, DUs with PI soil have been identified, and this soil was managed during construction based on site-specific SMPs.

Environmental oversight has been conducted during soil management to document that PI soil identified during the initial investigation was managed in accordance with site-specific SMPs and the *Program Manual*. In addition to the environmental oversight, confirmation soil sampling may have also been conducted in the open areas around the new housing in completed neighborhoods. Since the results of the soil sampling and oversight conducted at each neighborhood is ongoing and extensive, this information will be provided in the ECRs to be prepared following the completion of each HC neighborhood.

For the purposes of this EHMP, maps depicting the location of PI soil either permanently managed or left in place at HC as of the date of this EHMP are discussed in Section 3.0 and provided in Appendix A.

2.7.1 Installation Restoration Program Sites

Sources of contaminants from past operations base-wide at JBPHH have been identified under the Department of Defense Installation Restoration Program (IRP). The information from the IRP site investigations provides an important source of information about the environmental conditions at the Site.

A management action plan prepared in May 2007 summarized the status of the IRP sites.[42] This plan did not identify any IRP sites within the neighborhoods at HC including the Site; however, there are three IRP sites located adjacent to the Site. These IRP sites are the SS-01 west of Onizuka Village, and two IRP sites adjacent to and south of Earhart Village which are MY158 (a former motor pool with petroleum hydrocarbons, solvents and metals), and SS-25 (the Hickam Village Shoppette site, with petroleum hydrocarbons). These IRP sites have been

[37] (Tetra Tech 2012c)
[38] (Tetra Tech 2012e)
[39] (Tetra Tech 2012c)
[40] (Tetra Tech 2012a)
[41] (Tetra Tech 2012b)
[42] (HAFB 2007)

investigated by the USAF, and records of decision have been signed identifying no further action as the remedy for these sites. The land use controls (LUCs) in place for the IRP sites at JBPHH are presented in the USAF *Land Use Control Implementation Plan (LUCIP)*. The scope of the USAF *LUCIP* is to document the responsibilities and procedures for maintaining, managing and tracking, enforcing, and when appropriate, modifying or terminating these LUCs.[43]

2.7.2 Investigations at the Hale Na Koa I-1 Neighborhood (2004 through 2010)

Based on the preliminary findings of the Phase I ESA conducted in 2004 (and finalized in January 2005)[44], and the known application methods used to treat building foundations with organochlorine pesticides, a discrete soil sampling investigation was conducted at Hale Na Koa I-1 (the former Capehart neighborhood) in 2004[45]. For this investigation, discrete soil samples were collected within the building driplines and close to the foundations of the existing buildings prior to demolition.

The results of the 2004 discrete soil sampling investigation indicated that organochlorine pesticides were present in Hale Na Koa I-1 soil at concentrations exceeding the HDOH EALs[46]. In 2006, a soil investigation to characterize the extent of the PI soil at the Hale Na Koa I-1 was performed, whereby DUs were delineated to distinguish a 10-foot zone of soil around the buildings.[47] It is important to note that the entire Site was characterized during this investigation; that is, some of the DUs included this 10-foot zone around the buildings, while others were located in open areas between the buildings and backyards. The results of this investigation indicated that nineteen of the sampled DUs were identified as having exposed PI soil. The soil in these nineteen DUs was managed by excavation of the soil to 1-foot below planned final grade, and placement of a 1-foot thick clean soil cap which was completed in 2007.

Confirmation soil sampling of Hale Na Koa I-1 was performed in 2010. For this confirmation soil sampling investigation, the Hale Na Koa I-1 neighborhood was divided into eleven DUs and sampled using MI soil sampling methodology.[48] Five of these DUs included the nineteen DUs where PI soil was previously identified and managed; these DUs were sampled at the 0 to 6 and 6 to 12-inch depth intervals. The remaining six DUs for the areas that had previously tested as not being PI were sampled from the 0 to 6-inch depth interval only. The results of the confirmation soil sampling investigation indicated that organochlorine pesticide detections in the MI soil samples do not exceed the applicable risk criteria[49], and concludes that there is no exposed PI soil at Hale Na Koa I-1.

[43] (USAF 2010)
[44] (Tetra Tech 2005)
[45] (Tetra Tech 2004)
[46] (HDOH 2005)
[47] (Tetra Tech 2006a)
[48] (Tetra Tech 2010b)
[49] (Tetra Tech 2010c)

2.7.3 Investigations at the Earhart I-2, Earhart I-3, Earhart I-4, and Onizuka II-1 Neighborhoods (2006 through 2010)

Prior to demolition, open area soil sampling around the existing buildings was conducted at the Earhart I-2, Earhart I-3, and Earhart I-4 neighborhoods, and limited open area sampling was conducted at the Onizuka II-1 neighborhood.[50] The results of the soil sampling indicated that PI soil was not present in the upper 6 inches of soil in these neighborhoods. Demolition and redevelopment of Earhart I-2 neighborhood was conducted between March 2007 and August 2008, Earhart I-3 from March 2008 and August 2009, and Onizuka II-1 from February 2008 to June 2009. Demolition of the Earhart I-4 began in June 2008. Since demolition and soil management at the Earhart I-4 neighborhood was underway when environmental oversight was implemented, HC decided to conduct verification soil sampling during ongoing construction in areas at Earhart I-4 where PI soil had already been managed. Based on previous oversight, Tetra Tech performed confirmation soil sampling in open areas at Earhart I-4 between August and December 2009.[51] The confirmation soil sampling identified that organochlorine pesticides were present in surface soil. Based on these results, the upper 1-foot of open area soil at Earhart I-4 was removed and placed into burial pits at the Onizuka II-2 neighborhood. Clean soil removed from Onizuka II-2 to create the burial pits was used to install a 1-foot clean soil cap at Earhart I-4. Confirmation soil sampling was performed at Earhart I-4 after the cap was installed which indicated that no PI soil remained in surface soil at Earhart I-4.[52]

Confirmation soil sampling was also conducted following completion of new housing construction at the Earhart I-2, Earhart I-3, and Onizuka I-1 neighborhoods.[53] Ten open area DUs were sampled at Earhart I-2, six open area DUs were sampled at Earhart I-3, and five open area DUs were sampled at Onizuka II-1. The results of the confirmation soil sampling indicated that organochlorine pesticides were present in soil at all ten open area DUs at Earhart I-2, all six open area DUs at Earhart I-3, and two of five open area DUs at Onizuka II-1.[54]

2.7.4 Site Investigation (SI) (2010)

As a result of the confirmation soil sampling at the Earhart I-2, Earhart I-3, and Onizuka II-1 neighborhoods, meetings between HDOH and HC were conducted in July 2010, and the SI was planned. Two Sampling and Analysis Plans were developed where the entire exposed ground surfaces within the Earhart I-2, Earhart I-3, and Onizuka II-1 neighborhoods were subdivided into DUs of up to 5,500 sq ft in size.[55] The area of each DU only included the exposed surface area, including landscaped areas, but excluded the measured areas of hardscapes. The DUs were also defined by the nature of the land use, so that they corresponded to front yards, back yards, play areas, or common areas (such as pedestrian corridors) used by residents and guests. The soil in each DU was sampled using MI sampling methodology, which involves collecting 30 to 50 individual soil samples (or "increments") from points spread out across the DU. These increments are combined into a single composite sample; and mixing and processing the composite sample is conducted during laboratory preparation to ensure that a representative subsample of the composite sample is analyzed. The MI soil samples are a means of directly estimating the average concentration of pesticides within the DU. For the SI, the Earhart I-2 neighborhood was divided into a total of 330 DUs, the Earhart I-3 neighborhood was divided into 180 DUs, and the Onizuka II-1 neighborhood was divided into 21 DUs. The MI

[50] (Tetra Tech 2006b and 2007b)
[51] (Tetra Tech 2009c)
[52] (Tetra Tech 2010a, 2010c, 2010d, 2010h, 2010k, and 2010L)
[53] (Tetra Tech 2010b)
[54] (Tetra Tech 2010f, 2010g, and 2010h)
[55] (Tetra Tech 2010j and 2010k)

soil samples were collected from the 0 to 6-inch and 6 to 12-inch depth intervals, resulting in samples representing the average concentrations of pesticides within these depth intervals for each DU.

Between August and October 2010, the SI was performed with MI soil samples collected from the 0 to 6 and 6 to 12-inch depth intervals at each DU. These MI soil samples were submitted for analysis of organochlorine pesticides by US Environmental Protection Agency (EPA) Method 8081. The results of the SI indicated that the soil was impacted with residual organochlorine pesticides, specifically aldrin, chlordane, and dieldrin at the three neighborhoods sampled for the SI. At the request of HDOH, following review by Tetra Tech and HC, the preliminary analytical results for organochlorine pesticides from the soil samples collected for the SI were tabulated and transmitted to HDOH on a daily basis. The complete analytical results for the SI are provided in the *RI Report*[56].

2.7.5 Removal Action (RO) (2010 through 2011)

The daily review of the preliminary SI analytical results by HC, Tetra Tech, and HDOH indicated that organochlorine pesticides detected in soil at some of the sampled DUs were present at concentrations that posed an immediate human health risk to HC workers, residents, and guests. Based on meetings between HC, HDOH, and Tetra Tech risk assessors, it was agreed that the immediate risk was posed by the non-carcinogenic risk from organochlorine pesticide concentrations in soil. As a result, the decision making process for ROs was developed based on calculation of the Hazard Index (HI) for each MI soil sample. Hickam Communities, in consultation with HDOH, used interim site-specific EALs to further screen the soil sample results. Based on the results of this screening, the RO was initiated in September 2010 to address the PI soil detected at the three neighborhoods. These removal actions were identified for specific DUs at the Earhart I-2 and Earhart I-3 neighborhoods; no DUs were identified at Onizuka II-1 neighborhood for action under the RO process.

The RO process consisted of three ROs, Removal Action No. 1 (RO #1), Removal Action No. 2 (RO #2), and Removal Action No. 3 (RO #3). These ROs were implemented in sequential order between October 2010 and August 2011. RO #1 and RO #2 were implemented to address soil with organochlorine pesticide concentrations that presented the highest health risks at the Site. The RO #1 and RO #2 were conducted based on immediate human health concerns, while HC conducted the RO #3 voluntarily, as described below. The ROs are summarized here, and presented in detail in the *RAR*[57].

2.7.5.1 Removal Action No. 1

The RO #1 was implemented starting in October 15, 2010 and completed by early January 2011. For RO #1, two actions (RO-1A and RO-1B) were taken based on the risk criteria under the provided in the 2009 *Program Manual*[58], referred to as the "2006 HHRA Standard". Under RO-1A, soil that contained concentrations associated with a combined non-carcinogenic risk described by an HI >10 were targeted for excavation of the upper 1-foot of soil, placement of a marker layer of orange geotextile fabric, and capping with 1-foot of soil with clean soil. A total of four DUs in Earhart I-2, and one DU in Earhart I-3 met this criterion and were selected for action under RO-1A. At the same time, a second response action was initiated under RO-1B to ensure that turf grass in areas with soil presenting an intermediate level of risk was maintained so that the grass cover would act as an effective barrier to exposure. Under RO-1B, one DU in

[56] (Tetra Tech 2012c)
[57] (Tetra Tech 2012e)
[58] (Tetra Tech 2009a)

the Earhart I-2 neighborhood was identified where a large enough area of grass cover was inadequate and the DU was selected for excavation and replacement of the upper 1-foot of soil.

During planning of RO #1, HC decided to excavate and replace soil in three additional DUs in the Earhart I-2 area that were adjacent to the selected DUs, and to remove soil from small parts of three other adjacent DUs. All PI soil removed during RO-1A and RO-1B was stockpiled at a temporary PI soil management area, and subsequently placed into Burial Pit No. 6b constructed in the Onizuka II-3 neighborhood on April 22, 2011.[59]

2.7.5.2 Removal Action No. 2

The RO #2 was implemented starting on January 4, 2011 and completed by the end of April 2011. Following completion of RO #1, RO #2 was designed to address DUs in which organochlorine pesticide concentrations with an HI >1, based on modified exposure assumptions that were presented in the memorandum entitled *Revised Analysis of Potential Removal Alternatives, Earhart I-2, Earhart I-3, and Onizuka II-1 Neighborhoods* and referred to as the "2010 Analysis of Potential Removal Alternatives (APRA) Standard".[60]

On the basis of this analysis, for RO #2, three actions were implemented. Under RO-2A, one additional DU in the Earhart I-2 area was selected for excavation of the upper 1-foot of soil, placement of a marker layer of orange geotextile fabric, and capping with 1-foot of soil with clean soil. A second response action was undertaken under RO-2B (RO-2B1 and RO-2B2) to inspect landscaping strips adjacent to homes in 41 DU and identify specific landscaping strip DUs requiring installation geotextile barriers in landscape strips. Under RO-2B1 and RO-2B2, actions were implemented at a total of 29 landscaping strip DUs. For the third response action, which was undertaken under RO-2C, a total of 195 DUs with intermediate pesticide concentrations were identified for inspection. The inspection was to evaluate if bare areas were present in the DUs that required hydroseeding to improve grass cover. Under RO-2C, actions were implemented at a total of 23 bare area DUs. All PI soil removed during RO #2 was stockpiled at a temporary PI soil management area, and placed into a PI soil Burial Pit No. 6b constructed in the Onizuka II-3 neighborhood on April 22, 2011.[61]

2.7.5.3 Removal Action No. 3

The RO #3 was implemented starting on January 5, 2011 and completed August 4, 2011. The RO #3 was developed based on reevaluation of the human health risks associated with dieldrin and aldrin presented in the *Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities* (*HHRE WP*)[62] and referred to as the "2011 HHRE Standard". Based on these modified EALs, one action (RO-3) was conducted to address DUs with an HI >1.[63] Under RO-3, ten DUs in Earhart I-2 and four DUs in Earhart I-3, which identified with combined pesticide concentrations representing an HI >1, were excavated to a depth of 9 inches below final grade, a marker layer of orange geotextile fabric installed, and the soil replaced with clean fill and reseeded (a depth of 6-inch below final grade for this excavation was presented in the work plan for RO #3, which was approved by the HDOH in its letter dated June 9, 2011[64]. The final depth of 9-inches for the excavations was based on geotechnical concerns for the clean fill soil.

[59] (Tetra Tech 2012e)
[60] (Tetra Tech 2010n)
[61] (Tetra Tech 2012e)
[62] (Tetra Tech 2011a)
[63] (Tetra Tech 2012e)
[64] (HDOH 2011a)

The PI soil excavated during RO-3 was placed into a PI soil berm constructed at the Earhart I-2 neighborhood in February 2012.[65]

[65] (Tetra Tech 2012e)

3.0 MAGNITUDE AND EXTENT OF REMAINING PESTICIDE-IMPACTED (PI) SOIL

This section describes where PI soil or presumed PI soil remains at HC property, and is based on previous investigations (including the SI) and ROs implemented at the Site. As a result of these actions, there are no current hazards posed by PI soil at the Site; however, residual PI soil is known or presumed to be present beneath clean soil caps, hardscapes, and within the 3-foot building zone at existing homes in the HHD. Pesticide-Impacted soil is also known to be present in on-site management areas. The PI soil remaining at HC is summarized below by construction phase, and provided graphically in the GIS maps provided in Appendix A.

3.1 Residual PI Soil

The primary means by which organochlorine pesticides were introduced into soil at HC property is through termiticide application. The application method was likely a combination of spraying soil surfaces prior to the construction of concrete slab foundations, and subsequent injection through utility openings in the foundations, and along foundation perimeters following construction of the homes. For this type of application, the intended application depths are not expected to have exceeded 2 to 3 feet below grade. Although some downward migration may have occurred immediately after the initial application (when the organochlorine pesticides were still dissolved in carrier solvents), any subsequent movement of organochlorine pesticides sorbed to soil particles due to leaching is expected to be minimal.[66]

Pesticide-impacted soil was placed at greater depths during HC construction activities due to:

- Known use of PI soil as backfill for some utility trenches;
- Intentional burial of PI soil in the Onizuka Village neighborhood burial pits (Figure 1-2 and Appendix A); and
- Other potential (and unverified) burial of PI soil.

These locations are summarized below, and presented in detail in maps provided in Appendix A and in the *LUCID*.

3.1.1 Utility Trenches

Pesticide-impacted soil was used to backfill utility trenches in some areas at the Earhart I-2, Earhart I-3 and Onizuka II-1 neighborhoods. The depths of utility trenches range from approximately 1-foot (irrigation lines) to approximately 10 feet below final grade (water mains and sewer lines). The use of PI soil as trench backfill was discontinued in 2010, but PI soil could be present in utility trenches at the Site. Maps indicating the locations where PI soil is known or assumed to be present in utility trenches are provided in Appendix A.

3.1.2 Soil Management Areas at Hickam Communities

As a result of construction, redevelopment, and renovation at HC project sites, including ROs, no PI soil is transported off-site for disposal. Although soil generated by these activities is commonly managed within HC property by placement under hardscapes and/or a 1-foot clean soil cap, two other management methods are used at HC, which are described below.

[66] (Tetra Tech 2009b)

3.1.2.1 Burial Pits

To manage PI soil, burial pits are constructed within the HC property. To construct these burial pits, soil is excavated in open areas to a maximum depth of 5-feet above mean sea level (approximately 8 to 12 feet below final grade), which is deeper than the expected depth of pesticide application. These burial pits are then backfilled with PI soil, a marker layer of orange geotextile fabric installed, followed by a 2-foot clean soil cap.

There are currently no burial pits located at the neighborhoods within the Site. The burial pits at HC were installed in the Onizuka II-2 and Onizuka II-3 neighborhoods starting in 2009; the last available pit was closed in the fall of 2011 (Figures A-10 and A-11). Approximately 1,318 cubic yards (CY) of soil from RO #1 and 245 CY of soil from RO #2 is managed in Burial Pit No. 6b located in the Onizuka II-3 neighborhood.[67]

3.1.2.2 Soil Berms

With the pending closure of the burial pits at the Onizuka Village neighborhood, soil berming was identified as a new management option for PI soil at HC. Soil berms are an above-ground management method where PI soil is placed into an elongated berm, compacted, covered with a marker layer of orange geotextile fabric, and then capped with 2-feet of clean soil. This clean cap is subsequently landscaped with a groundcover.

A soil berm has been constructed at the Earhart I-2 neighborhood to manage the PI soil generated from the Historic Homes District, and the soil from generated from RO #3 (Figure A-4). Construction of the soil berm was completed in February 2012. The total volume of the Earhart I-2 soil berm will have a capacity of 15,500 CY[68], including approximately 1,390 CY of PI soil from RO #3.[69] The berm was engineered and constructed based on plans and procedures presented in the *Soil Management Plan for Pesticide-Impacted Soil Berms, Earhart I-2 Neighborhood, DCN: 2626001.0002.F01*[70], which was approved by HDOH in its letter dated August 22, 2011[71].

3.1.3 Pesticide-Impacted Soil at Construction Phase I Housing

Hale Na Koa. At the Hale Na Koa I-1 neighborhood, PI soil has been mitigated or has been managed under hardscapes, and/or under at least 1-foot of clean soil. There is no marker layer of orange geotextile fabric installed at Hale Na Koa I-1. At the Hale Na Koa Minor Renovations, since this neighborhood is only undergoing minor renovations, PI soil is assumed to be present under building foundation and within the 3-foot building zones (Figures A-1 and A-2).

Earhart Village. For Earhart I-1, PI soil is assumed to be present beneath building foundations and within the 3-foot building zone at renovated homes only. New construction was completed on formerly vacant land and no PI soil management was required (Figure A-3).

Following the completion of the ROs at Earhart I-2 and Earhart I-3, PI soil was both removed and permanently managed at HC, or remains in place. All of the PI soil is covered by at least 6-inches of clean soil verified by testing, or capped by placement under hardscapes, or beneath a 9-inch to 1-foot clean soil cap. In some areas of these two neighborhoods, a marker layer of orange-geotextile fabric was installed during the RO process. In utility trenches at these

[67] (Tetra Tech 2012d)
[68] (Tetra Tech 2011c)
[69] (Tetra Tech 2012d)
[70] (Tetra Tech 2011c)
[71] (HDOH 2011e)

neighborhoods, PI soil is expected to be present. The PI soil berm is installed at Earhart I-2 behind buildings 6334, 6335, and 6336 (Figure A-4).

The PI soil detected at Earhart I-4 was mitigated in 2010 and verified by confirmation soil sampling as discussed in Section 2.7.3. Remaining PI soil is assumed to be present beneath hardscapes and a 1-foot clean soil cap in the open areas around homes. A marker layer of orange-geotextile fabric was installed beneath the clean soil cap at Earhart I-4 (Figure A-6).

3.1.4 Pesticide-Impacted Soil at Construction Phase II Housing

Earhart Village Park. The Earhart Village Park II-1 neighborhood was constructed on formerly vacant land and no PI soil management was required (Figure A-7). Construction is planned at for the vacant land at Earhart Village Park II-4 parcel and PI soil is not expected to be present at this parcel (Figure A-8).

Onizuka Village. At the Onizuka II-1 neighborhood, PI soil has been mitigated or has been managed under hardscapes, and/or under at least 1-foot of clean soil. In utility trenches at this neighborhood, PI soil is expected to be present. There is no marker layer of orange geotextile fabric installed at Onizuka II-1 (Figure A-9). The HOMF is located within the boundary of the Onizuka II-1 neighborhood and is mostly paved and used for non-residential purposes. Soil beneath hardscapes at the HOMF is assumed to be PI soil.

At the Onizuka II-2 and Onizuka II-3 neighborhoods, PI soil is assumed to be present under hardscapes, and under a 1-foot clean soil cap (Onizuka II-2) or 2-foot clean soil cap (Onizuka II-3) in the open areas that overlay burial pits. A marker layer of orange geotextile fabric is installed beneath the clean soil cap. There are burial pits installed in these neighborhoods and PI soil is present beneath a minimum 1-foot clean soil cap and within utility trenches within the burial pits (Figures A-10 and A-11).

Challenger Loop. The Challenger Loop neighborhood is an existing neighborhood undergoing renovations. There is PI soil assumed to be present beneath the building foundations and within the 3-foot building zone (Figure A-12).

Historic Homes District. The HHD consists of historic homes undergoing renovation, and PI soil is assumed to be present beneath building foundations and within the 3-foot building zone, including the utility trenches with this building zone. In some of the HHD subphases, non-historic lanais and building additions have been demolished. In these locations, there is a marker layer of orange geotextile fabric and a 1-foot clean soil cap installed (Figures A-13 through A-15).

3.2 Maps of Areas with Remaining PI Soil

The section presents the discussion on the GIS maps prepared for this EHMP that show the areas where PI soil is present at HC project sites following PI soil management and mitigation activities (Appendix A). The areas where PI soil is known or assumed to be present at HC are current to the date of this EHMP.

Areas of “known” PI soil are where the SI verified the presence of PI soil. Areas of “assumed” PI soil are treated as PI soil and have been assumed to be PI based on site knowledge (i.e. all

soil beneath former building footprints is assumed to be PI soil and possibly disturbed during site grading).

Map details:

- All areas where PI soil are known or assumed to be present are depicted on the GIS maps in brown.
- Burial pits are depicted using yellow hatch marks over the brown areas.
- In the legend for each map, there are notes indicating specific information for the HC neighborhoods discussed in this section. These notes include whether a marker layer of orange geotextile was placed beneath the clean soil caps, or if PI soil is known, or is assumed to have been used to backfill utility trenches (the use of PI soil to backfill utility trenches was discontinued at HC in 2010).

The figures for Section 3.0 are provided in Appendix A. Copies of these maps will also be included in the *LUCID*.

4.0 SUMMARY OF POTENTIAL ENVIRONMENTAL HAZARDS

This section summarizes the findings of the *EHE*[72] and identifies potential environmental hazards associated with the Site.

4.1 Chemicals of Potential Concern (COPCs)

Chemicals of Potential Concern are chemicals that have been detected in the environment that may adversely impact human or ecological receptors. These COPCs were identified based on the results of the Site Investigation conducted from the from August 12 through October 12, 2010 to characterize the DUs identified in accordance with HDOH guidelines within the Earhart I-2, Earhart I-3, and Onizuka II-1 neighborhoods at HC. All soil samples were analyzed by EPA Method 8081 for organochlorine pesticides. For this evaluation, all pesticides detected in at least one soil sample were identified as COPCs and evaluated further in the *EHE*. Chemicals detected at the Site are summarized in Table 4-1 and include aldrin, chlordane, dieldrin, dichlorodiphenyldichloroethane (DDD), dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyltrichloroethane (DDT), endrin, endrin ketone, endosulfan sulfate, delta-BHC, and methoxychlor. The primary chemicals of concern identified at the site are organochlorine pesticides, including chlordane, aldrin, dieldrin, DDD, DDE, and DDT. Other organochlorine pesticides, such as endosulfan sulfate, endrin, endrin ketone, delta-BHC, and methoxychlor, have been detected sporadically at concentrations close to their detection limits. These compounds do not contribute significantly to the cumulative risk from organochlorine pesticides at the Site.

Table 4-1. Chemicals of Potential Concern in Soil

Chemical [(a)]
Aldrin
Chlordane [(b)]
Dieldrin
DDD
DDE
DDT
Endrin
Endrin ketone
Endosulfan sulfate [(c)]
delta-BHC [(c)]
Methoxychlor [(c)]

(a) All organochlorine pesticides detected in soil as part of site investigation activities conducted at the Site in 2010 are included in this table.
(b) Chlordane is representative of technical chlordane which consists of chlordane isomers, heptachlor, and heptachlor epoxide. For this reason, other chlordane isomers, heptachlor, and heptachlor epoxide are evaluated as chlordane and are not listed individually in this table.
(c) Listed chemical detected at low levels in one sample.

[72] (Tetra Tech 2012c)

4.2 Evaluation of Environmental Hazards

As indicated by HDOH guidance provided in *Screening for Environmental Hazards at Sites with Contaminated Soil and Groundwater*[73], a basic understanding of environmental hazards associated with contaminated soil and groundwater is a critical component in the overall environmental response process. The potential environmental hazards and targeted environmental hazards that were evaluated as part of the *EHE* are summarized in the following sections.

4.2.1 Potential Environmental Hazards

Soil

- Direct exposure risks to human health;
- Intrusion of subsurface vapors in buildings;
- Leaching and subsequent impacts to groundwater resources;
- Impacts to terrestrial habitats; and
- Gross contamination and general resource degradation.

Groundwater

- Impacts to drinking water resources;
- Impacts to aquatic habitats;
- Intrusion of subsurface vapors in to buildings; and
- Gross contamination and general resource degradation.

Potential environmental hazards were evaluated for their applicability to the Site. Potential environmental hazards that were considered to be insignificant at the Site based on available information were eliminated from further consideration and are not evaluated further. Potential environmental hazards identified as posing a potential threat to human health and/or the environment were evaluated further in the *EHE*.

4.2.2 Targeted Environmental Hazards

As described in more detail in the *EHE* report, one of the common potential environmental hazards identified by HDOH (i.e., direct exposure to soil) was retained and evaluated in the *EHE*. A summary of potential environmental hazards and their significance at the Site is provided below in Table 4-2.

Direct Exposure. As described in more detail in the *EHE*, direct exposure to soil was retained and evaluated in the *EHE*.

Vapor Intrusion. Vapor intrusion was eliminated as a potential environmental hazard because none of the COPCs are classified as volatile compounds by EPA or HDOH.

[73] (HDOH 2011a)

Leaching/Groundwater Impacts. The chlorinated pesticides detected at the Site have low solubilities and bind tightly to soils (i.e., have very limited mobility) and therefore, are not considered to pose a significant soil leaching hazard in regard to contamination of groundwater.

Drinking Water Resource Impacts. Contamination of drinking water supplies was eliminated due to the following: the limited mobility of the COPCs, groundwater beneath the study area is brackish and is not suitable for commercial, residential, or recreational use, and because potable water is supplied to JBPHH from US Navy storage tanks outside the base.

Ecotoxicity. As discussed in the *EHE*, terrestrial and aquatic ecotoxicity was eliminated from consideration due to the low mobility of the COPCs and due to a lack of sensitive habitat/receptors within the Site and immediately adjacent to the Site.

Gross Contamination. Gross contamination was eliminated because the maximum detected levels of pesticides within the Site are well below the corresponding HDOH screening levels for gross contamination.

Table 4-2. Potential Environmental Hazards

Medium	Potential Environmental Hazard	Potentially Significant?
Soil	Direct exposure threats to human health	Yes
	Intrusion of subsurface vapors in buildings	No
	Leaching and subsequent impacts to groundwater	No
	Impacts to terrestrial habitats	No
	Gross contamination and general resource degradation	No
Groundwater	Impacts to drinking water sources	No
	Impacts to aquatic habitats	No
	Intrusion of subsurface vapors into buildings	No
	Gross contamination and general resource degradation	No

4.3 Exposed Populations and Exposure Pathways

The identification of potentially exposed populations and exposure pathways is a critical component of developing health protective environmental action levels. An exposure pathway describes the course a chemical takes from a source to an exposed individual. Based on current and anticipated future conditions at the Site, the chemical exposures that could potentially be associated with the three neighborhoods were identified considering the following four factors:

- Sources of COPCs;
- Environmental media in which COPCs have been detected (i.e. soil);
- Exposure of contact points with the environmental media (e.g. direct contact with soil); and
- Exposure routes for chemical intake by a receptor (e.g. soil ingestion).

The exposure pathways identified for the Site are based on evaluations of the likelihood of receptors directly contacting COPCs and the mechanisms governing the fate and transport of the COPCs.

4.3.1 Potentially Affected Human Populations

Potentially exposed human populations (receptors) were identified for current and expected future land-use scenarios. The Site is currently developed for residential land use and it is anticipated that it will remain in its current use over the course of the 50-year lease between HC and the USAF, which does not expire until 2057. Human populations that could potentially be exposed to PI soil within the Site under current and expected future conditions, include residential receptors (adults and children), landscaping/maintenance workers, and construction workers (including workers conducting repairs to plumbing and other utility lines).

For the *EHE*, residential, landscape, maintenance worker, and construction worker receptors were evaluated. For landscape/maintenance workers and construction worker receptors, a reasonably anticipated future exposure scenario includes exposure to previously buried PI soil due to excavation or erosion. Similarly, if PI soil remaining at the Site is brought to the surface in the future, residents could also be potentially exposed.

Thus, for CSM development, the potentially affected human populations include:

- Residential receptors (adults and children)
- Landscape/maintenance workers, and
- Construction workers (including workers conducting repairs to plumbing and other utility lines).

Guidelines for limiting potential exposures to these receptor populations are discussed in Section 8.0.

4.3.2 Exposure Media and Exposure Pathways

As indicated above, direct exposure to PI soil by residents and future workers is the potential environmental hazard evaluated in the *EHE*. The complete exposure pathways for potentially affected populations identified above include: 1) incidental ingestion of soil; 2) dermal contact with soil; and 3) inhalation of airborne particulates.

Potential receptors and exposure pathways are summarized in Table 4-3. The CSM summarizing the potential and retained environmental hazards for PI soil at the Site is presented in Table 4-4.

Table 4-3. Potential Receptors and Exposure Pathways

Receptor	Medium	Exposure Pathway
On-Site Resident (Adult and Child)	Soil	Incidental Ingestion
		Dermal Contact
		Dust Inhalation
Landscape/Maintenance Worker	Soil	Incidental Ingestion
		Dermal Contact
		Dust Inhalation
Construction Worker	Soil	Incidental Ingestion
		Dermal Contact
		Dust Inhalation

Table 4-4. Conceptual Site Model for Organochlorine Pesticides [a]

Primary Sources	Primary Release Mechanism	Secondary Sources	Potential Environmental Hazards		Hazards Present Under Current or Future Conditions?			
					Current		Future	
					Residents	Construction/ Maintenance Workers	Residents	Construction/ Maintenance Workers
Historical Maintenance Activities for Residential Units (Application of pesticides under and around building foundations for termite control)	Soil moving activities associated with recent construction work or unauthorized gardening or other excavation	Soil	Risk to Human Health	Direct Exposure [b] - ingestion - dermal contact - dust inhalation	No [i]	No [i]	Yes	Yes
				Vapor Intrusion into Buildings	----	----	----	----
			Risk to Terrestrial Ecological Habitats [c]		No		No	
			Leaching [d]		No		No	
			Gross Contamination [e]		No		No	
		Groundwater	Risk to Human Health [f]	Direct Exposure	----		----	
				Vapor Intrusion into Buildings	----		----	
			Risk to Aquatic Ecological Habitats [g]		----		----	
			Gross Contamination [h]		----		----	

[a] Conceptual Site Model is based on EAL Surfer Summary Reports for organochlorine pesticides (HDOH 2011b). It is assumed that the Site is not located within 150 meters of a surface water body or sensitive aquatic habitat, and groundwater is not a current drinking water resource.
[b] Human health hazards include direct exposure to contaminated soil or inhalation of airborne dust.
[c] Assumes significant terrestrial ecological habitat is impacted due to contamination with resulting toxicity to flora/fauna.
[d] Assumes potential leaching of soil contaminants resulting in impacts to underlying groundwater.
[e] Gross contamination hazards for soil include potential explosive hazards, odors and general nuisance concerns, and general resource degradation.
[f] Human health hazards include ingestion of contaminated groundwater and potential dermal and inhalation exposures during showering.
[g] Assumes contaminated groundwater discharges/migrates to an aquatic habitat. Contaminants in groundwater screened using chronic aquatic toxicity action levels for sites < 150 meters from a surface water body.
[h] Gross contamination hazards for groundwater include taste and odor concerns for drinking water, presence of free product, odors, and general resource degradation.
[i] Due to remediation activities completed at the Site, current hazards are not likely to exist for current residents. Similarly, for current landscape/maintenance and construction workers who may engage in intrusive soil activities, institutional controls are currently in place to ensure that Occupational Safety and Health Administration safe practices are followed by maintenance and construction workers in areas of the Site associated with remaining PI soil.

5.0 INSTITUTIONAL CONTROLS AND SOIL MANAGEMENT REQUIREMENTS AND IMPLEMENTATION

Appropriate administrative measures and management practices to reduce exposure to contaminated media are defined as institutional controls. Institutional controls are legal or administrative measures designed to prevent exposure to contaminants through laws, rules, permitting requirements, contracts, and/or posted warnings and advisories. Soil management, including engineering practices such as fill markers, are tangible measures to prevent physical contact with contaminated media.[74]

5.1 Institutional Controls and Implementation

The preparation of an EHMP is an important institutional control implemented at a site. In addition to this EHMP prepared for HC there are additional project plans currently in place at HC that are specific to three categories of institutional controls. These categories for institutional controls are targeted at HC:

- residents and guests;
- construction workers and subcontractors; and
- maintenance workers and subcontractors.

These three categories of institutional controls are described below.

5.1.1 Residents and Guests

When military or civilian personnel enter into a tenant lease agreement for residential housing at HC, they are provided a copy of the *Hickam Communities Resident Guide and Community Standards Handbook* (*Resident Guide*)[75]. Section 5.13 of the *Resident Guide* provides digging requirements at HC, and clearly specifies that tenants may not dig into the ground for any reason without first obtaining approval to do so from HC. Following HC approval of any digging requests, tenants must then obtain from the Civil Engineer Squadron (CES) office at JBPHH, an approved work clearance request (WCR) form (647th CES, JBPPH: Form 103). In addition to the *Resident Guide*, Hickam Communities has a *Fence Policy Packet (Fence Packet)*[76] if residents want to install a fence on their leased property. The *Fence Packet* provides detailed instructions to residents regarding the approval process and fence installation procedures at HC. A copy of the *Resident Guide* is provided in Appendix B1, and a copy of the *Fence Packet* in Appendix B2.

5.1.2 Construction Workers and Subcontractors

Institutional controls are currently in place for construction workers at HC. The primary institutional control is through conducting all soil disturbing work at HC construction and

[74] (HDOH 2009)
[75] (HC 2010)
[76] (HC 2011b)

renovation sites in accordance with the work rules and guidelines presented in the *Program Manual*[77]; the scope of the *Program Manual* is discussed in Section 8.2.1.

Typical construction activities at HC would include:

- Demolition of existing buildings and infrastructure;
- Grading and preparation of construction sites;
- Soil stockpiling;
- Installation of construction stormwater control measures;
- Installation of foundations and footings;
- Installation of infrastructure including underground utilities and storm drains;
- Construction of sidewalks, driveways, and parking lots;
- Construction and renovation of residential homes
- Construction and renovation support facility buildings such as the Community Center, swimming pool, or the HOMF; and
- Site restoration and installation of landscaping.

The basic institutional controls for construction workers at HC requires obtaining from the CES office at JBPHH an approved WCR form: (647th CES, JBPPH: Form 103), followed by mandatory participation in the PI Soil Awareness Program at HC (Section 8.1). A copy of the table of contents and list of SOPs from the *Program Manual* is provided in Appendix C. An electronic copy of the complete *Program Manual* can be provided by HC upon request.

5.1.3 Maintenance Workers and Subcontractors

Once construction activities are completed, HC property is maintained by maintenance workers either employed by HC, or by subcontractors to HC.

Typical maintenance activities at HC would include maintenance and repair of:

- Landscaping and irrigation systems;
- Infrastructure including underground utilities, roads, and sidewalks;
- Interior and exterior of residential homes;
- Interior and exterior of support facility buildings such as the Community Center, swimming pool, or the HOMF; and
- Parks and playgrounds.

During maintenance activities, the long-term management of PI soil at the site is primarily guided by the *LUCID*[78]. The primary post-construction institutional control is provided by the *LUCID* which provides updated maps indicating where PI soil is known or assumed to remain at the Site. The *LUCID* also provides work-specific SOPs intended to be incorporated into the

[77] (Tetra Tech 2011d)
[78] (Tetra Tech 2012b)

work plan. The scope of the *LUCID* is provided in Section 8.2.2. If a larger maintenance project is planned, the *Program Manual* should be consulted in addition to the *LUCID.* A copy of the table of contents and list of SOPs from the *LUCID* is provided in Appendix D.

5.2 Soil Management Implementation

Since PI soil is either left in place or permanently managed in burial pits or soil berms, soil management practices are currently in place at HC to prevent exposure to PI soil by HC workers, residents, and guests. These measures consist of capping PI soil managed or remaining in place at the Site. Methods of capping include:

- Use of a 1 to 2-foot clean soil cap;
- Installation of a marker layer of orange geotextile fabric under clean soil caps; and
- Placement of PI soil under hardscapes.

It is important to note that a marker layer of orange geotextile fabric is not present under all clean soil caps. The practice of using this marker layer was instituted by HC, with concurrence by HDOH, in 2010. The use of this marker layer was subsequently included in the update to the *Program Manual*[79]. The conditions in which a marker layer will be present under the clean soil cap are in areas where PI soil was managed after 2010, and in the areas where PI soil was managed during the ROs that were completed in 2011[80]. The PI soil maps provided in Appendix A will indicate in the map notes section which neighborhoods at HC have a marker layer of orange geotextile fabric is installed.

[79] (Tetra Tech 2011d)
[80] (Tetra Tech 2012e)

This page intentionally left blank.

6.0 LONG-TERM MONITORING REQUIREMENTS

Long-term monitoring is required to maintain institutional and engineering controls that are intended to prevent exposure to residual PI soil that remains at HC property. In this section, the LUCs for HC property are presented, followed by plans for the long-term monitoring of HC property. Section 6.3 describes the reporting process whereby HC will provide quarterly reports to HDOH which will include the inspection logs and a record of any corrective actions taken.

6.1 Institutional Controls

The following institutional controls will be implemented at the Site:

- Prohibition against digging/gardening/fence installation as described in HC *Resident Guide* and *Fence Packet* (Appendices B1 and B2).
- Ongoing implementation of the PI Soil Awareness Program at HC (Section 8.1).
- Construction/maintenance dig requirements discussed in Section 5.1, and provided in the *Program Manual*, and the *LUCID* (Appendices C and D)[81].
- Limitations on import and export of soil (import/export soil testing; no export of PI soil outside of HC). These limitations are provided in Section 2.5 and in Section 2.2.1 of the *Program Manual.*

The following PI soil management practices have been implemented at the Site:

- Turf and vegetation cover;
- Clean soil caps;
- Geotextile fabric barriers; and
- Hardscapes.

6.2 Long Term Monitoring of Hickam Communities (HC) Property

Long-term monitoring by HC includes inspection of HC property to evaluate the effectiveness of institutional and engineering controls, and to identify the need for additional maintenance or corrective actions to prevent potential of HC workers, residents and guests to PI soil that may be present within a given neighborhood. There are two types of long-term management plans in place at HC, which are summarized below. Copies of the plans are provided in Appendix E.

6.2.1 Long-Term Monitoring Plan for HC Property

The *Long-Term Monitoring Plan for Hickam Communities Property (Monitoring Plan)*[82] provides the procedures and schedule for monthly inspections of HC property to monitor any areas of unauthorized digging and gardening, or damage and wear to existing landscaping requiring a corrective action. These inspections are required to ensure adequate coverage of soil by grass

[81] The *Program Manual* and the *LUCID* are large documents, and as such only the title page and list of appendices (including a list of the SOPs) are provided in Appendix C and D. Copies of these documents can be requested from the HC EPOC.
[82] (Tetra Tech 2012f)

and other vegetation. If bare spots or areas of disturbed soil (including unauthorized gardens) are observed during these inspections that require a corrective action, the HC Environmental Point of Contact (EPOC) will notify the HC Property Manager so can be addressed. Residents may report any areas of bare or disturbed soil to the individual HC Community Managers for each neighborhood. The *Monitoring Plan* is provided in Appendix E1.

6.2.2 Long-Term Maintenance Plan – Soil Berms

The *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms (LTMP)* presents procedures for a maintenance program for the soil berm scheduled to be constructed at Earhart I-2 for permanent management of PI soil (Appendix E2).[83] The purpose of the *LTMP* is to prevent exposure of HC workers, residents, and guests to PI soil managed within PI soil berms by providing an easily implementable maintenance program to ensure the long-term integrity of the in-ground orange geotextile marker-layer, the 2-foot clean soil cap, and landscaping installed over PI soil in the berms. Procedures for inspecting, maintaining, and preparation and tracking of related documentation are provided in the *LTMP*. Inspections of the berm that are required for the monitoring are included in the *LTMP*, and are scheduled on a quarterly basis.

6.3 Reporting Requirements: Long Term Monitoring

In accordance with this EHMP, HC will monitor their property through monthly inspections. The soil berm will be inspected on a quarterly basis[84]. To meet the reporting requirements, the results of these inspections will be provided to HDOH on a quarterly basis by the HC EPOC (Table 6-1). Reports will be submitted to HDOH within 30 days quarterly end: January 30, April 30, July 30, and October 30.

The quarterly report to HDOH will be provided in a letter-style format. The quarterly report will provide a summary of the:

- Monthly inspections,
- Corrective actions and status; and
- Planned, ongoing, and completed redevelopment and renovation activities at HC.

The appendices to the quarterly report will include the monthly inspection logs with descriptions, locations of areas requiring corrective actions, and diagrams. Photographic documentation will be provided, as needed to indicate the extent of any areas of unauthorized soil disturbance. Also provided will be a Corrective Action Worksheet which tracks the corrective actions identified during the monthly inspections. This worksheet will indicate the status of the corrective actions and the date an action is resolved.

The documentation and reporting requirements are outlined in SOPs provided in both the *Monitoring Plan* and the *LTMP* (Appendix E1 and E2).

[83] (Tetra Tech 2011b)
[84] (Tetra Tech 2011b and 2011c)

Table 6-1. Key Personnel for HC Project Sites (June 2012)

Name/Title	Roles	Responsibilities	Phone/Email
Jerry Schmitz Project Director, HC	HC Project Point of Contact (POC)	Manages overall operations at HC including construction, property management, and maintenance of HC property. Authorizes all work conducted for the project.	Office: (808) 853-3766 Cell: (808) 398-1017 Email: gerald.schmitz@lendlease.com
Jeff Seibert Development Manager, HC	HC Development POC	Manages development of HC property, including project scheduling. Coordinates work requests and status reports for the projects, including construction activities and environmental investigations.	Office: 808 853-3783 Cell: 808 426-3163 Email: jeffrey.seibert@lendlease.com
Stephen Quinn Director of Property Management, HC	HC Property POC	Oversees property management and maintenance (including landscaping) at HC. Includes resident interactions through a network of neighborhood specific Community Managers.	Cell: (808) 423-1644 Email: stephen.quinn@hickamcommunities.com
Grant Arnold Assistant Environmental Manager, HC	HC EPOC	Has the role of EPOC for HC. Provides environmental management support to HC, and is the "go to" contact regarding all environmental issues at HC.	Cell: (808) 343-2134 Email: grant.arnold@lendlease.com
Ivan Trujillo Senior Construction Manager, Lend Lease	HC D/B Contractor POC	Manages day-to-day construction work by the design/build (D/B) contractor and subcontractors at HC project sites.	Office: (808) 203-5264 Cell: (808) 630-4174 Email: ivan.trujillo@lendlease.com
Kevin Quinn Project Certified Industrial Hygienist; Quinn Consultants, Inc.	HC Hazard Communication (HAZCOM) POC	Provides HAZCOM training to HC construction workers and provides air monitoring services to the D/B contractor.	Cell: (808) 780-9081 Email: kquinn@hawaii.rr.com
Yvonne Parry Senior Project Manager, Tetra Tech	HC Environmental Support POC	Third Party Consultant - works with the HC EPOC to oversee and conduct environmental field sampling and reporting for HC project sites and PI soil safety training to HC workers and subcontractors.	Office: (808) 394-4111 Cell: (808) 393-8829 Email: yvonne.parry@tetratech.com
Eric Sadoyama Remedial Project Manager, Hazard Evaluation and Emergency Response (HEER) Office, HDOH	HDOH Regulatory POC	Remedial Project Manager for State of Hawai'i overseeing HC project sites, and the Remedial Action conducted at HC.	Office: (808) 586-0955 Email: eric.sadoyama@doh.hawaii.gov
Cheryl Alakai. Asset Manager, Housing Office Management Office, Navy Region Hawai'i	USAF/Navy POC	Asset manager overseeing military property at Joint Base Pearl Harbor-Hickam.	Office: (808) 448-6889 Email: cheryl.alakai@hickam.af.mil

This page intentionally left blank.

7.0 SOIL AND GROUNDWATER MANAGEMENT FOR FUTURE SITE ACTIVITIES

This chapter describes guidelines for management of soil and groundwater for future activities affecting the Site.

7.1 Consultation with HEER Office

Consultation with the HDOH Hazard Evaluation and Emergency Response (HEER) Office will be conducted through the HC EPOC. These consultations will be initiated when:

- Events requiring emergency response action occur; and
- COPCs outside the scope of this EHMP and the *Program Manual* are encountered in soil and/or groundwater (i.e. COPCs other than organochlorine pesticides), or if a release at the Site is identified.[85]

7.2 Pre-Excavation Evaluation of Soil

Before any excavations or soil disturbing work is conducted at the Site, a pre-excavation evaluation of soil in the work area must be completed. This evaluation is intended to prevent potential exposure of HC construction and maintenance workers to PI soil, and also to prevent the unintentional distribution of PI soil outside the work areas. The HC EPOC must be contacted directly regarding pre-excavation of soil at HC project sites.

7.2.1 Construction and Renovation

During the construction and renovation work at HC project sites, a site-specific SMP must be prepared in accordance with the *Program Manual*, and approved by the HC EPOC and Development Manager before conducting excavations. This SMP will include a summary of any soil sampling results, and the location of verified or assumed PI soil. The SMP will further identify the permanent PI soil management procedures selected for the Site.[86]

7.2.2 Maintenance and Emergency Response Actions

Any soil disturbing work in completed neighborhoods will be conducted in accordance with a site-specific work plan prepared in accordance with the *LUCID,* and approved by HC. The *LUCID* provides updated maps indicating where PI soil is known or assumed to be present at the Site, and SOPs intended to be incorporated into the work plan. The HC EPOC must be contacted as part of the planning phase for maintenance work at HC requiring soil disturbance.

For emergency response actions requiring excavation at HC (e.g. sewer or water main break), soil should be assumed to be PI soil until it can be verified as clean. The *LUCID* provides a specific SOP for these emergency response actions; however, the HC EPOC and the Project

[85] (Tetra Tech 2011d)
[86] (Tetra Tech 2011d)

Director should be contacted immediately regarding emergency response actions potentially involving PI soil.[87]

7.3 Dust Control Measures

During construction and maintenance work, HC workers and subcontractors are required to use best management practices (BMPs) to suppress dust emissions during soil disturbing activities. This includes working with soil in a manner that does not produce excessive dust, frequent water spraying of exposed soil, and covering stockpiled soil when soil is not being added or removed from stockpiles. Any soil transported in trucks will be covered to prevent dust emissions. If extensive excavation is required, dust barriers will be installed around the perimeter of the excavation area.[88]

7.4 Soil Stockpiling

Any PI soil excavated and temporarily stockpiled will be managed in accordance with the stockpiling procedures provided in the *Program Manual*. These procedures include BMPs for stockpiling consisting of securing and covering the stockpile, and ensuring that no storm water run-off enters the storm drain system.[89]

7.5 Soil Disposal

All PI soil at the Site will be managed within the HC project boundary. No PI soil is exported off of HC property for management or disposal; however, there may be instances where non-PI soil or material may be transported off-site for disposal. To export non-PI soil off-site, there are specific testing criteria provided in Section 2.2.1 of the *Program Manual*[90] which is summarized below.

7.5.1 Export for Unrestricted Use Outside HC Property

The environmental screening levels applied to soil being exported off of HC property are the HDOH Tier 1 EALs for unrestricted use are the soil screening levels for sites where potentially impacted groundwater is a potential drinking water resource and a surface water body is located within 150 meters of a release site (Table A-2)[91]: and the Toxicity Characteristic Leaching Procedure (TCLP) levels in Table 1 of 40 CFR Chapter I Section 261.24[92].

7.5.2 Export for Landfill Disposal as Daily Cover

The applicable HDOH Tier 1 EALs applied to soil being exported off of HC property for landfill disposal as Daily Cover are (1) the screening levels for sites where groundwater is not potential

[87] (Tetra Tech 2012d)
[88] (Tetra Tech 2011d)
[89] (Tetra Tech 2011d)
[90] (Tetra Tech 2009a)
[91] (HDOH 2011b)
[92] (CFR 2010)

drinking water resource and a surface water body is located greater than 150 meters of a release site (Table B-1); (2) the Direct Exposure Action Levels (DEALs), Commercial / Industrial Land Use Scenario (Table I-2)[93]; and (3) TCLP levels in Table 1 of 40 CFR Chapter I Section 261.24[94]. It is important to note that a landfill will likely require additional profiling of the soil for other COPCs besides organochlorine pesticides.

[93] (HDOH 2011b)
[94] (CFR 2010)

This page intentionally left blank.

8.0 EXPOSURE MANAGEMENT

The exposure to PI dust or soil during construction and maintenance at the Site can be managed by isolating the PI media and eliminating potential exposure routes. The exposure management controls presented in this Section are intended to prevent or eliminate these potential exposure routes.

8.1 Pesticide-Impacted (PI) Soil Awareness Program

Hickam Communities has developed and implemented a PI Soil Awareness Program designed to provide information to HC construction and maintenance workers (including subcontractors), regarding the policies, standards, procedures, training and guidelines, system activity monitoring, and change control procedures. The purpose of the PI Soil Awareness Program is to provide an additional institutional control intended to reduce the potential, frequency, duration, and severity of human exposure to hazardous chemicals or situations.[95]

8.1.1 Residents Awareness

When military or civilian personnel enter into a tenant lease agreement for residential housing at HC, they are provided with the HC *Resident Guide* which explains limitations on digging and other soil-disturbing activities around homes. In addition to the *Resident Guide*, Hickam Communities has *Fence Packet* if residents want to install a fence on their leased property. The *Fence Packet* provides detailed instructions to residents regarding the approval process and fence installation procedures at HC. Residents are also given the name and contact information of an HC representative(s) with whom they can discuss their concerns related to health and safety and potential ground-disturbing activities. A copy of the *Resident Guide* is provided in Appendix B1, and a copy of the *Fence Packet* in Appendix B2.

8.1.2 Construction and Maintenance Worker Awareness

Under the rules, policies and guidance provided in the *Program Manual* and the *LUCID*, controls are applied during both short-term soil management during construction and renovation activities, and long-term management of HC property over the duration of the ground lease. These controls for PI soil awareness at HC are outlined below.

PI soil Awareness Training. Hickam Communities employees, including construction workers and subcontractors, are informed that PI soil remains on site at HC through required training for PI soil awareness conducted by HC and its Design/Build (D/B) contractor. Part of this awareness training includes specific information regarding the health and safety issues associated with PI soil and its management on HC property.

- **HAZCOM Training.** The D/B contractor provides hazard communication (HAZCOM) training to its workers and subcontractors prior to beginning work on an HC project site. The HAZCOM is conducted by the D/B Contractor's Certified Industrial Hygienist.

[95] (Tetra Tech 2011d)

- **PI Soil Awareness Training.** HC provides PI soil awareness training to its workers and subcontractors who may potentially work in or near PI soil management areas. This PI soil awareness training is generally conducted by the third party consultant.

On-Site Worker Awareness. All workers who could come in contact with PI soil are made aware of where PI soil is present on HC property prior to starting work at an HC project site. Health and safety documents for the HC project site are made available to everyone performing ground-disturbing work in PI soil areas. All workers are required to attend a health and safety "tailgate" meeting as part of the HC health and safety program.

Hickam Communities Review. Future maintenance and construction projects may necessitate disturbing PI soil. Prior to implementing soil disturbing projects, all required installation-specific permitting must be obtained, and a detailed work plan submitted to HC EPOC for review and approval.

8.2 Construction Worker Notifications and Protections

During renovation and construction projects at HC, PI soil will be managed using site-specific SMPs which will be prepared in accordance with the *Program Manual*.[96] Following completion of construction at the Site, ongoing maintenance of landscaping and underground utilities in occupied neighborhoods, will require disturbance of PI soil. The *LUCID* provides long-term PI soil management in occupied neighborhoods, and is an active document, updated on a regular basis, that "takes over" for the *Program Manual* at completed HC neighborhoods. The *Program Manual* and the *LUCID* are summarized below, and the TOC and list of SOPs for each document is presented in Appendices C and D, respectively.

8.2.1 Pesticide Impacted Soil Investigation and Management Program Manual

The purpose of the *Program Manual* is to provide clear management practices for the identification and management of PI soil at the Site during construction activities and/or large-scale soil disturbances. Strict adherence to the *Program Manual* is intended to prevent exposure of HC workers, residents and guests to PI soil disturbed during demolition, renovation, and/or construction of military housing.[97]

The *Program Manual* provides:

- The process for developing soil investigation and management plans including Sampling and Analysis Plans and site-specific SMPs. Guidelines for conducting confirmation soil sampling, reporting investigation results, and locations of PI soil in Summary of Findings Reports and ECRs. Templates for these plans and reports are provided as an appendix to the *Program Manual.*
- Permanent PI soil management options accepted for the Site.
- Specific SOPs for soil investigations, and disturbing work, including excavation, soil stockpiling, soil transport, and import soil testing.

[96] (Tetra Tech 2011d)
[97] (Tetra Tech 2011d)

8.2.2 Land Use Control Inventory Document (LUCID)

The purpose of the *LUCID* is to ensure that following completion of construction work at HC, maintenance workers and contractors performing routine maintenance are aware of where PI soil areas are located, and that the work will be conducted safely and in accordance with any institutional (excavation permitting) or engineering controls. The *LUCID* is designed to be a "go to" manual for HC maintenance workers and subcontractors. It is intended to provide policies and procedures for conducting both routine maintenance, and for emergency response involving soil disturbing work in PI soil areas.[98]

The *LUCID* provides:

- The HC review process used for routine maintenance which identifies any areas on a proposed HC work site that have PI soil managed in place.
- Regularly updated maps that clearly present where PI soil is located at HC
- Specific SOPs for both routine soil disturbing work, and emergency response actions.

8.3 Use Restrictions to Protect Site Workers, Residents and Guests

Land use controls (LUCs) are physical, legal or administrative mechanisms put in place to restrict the use of, or limit access to, real property to prevent or reduce risks to human health and the environment. These LUCs are designed to limit human exposure by restricting activity, use, and access to properties with residual contamination.

For projects at HC sites there will be LUCs imposed by both the installation and by HC, and are defined in the *LUCID*.[99]The primary LUC in place at JBPHH is the requirement to obtain from the CES office, an approved WCR form (647th CES, JBPPH: Form 103) prior to performing excavation work.

Land Use Controls in place at HC sites consist of those relevant to residents, and those relevant to maintenance and construction workers. For HC residents the primary LUC consists of a "no dig" policy where residents are not allowed to cultivate gardens, or otherwise disturb the soil, either on the property they rent from HC, or on the common areas within HC boundaries. Maintenance and construction workers are required to comply with all installation specific LUCs, and to comply with the *Program Manual* and the *LUCID* when disturbing soil on HC project sites.[100]

8.4 Emergency Response for Chemical Exposure

Emergency response actions to underground utilities may require the immediate disturbance of soil at HC neighborhoods. An emergency response would be triggered by breaks in landscaping irrigation lines, water lines, or sewer line breaks. During an emergency response action where soil must be disturbed:

[98] (Tetra Tech 2012d)
[99] (Tetra Tech 2012d)
[100] (Tetra Tech 2011d and Tetra Tech 2012d)

- Treat the soil in the repair zone as PI soil;
- Implement the repair and manage the soil as PI soil; and
- Notify the HC Property Manager and EPOC.

An emergency response SOP that addresses repair implementation and soil management is provided in the *LUCID*. Once the repair action is completed, the *LUCID* will be used to evaluate whether the soil in the repair zone is PI soil.

During emergency repairs, the primary concern is public safety. If the public safety is at risk, the JBPHH fire department will be contacted immediately, followed by the HC Development Manager and HC EPOC.

In cases where emergency repairs are required but do not immediately threaten public safety, the responders to the emergency will immediately contact the HC Development Manager and the HC EPOC. The HC EPOC or the HC Project Director will promptly notify the HDOH of events requiring emergency response actions.

9.0 REFERENCES

CFR (Code of Federal Regulations). 2010. Table 1, CFR 40, Chapter I, Section 261.24, Toxicity Characteristic. Electronic Code Federal Regulations accessed at the GPO Internet Web site: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div8&view=text&node=40:25.0.1.1.2.3.1.5&idno=40

HC (Hickam Communities LLC). 2010. *Hickam Communities Resident Guide and Community Standards Handbook, Attachment A to Tenant Lease. Effective as of 1 January 2010*. Prepared by Hickam Communities LLC. 2010.

_____. 2011a. *Voluntary Agreement for Environmental Response Actions, 4813-0003-0216.1.063953-00002.* Agreement between Hickam Communities LLC and Hawai‘i Department Health. February 18, 2011.

_____. 2011b. *Hickam Communities Fence Policy Packet*. Prepared by Hickam Communities LLC. Effective September 15, 2011.

_____. 2011c. *RE: Draft Removal Action Report Comment Response.* Email correspondence from Jeffrey Seibert, Hickam Communities LLC Development Manager, and Yvonne Parry, Tetra Tech Project Manager. November 9, 2011.

Hawai‘i Department of Health (HDOH). 2008. *Screening for Environmental Hazards at Sites with Contaminated Soil and Groundwater.* Summer (updated March 2009).

_____. 2009. *Interim Final Technical Guidance Manual for Implementation of the Hawai‘i State Contingency Plan.* Prepared by: Hawai‘i Department of Health Environmental Management Division. June 21, 2009.

_____. 2011a. *Review of draft Removal Action Work Plan No. 3, Removal Actions for Pesticide-Impacted Soil Earhart I-2, Earhart I-3, and Onizuka II-1 (5/19/2011). 2011-310-ES*. Letter to Roger Franklin, (Lend Lease) from Eric Sadoyama (HDOH). June 9, 2011.

_____. 2011b. *HDOH Environmental Action Levels, Supplemental Models in Excel Format, EAL Surfer*. 2005 EALs updated in Fall 2011. Accessed at internet website URL: http://hawaii.gov/health/environmental/hazard/eal2005.html

_____. 2012. *Review of Draft Environmental Hazard Management Plan (1 /5/2012, draft D03) and Draft Land Use Controls Inventory Document (1/11/2012, draft D02), Air Force MFH Hickam Communities Remedial Action, 2012-153-ES*. Letter to Roger Franklin, (Lend Lease) from Eric Sadoyama (HDOH). March 7, 2012.

HAFB (Hickam Air Force Base). 2007 Management Action Plan (MAP) Hickam Air Force Base, Environmental Restoration Program, Hickam AFB, O‘ahu, Hawai‘i. Prepared by 15CES/CEVR, Hickam AFB, Hawai‘i. May 2007.

KJC (Kennedy, Jenks, Chilton Consulting Engineers). 1991. *Final Pre-Construction Survey (PCS) of Hickam Family Housing Project Site, 90 Dwelling Units, FY 90-92. Onizuka Village, Hickam AFB, O‘ahu, Hawai‘i*. July, 1991.

Mink, J.F., and Lau, L.S. 1990. Aquifer identification and classification for O'ahu – ground-water protection strategy for Hawai'i. University of Hawai'i. Water Resources Research Center Technical Memorandum Report no. 179.

Nichols, W. D., P. J. Shade, and C. D. Hunt, Jr. 1996. Summary of the O'ahu, Hawai'i, Regional Aquifer-System Analysis. US Geological Survey Professional Paper 1412-A.

Tetra Tech. 2004. Phase II Environmental Site Assessment Capehart and Earhart Village Housing Areas, Hickam Air Force Base O'ahu, Hawai'i. Prepared for Hickam Community Housing LLC. March 19.

_____. 2005. *Updated Phase II Environmental Site Assessment Capehart and Earhart Village Housing Areas, Hickam Air Force Base O'ahu, Hawai'i*. Prepared for GMAC Commercial Mortgage Corporation. January 26.

_____. 2006a. Letter Report from S. Toma to J. Apitz. *Subject: Capehart and Earhart Village Housing Areas Site Characterization, Hickam Air Force Base, O'ahu, Hawai'i, Soil Sampling for Chlordane, Dieldrin, and Aldrin*. Prepared for Hickam Community Housing LLC. June 5.

_____. 2006b. *Summary of Human Health Risk Assessment of Chlordane (including Heptachlor and Heptachlor Epoxide), Dieldrin, and Aldrin in Soil, Hickam Community Housing Areas, Hickam Air Force Base, Hawai'i*. Prepared for Hickam Community Housing LLC. June 30.

_____. 2006c. *Management Plan for Pesticide-Impacted Soils, Hickam Community Housing, Hickam Air Force Base, O'ahu, Hawai'i. Rev 0*. Prepared for Hickam Community Housing LLC. October 16, 2006.

_____. 2007. *Phase I Environmental Site Assessment, Hickam Phase II Military Family Housing (MFH), Hickam Air Force Base, Honolulu, Hawai'i*. Prepared for Actus Lend Lease, LLC. July 2007.

_____. 2009a. *Pesticide-Impacted Soils Investigation and Management Program Manual. DCN: 392501.0001.F01.* Prepared for Hickam Community Housing LLC. May 2009.

_____. 2009b. *TO#18, Letter Report on Results of Additional Open Area Verification Sampling at the Earhart 1-4 Neighborhood, Hickam Air Force Base, O'ahu, Hawai'i.* Prepared for Hickam Community Housing LLC. December 11, 2009.

_____. 2009c. *TO#18, Letter Report on Results of Open Area Verification Sampling (September/October 2009) at the Earhart 1-4 Neighborhood, Hickam Air Force Base, O'ahu, Hawai'i*. December 31, 2009.

_____. 2010a. *TO#36 Summary of Findings Report for Post Remediation Confirmation Sampling at the Earhart I-4 Neighborhood, Hickam Air Force Base, O'ahu, Hawai'i*. Prepared for Hickam Community Housing, LLC. April 14, 2010.

_____. 2010b. *Sampling And Analysis Plan, Verification Soil Sampling, Hale Na Koa I-1, Earhart I-2, Earhart I-3, and Onizuka II-Neighborhoods, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing LLC. March 24, 2010.

_____. 2010c. *TO#49 Summary of Findings Report for Confirmation Soil Sampling at the Hale Na Koa I-1 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi.* Prepared for Hickam Community Housing LLC. June 28, 2010.

_____. 2010d. *TO#36 Summary of Findings Report for Post Remediation Confirmation Sampling of Area B at the Earhart I-4 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing, LLC. June 3, 2010.

_____. 2010e. *TO#36 – Summary of Findings Report for Post-Remediation, Confirmation Soil Sampling of Decision Unit C at the Earhart I-4, Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing, LLC. June 22, 2010.

_____. 2010f. *TO#50 Summary of Findings Report for Surface Soil Investigation at the Earhart I-2 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi.* Prepared for Hickam Community Housing LLC. June 24, 2010.

_____. 2010g. *TO#48 Summary of Findings Report for Surface Soil Investigation at the Onizuka II-1 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi.* Prepared for Hickam Communities LLC. July 1, 2010.

_____. 2010h. *TO#51 Summary of Findings Report for Surface Soil Investigation at the Earhart I-3 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi.* Prepared for Hickam Community Housing LLC. July 1, 2010.

_____. 2010i. *TO#36 – Summary of Findings Report for Post-Remediation Confirmation Soil Sampling of Decision Unit D at the Earhart I-4 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing, LLC. August 5, 2010.

_____. 2010j. *Sampling and Analysis Plan, Earhart I-2 and Earhart I-3 Neighborhoods, Hickam Air Force Base, O ʻahu, Hawai ʻi*. DCN: 2616902.0001.F01. Prepared for Hickam Communities, LLC. August 6, 2010.

_____. 2010k. *Sampling and Analysis Plan, Onizuka II-1 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi. DCN: 2616902.0002.F01.* Prepared for Hickam Communities, LLC. August 6, 2010.

_____. 2010L. *TO#36 – Summary of Findings Report for Post-Remediation Confirmation Soil Sampling of Decision Unit E at the Earhart I-4 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing, LLC. August 19, 2010.

_____. 2010m. *TO#36 – Revised Summary of Findings Report for Post-Remediation Confirmation Soil Sampling of Decision Unit Da at the Earhart I-4 Neighborhood, Hickam Air Force Base, O ʻahu, Hawai ʻi*. Prepared for Hickam Community Housing, LLC. September 30, 2010.

_____. 2010n. *Revised Analysis of Potential Removal Alternatives, Earhart I-2, Earhart I-3, and Onizuka II-1 Neighborhoods, Joint Base Pearl Harbor-Hickam, O'ahu Hawai'i*. Prepared for Hickam Communities, LLC. DCN 2653504.006.F01. November 24, 2010.

_____. 2011a. *TO#56, Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities, Joint Base Pearl Harbor-Hickam, Hawai'i*. Prepared for Hickam Communities LLC. DCN: 2653504.021.D01. May 13, 2011.

_____. 2011b. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2626001.0003.D03.* Prepared for Hickam Communities LLC. July 2011

_____. 2011c. *Soil Management Plan for Pesticide-Impacted Soil Berms, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i, DCN: 2626001.0002.F01.* Prepared for Hickam Communities LLC. July 27, 2011.

_____. 2011d. *TO#68, Pesticide-Impacted Soil Investigation and Management Program Manual. DCN: 2770101.0001.F03.* Prepared for Hickam Communities LLC. August 31, 2011.

_____. 2012a. *Remedial Alternatives Analysis, Hickam Communities Remedial Action Site*. DCN: 2653505.0003.F02. Prepared for Hickam Communities LLC. June 7, 2012.

_____. 2012b. *Draft Remedial Action Memorandum, Hickam Communities Remedial Action Site, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2893601.0001.F02.* Prepared for Hickam Communities LLC. June 7, 2012.

_____. 2012c. *Remedial Investigation Report, Hickam Communities Remedial Action Site, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i. DCN: 2653505.0001.F02*. Prepared for Hickam Communities, LLC. June 7, 2012.

_____. 2012d. *Land Use Controls Inventory Document, Hickam Communities Property, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2884201.0001.F03.* Prepared for Hickam Communities LLC. June 7, 2012.

_____. 2012e. *Removal Action Report, Actions Implemented Under Removal Actions No. 1, No. 2, and No. 3, Hickam Communities Remedial Action Site, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2653504.004.F05*. Prepared for Hickam Communities LLC. June 7, 2012.

_____. 2012f. *Long-Term Monitoring Plan for Hickam Communities Property, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i. DCN: 2883401.0002.F01*. Prepared for Hickam Communities LLC. April 24, 2012.

USAF (US Air Force). 1998. *Final Base Hydrogeology and Regional Mapping Report. Underground Fuel Storage and Distribution System Site Verification and Remediation Program*. Prepared for 15th Air Base Wing CES/CEVR, Hickam AFB, by Air Force Center for Environmental Excellence, Environmental Services Office. May 1998.

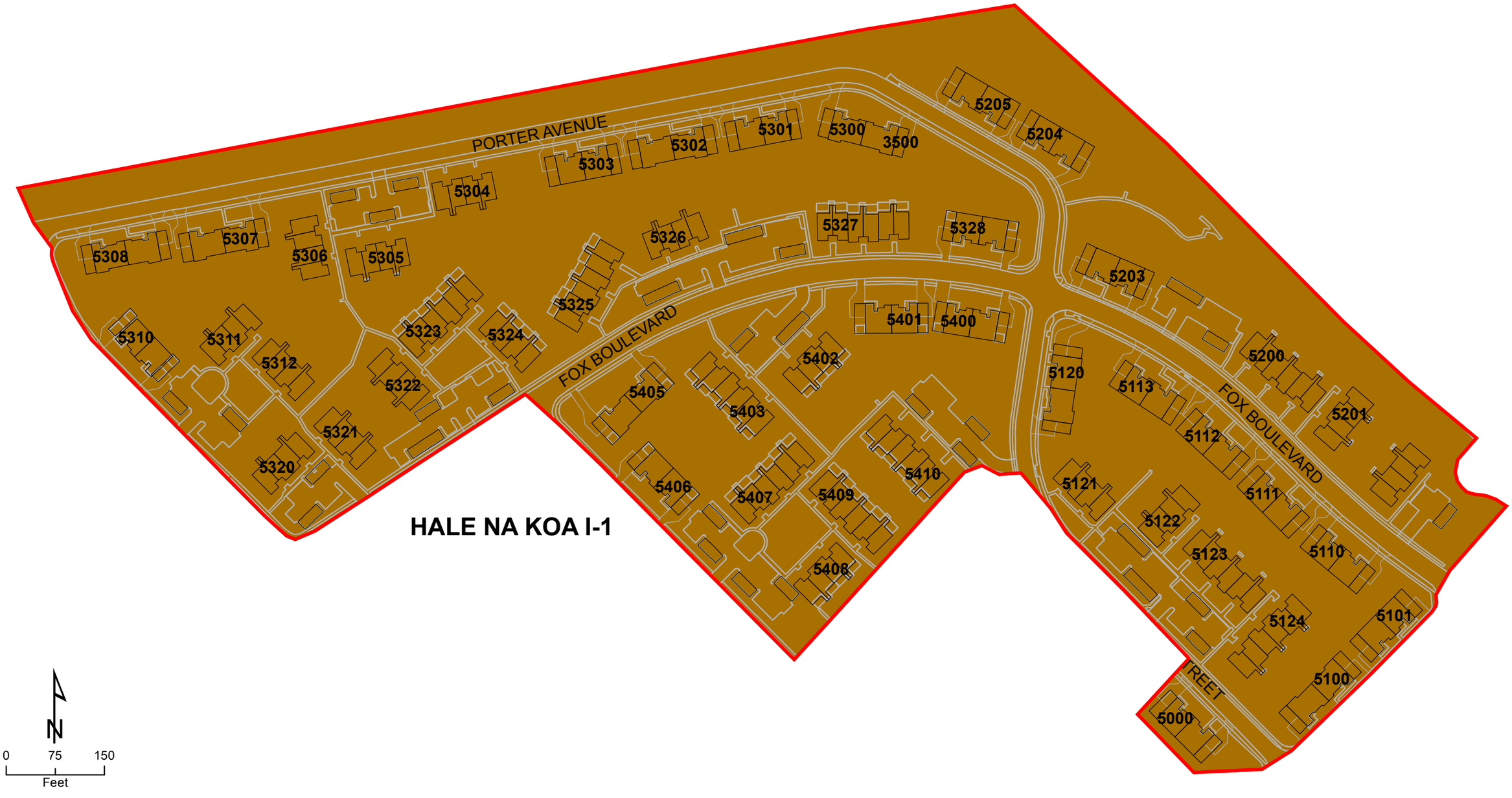
_____. 2002. *Supplemental Environmental Baseline Survey, Capehart, Earhart Village, and Original 36 Military Family Housing Areas, Hickam Air Force Base, Hawai'i.* Headquarters Air Force Center for Environmental Excellence, Environmental Planning Division. October.

_____. 2010. *Land Use Control Implementation Plan, Hickam Air Force Base and Bellows Air Force Station O'ahu, Hawai'i*. Prepared for Air Force Center for Engineering and the Environment Environmental Services Office San Antonio, Texas 78226, and United States Air Force 647 Air Base Group Civil Engineer Squadron Environmental Restoration Element, Hickam Air Force Base, O'ahu, Hawai'i. Prepared by CH2M HILL, Honolulu, Hawai'i, Contract FA8903-08-D-8769. September 30, 2010

Waller (J.M. Waller Associates). 2007. *Environmental Baseline Survey for the Military Family Housing Privatization Phase II Hickam AFB*. Prepared for United States Air Force 15th Airlift Wing, Hickam AFB, Hawai'i. April.

APPENDIX A
Maps of Remaining Pesticide-Impacted Soil

Hickam Communities Construction Phase I and Construction Phase II Housing



R:\NEW\26535\Layouts\EHMP\Appendix A\Phase I Pesticide-Impacted Soil at Hale Na Koa I-1.mxd 4/19/12 - YE

Onizuka II-3 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

Notes:

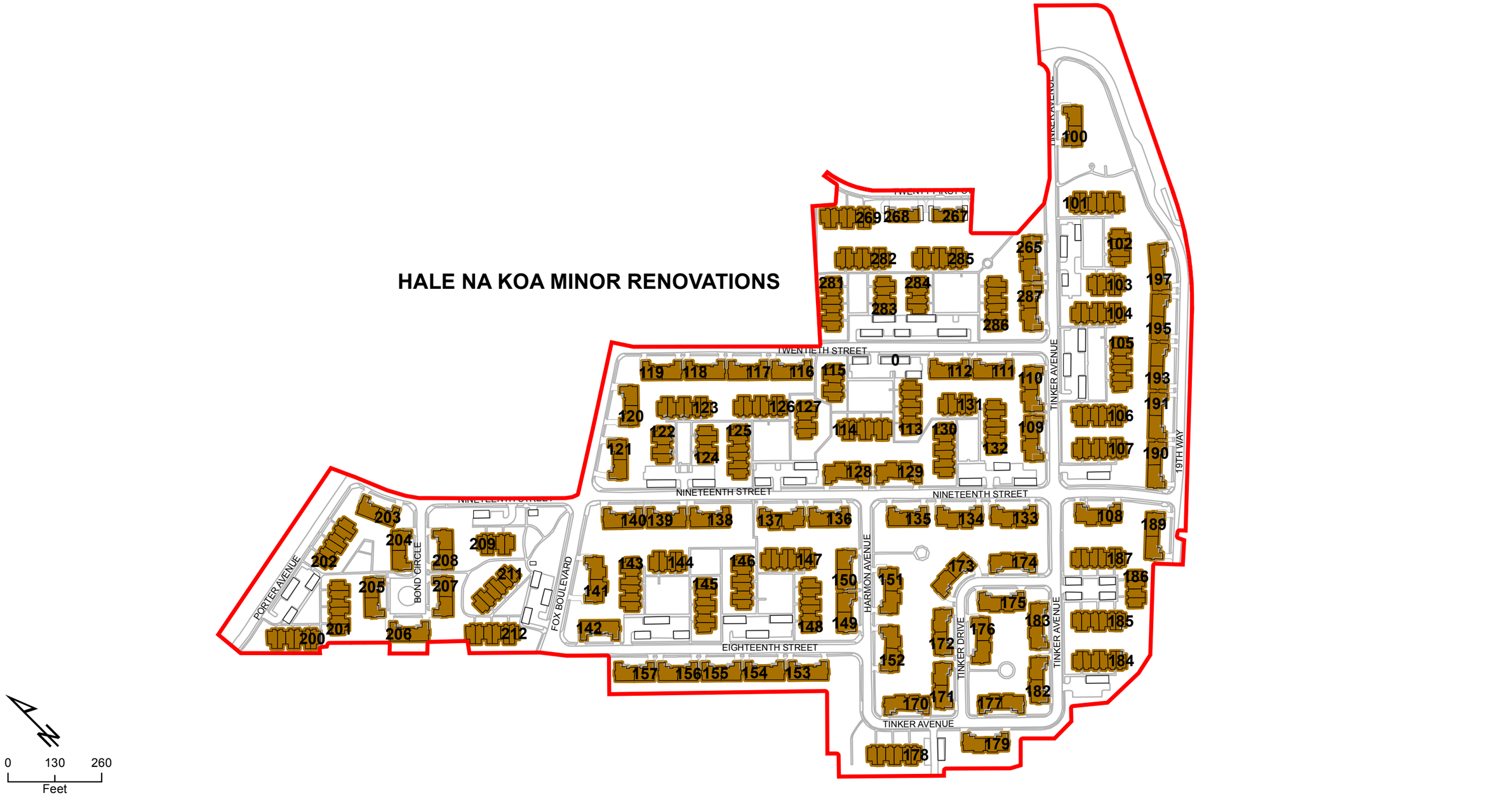
- **PI soil is expected under hardscapes (e.g. roads, foundations, sidewalks, etc.)**
- **In open areas PI soil is expected under a 1 foot thick clean soil cap**
- **An orange geotextile marker layer has not been installed at Hale Na Koa I-1**
- **PI soil is expected in utility trenches**
- **All soil removed from deeper than 1 foot has to be assumed pesticide-impacted unless tested**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Hale Na Koa I-1
Phase I Construction Area, Hale Na Koa Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-1

R:\NEW\26535\Layouts\EHMP\Phase I Pesticide-Impacted Soil at Hale Na Koa Minor Renovations.mxd 4/19/12 - YE



Hale Na Koa Minor Renovations Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or at surface level within 3 foot building perimeter

Notes:

- **PI soil is expected under building foundations and within a 3 foot perimeter around the building**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Hale Na Koa Minor Renovations
Phase I Construction Area, Hale Na Koa Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-2

R:\NEW\26535\LayoutsEHMP\Appendix A\Phase I Pesticide-Impacted Soil at Earhart I-1.mxd 4/19/12 - YE

Earhart I-1 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or at surface level within 3 foot building perimeter.

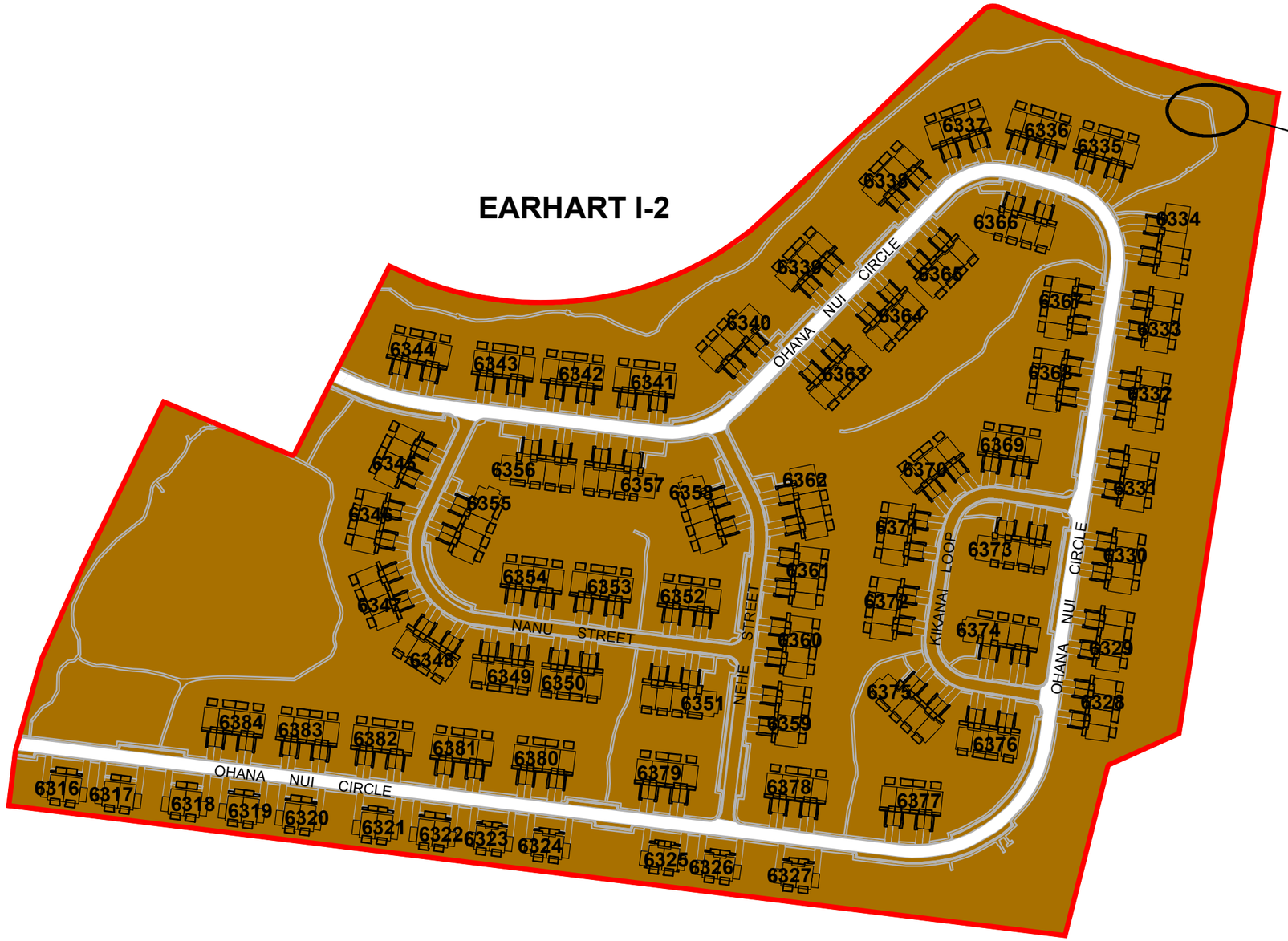
Notes:

- **PI soil is expected under building foundations and within a 3 foot perimeter around the building**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Earhart I-1
Phase I Construction Area, Earhart Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-3



R:\NEW\26535\Layouts\EHMP\Appendix A\Phase I Pesticide-Impacted Soil at Earhart I-2.mxd 4/19/12 - YE

Earhart I-2 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or under 6 inch thick clean soil cap.

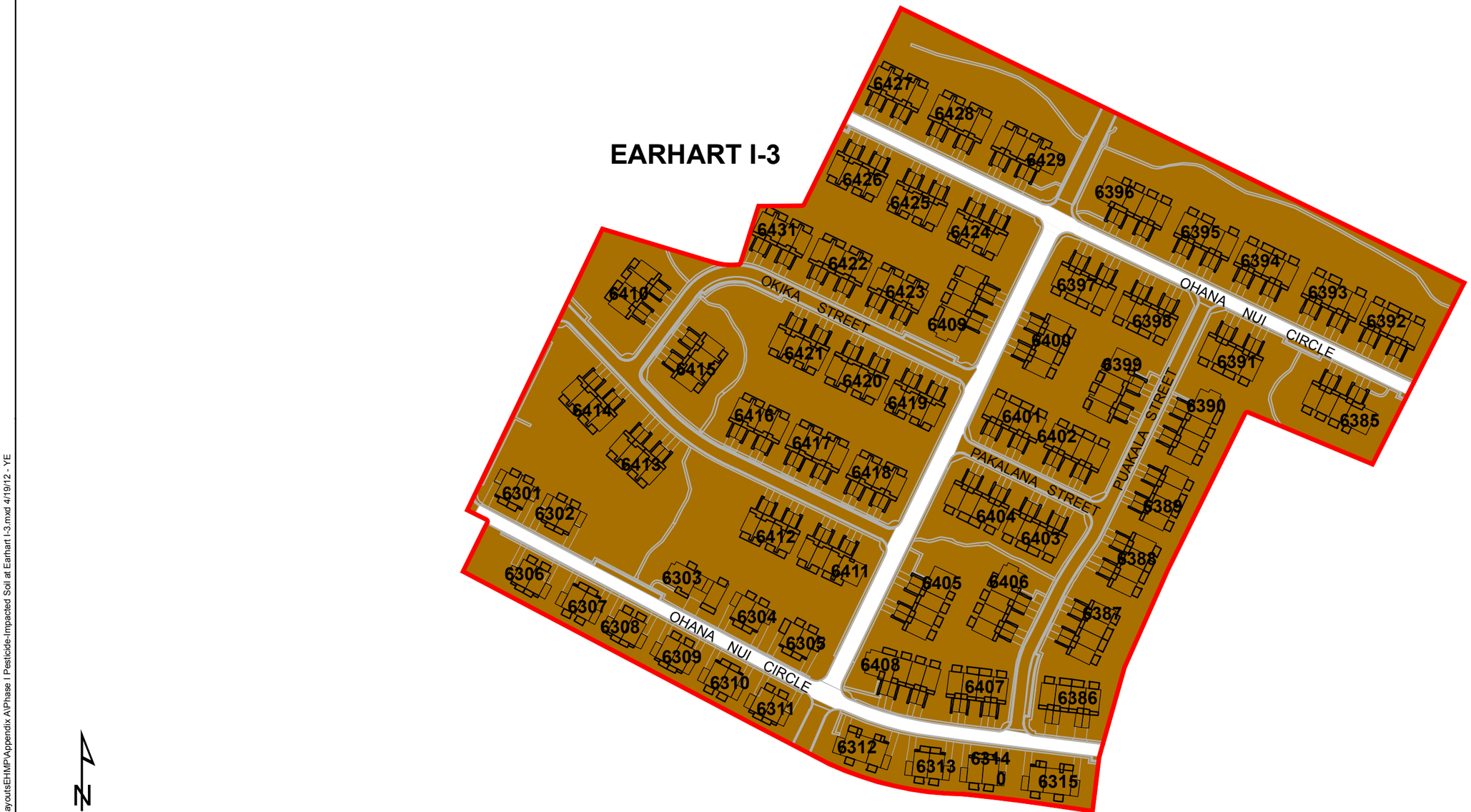
Notes:

- **PI soil is expected under hardscapes (e.g. roads, foundations, sidewalks, etc.)**
- **In open areas PI soil is expected under at least a 6 inch thick clean soil cap**
- **Where PI soil was managed, an orange geotextile marker layer has been installed between the clean cap and the PI soil**
- **PI soil is expected in utility trenches**
- **All soil removed from deeper than 6 inches must be assumed pesticide-impacted unless tested**
- **All import/export soil must be tested**

Pesticide-Impacted Soil Remaining at Earhart I-2
Phase I Construction Area, Earhart Neighborhood
Environmental Hazard Management Plan
Hickam Communities,June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-4



N

0 75 150
Feet

Earhart I-3 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or under 6 inch thick cap.

Notes:

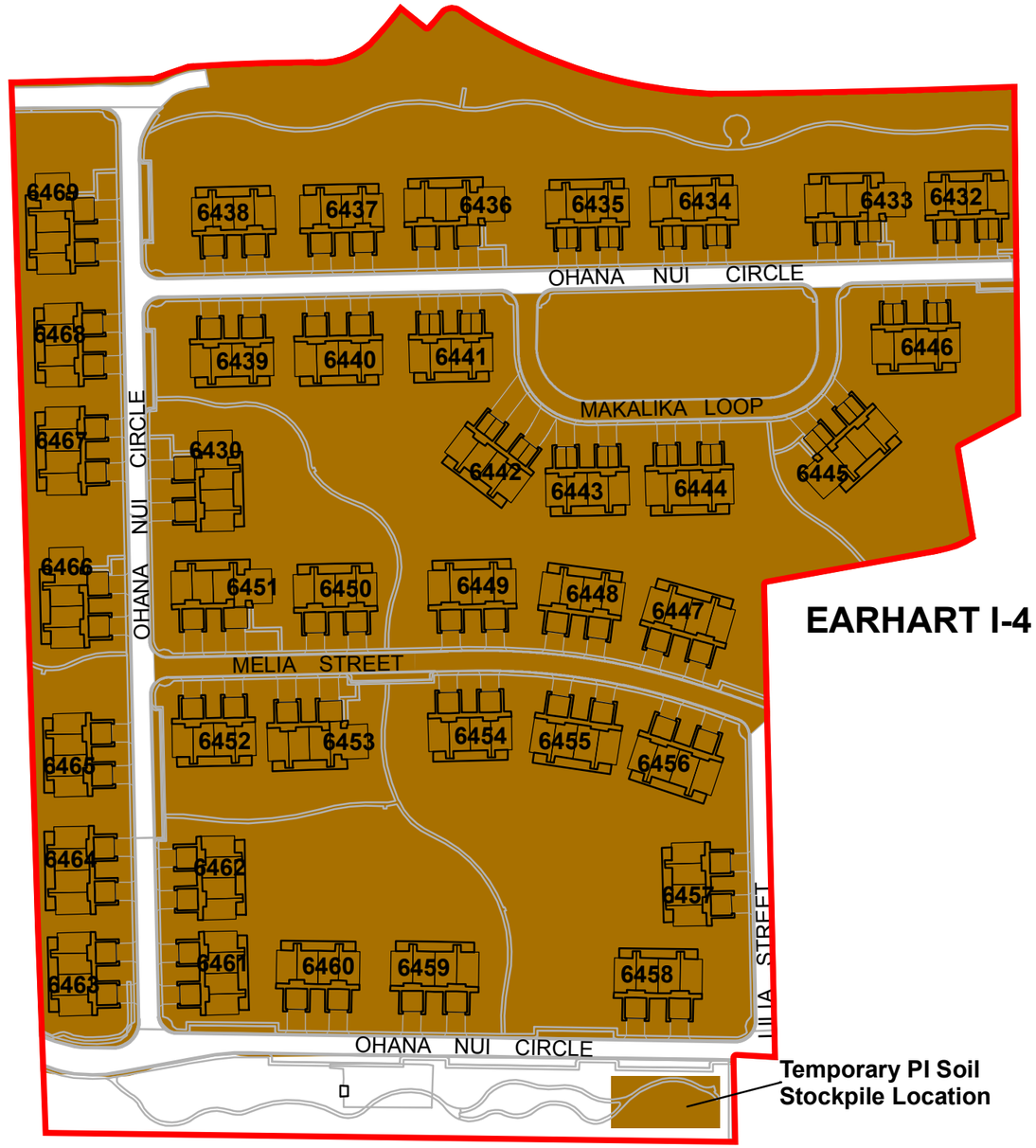
- **PI soil is expected under hardscapes (e.g. roads, foundations, sidewalks, etc.)**
- **In open areas PI soil is expected under at lease a six inch thick cap**
- **Where PI soil was managed, an orange geotextile marker layer has been installed between the clean cap and the PI soil**
- **PI soil is expected in utility trenches**
- **All soil removed from deeper than 6 inches has to be assumed pesticide-impacted unless tested**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Earhart I-3
Phase I Construction Area, Earhart Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-5

R:\NEW\26535\Layouts\EHMP\Appendix A\Phase I Pesticide-Impacted Soil at Earhart I-3.mxd 4/19/12 - YE



R:\NEW\26535\Layouts\EHMP\Appendix A\Phase II Pesticide-Impacted Soil at Earhart I-4.mxd 4/19/12 - YE

Earhart I-4 Boundary

Buildings

Roads

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

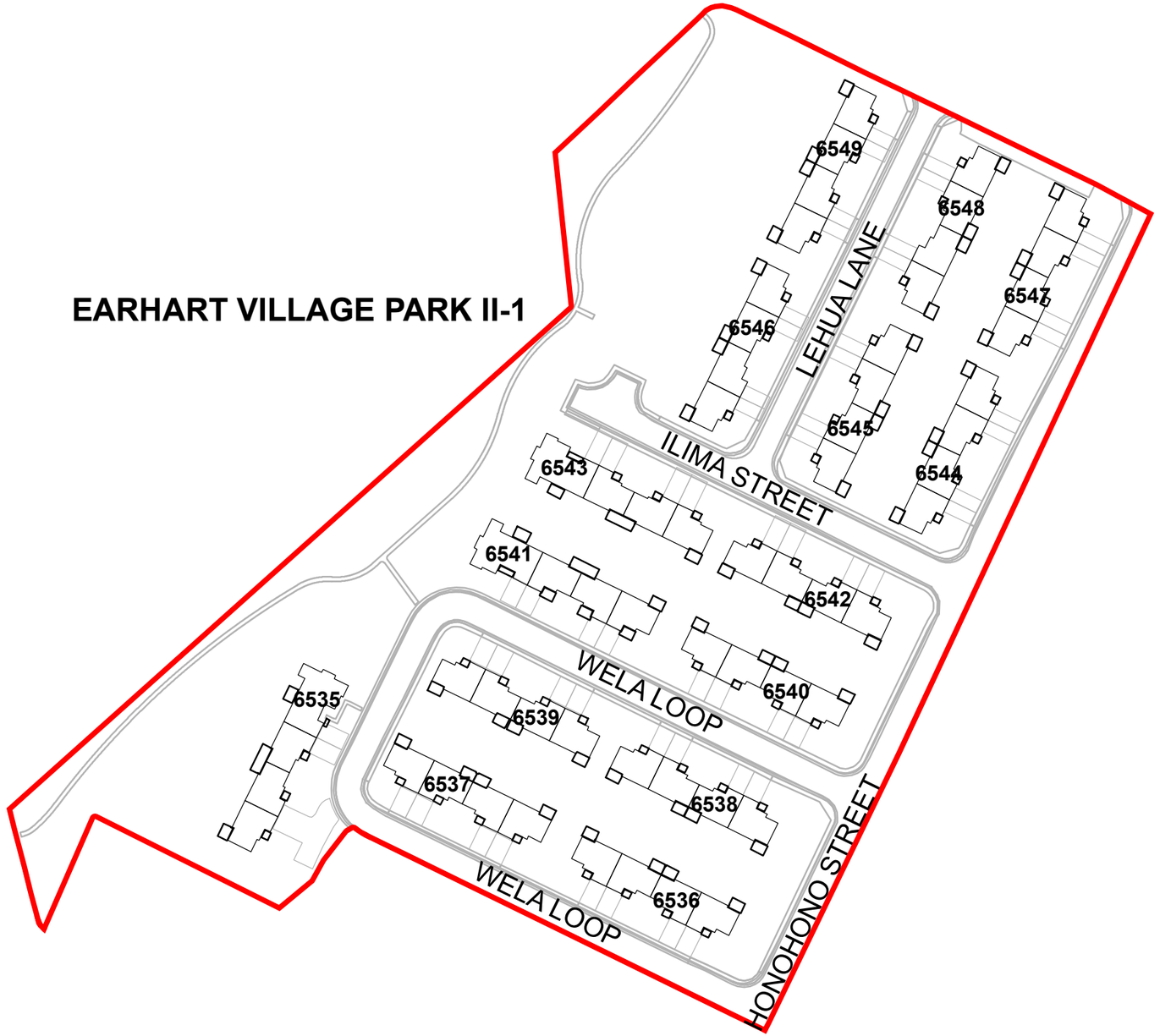
Notes:

- **PI soil is expected under hardscapes (e.g. roads, foundations, sidewalks, etc.)**
- **In open areas PI soil is expected under a 1 foot thick clean soil cap**
- **An orange geotextile marker layer has been installed between the clean soil cap and the PI soil**
- **PI soil is expected in utility trenches**
- **All soil removed from deeper than 1 foot has to be assumed pesticide-impacted unless tested**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Earhart I-4
Phase I Construction Area,Earhart Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-6



Earhart Village Park II-1 Boundary

New Building Footprints

Roads

Notes:

- **There is no PI soil expected to remain at Earhart Village Park II-1.**

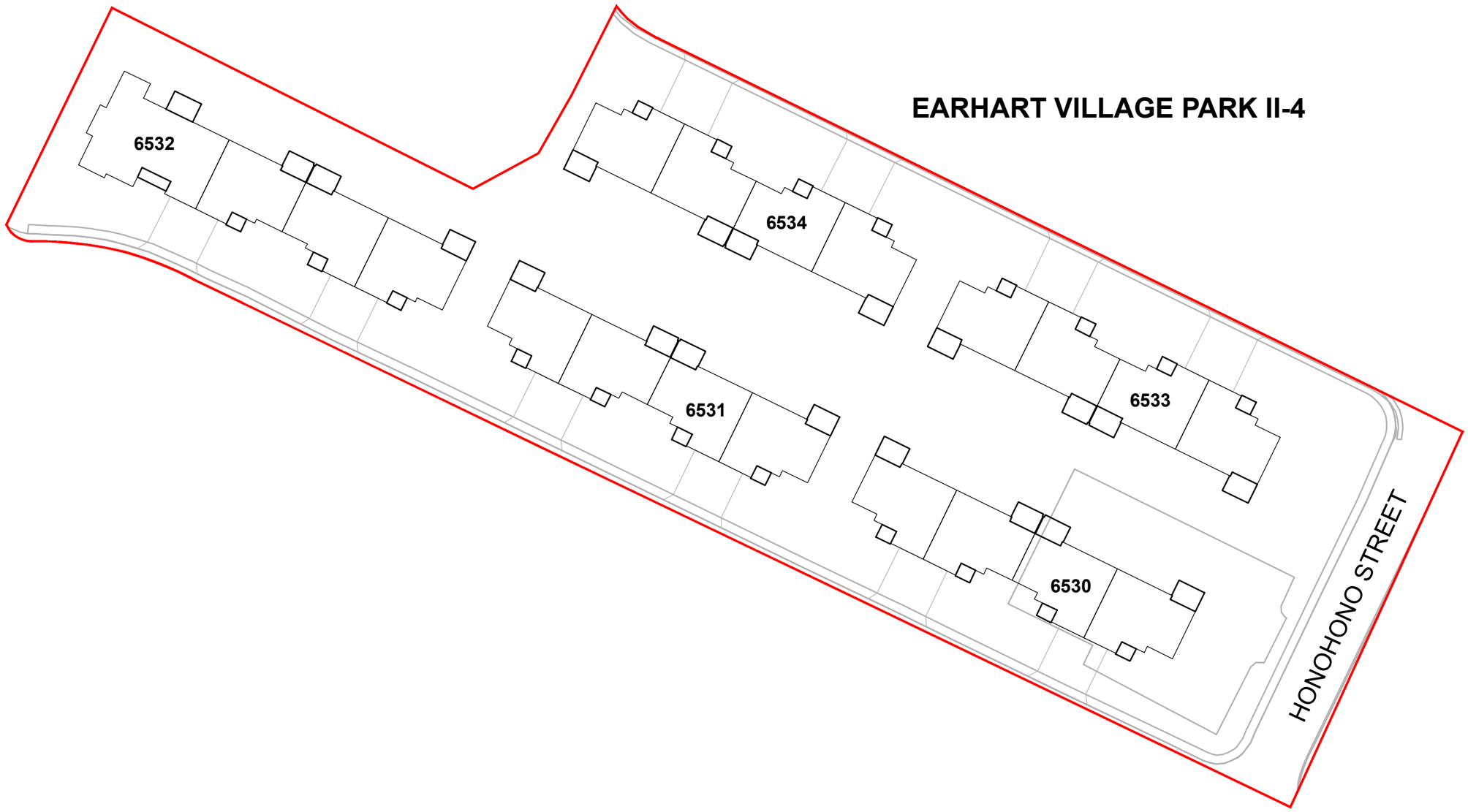
Pesticide-Impacted Soil Remaining at Earhart Village Park II-1
Phase II Construction Area, Earhart Village Park Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-7

R:\NEW\26535\Layouts\EHMP\Appendix A\Phase II Pesticide-Impacted Soil at Earhart Village Park II-1.mxd 3/27/12 - YE

EARHART VILLAGE PARK II-4



This figure shows the planned construction layout for this previously undeveloped parcel. The parcel has not been evaluated at this time.

Earhart Village Park II-4 Boundary

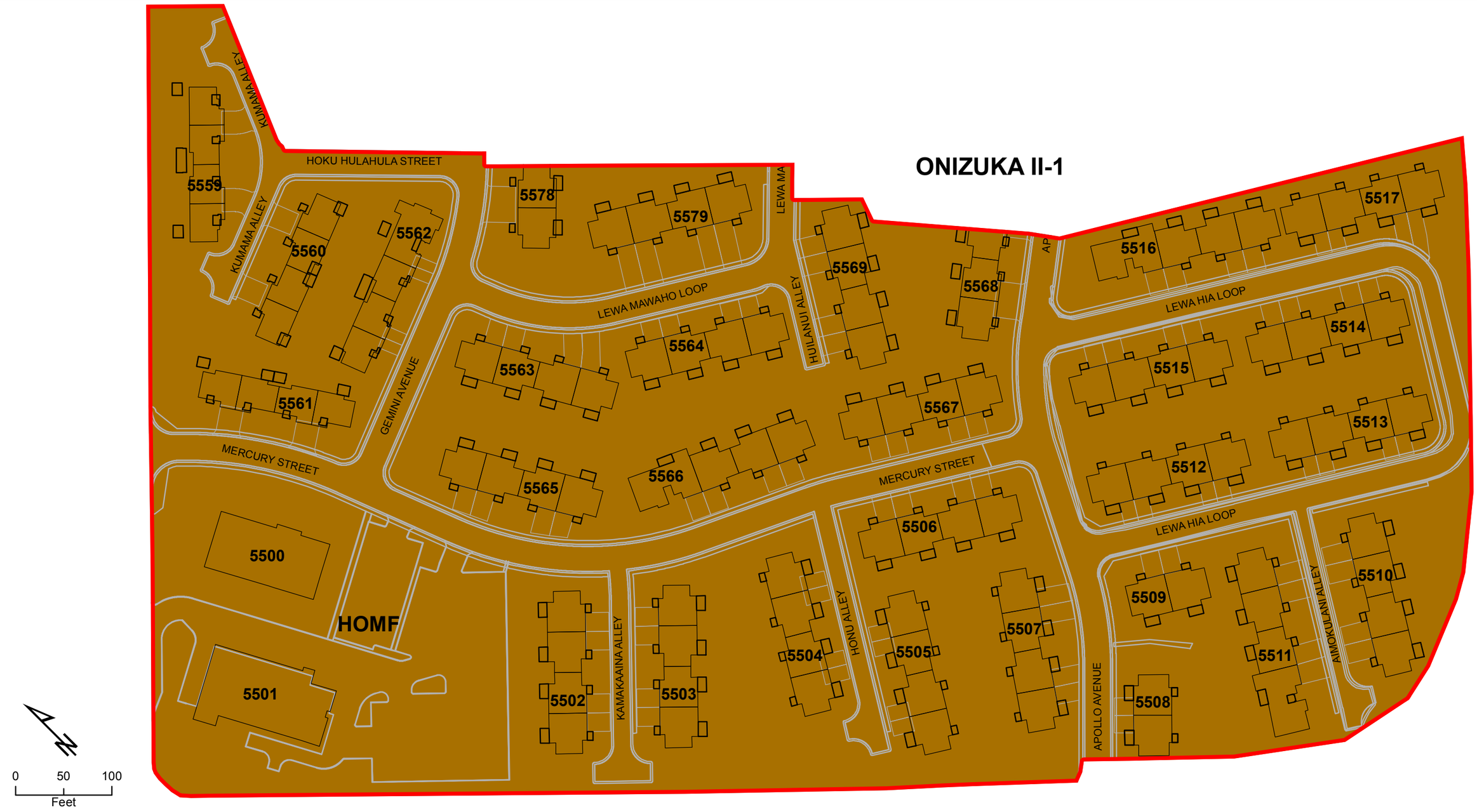
New Building Footprints

Roads

Pesticide-Impacted Soil Remaining at Earhart Village Park II-4
Phase II Construction Area, Earhart Village Park Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-8



R:\NEW\26535\Layouts\EHMP\Appendix A\Phase II Pesticide-Impacted Soil at Onizuka II-1.mxd 3/27/12 - YE

Onizuka II-1 Boundary

Buildings

Roads

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

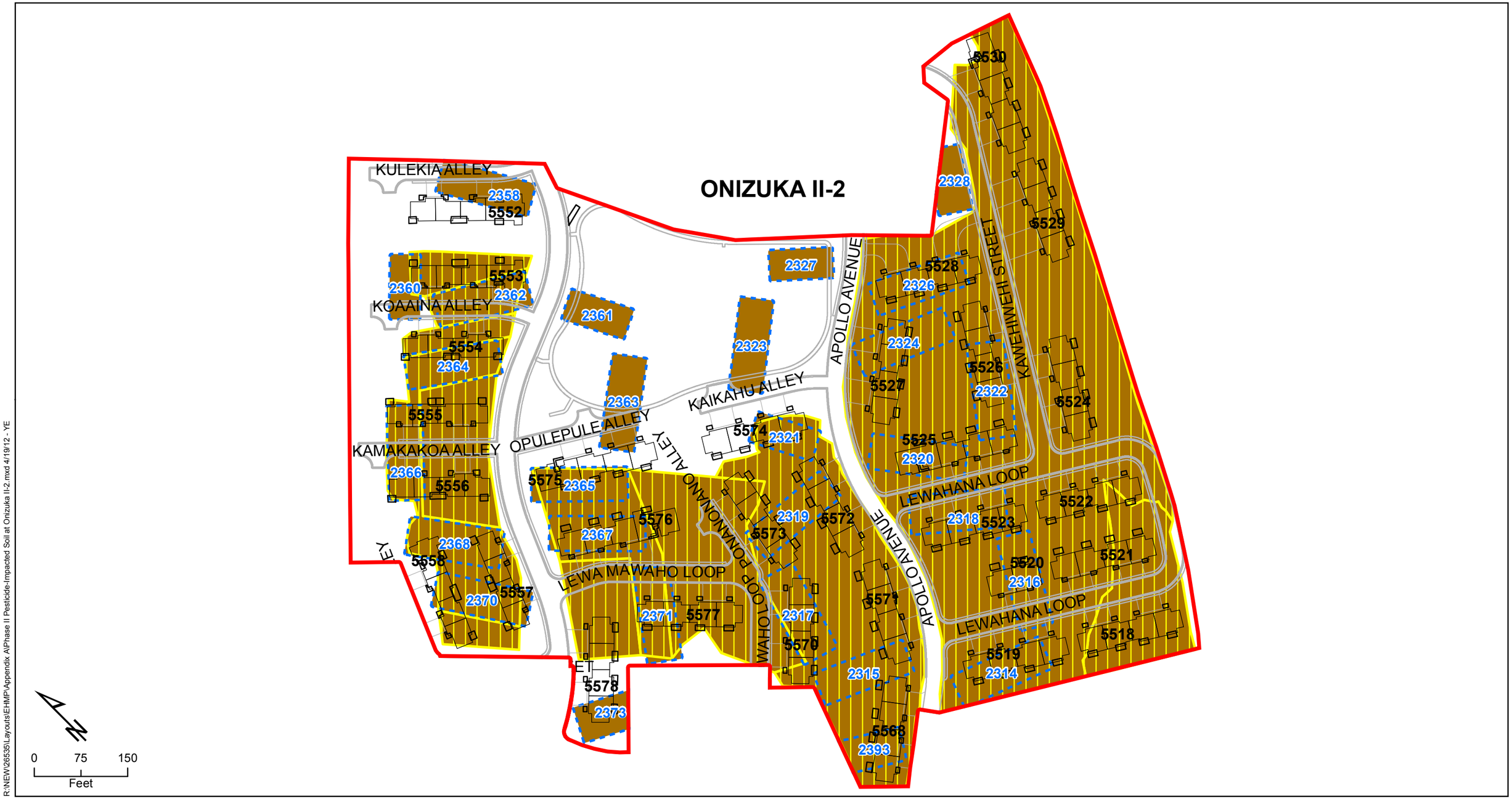
Notes:

- **PI soil is expected under hardscapes (e.g. roads, foundations, sidewalks, etc.)**
- **In open areas PI soil is expected under a 1 foot thick clean soil cap**
- **An orange geotextile marker layer has not been installed at Onizuka II-1**
- **PI soil is expected in utility trenches**
- **All soil removed from deeper than 1 foot must be assumed pesticide-impacted unless tested**
- **All import/export soil must be tested**
- **HOMF = HC Office and Maintenance Facility**

Pesticide-Impacted Soil Remaining at Onizuka II-1
Phase II Construction Area, Onizuka Neighborhood
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-9



R:\NEW\26535\Layouts\EHMP\Appendix A\Phase II Pesticide-Impacted Soil at Onizuka II-2.mxd 4/19/12 - YE

Onizuka II-2 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or under one foot thick clean soil cap.

Burial Pits

Old Building Footprints

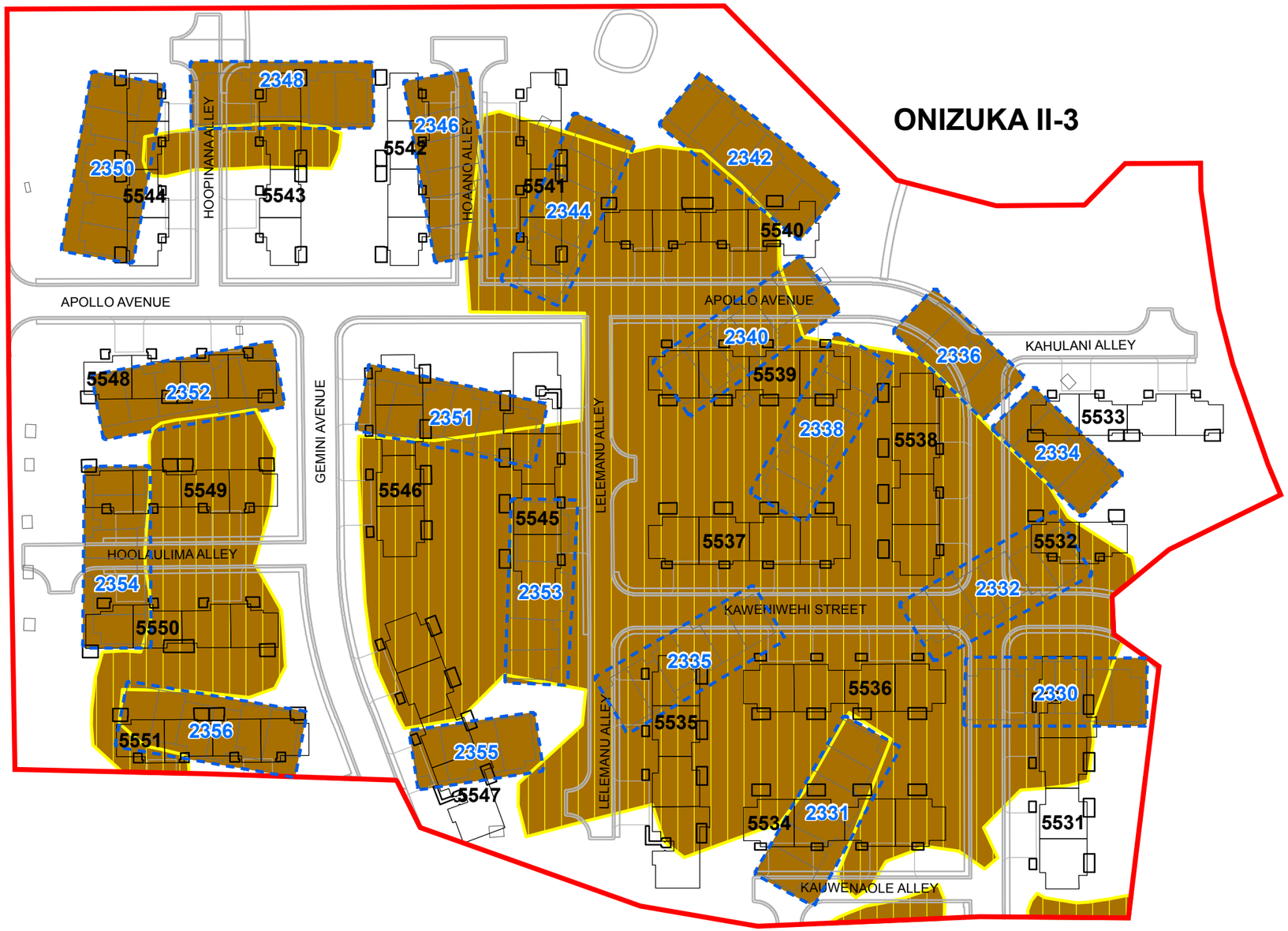
Notes:

- **Within the burial pits, PI soil is expected under building foundations**
- **In open areas overlaying former building footprints or burial pits PI soil is expected under a 1 foot thick cap**
- **An orange geotextile marker layer has been installed between the clean soil cap and the PI soil**
- **Within the burial pits, PI soil is expected in utility trenches**
- **Within former building footprints and burial pits, all soil removed from deeper than 1 foot has to be assumed pesticide-impacted unless tested**
- **Within burial pits, PI soil has been placed up to an elevation of 5 feet amsl**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Onizuka II-2 Phase II Construction Area, Onizuka Neighborhood Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-10



This is a draft map. The final topographic map for the burial pits is still outstanding.

R:\NEW\26535\Layouts\EHMP\Appendix A\Phase II Pesticide-Impacted Soil at Onizuka II-3.mxd 4/19/12 - YE

- Onizuka II-3 Boundary
- New Building Footprints
- Roads
- Pesticide-impacted (PI) soil present under hardscape or under 2 foot thick clean soil cap.
- Burial Pits
- Old Building Footprints

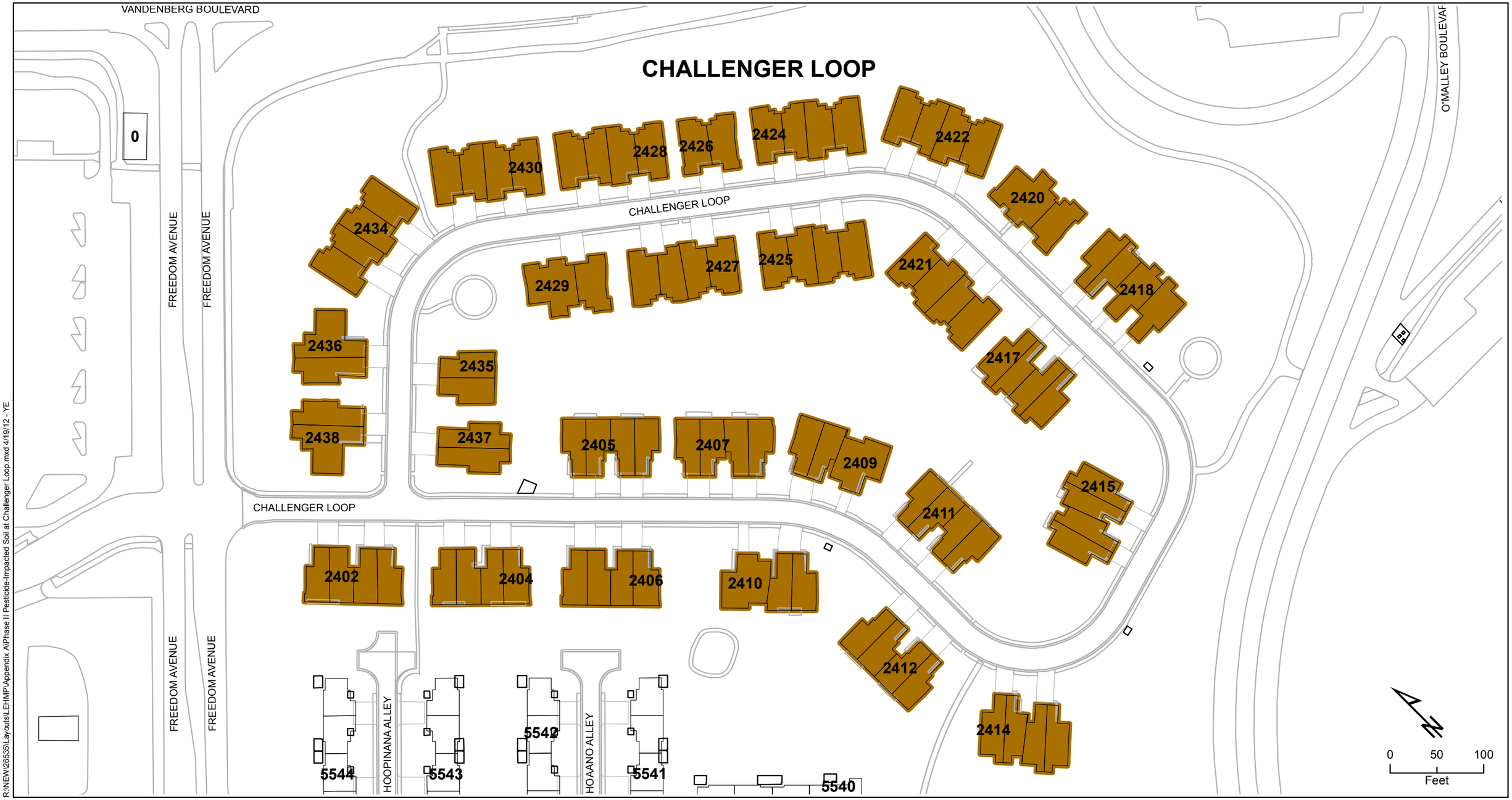
Notes:

- **All soil removed from deeper than 2 foot has to be assumed pesticide-impacted unless tested**
- **All import/export soil has to be tested**
- **Within the burial pits, PI soil is expected under building foundations and in utility trenches**
- **In open areas PI soil is expected under a 2 foot thick clean soil cap**
- **An orange geotextile marker layer has been installed between the clean soil cap and the PI soil**
- **Within burial pits, all soil removed from deeper than 1 foot has to be assumed pesticide-impacted unless tested**
- **Within burial pits, PI soil has been placed up to an elevation of 5 feet amsl**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Onizuka II-3 Phase II Construction Area, Onizuka Neighborhood Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-11



R:\NEW\26535\Layouts\LEHMP\Appendix A\Phase II Pesticide-Impacted Soil at Challenger Loop.mxd 4/19/12 - YE

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or at surface level within 3 foot building perimeter.

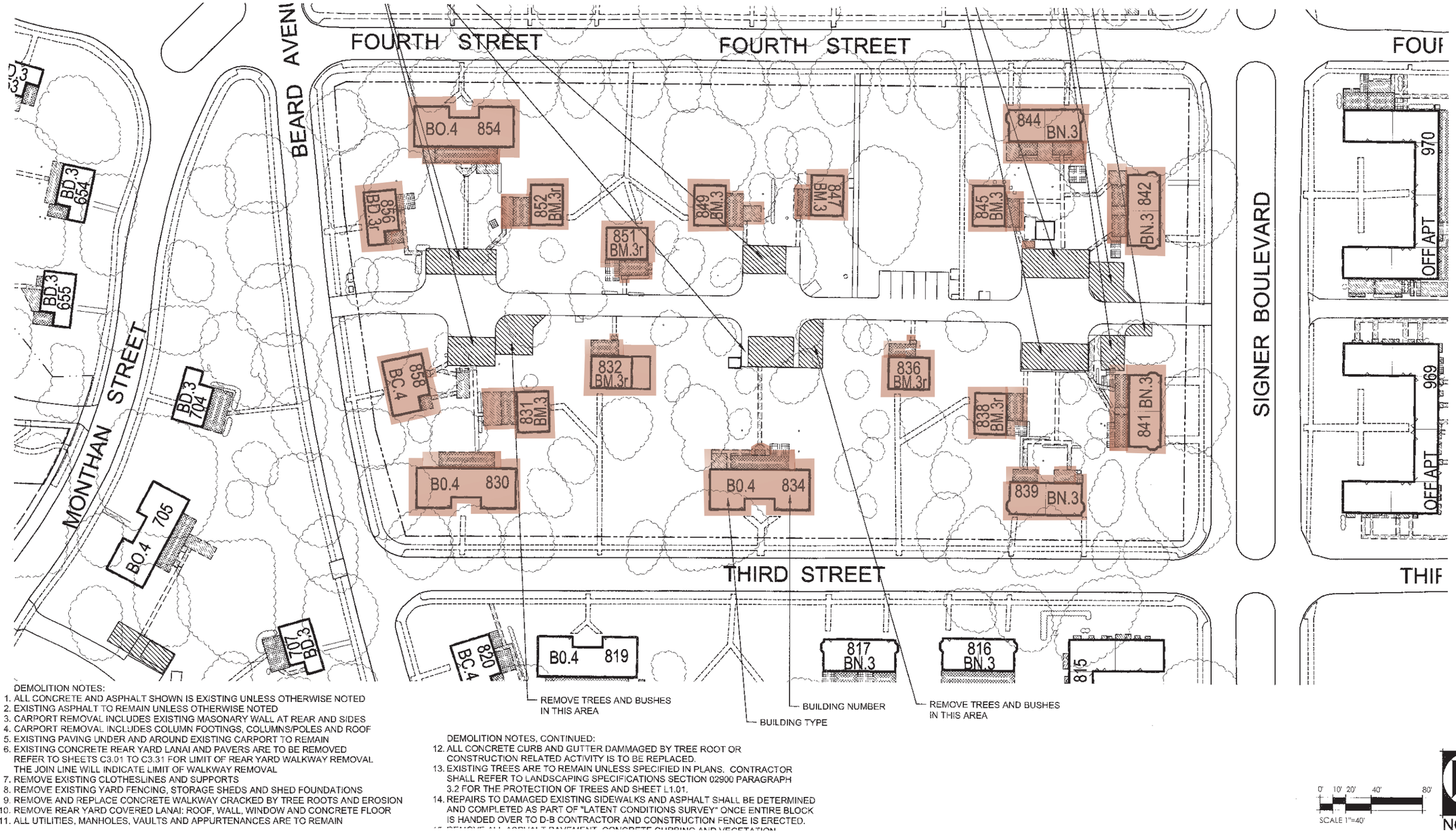
Notes:

- **PI soil is expected under building foundations and within a 3 foot perimeter around the building**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Challenger Loop
Phase II Construction Area, Challenger Loop
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-12



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 ft building zone depicted on the map is estimated.
The actual 3 ft distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

Notes:

- PI soil is expected under building foundations and within a 3 foot perimeter around the building
- Former lanais and building additions have been removed. A 1 foot thick clean soil cap separated by an orange geotextile marker layer has been installed on top of the PI soil
- PI soil is expected in utility trenches within 3 feet of the building
- All import/export soil has to be tested

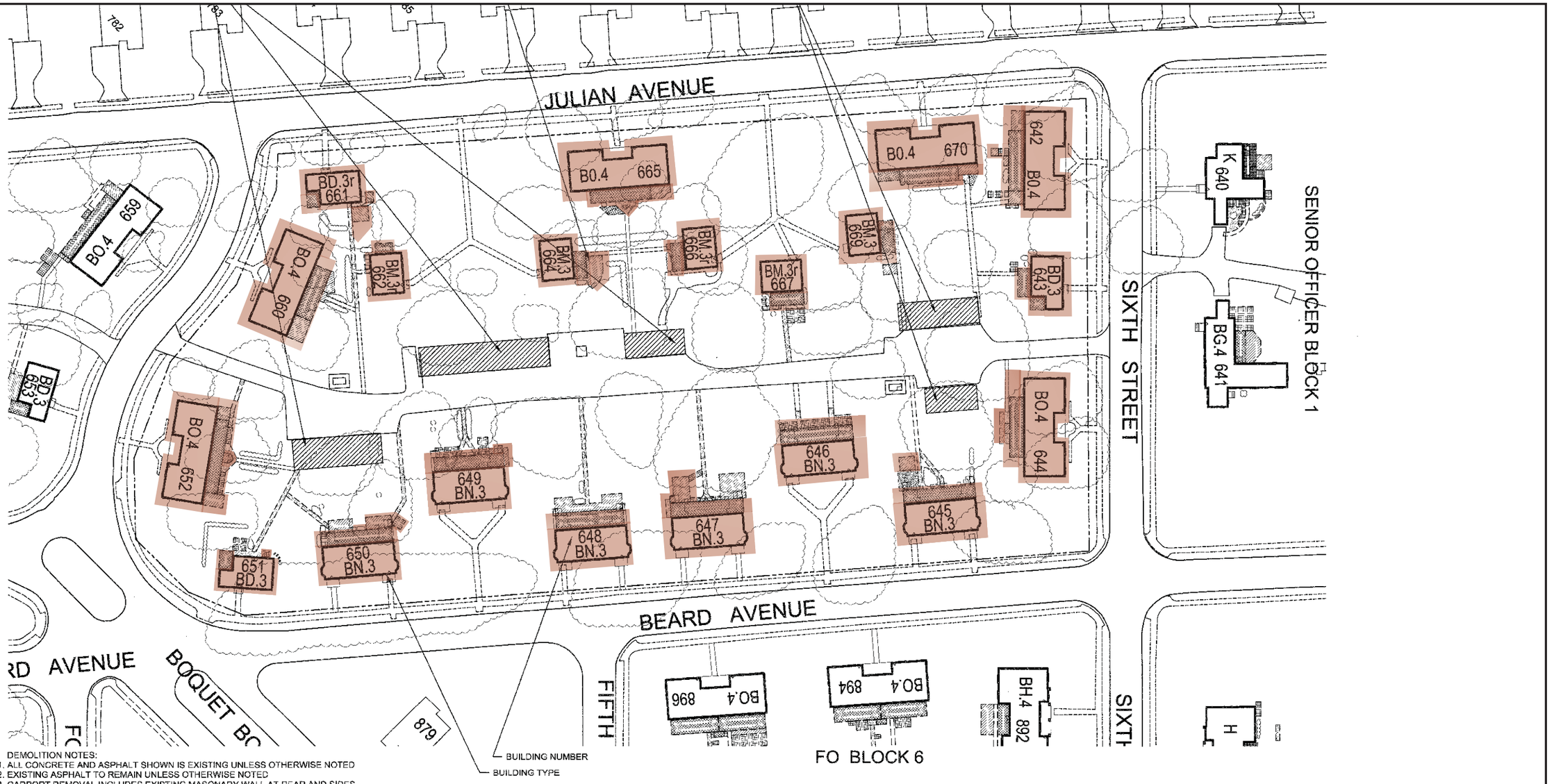
TETRA TECH

Pesticide-Impacted Soil Remaining at FO3 Block Phase II Construction Area, Historical Blocks II-2 Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-1

r:\new\26535\Corel\EHMP\Pesticide-Impacted Soil Remaing at FO3 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED
   REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL
   THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

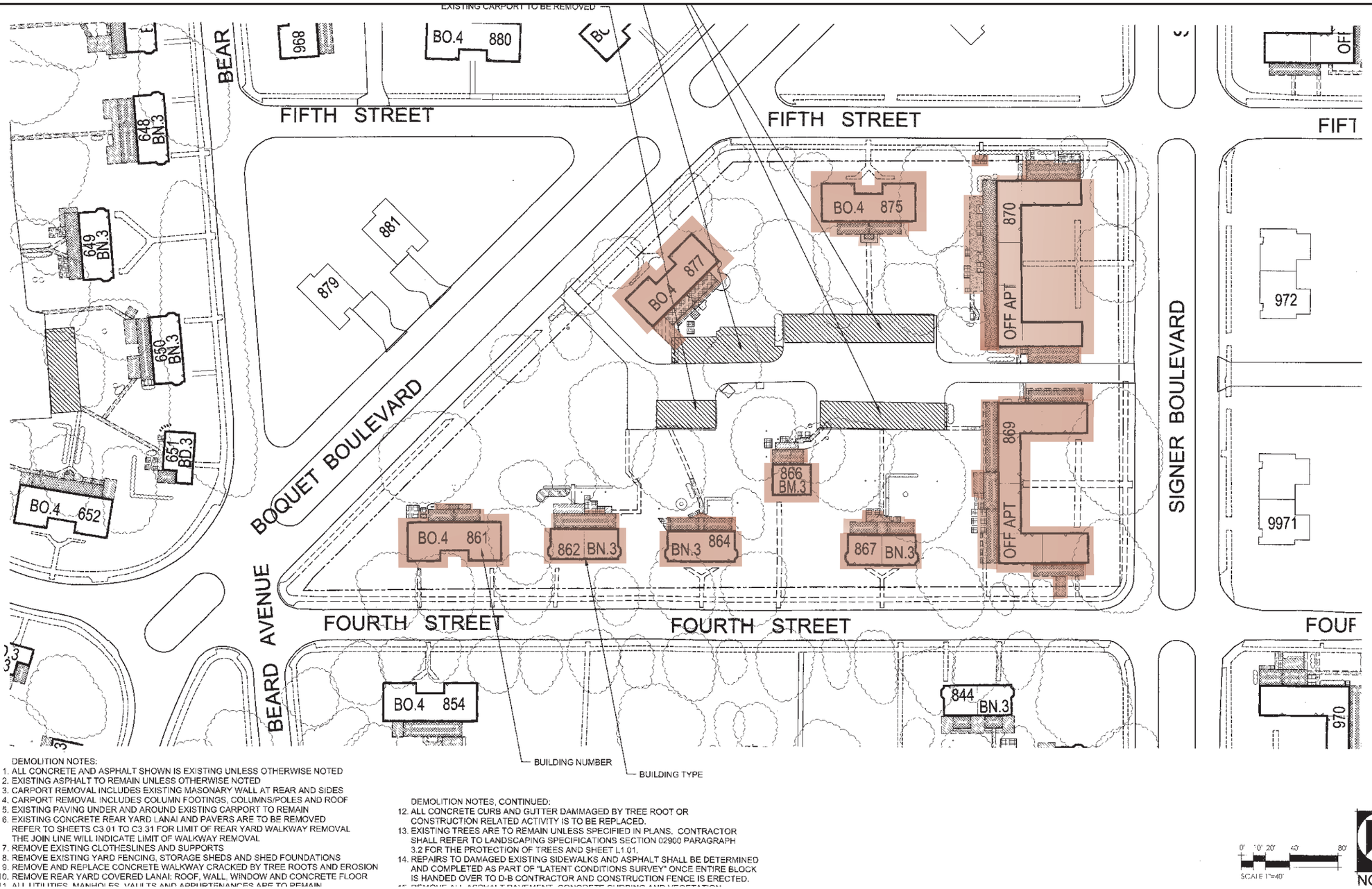
TETRA TECH

Pesticide-Impacted Soil Remaining at FO5 Block Phase II Construction Area, Historical Blocks II-2 Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-2

r:\new\26535\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at FO5 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated.
The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

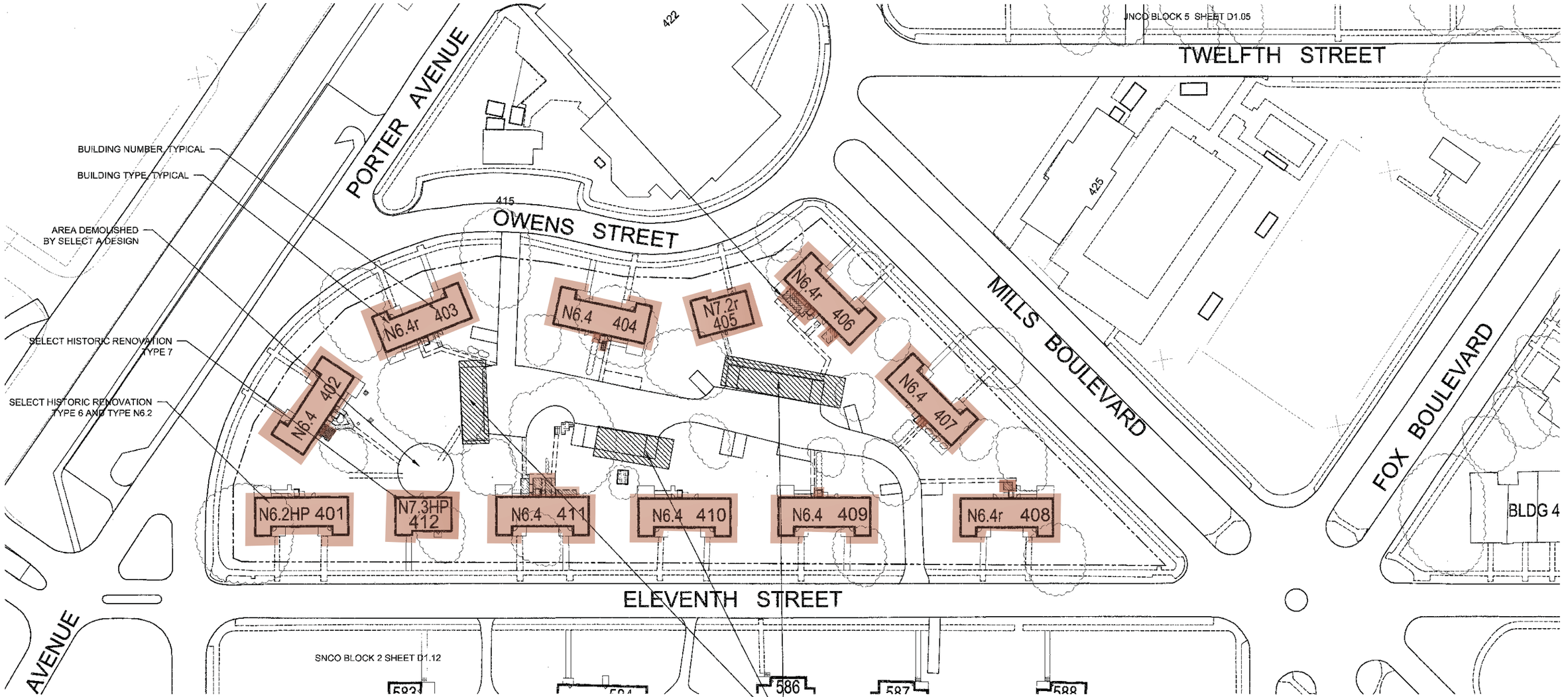
TETRA TECH

Pesticide-Impacted Soil Remaining at FO7 Block Phase II Construction Area, Historical Blocks II-2 Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-3

r:\new\26535\CorelEHMP\Appendix A\Pesticide-Impacted Soil Remaining at FO7 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
0. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
1. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under foot thick clean soil cap.

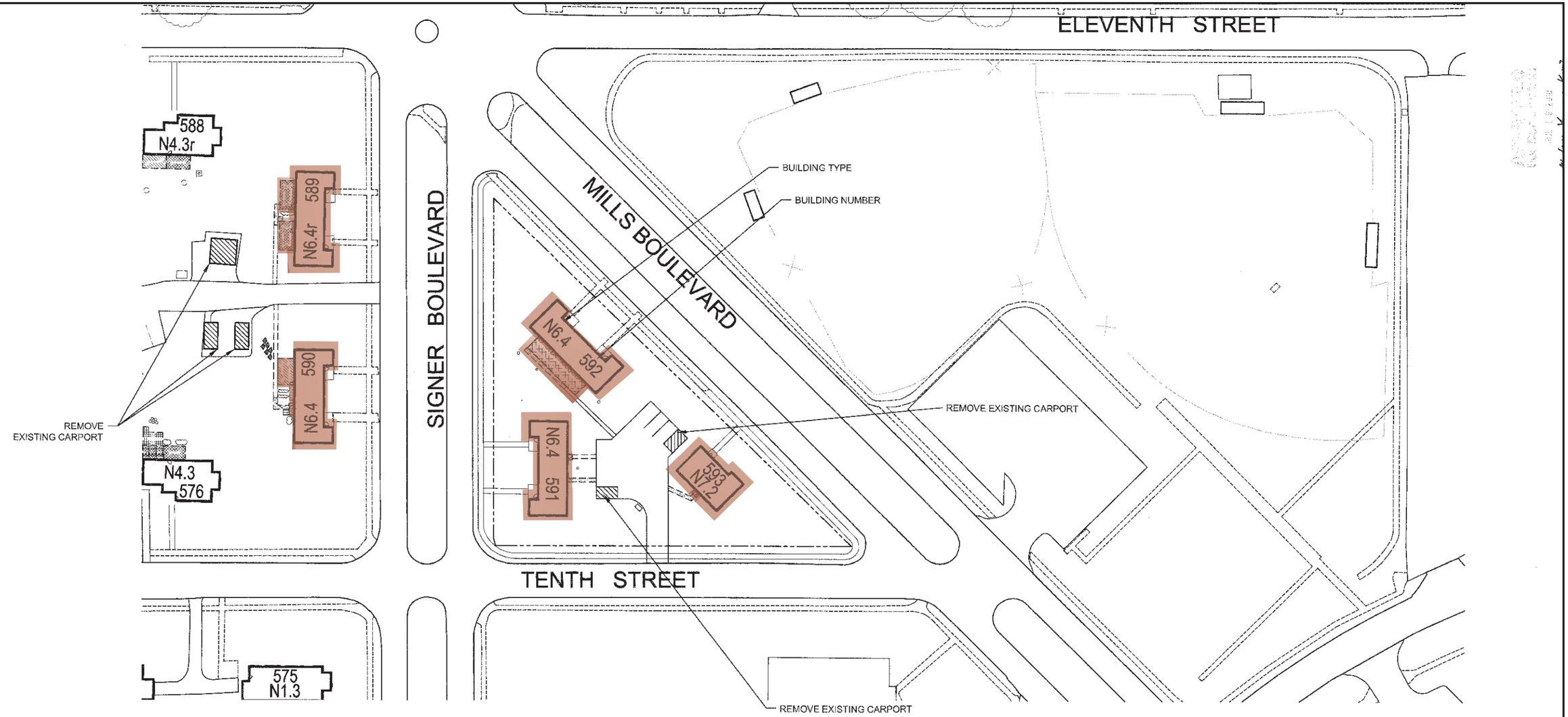
TETRA TECH

Pesticide-Impacted Soil Remaining at JNCO1 Block Phase II Construction Area, Historical Blocks II-2 Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-4

r:\new\26535\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at JNCO1 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:

1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:

12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.
15. REMOVE ALL ASPHALT PAVEMENT, CONCRETE CURBING AND VEGETATION WITHIN THE FOOTPRINT OF THE SOQ GARAGE.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

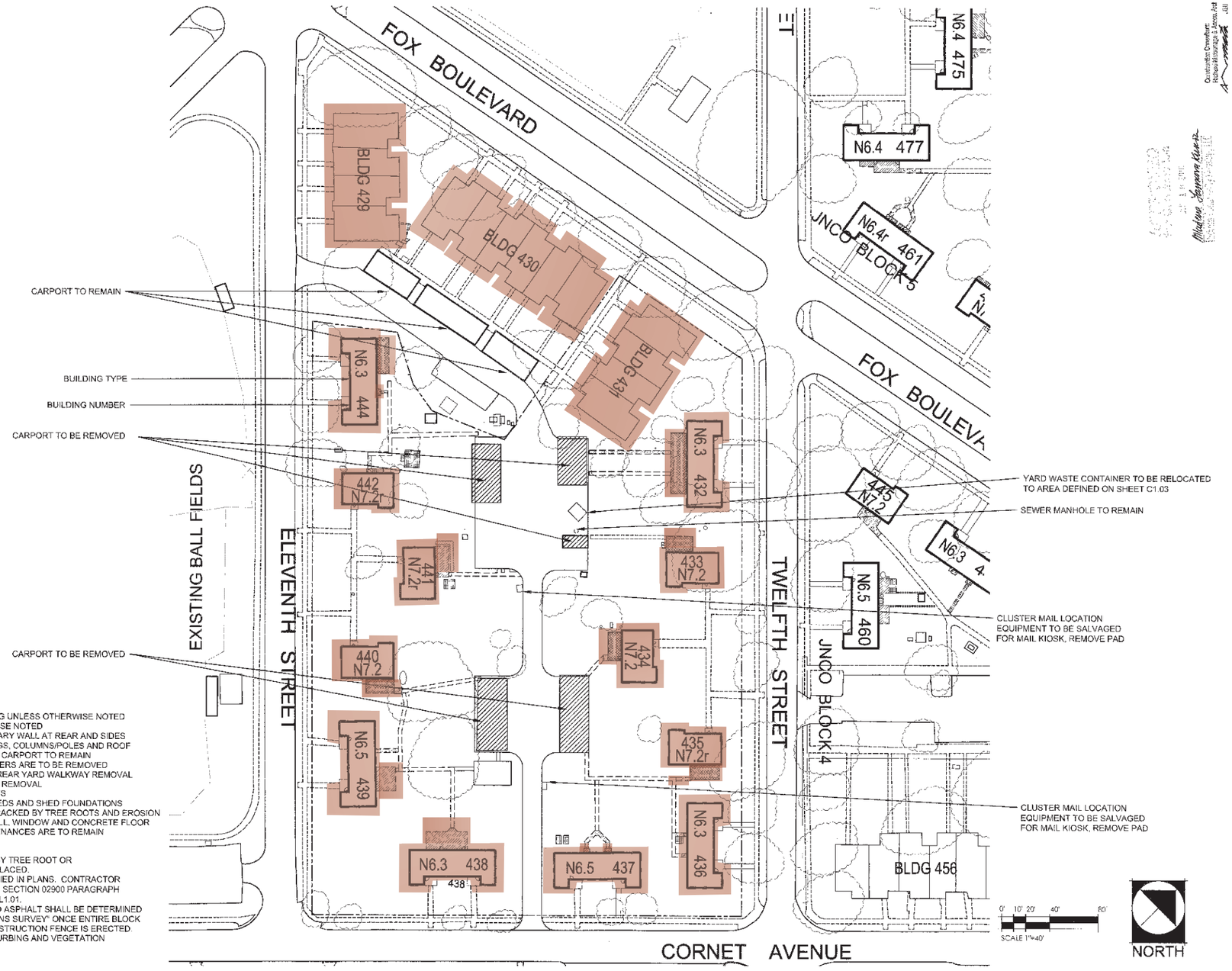
TETRA TECH

Pesticide-Impacted Soil Remaining at JNCO2 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-5

r:\new\25321\Core\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at JNCO2 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.
15. REMOVE ALL ASPHALT PAVEMENT, CONCRETE CURBING AND VEGETATION WITHIN THE FOOTPRINT OF THE SOQ GARAGE.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

Pesticide-Impacted Soil Remaining at JNCO3 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

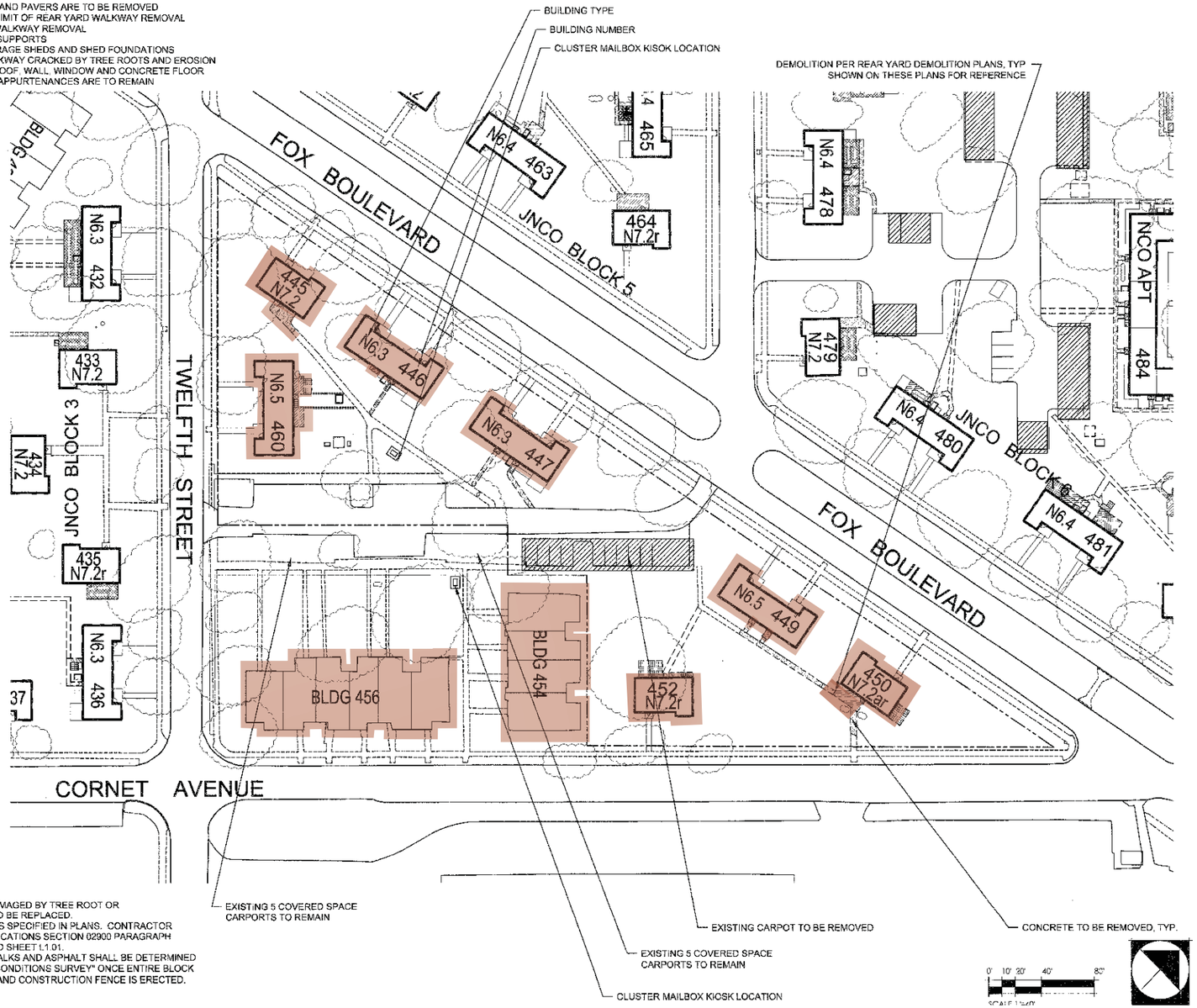
Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-6

TETRA TECH

r:\new\25321\Core\EHMP\Pesticide-Impacted Soil Remaining at JNCO3 Block.cdr - 04/19/12 - YE

DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED
   REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL
   THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN



DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

Construction Consultants
Robert Mitsunaga & Assoc. Architects Inc.
NOV X 6 2012
Date

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

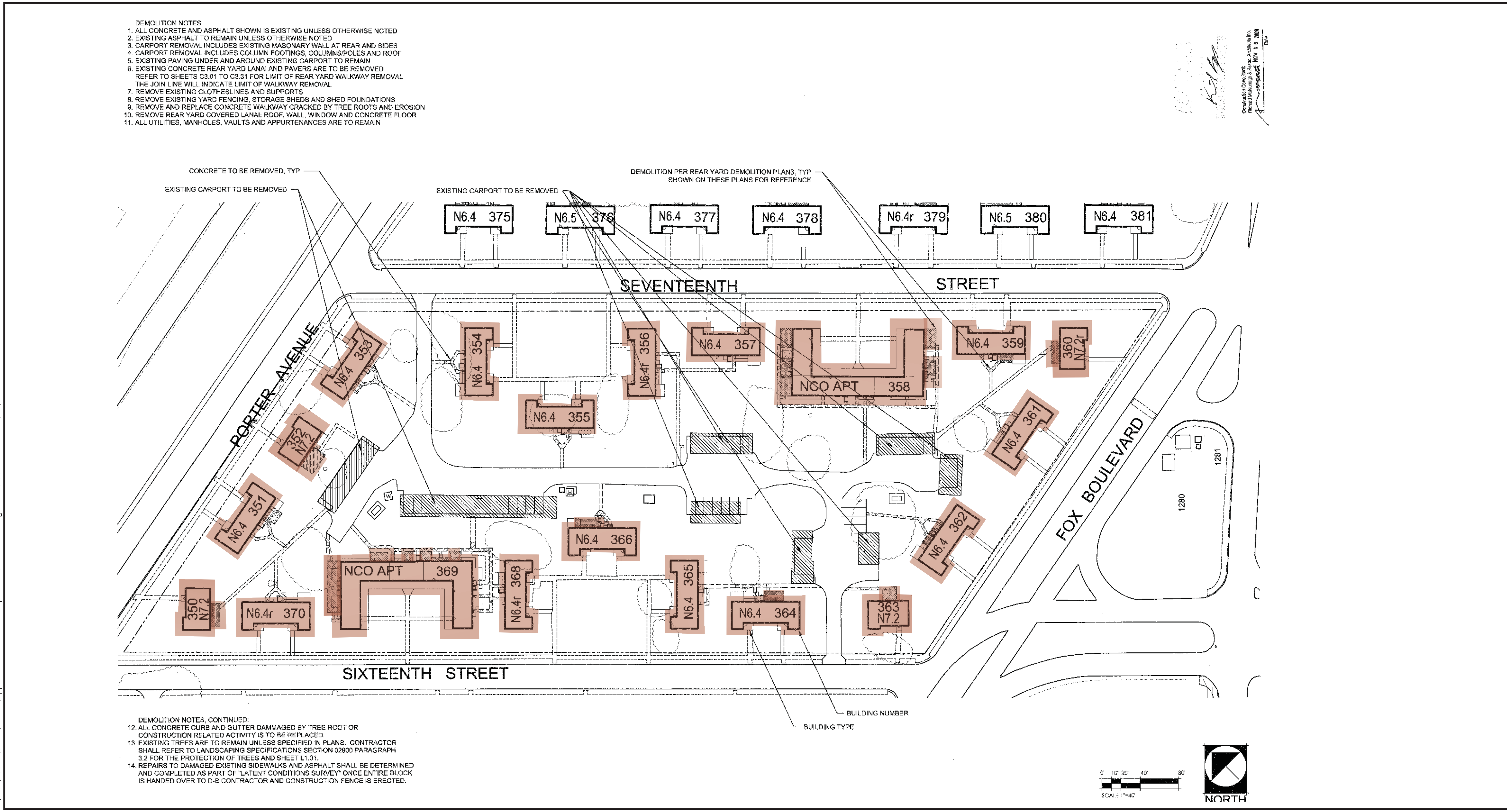
TETRA TECH

Pesticide-Impacted Soil Remaining at JNCO4 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-7

r:\new\26535\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at JNCO4 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN
CONCRETE TO BE REMOVED, TYP
EXISTING CARPORT TO BE REMOVED
EXISTING CARPORT TO BE REMOVED
DEMOLITION PER REAR YARD DEMOLITION PLANS, TYP
SHOWN ON THESE PLANS FOR REFERENCE
N6.4 375
N6.5 376
N6.4 377
N6.4 378
N6.4r 379
N6.5 380
N6.4 381
SEVENTEENTH STREET
PORTER AVENUE
FOX BOULEVARD
SIXTEENTH STREET
N6.4 353
N6.4 354
N6.4r 356
N6.4 357
NCO APT 358
N6.4 359
360 N7.2r
N6.4 355
352 N7.2
N6.4 361
N6.4 351
N6.4 366
N6.4 362
NCO APT 369
N6.4r 368
N6.4 365
350 N7.2
N6.4r 370
N6.4 364
363 N7.2
1280
1281
BUILDING NUMBER
BUILDING TYPE
DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.
SCALE: 1"=40'
NORTH

r:\new\26535\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at JNCO9 Block.cdr - 4/19/12 - YE

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

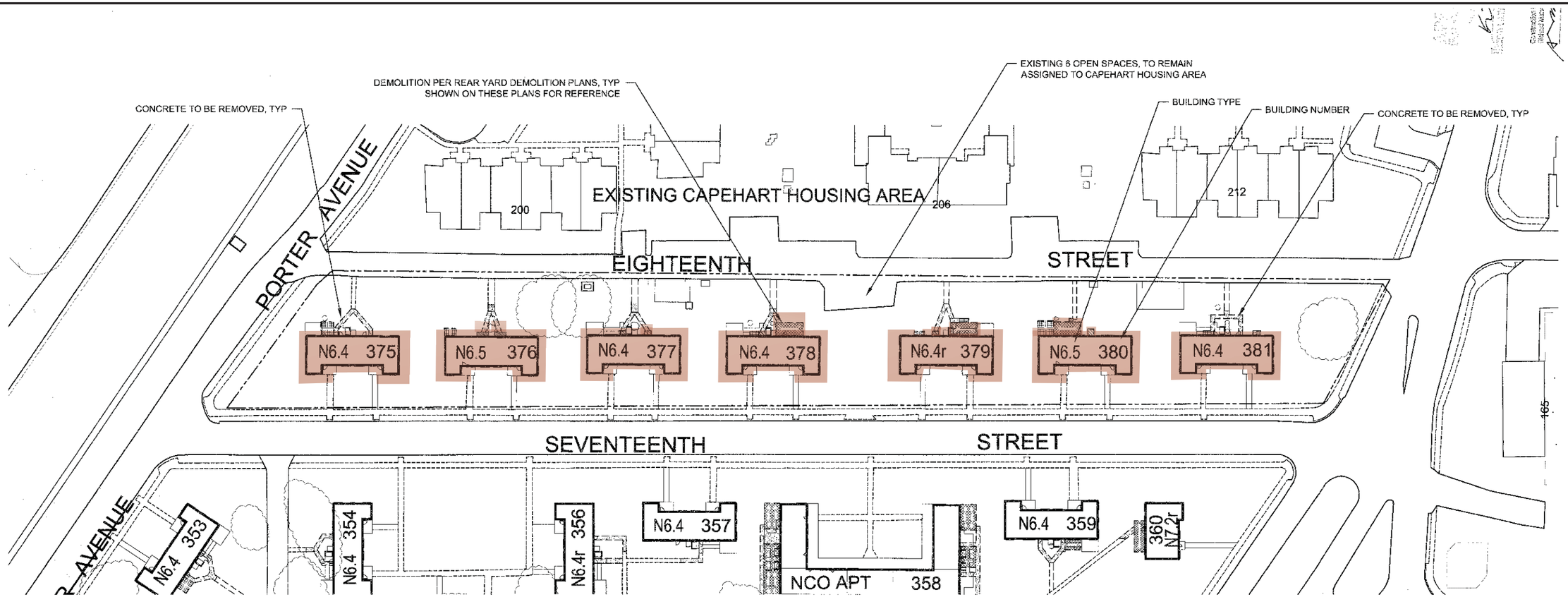
Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

TETRA TECH

Pesticide-Impacted Soil Remaining at JNCO9 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-8



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED
   REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL
   THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR
    CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR
    SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH
    3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED
    AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK
    IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated.
The actual 3 foot distance will be measured and marked in
the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

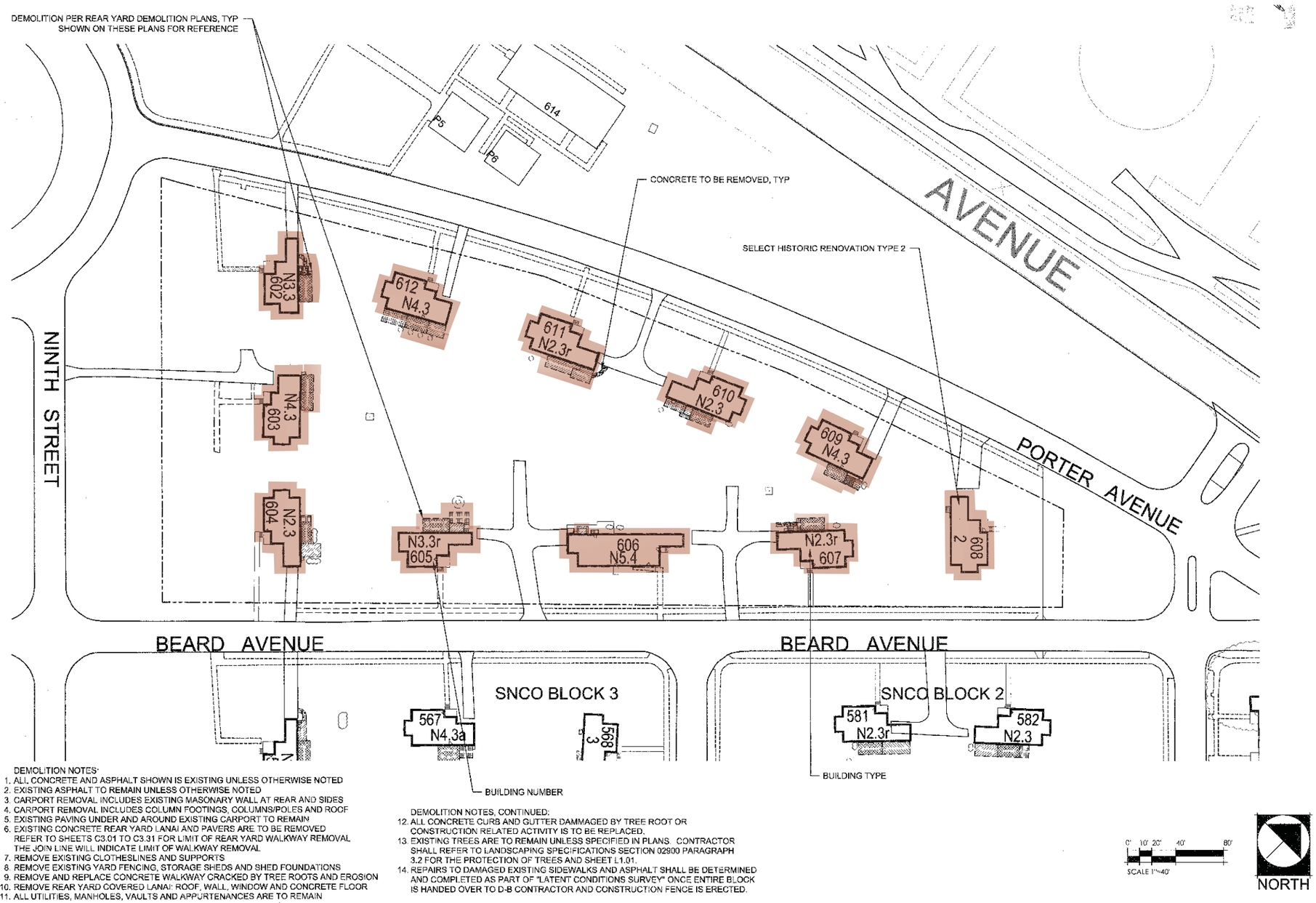
TETRA TECH

Pesticide-Impacted Soil Remaining at JNC10 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-9

r:\new\26535\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at JNC10 Block.cdr - 04/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED
   REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL
   THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

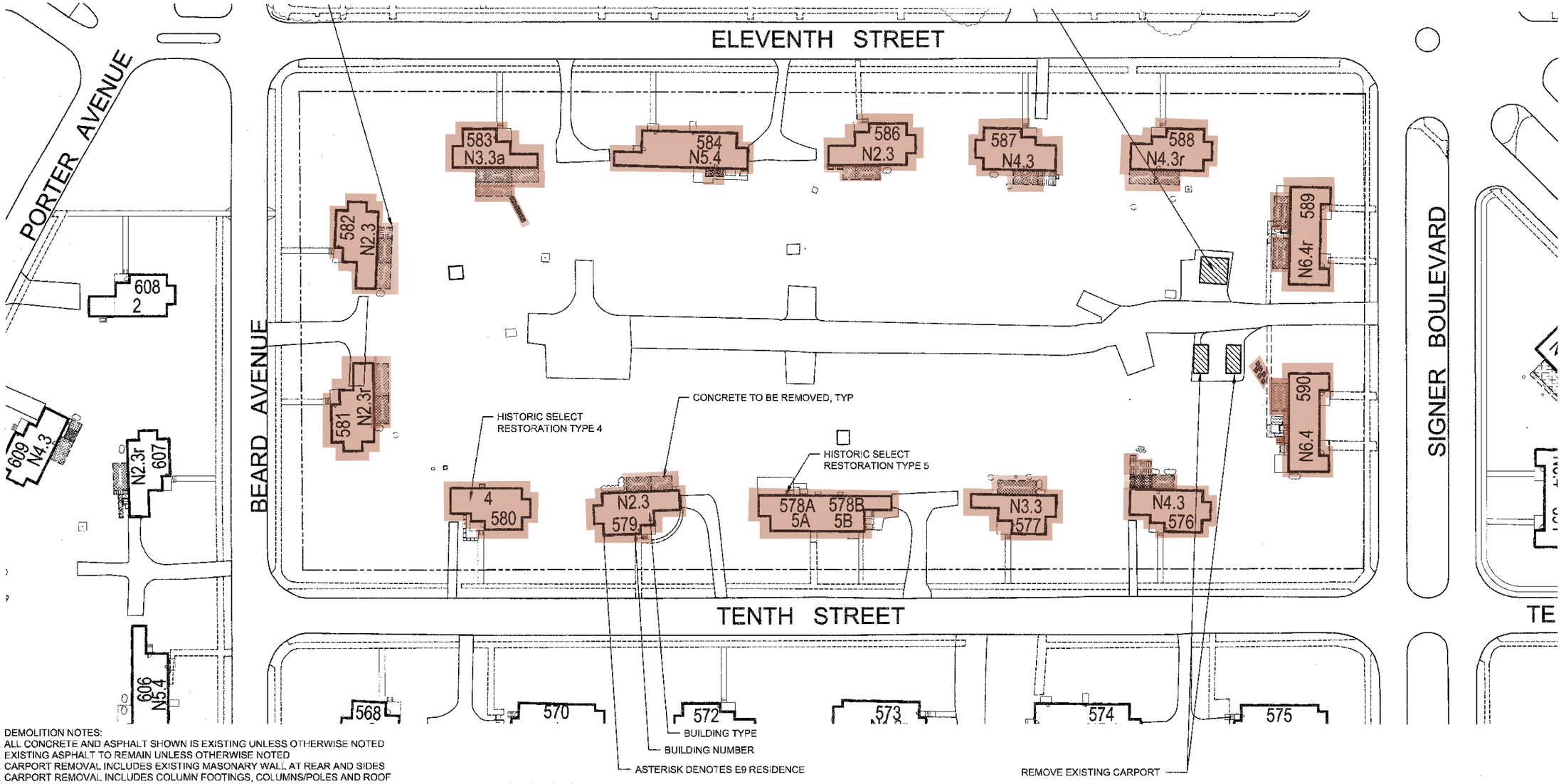
TETRA TECH

Pesticide-Impacted Soil Remaining at SNCO1 Block
Phase II Construction Area, Historical Blocks II-2
Environmental Hazard Management Plan
Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-10

r:\new\25321\Corel\EHMP\Appendix A\Pesticide-Impacted Soil Remaining at SNCO1 Block.cdr - 4/19/12 - YE



DEMOLITION NOTES:
1. ALL CONCRETE AND ASPHALT SHOWN IS EXISTING UNLESS OTHERWISE NOTED
2. EXISTING ASPHALT TO REMAIN UNLESS OTHERWISE NOTED
3. CARPORT REMOVAL INCLUDES EXISTING MASONARY WALL AT REAR AND SIDES
4. CARPORT REMOVAL INCLUDES COLUMN FOOTINGS, COLUMNS/POLES AND ROOF
5. EXISTING PAVING UNDER AND AROUND EXISTING CARPORT TO REMAIN
6. EXISTING CONCRETE REAR YARD LANAI AND PAVERS ARE TO BE REMOVED REFER TO SHEETS C3.01 TO C3.31 FOR LIMIT OF REAR YARD WALKWAY REMOVAL THE JOIN LINE WILL INDICATE LIMIT OF WALKWAY REMOVAL
7. REMOVE EXISTING CLOTHESLINES AND SUPPORTS
8. REMOVE EXISTING YARD FENCING, STORAGE SHEDS AND SHED FOUNDATIONS
9. REMOVE AND REPLACE CONCRETE WALKWAY CRACKED BY TREE ROOTS AND EROSION
10. REMOVE REAR YARD COVERED LANAI: ROOF, WALL, WINDOW AND CONCRETE FLOOR
11. ALL UTILITIES, MANHOLES, VAULTS AND APPURTENANCES ARE TO REMAIN

DEMOLITION NOTES, CONTINUED:
12. ALL CONCRETE CURB AND GUTTER DAMMAGED BY TREE ROOT OR CONSTRUCTION RELATED ACTIVITY IS TO BE REPLACED.
13. EXISTING TREES ARE TO REMAIN UNLESS SPECIFIED IN PLANS. CONTRACTOR SHALL REFER TO LANDSCAPING SPECIFICATIONS SECTION 02900 PARAGRAPH 3.2 FOR THE PROTECTION OF TREES AND SHEET L1.01.
14. REPAIRS TO DAMAGED EXISTING SIDEWALKS AND ASPHALT SHALL BE DETERMINED AND COMPLETED AS PART OF "LATENT CONDITIONS SURVEY" ONCE ENTIRE BLOCK IS HANDED OVER TO D-B CONTRACTOR AND CONSTRUCTION FENCE IS ERECTED.

The 3 foot building zone depicted on the map is estimated. The actual 3 foot distance will be measured and marked in the in the field prior to excavation.

Pesticide-impacted (PI) soil present under hardscape or under 1 foot thick clean soil cap.

Notes:

- PI soil is expected under building foundations and within a 3 foot perimeter around the building
- Former lanais and building additions have been removed. A 1 foot thick clean soil cap separated by an orange geotextile marker layer has been installed on top of the PI soil
- PI soil is expected in utility trenches within 3 feet of the building
- All import/export soil has to be tested

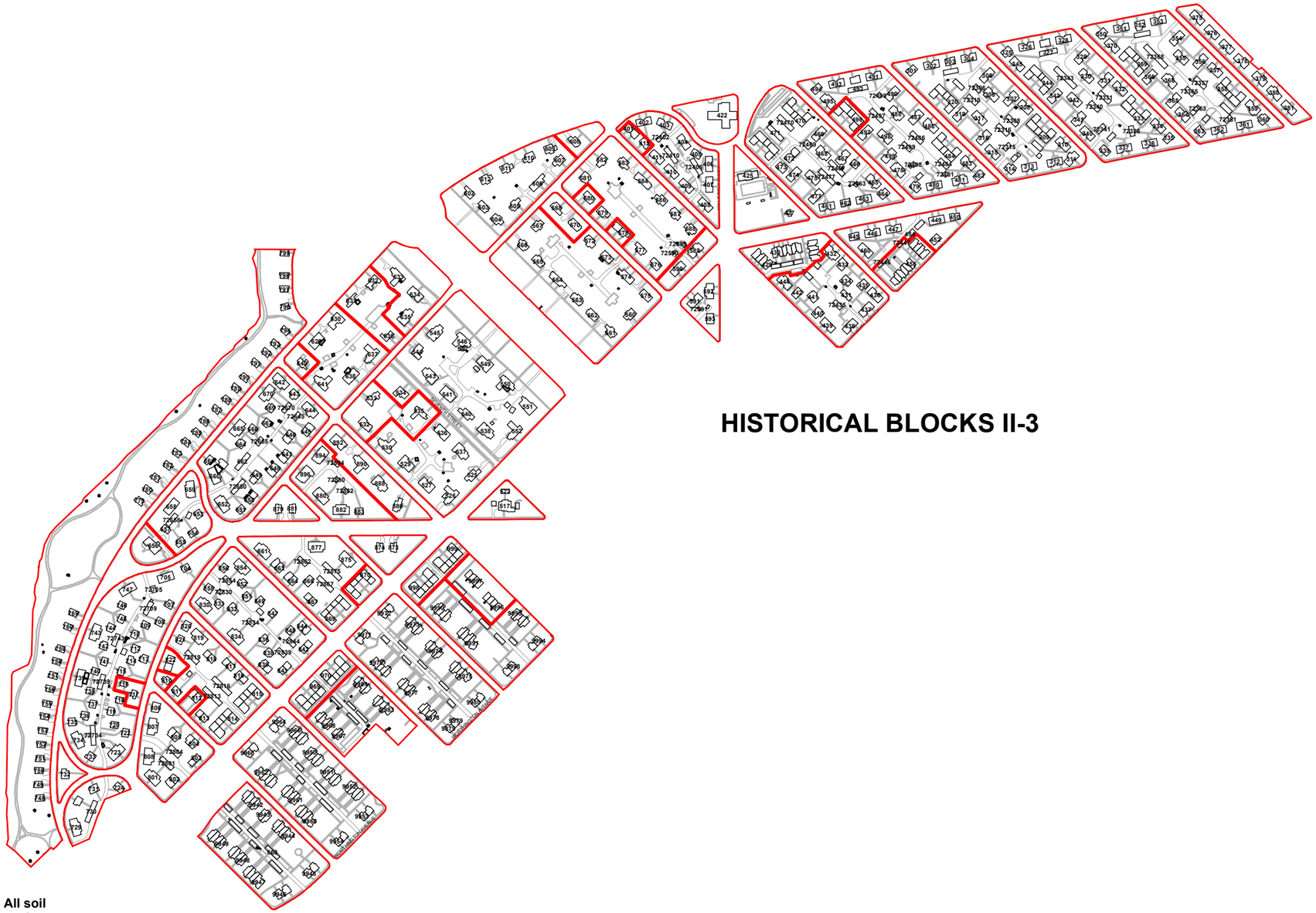
TETRA TECH

Pesticide-Impacted Soil Remaining at SNCO2 Block Phase II Construction Area, Historical Blocks II-2 Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-13-11

r:\new\26535\Corell\EMPH\Appendix A\Pesticide-Impacted Soil Remaining at SNCO2 Block.cdr - 4/19/12 - YE



HISTORICAL BLOCKS II-3

This site has not yet been evaluated for pesticide impacted soil. All soil beneath building foundations and in the 3-foot building zones must be assumed to be pesticide-impacted until testing indicates otherwise.

0 300 600
Feet

Historical Blocks Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or at surface level within 3 foot building perimeter.

Notes:

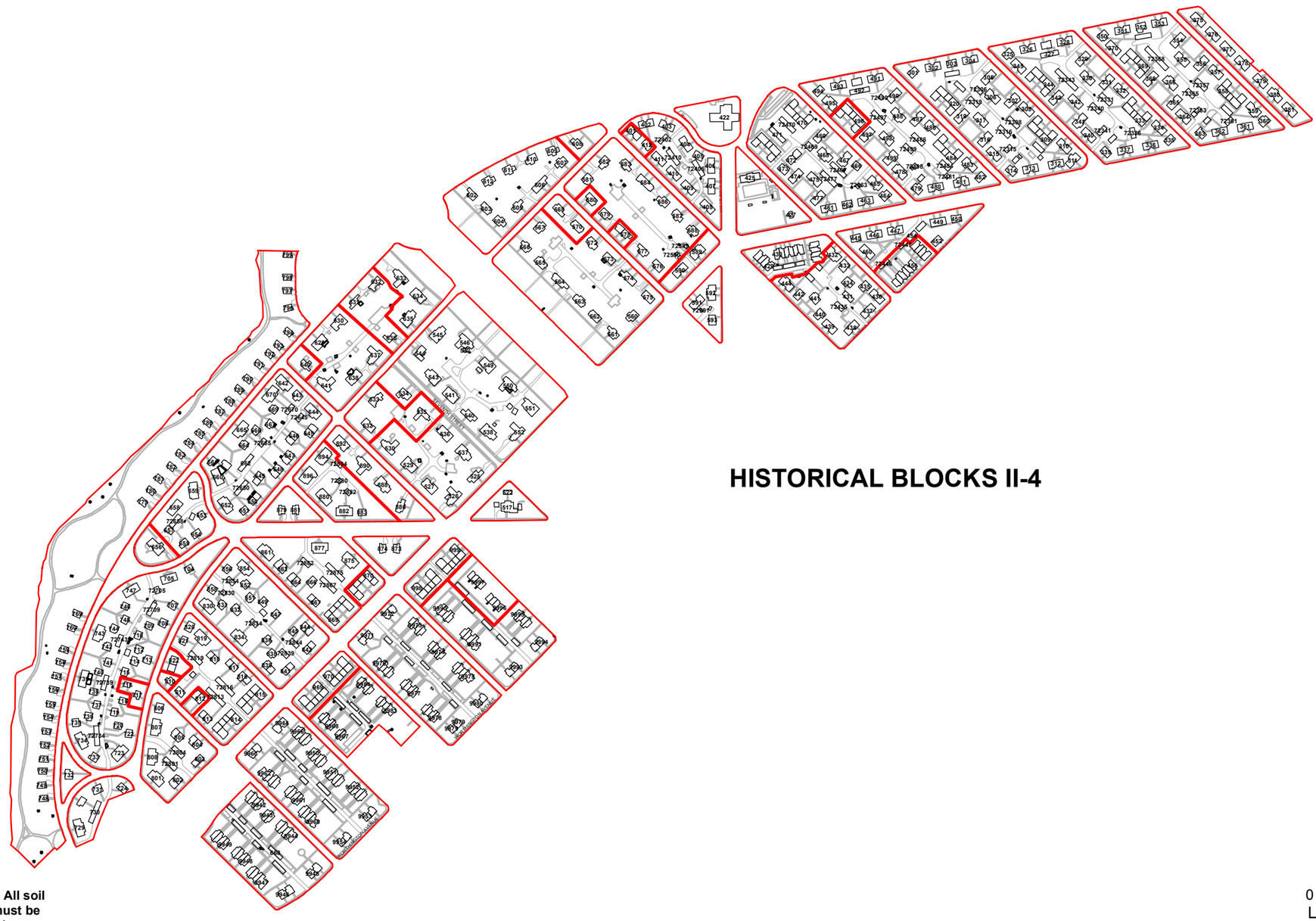
- **PI soil management is ongoing, maps will be updated once sampling and soil management have been completed**
- **PI soil is expected under building foundations and within a 3 foot perimeter around the building**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Historical Blocks II-3, Phase II Construction Area, Historical Blocks Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-14

R:\NEW\26535\Layouts\EHMP\Appendix A\Pesticide-Impacted Soil at Historical Blocks II-3.mxd 4/19/12 - YE



This site has not yet been evaluated for pesticide impacted soil. All soil beneath building foundations and in the 3-foot building zones must be assumed to be pesticide-impacted until testing indicates otherwise.

0 300 600
Feet

Historical Blocks II-4 Boundary

New Building Footprints

Roads

Pesticide-impacted (PI) soil present under hardscape or at surface level within 3 foot building perimeter.

Notes:

- **PI soil management is ongoing, maps will be updated once sampling and soil management have been completed**
- **PI soil is expected under building foundations and within a 3 foot perimeter around the building**
- **All import/export soil has to be tested**

Pesticide-Impacted Soil Remaining at Historical Blocks II-4, Phase II Construction Area, Historical Blocks Environmental Hazard Management Plan Hickam Communities, June 2012

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure A-15

R:\NEW\26535\Layouts\EHMP\Appendix A\Pesticide-Impacted Soil at Historical Blocks II-4.mxd 4/19/12 - YE

APPENDIX B1
Hickam Communities Resident Guide and Community Standards Handbook

Hickam Communities
Resident Guide
and Community Standards Handbook

Effective as of 1 January 2010

Attachment A to Tenant Lease

Attachment A to Tenant Lease

RESIDENT GUIDE AND COMMUNITY STANDARDS

Hickam Communities LLC

ALOHA

Welcome to Hickam Air Force Base (Hickam AFB) and the beginning of your family housing experience in Hawaii; where demand for living on base is exceptionally high. Living on base can provide enhanced security, community atmosphere, reduced commute time, and faster access to base facilities. In Hawaii, the high cost of rental and sale properties off base increases the desirability of living on base. We are very pleased that you have chosen to become part of Hickam Communities. Working together, we can ensure a safe, clean, well-kept living environment conducive to the rest, relaxation, and enjoyment our residents deserve.

This brochure has been provided to assist you during your residence with Hickam Communities LLC and is a part of your Tenant Lease. This document contains portions of the latest Air Force Instruction (AFI) 32-6001 (21 August 2006), Family Housing Management, and includes local policies and procedures to the extent possible. Due to space limitations, however, all policies and procedures cannot be included in this brochure. It is your responsibility to ask first on any policy not covered, or if you are in doubt on those covered. This guide is also available on our website, at www.HickamCommunities.com. We recommend that you check our website from time to time for news and events affecting your home and community.

This guide is designed to acquaint you with your responsibilities as a resident and those of Hickam Communities. Pride in the appearance of your home and consideration for your neighbors will result in comfortable living conditions for all residents in our family housing communities. If you have any questions regarding the contents of this brochure, please contact Hickam Communities at 808-423-2300.

We are happy to have you with us in our community and wish you much enjoyment during your tour of duty at Hickam AFB.

Mahalo Nui Loa

Hickam Communities Staff

QUICK REFERENCE PHONE NUMBERS

FIRE DEPARTMENT	911
AMBULANCE	911
SECURITY POLICE (To report a crime in progress or suspicious activities)	911
SECURITY FORCES CONTROL CENTER (Incidents, complaints, and law enforcement inquiries)	449-2677
HICKAM AFB MAIN GATE VISITOR CENTER	448-2231
Hickam Communities OFFICE (M-F 8:00 am To 5.00 pm)	423-2300
Hickam Communities MAINTENANCE SERVICE CALL DESK (24 hours/7 days-for maintenance requests, pest control service and lockouts)	423-1650
Hickam Communities WAITLIST	423-7788
SELF-HELP / LAWN & GARDEN	423-3091
15 CES HOUSING PRIVATIZATION LIAISON	448-3965
AIR FORCE FINANCE	449-9931
JPPSO (JOINT PERSONAL PROPERTY SHIPPING OFFICE)	473-7760
AIRMEN AND FAMILY READINESS FLIGHT	449-0300
MENTAL HEALTH	449-0175
MILITARY PERSONNEL FLIGHT	449-8624
MILITARY INFORMATION (FOR ALL SERVICES)	449-7110
TUNISTA PACIFIC RIM (LOANER FURNITURE)	448-0300
OCEANIC CABLE	643-2100
HAWAIIAN TELCOM	643-3456
HICKAM ELEMENTARY SCHOOL	421-4148
NIMITZ ELEMENTARY SCHOOL	421-4165
MOKULELE ELEMENTARY SCHOOL	421-4180

Hickam Communities LLC

RESIDENT GUIDE

SECTION 1: Hickam Communities RESPONSIBILITIES

1.1. RESPONSIBILITIES. Hickam Communities will perform the following functions in support of your home: maintenance and repair, grounds maintenance in the front and side yards, refuse collection and disposal, and pest infestation control (Tenant is responsible for routine pest control). Fire, police and emergency services will be provided by the 15th Airlift Wing.

1.2. INSPECTIONS

1.2.1. MOVE-IN INSPECTIONS. Personnel from the Hickam Communities property management office will familiarize residents with the features of the home during the move-in process, document discrepancies on an inspection checklist, and submit service orders for maintenance requests pertaining to the home or appliances. The familiarization process will be performed in conjunction with an inspection of the entire home. The military member should be present; however, the spouse may attend if the military member is unable to do so after providing Hickam Communities with a special Power of Attorney, which specifically authorizes the spouse to act on behalf of the military member in the move-in process.

1.2.2. CONDITION OF HOMES INSPECTIONS. Hickam Communities retains the right to schedule inspections with the resident to assess the condition of the home with 48 hours' written notice, posted on or delivered to the home. Failure to maintain good housekeeping standards in the home and grounds could result in loss of the privilege of living in a Hickam Communities home. The Tenant (see section 2.1) is responsible for any damage by Tenant's dependents, household pets, or guests to the home and ensuring that the home is safe, sanitary, and provides a healthy living environment for the family.

1.2.3. YARD INSPECTIONS. Hickam Communities representatives will conduct inspections of back yards in the family housing areas to ensure maintenance is conducted regularly. Weekly maintenance is strongly encouraged, to coincide with Hickam Communities' weekly lawn maintenance. Written discrepancy notices will be issued when yards are not maintained to standard. Please note housing inspection standards, Section 3. Discrepancies must be corrected not later than one week following the notice.

1.2.4. MOVE-OUT INSPECTIONS. This inspection is conducted as outlined under "Termination of Family Housing" (see Section 11).

1.2.5. TEMPORARY STORAGE. The government may provide temporary storage of certain household furniture items. For specific information, please contact the 15 CES/CERP, Housing Privatization Liaison at 448-3965.

1.3. MAINTENANCE AND REPAIRS. Hickam Communities maintenance department is responsible for the maintenance of your home. Please call (808) 423-1650 to schedule maintenance for your home. Normal business hours for maintenance are Monday through Friday 6 a.m. to 6 p.m. and Saturday 8 a.m. to 2 p.m. To better accommodate the atypical shifts of our military member residents, we will provide routine service call maintenance after normal duty hours by appointment. Please limit after hour and Sunday calls to emergencies only.

1.3.1. MAINTENANCE REQUESTS. Hickam Communities maintenance staff will assign a service order number to your request and schedule a date and approximate time the work will be performed. There are three categories of service: emergency, urgent, and routine. The category of service order determines when the service will be accomplished. Hickam Communities will schedule appointments for routine service orders to accommodate our residents' schedule. Residents are welcome to request routine-only service orders on our website at www.HickamCommunities.com. Urgent and emergency service orders should always be called into 423-1650.

1.3.2. EMERGENCY SERVICE ORDERS. Emergency service orders require immediate attention. Some examples are structural, utility, or mechanical problems that could cause loss of life or property; serious damage affecting health, safety, security, and complete utility failure (electricity, gas, water, or sewage). The service call desk is available on a 24-hour basis for emergency situations. If you place a request for emergency service, it is of utmost importance that you are home when the service technician arrives to resolve the emergency situation. **Failure to do so may result in further damages that can lead to financial charges to the resident.**

1.3.3 URGENT SERVICE ORDERS. Urgent Service Orders shall consist of correcting failures that do not immediately endanger the occupants or threaten severe damage to property, but that would present a health, safety or significant inconvenience to the Tenant. Examples of urgent service orders include: major appliance break downs, toilets, shower or sink clogged in 1 of 2 bathrooms, kitchen sink backed up when other side is draining, no power in one room of the home, no hot water and HVAC or AC Unit mechanical failure unless medically authorized.

1.3.4 ROUTINE SERVICE ORDERS. Routine Service Orders include maintenance or repair actions that do not meet the criteria of an Emergency or Urgent call. Examples of routine service orders include: repair to cabinets, closet doors off track, light switch or outlet not operable, screen window repair, baseboards off the wall.

SERVICE ORDERS - RESPONSE AND COMPLETION TIMES		
SERVICE ORDER CATEGORY	**RESPONSE TIMES (a)**	**COMPLETION TIMES**
Emergency Service	1/2 Hour During Normal Working Hours 1 Hour After Normal Working Hours Bellows AFS 1 hour at all times	One Day
Urgent Service	24 Hours	2 Work Days
Routine Service	2 Work Days	5 Work Days
(a) Response time includes contacting Tenant, appraising the problem, and scheduling a solution.		

1.3.5. SERVICE CALL EVALUATION CARD. The service technicians will provide a service quality card for the Resident to comment on the quality and timeliness of the service provided. Residents are encouraged to complete the card and deliver it to the Hickam Communities Maintenance office or return it to the technician to turn in.

1.4. ENTRY. Hickam Communities reserves the right to enter your home under reasonable circumstances. Except in case of emergency, or if it is impracticable to do so, you will be given at least 48 hours written notice before entry.

1.5. REFUSE COLLECTION AND DISPOSAL. Trash is picked up once per week. Trash receptacles are provided to each home. Please ensure all trash is placed completely inside the container. The container is not allowed to be placed at curbside until after 8 p.m. the evening before pickup. Only trash inside the container will be picked up. Containers are required to be removed from the curb and stored in assigned storage locations no later than 7 p.m. the day of pickup. Trash is picked up on all holidays except Christmas and New Year's Day.

1.6. BULK TRASH. Bulk trash pick up is provided at curbside once a week on the same day as your normally scheduled trash pickup. Items are not allowed to be placed on the curb earlier than 8 p.m. on the evening before pickup. Some items are not considered bulk item (i.e. air conditioning units, mattresses, appliances, car batteries, tires, and TV's) and will not be picked up. A list of items that will not be picked up will be provided at the pre- Move Out inspection appointment. Hickam Communities will charge a disposal fee of $25 per item. Residents must bring item(s) to Hickam Communities Maintenance Department or call if transporting is not possible.

1.7. GREEN WASTE. Hickam Communities residents are required to dispose of green waste in the designated green waste bins located throughout the family housing community. Residents are reminded that absolutely no regular household trash, bulk trash, garbage, or other refuse will be collected from these bins or areas. It's everyone's responsibility to ensure that these areas are neatly maintained. **Please do not place plastic bags in the green waste bins.**

1.8. RECYCLING. Participation in the Hickam recycling program is mandatory for all residents living on base. Recyclables are picked up curbside on the same day as trash pick up. Separate aluminum cans, glass, plastics, into one container and place newspapers, magazines, and cardboard in another container. Recyclables shall be rinsed free of food and other debris prior to placing in the containers. Containers are required to be removed from the curb and stored in assigned storage locations no later than 7 p.m. the day of pickup. Residents are reminded that absolutely no regular household trash, bulk trash, garbage, or other refuse will be collected from these bins. Once paper gets wet it cannot be recycled. Wet paper must then be placed in with the regular refuse.

1.9. INSECT/PEST CONTROL. Routine pest control is the responsibility of the resident. Residents may request pest control services by calling Hickam Communities maintenance at 423-1650, if they are unable to control insects and avoid infestation as outlined in Section 2.16. Pest control does not extend to personal items such as storage sheds.

1.10. LOCKOUTS. During normal working hours call Hickam Communities Office at 423-2300 or after hours contact Hickam Communities maintenance at 423-1650. Proper identification is required. A military ID will be retained until the key is returned to Hickam Communities. If you require lockout assistance after normal business hours more than once, you will be charged a lockout service fee of $25.00.

1.11. SELF-HELP/LAWN & GARDEN SERVICE. Hickam Communities provides numerous assorted items for maintaining your home and yard. These items may be obtained free of charge from the Self-Help / Lawn & Garden Center. Items that are on an exchange basis are: light bulbs, air conditioning filters and drip pans. You must bring in the old item to exchange it for the replacement item. The center is open from 8 a.m. to 4 p.m. Tuesday through Friday and 8 a.m. to 2 p.m. on Saturday. Remember the center is closed on Sunday, Monday and Holidays. Inventory of yard equipment is limited. Hickam Communities recommends that residents provide their own lawn equipment as non-availability of Self-Help equipment

does not constitute non-compliance with Hickam Communities standards in grounds keeping maintenance. For more information regarding items available for our residents call Hickam Communities Self-Help / Lawn & Garden Center at 423-3091.

SECTION 2: RESIDENT RESPONSIBILITIES

2.1. TENANT. The term "Tenant" as used in this Resident Guide refers to military and civilian members who enter into a Tenant Lease with Hickam Communities. Tenants are responsible for ensuring that they, their dependents and guests comply with the provisions of this Resident Guide, as well as applicable Hickam AFB policies. Tenants will assure their households are conserving utilities, reporting maintenance needs, and following fire, health, and safety instructions. Tenants may contact the Hickam Communities property manager to resolve any problems that might arise between themselves or their families and other residents of the community when their own attempts have proven unsuccessful.

2.2. CHAIN OF COMMAND. Complaints related to housing assignment, maintenance response, and other housing related activities should be brought to the attention of the Hickam Communities property management staff. Residents and family members are required to seek assistance through the Hickam Communities property manager before going to the Privatization Flight Chief.

2.3. COMMUNITY PARTICIPATION. Hickam Communities will host Community Update Meetings or other informational sessions for housing-related issues as needed. Your participation is highly encouraged. You will receive specific notification when an event is scheduled. If you are unable to attend due to illness, temporary duty (TDY), or official duty, your spouse or another designee should attend in your absence.

2.4. CHANGE IN STATUS FOR ACTIVE DUTY MILITARY TENANTS. Tenants must notify Hickam Communities, in writing, of any change in status, such as an increase or decrease in number of dependents residing with the Tenant, an increase or decrease in military grade, change to DEROS, change to duty location, and change to duty phone. If Tenants' family members no longer reside with Tenant or the Tenant no longer resides in the home, Tenant is no longer eligible to reside in the home, and occupancy terminates within 45 days. It is the Tenant's responsibility to notify Hickam Communities immediately and to aggressively seek off-base housing to comply with the 45-day requirement. If the Tenant does not physically reside in the unit while on TDY, Hickam Communities deems the Tenant to still be a resident of the home. Tenants can and should contact Hickam Communities regarding waitlist status and/or eligibility, should Tenant status change.

2.5. NAME SIGNS. In accordance with base policy, homes may have the military member's rank, first initial and last name displayed in the brackets on the front of the home. Hickam Communities will place signs when you move-in. Nothing additional or different is authorized. If there is a name or grade change, please contact your Community Manager immediately.

2.6. EXTENDED ABSENCE. If your home will be unoccupied for extended periods, (more than 14 consecutive days), you are required to make arrangements during this absence for security, prudent care, yard maintenance, and periodic inspection of your home. You must also notify the Hickam Communities property management staff of this absence.

2.7. LIABILITY. Tenants are liable and accountable for loss or damage to homes, equipment, or furnishings caused by abuse or negligence by the Tenant, the Tenant's dependents, household pets or guests. Any damage determined to be beyond normal wear and tear requires reimbursement by the Tenant to Hickam Communities. This includes, but is not limited to, attaching / nailing / screwing any item to the exterior of the home, however, wind chimes, hanging plants and flags in appropriate flag pole holders are permitted. Nails in doors, burns, cuts or scratches on countertops, damage to floors or carpets, damage from waterbeds, and pet damage will be charged to the Tenant.

2.8. MAILBOXES. It is a federal offense to tamper with, damage, or steal from mailboxes, and anyone who does so is subject to fines and/or imprisonment. In accordance with postal regulations, only mail delivered by the U.S. Postal Service is to be placed in mailboxes; all other items, such as brochures, pamphlets, flyers, and packages and letters that have not been mailed are prohibited. Parents, please ensure your children are aware of this and comply.

2.9. INSURANCE. Hickam Communities will make Renter's Insurance available to the residents as provided in the Tenant Lease. All deductibles are borne by the Tenant. Optional coverage and additional riders, such as loss of use, coverage for specific articles, etc., are not included in the policy. Disaster insurance, such as floods and earthquakes, is not included. Tenants are encouraged to evaluate their own insurance needs and obtain supplemental insurance at their own cost, if needed for such things as high valued items. Currently no application for renter's insurance is required; however that requirement may change in the future based on the needs of the insurance company. Hickam Communities does not act as an agent or insurer.

2.10. ENERGY CONSERVATION. Hickam Communities residents are required to conserve energy. Rising utility costs require us to use common sense – we must do everything possible to conserve our precious utilities and resources. As part of our SYNERGY (Saving Your Nation's Energy) Program, Hickam Communities goal is to reduce any excess consumption of electricity and water throughout Hickam Communities. During your move-in you will be provided with a Conservation handout which you are expected to follow. You are vital to ensuring that our limited resources in Hawaii last for later generations of Air Force families who live at Hickam and throughout Hawaii. Kindly do your part to prevent waste.

2.10.1. WATER. The normal and reasonable use of water in your home will not normally be restricted. But, should your usage exceed baseline estimates, you will be contacted by a representative of Hickam Communities in order to identify the cause of excessive consumption. We ask all of our residents to cooperate and ensure that waste is not caused by any member of the household. Underground irrigation systems installed in front and side yards will be maintained by Hickam Communities and will be centrally controlled with rainfall sensing devices to minimize water usage. Back yards (with no irrigation systems) should be watered only from 6 a.m. to 9 a.m. and 4 p.m. to 8 p.m. Residents living at odd-numbered addresses will water only on odd-numbered dates, and residents living at even-numbered addresses will water only on even-numbered dates. Lawns should be watered no more than 20 minutes in each location and should be watered at least 3 times per week during the date and times listed above. Please do not allow water to pool on lawns or run over sidewalks or onto streets. Also, ensure water does not hit the fences or the homes. Conserve water by running washing machines and dishwashers only with full loads. By turning off the water while brushing teeth or shaving, you will also save gallons of water per day.

2.10.2. ELECTRICITY. A committed effort is required by all members of the household to conserve electricity by eliminating unnecessary use. Should your electrical usage exceed baseline estimates, you will be contacted by a representative of Hickam Communities in order to identify the cause of excessive consumption. We ask all of our residents to cooperate and assure that waste does not occur. You can help by minimizing the use of electrical appliances and lights, especially during peak demand periods of 6 a.m. to 8 a.m. and 5 p.m. to 6 p.m. Interior lights should always be turned off when you are not in the room. Please assure outside lights are never left on during daylight hours. Set air conditioner thermostats higher when you are away from the home and turn the thermostat off when you open widows. Remember to change the air conditioner filter frequently. Limit the use of clothes dryers to full loads. Hickam Communities homes are equipped with compact fluorescent light (CFL) bulbs which reduces electrical consumption. You can exchange your incandescent bulbs with CFLs and receive replacement air conditioner filters free of charge at the Self Help / Lawn & Garden Center.

2.11. ENVIRONMENTAL PROTECTION. Do not pour engine oil, coolant, car grease or other similar products down any drainage system, into the street or gutters, on the ground, or into the plumbing system. See Section 10 for the proper disposal of household hazardous wastes. Burning of leaves/refuse is prohibited.

2.12. SAFETY. Report any unsafe conditions, hazards or fire threats to Hickam Communities maintenance at 423-1650 immediately. Do your part and take immediate action to correct any hazard when identified. Do not overload multiple outlet adapters, extension cords, or power strips within the home, as overloading is the primary contributor to household fires. In the event of an actual emergency call 911 first then Hickam Communities.

2.13. MINOR MAINTENANCE AND REPAIRS. Residents are responsible for minimal maintenance tasks such as replacing light bulbs, tightening screws, changing air conditioner filters and performing routine pest control. Other maintenance and repair requirements should be reported to Hickam Communities at 423-1650 to schedule a service order. Either the Tenant or the spouse may call in service requests. Every resident has a responsibility to take action to prevent additional damage to the resident's home while awaiting repairs.

2.14. RECREATIONAL VEHICLES. Boats, Kayaks, campers, trailers, motor homes, and other recreational vehicles are permitted in Hickam Communities housing areas only for the purposes of loading and unloading before or after a trip. This should take no more than 24 hours on each end of the trip. The Services Squadron provides on-base storage for recreational vehicles. However, if no space is available in their respective lots, residents are responsible for obtaining off-base storage.

2.15. UNAUTHORIZED VEHICLES AND VEHICLE REPAIRS. Vehicle maintenance or repairs, other than changing flat tires, are not authorized in housing areas. Vehicles must never be on jacks for any reason other than tire replacement and must not be left unattended at any time when on jacks for tire replacement. Disabled, inoperable, and abandoned vehicles are not permitted in housing areas. Resident citations will be issued for non-compliance with these criteria. Vehicles must be parked in assigned parking areas and must have a current license tag and safety inspections in order to be parked legally in the housing areas. For instances where vehicles do not meet these criteria, the issue will be turned over to Security Forces for disposition, in accordance with Base Regulations.

2.16. INSECT/PEST CONTROL. Residents are responsible for routine pest control of the home. Each home is treated prior to occupancy. In order to prevent major infestation, residents are expected to take immediate action upon first noticing insects. General use insecticides can be purchased at the Base Exchange (BX) or the Commissary. Exercise caution while handling toxic chemicals and follow directions completely. *If residents are unable to control insects and avoid infestation, they may request pest control services by calling Hickam Communities maintenance at 423-1650.* Pest control does not extend to personal items such as storage sheds, fleas and ticks on pet animals or to treatment of bed bugs.

2.17. CARE OF INTERIOR. Care of your home should be an on-going effort from the time you move in until the time your home is turned back to Hickam Communities. The Tenant is responsible for any damages to the home and for ensuring that the home is safe, sanitary, and provides a healthy living environment for the family.

2.17.1. KITCHENS. Special attention is needed to maintain the appliances, cabinets and walls in the kitchen. Please do not use gritty or harsh detergents when cleaning. Ovens, broiler units, top burners, and filters in overhead hood units should be cleaned regularly to prevent grease build-up, which is a fire hazard. The exterior of the range and the oven door gasket should be cleaned frequently to remove oil, grease, and food particles. Refrigerators should be cleaned regularly with water and baking soda solution, rinsed and dried. Avoid use of sharp instruments to remove ice when defrosting. Avoid placing hot utensils on counter tops, as this can cause permanent damage. Use of a cutting board is a must when chopping, slicing, or cutting. Use only regular, non-stick shelf paper in drawers and cupboards; the use of adhesive-backed paper will damage surfaces when removed. Walls should be cleaned at periodic intervals to prevent surface grease and soil buildup. Do not paste decals on kitchen cabinets or drive nails or hooks into cabinet doors.

2.17.2. BATHROOMS. In a high-humidity climate such as here in Hawaii, walls in the tub and shower area have a tendency to mildew and should be cleaned regularly with a product to combat mildew. Ceramic tile and fixtures should be cleaned with a mild detergent. Use a commercial cleaner to prevent calcium deposit buildup in toilets. Avoid flushing items such as paper towels or disposable diapers. If plumbing stop-ups occur, first try using a plunger. If this fails to clear the system, call Hickam Communities maintenance at 423-1650.

2.17.3. FLOORS. When cleaning the floors in your home, pay special attention to corners and along baseboards for dirt and wax buildup. As you clean, keep in mind that excessive water can cause damage to any floor, especially wood. Vinyl tile and sheet vinyl floors may be waxed. Remove old wax regularly to prevent wax buildup. Use only quality products to wax or remove old wax. Hardwood floors should be dusted frequently and only occasionally wiped down with a damp, not wet, mop. Do not wax hardwood floors.

2.17.4. CARPETS. Vacuum frequently, at least weekly. Clean up spills immediately, before they become stains. We recommend residents steam clean or shampoo carpets at least every 6 months, or more often if they have pets. Residents will be held accountable for damages caused by pets, dark or excessive stains, burns, etc. The use of cleaning or spot remover products containing bleaching agents is not authorized. Any damage caused by use of such products is the tenant's responsibility.

2.17.5. WALLS. Use mild soap and warm water to keep walls clean. Do not apply adhesive-backed materials, wallpaper, or decals to walls, as these cause damage when removed. Use only small nails or

picture hangers to hang items on walls. Make sure there are doorstops on all doors to prevent damage to walls. If doorstops are not provided, please contact Hickam Communities maintenance.

2.17.6 PREVENTION OF MOLD. To avoid mold growth it is important to prevent excess moisture buildup and to remove visible moisture accumulation as soon as it occurs. Immediately report any evidence of excess moisture or mold or mildew in the unit it to Hickam Communities maintenance at 423-1650.

2.18. CARE OF EXTERIOR. Exterior care shows pride in your home and community and contributes to the overall beautiful appearance of the base. Non-availability of Self-Help (see section 1.11 of this guide) equipment does not constitute non-compliance with Hickam Communities standards in grounds keeping maintenance. Neglect of exterior upkeep may result in termination of the Lease. Residents are not permitted to attach any item to the exterior of the home or carport. This includes, but is not limited to, attaching / nailing / screwing any item to the exterior of the home, surrounding walls, and carport areas; example of non authorized items are racks for kayaks, surfboards, bicycles, strollers etc. However, wind chimes, hanging plants and flags in appropriate flag pole holders are permitted. Costs incurred by Hickam Communities for these repairs will be charged to the resident. Front and side yards are considered common area and must be neatly maintained at all times. If you live in a home with window air conditioning units, all window screens need to be installed back on windows when the privately owned AC unit (s) are removed.

2.18.1. GROUNDS. Maintenance of back yards including lawn maintenance, shrubs, removing leaves and edging and trimming is the responsibility of the resident. Non-availability of Self-Help (see section 1.11 of this guide) equipment does not constitute non-compliance with Hickam Communities standards in grounds keeping maintenance. All animal owners or their representatives (if the owner is away from Hickam AFB) are responsible for the daily removal and sanitary disposal of pet feces from owner's yard and the immediate removal of feces from common areas or in neighboring yards. Your specific area of responsibility will be identified for you during your move-in. If the Tenant is on TDY or leave status, the Tenant's spouse and/or dependent children are responsible to maintain the assigned ground area. If the entire family will be away, the Tenant must arrange for the assigned grounds to be maintained, including watering of the lawn, during their absence.

2.18.2. WINDOWS. Residents are responsible for interior and exterior cleaning of windows during occupancy. Extra care is required when cleaning jalousie windows to avoid chipping or breaking. Only white drapes, shades or blinds are allowed facing the street. Cardboard, foil or blankets are not allowed in the windows. Aluminum foil is not permitted in windows for any reason. Black out drapes can be installed to assist in blocking the sun light if a resident is on night shift, but on the inside not facing the street.

2.19. PETS. All residents are responsible at all times for controlling their pets (see Section 4 for authorized pets and requirements for pet ownership) as provided herein and in the Tenant Lease. Failure to do so may result in Lease termination. For installation of fences, see 5.13.

2.20. SELF-HELP WORK. Residents must make a written request and receive approval from Hickam Communities prior to initiating any home improvement project or installing any equipment, to include playground equipment. Installation of equipment poles which require digging into the soil requires approval and may have significant restrictions. (See section 5.13 for authorization of digging requirements)

2.21. RESIDENT DISPUTES. Residents are responsible for bringing disputes to settlement (see paragraph 8.7).

SECTION 3: INSPECTION STANDARDS

3.1. WEEKLY EXTERIOR INSPECTIONS. Hickam Communities will conduct weekly inspections for compliance with the Tenant Lease and this document (the Resident Guide). For all Tenants, a written courtesy notice, or friendly reminder, will be issued initially. If non-compliance is noted on re-inspection, the Tenant will receive a first notice. Any second notice issued for non-compliance with Hickam Communities standards will be considered a serious violation of the Tenant Lease and may result in notification of the Tenant's military unit. Non-availability of Self-Help (see section 1.11 of this guide) equipment does not constitute non-compliance with Hickam Communities standards in grounds keeping maintenance. If not corrected no later than one (1) week following the notice, this may result in the loss of housing privileges. Documentation of three discrepancies in any 12-month period may result in the loss of the resident's privilege to reside with Hickam Communities. In addition, all unsafe items or practices will be reported to Hickam Communities; fire protection concerns or deficiencies will be reported to the Fire Department; and security and law enforcement concerns will be reported to the Security Forces Squadron.

3.1.1. BACK YARD EDGING/TRIMMING. Grass growth should be edged back ½" to 1" from patios and sidewalks. Trim grass around foundation of buildings, fences, base of trees and bushes, and around flower gardens and play equipment or other yard structures.

3.1.2. REMOVAL OF GRASS AND WEEDS. All grass and weeds must be removed from cracks in sidewalks or patios.

3.1.3. BACK YARD SHRUBS/BUSHES. Trim shrubs/bushes to below 7' height to present a neat appearance. For security purposes, bushes or shrubs by windows should be trimmed to below window ledge height. To deter insect infestation, all foliage should be kept trimmed away from buildings. Vines and climbing plants must be removed from walls and is tenant's responsibility. Trim all dried leaves and branches promptly and place in designated green waste bins.

3.1.4. PLANTINGS. Plantings of all grasses, trees, large shrubs/bushes and the installation of stepping stones by residents is not allowed. Residents may do minor trimming of trees in their area of responsibility.

3.1.5 GARDENING. Flower beds should be kept free of grass, weeds, dead plants, and trash. Separate trash debris from grass and plant debris before disposing of grass and plant debris in designated green waste bins. **The soil on Hickam AFB has potential pesticides in the unit's front, side and rear yards and in neighborhood common areas (refer to section 10.4); therefore, the soil within five (5) feet of the building should not be disturbed. In areas where pesticides do exist, there is a potential for plants to be affected; for this reason, growing fruits and vegetables and eating fruit from existing trees is not permitted.**

3.1.6. PATIOS AND CARPORTS. Residents are required to maintain patios and carports in a neat, clean fashion and kept free of debris at all times. Storage areas may not be cluttered or otherwise unattractive. Carports must be neatly maintained at all times and storing of items in carports is prohibited. Items must be removed from carports after each use and are not allowed to remain in the carport overnight. Residents are not permitted to attach any item to the carport. This includes, but is not limited to, attaching / nailing /

screwing any items to the structure such as racks/hooks or hangers for Kayaks and surfboards. However, wind chimes, hanging plants and flags in appropriate flag pole holders are permitted. Carports and other parking areas must be kept free of grease, oil, or antifreeze residue. Chemical products must be in locked storage. Hazardous materials such as batteries or tires must be disposed of properly and cannot be stored at or near the home or carport. Only garden or patio furniture and live plants are allowed on patios.

3.1.7. SUN SHELTERS, TENTS, ETC. These and similar items are considered temporary in nature and are permitted for short-term use only and must be removed when not in use. These items cannot be left up longer than 24 hours (48 hours if in conjunction with an extended weekend) if on grass surface. Items installed on concrete or other harden surface are allowed to remain up at all times.

3.1.8. STORAGE SHEDS, TRAMPOLINES. Exterior storage sheds and trampolines require approval prior to installation. It's your responsibility to receive permission from Hickam Communities prior to installing any exterior items on the property. Residents will be required to remove any and all work performed without approval or which are not in compliance with Hickam Communities guidelines. Only plastic storage sheds are permissible, metal storage sheds are not authorized.

3.1.9. WATER/ENERGY CONSERVATION. Written discrepancy notices will be issued for excessive watering that is causing pooling or run-off into other areas, as well as for watering lawns on the wrong day or at the wrong time of day (see paragraph 2.10.1). Additionally, residents will be cited if exterior lights remain on during daylight hours.

3.1.10. PARKING. No vehicles may be parked on grass or seeded areas at any time. Tandem parking is not allowed except in private driveways, provided vehicles do not block the sidewalk. Residents are allowed to park only in assigned spaces and need to ensure that visitors park in designated visitor parking areas. See Section 2.15 on storing Recreational Vehicles.

3.1.11 FRONT PORCHES AND WALKWAYS. Residents are required to maintain their front porches and walkways in a neat and clean fashion. Front porches are to be kept clear of personal items and debris. Storage of the following personal items are not allowed on front porches: bicycles, toys, storage racks, BBQ grills, cleaning materials (such as brooms, mops and buckets) and/or horticulture supplies and implements such as rakes, peat moss bags and mowers. Patio furniture is permissible, but no household furniture is allowed. However, wind chimes, hanging plants and flags in appropriate flag pole holders are permitted. Walkways are to be kept clean of debris and swept free of flowers, pods, seeds and other green waste.

3.2. GOOD HOUSEKEEPING (INTERIOR INSPECTIONS). Residents are required to maintain the interior of their homes to a standard of cleanliness and safety that will provide a safe environment for their families and neighbors. If unhealthy, unsanitary, or unsafe interior conditions are reported, Hickam Communities will inspect the interior of the home after providing the notice described in Section 1.4. Damage to homes may also prompt such an inspection. (See paragraph 1.2.2.)

3.3. EMERGENCY INSPECTIONS. Hickam Communities reserves the right to enter occupied homes under reasonable circumstances. Except in case of emergency, or if it is impracticable to do so, Resident will be given at least 48 hours written notice before entry.

3.4. TERMINATION OF OCCUPANCY (See Section 11).

SECTION 4: PETS

Pet ownership is a privilege that shall be extended to all residents at Hickam AFB. A $200 pet deposit **(fee subject to change)** is charged to pet owners which will be refunded if there are no pet-related damages. Pets must be registered with the Landlord, must wear collars and be restrained by either leash or fence at all times. Pet owners must ensure pets are immunized, must keep current immunization records on file with the Landlord, and must assure that they are kept current. Pet owners are responsible for the conduct of their animal at all times. In addition to compliance with this Residents Guide, Tenant must adhere to all restrictions, orders and regulations regarding pet ownership as published from time to time by the 15th Airlift Wing Commander.

4.1. RESPONSIBILITY. Tenants are responsible for the behavior of their pets and must assure their pets do not become a nuisance or menace to other pets, persons, or property. Owners must maintain clean surroundings and provide proper humane care for their pets. Owners displaying lack of responsibility jeopardize their privilege of having pets in Hickam Communities homes. Any animal demonstrating aggressive behavior will be immediately and permanently removed from the housing community. To report pet neglect, abuse, biting, nuisance and destruction of property, notify Hickam Communities at 423-2300 or Security Forces at 449-2677. Hickam Communities reserves the right to require removal of any animal when such reporting results in confirmation of neglect, abuse, biting, nuisance, and/or destruction of property.

4.2. AUTHORIZED PETS. Authorized animals are limited to **most breeds** of dogs, cats, and caged birds or fish in bowls or aquariums. No more than 2 pets (besides birds in cages or fish in bowls and aquariums) per household are allowed, with the exception of puppies and kittens up to 8 weeks of age.

Unauthorized animals include any animal that is deemed "Aggressive or Potentially Aggressive" that is banned by state and federal laws. In addition, the following animals are unauthorized:

> Wild, exotic or undomesticated animals (ex., forest/jungle beasts, potbellied pigs, or other wildlife) raccoons, opossums, skunks, groundhogs, bats, squirrels, wolves, coyotes, and wild carnivores, poisonous reptiles or snakes (All types of snakes are prohibited in Hawaii),
> Hoofed animals (Hickam does not have a designated area for hoofed animals).
>
> **For the purpose of this policy, aggressive or potentially aggressive breeds of dogs are defined as Pit Bull breeds of dogs (American pit bull terrier, Staffordshire bull terrier, American Staffordshire bull terriers, etc) Chows, Doberman Pinchers, Rottweilers, any Mastiff breeds, Cane Corsos, Presa Canarios and wolf hybrids. Any dog which is a percentage of up to half-breed dogs of these types is also prohibited. The inbred aggressive nature of these breeds creates a safety hazard.**

4.3. VICIOUS ANIMALS. Resident owners may be directed to permanently remove **any** animals displaying unprovoked vicious behavior such as lunging at people, continuous growling, biting, fighting, etc. Such removal will be at the owner's expense. Repeated instances of animal misbehavior/lack of control on the part of the owner will jeopardize the privilege of pet ownership for the duration of residence.

4.4. ANIMAL BITES. All incidents of animal bites must be reported immediately to Security Forces at 449-2677. The Veterinary Treatment Facility (VTF) should also review the incident to determine whether the animal should be quarantined.

4.5. LICENSE/REGISTRATION/IDENTIFICATION.

4.5.1. LICENSE AND REGISTRATION. All dogs over 4 months of age must be licensed by the City and County of Honolulu and must wear a collar with an attached city and county dog tag. Licenses must be renewed on or before expiration date. Applications for licenses may be obtained from the Hawaiian Humane Society or any Satellite City Hall. Register all dogs and cats with the Veterinarian Treatment Facility (VTF) within 10 working days of arrival on base.

4.5.2. CAT AND DOG IDENTIFICATION MICROCHIP. Owners of dogs and cats on base are required to have an American Veterinary Identification Device (AVID) microchip implanted under the skin of their pets. This device will assist in returning lost animals to their proper owners. Hawaii law makes it mandatory for all pets coming through quarantine to have this microchip implant. The implant serves as a worldwide identification system and is especially beneficial for military personnel who relocate often. The Hickam Veterinary Clinic in building 1864 on Kuntz Avenue can perform this procedure. For appointments or questions, call the clinic at 449-6481.

4.6. CONTROL OF PETS. Dogs must be confined to the home or in a fenced yard. **Pets capable of jumping a standard fence should be tethered.** For installation of fences, see 5.13 of this guide. **Animals may not be left unattended while outside if not in an enclosed fenced area.** At no time may pets be chained or otherwise attached to trees, bushes, any building or structure and fences. When dogs are outside the owner's yard for any purpose, they must be leashed at all times and under control of the owner or another person capable of controlling the animal. Electric fences and/or leashes do not constitute as proper restraint and having control of your pet. Animals other than dogs and cats must be kept in the appropriate container for such animal at all times.

4.7. NUISANCE. Any animals that barks, bays, cries, whines, howls, or makes any other continual unreasonable noise for 30 minutes or more is considered a nuisance. Residents can purchase training collars through a veterinarian to prevent these noises.

4.8. BREEDING/COMMERCIAL USE. Breeding of any animal for commercial use is strictly prohibited. Spaying/neutering is strongly encouraged; however, if this is not agreeable, homes must be found for any litters produced, prior to the 8-week age. At no time past the 8-week age **will more than 2 pets be allowed** in a household (besides those birds in cages and fish in bowls or aquariums).

4.9. ANIMAL FECES/HEALTH HAZARD. All animal owners or their representative (if the owner is away from Hickam AFB) are responsible for the daily removal and sanitary disposal of pet feces from their yards. They are also responsible for the immediate removal of feces from common areas and neighboring yards. All animal feces within the interior of the quarters shall be picked up immediately and litter boxes cleaned regularly. Violations of this requirement constitute a health hazard and will be dealt with accordingly.

4.10. FEMALE DOGS AND CATS. Female dogs and cats in heat must be confined inside the owner's assigned home or garage (except during the summer months). Being in a fenced yard does not constitute confinement. If the owner chooses not to confine the dog or cat, it must be kept at a place off the

installation. Female dogs and cats in heat will not be tied or kept in cages or pens outside the owner's quarters, nor will they be allowed to run loose. They may be let outside to relieve themselves, but must be under the direct scrutiny and control of the owner at all times.

4.11. STRAY/LOST ANIMALS. Contact Hickam Communities or Security Forces to pick up stray or lost animals.

4.12. PET SITTING. Residents may accept the responsibility of watching pets for a neighbor, friend, or coworker in their own home if the additional pets do not bring the total household pets to more than two. By doing so, the pet sitter is accepting full responsibility and liability for the animals as noted above. All violations, fines, and police incident reports involving the animal will be issued to the animal sitter, not the owner, during the sitting period. Animals may not be left alone in a home, garage, carport, or back yard for more than 12 hours without pet sitter attention. **Pet sitting is not permitted for unauthorized or banned animals.**

SECTION 5: GENERAL INTEREST ITEMS

5.1. GUESTS. Occupancy of homes by more than one family is not authorized. However, social visits of 30 days or less do not constitute joint assignment of quarters. Social visits by military members assigned to the Installation and civilians employed at the Installation but who permanently reside outside the commuting area are limited to 30 days. Written request must be submitted to Hickam Communities for approval for visitors beyond the 30-day limit. The duration of social visits by anyone residing within the sixty-minute commuting area of the Installation is limited to no more than two (2) days.

5.2. ROOF AREAS. Residents are not permitted on any roof area including carports. Access to roof areas is limited to authorized maintenance personnel only.

5.3. SATELLITE DISHES/ANTENNAS/CABLE TV. Individually owned satellite dishes, HAM radio antennas, and external TV or radio antennas are permitted to be installed in locations approved by Hickam Communities prior to installation. During the approval process, specific locations where the dishes or antennas can be installed will be identified. These items must be located in the rear of the home and are not allowed to be attached to the building, fence or roofs. HAM radio antennas must not cause reception interference to surrounding neighbors.

5.4. POOLS. Only nonpermanent children's wading pools made of rubber or plastic with a maximum depth of 8 inches and maximum diameter of 5 feet may be used in Hickam Communities housing areas. These must be placed in back yards only. Authorization is provided only if used under constant adult supervision. An adult must be present at all times while pool contains water, regardless of whether children are present. Pools must be completely drained after each use, or daily at a minimum. When not in use, pools must be stored so as not to collect water. Any landscape damage must be repaired prior to termination of quarters. Personal liability insurance is strongly recommended.

5.5. WATERBEDS. Waterbeds are permitted; however, it is required that users of waterbeds maintain liability insurance to cover any damage that may result from the installation, use, or removal of the waterbed. Such proof of insurance must be provided to Hickam Communities.

5.6. SWING SETS, PLAYHOUSES, HAMMOCKS, ANIMAL SHELTERS, ETC. These types of items must be stored behind the home and out of sight from the street. In any event, requests for these items must be made to Hickam Communities prior to installation and will be evaluated on a case-by-case basis. Written approval from Hickam Communities must be obtained prior to installation. Approval will include installation and maintenance criteria; compliance is mandatory. Installation of playground equipment poles and posts that require digging into the soil requires approval and may have significant restrictions. Hammocks & swings must be free-standing only and not attached to trees or structures.

5.7. BASKETBALL HOOPS. Only temporary movable basketball hoops are permitted and must be stored behind the home and out of sight from the street. Placement in streets is prohibited. No basketball hoops are to be affixed to Hickam Communities homes, carports or garages.

5.8. TRAMPOLINES. Trampolines may be installed only in back yards within a lockable fenced area or with a lockable cover. A 10-foot clear zone in all directions around a trampoline is required. Installation of a side net which completely encircles the trampoline is mandatory. Military Tenants should check with the Base Staff Judge Advocate Office regarding liability laws. Other eligible tenants should seek their own, outside legal counsel regarding liability laws. Proof of liability insurance is required. Prior to installation, you must have written approval from Hickam Communities and you must sign a statement accepting liability.

5.9. WINDOW AIR CONDITIONERS. Request for installation of window air conditioning units must be approved by Hickam Communities prior to installation and will be considered on a case by case basis upon receipt of written request. **All window screens need to be installed back on windows when removing AC units.**

5.10. PROHIBITED ITEMS IN HOUSING AREAS. Fishponds, swimming pools, other than as authorized in section 5.4 above, wooden lattice, tree swings, and other items affixed to trees or buildings are prohibited.

5.11. FIREWORKS. All types of fireworks are prohibited on Hickam AFB.

5.12. EXTERIOR DECORATIVE LIGHTS. Exterior decorative lights are authorized only for holidays and must adhere to strict installation requirements. Ambiance lights are authorized for patio and lanais only and do not include any type of icicle lights. Prior to installation contact Hickam Communities for installation requirements. Residents are not allowed to nail, screw, and/or anchor items to the buildings or carports. Lights must use temporary clips and can only be placed on the first floor roofline. Residents are not allowed on the roof tops and lights or decorations cannot be placed on second floor roofline. Residents are responsible for all damage that is caused as a consequence of lighting installation and/or removal. Residents will be required to remove any decorative lights installed at other times of the year. In keeping with our safety and energy reduction goal, authorized lighting times are restricted to the hours between 6:00 pm and 10:00 pm. For holidays such as July 4th or Halloween, lights may be installed one week prior to the holiday and must be removed the day following the holiday. Lights for the winter holiday season may be installed on Thanksgiving and lighted through 1 January during the hours between 6:00 pm and 10:00 pm. Two exceptions to this policy are the actual dates the winter holidays are celebrated and New Year's Eve/Day, when lighting restrictions will not apply. All lights must be removed by 15 January. Lights are prohibited on roofs and roof edges or any location where climbing or roof access is required. Any installation of electrical lighting decorations will be done in a safe and prudent manner using lights, cords and equipment that are approved and rated for exterior use.

5.13. FENCES. Requests to install fences must be approved prior to commencement and may have significant restrictions. A fence request with specific information is available at the Hickam Communities Housing Office for your specific type of home, and must be adhered to. Fence request packets include policy, guidelines, a digging clearance form (AF Form 103), and work request (AF Form 332) in which all must be approved prior to commencement of work. Do not dig into the ground for any reason without first obtaining approval to do so. Any fence installation conducted by a third party must first have Hickam Communities approval. Residents are liable for any damages done to underground utilities.

5.14. LAWN & GARDEN CENTER. The Self-Help / Lawn & Garden Center provide residents general replacement items free of charge such as light bulbs, air filters and pest control products. Also, many items are available to help you maintain your lawn such as mowers, trimmers and garden hoses. Inventory of yard equipment is limited. Hickam Communities recommends that residents provide their own lawn equipment as non-availability of Self-Help equipment does not constitute non-compliance with Hickam Communities standards in grounds keeping maintenance. The Center hours are Tuesday – Friday, 8 a.m. to 4 p.m., and Saturday 8 a.m. to 2 p.m. If you have questions, you may contact the Self-Help / Lawn and Garden Center at 423-3091.

5.15. LIMITATIONS. Each household has a monthly limitation on the amount of free replacement items exchanged at the Self-Help / Lawn & Garden Center. For more information, contact the Self-Help/Lawn & Garden Center. All residents may check out lawn and garden equipment and must check the equipment back in within the required time limitations. Please remember this equipment is for use while waiting for your household goods to arrive or after it's been shipped. Hickam Communities does not provide lawn equipment on permanent bases.

5.16 CHILD SUPERVISION. See Attachment A – 15AW/CC Memorandum – Hickam Child Supervision Policy. For questions or concerns regarding the Hickam Child Supervision Policy, please contact Family Advocacy at 449-0175.

SECTION 6: FIRE PROTECTION

6.1. RESPONSIBILITY. The Tenant is responsible for ensuring compliance with all applicable fire and life safety standards. Training aids and materials can be obtained through the base Fire Department.

6.2. FIRE SAFETY CONSULTANTS. For additional information or any assistance regarding fire prevention and fire safety, please contact the Fire Prevention Element of the Fire Department at 449-8118.

6.3. FAMILY LIFE SAFETY PLAN. Teach your family about a life safety plan and practice the plan regularly. The Tenant should instruct all family members about fire prevention. Critical elements of your plan should include:

6.3.1 EVACUATION PLAN. Also known as EDITH for 'Evacuation Drills In The Home'. Tenants should make an evacuation plan immediately upon assignment of the home. Plan two ways out of the home and designate an outside meeting place. Practice this plan every three months.

6.3.2. SMOKE DETECTORS. The Tenant is responsible for a monthly test and examination of all household warning devices installed within the home. The test and examination of these devices shall include: Inspecting the physical appearance of the devices for evidence of damage, abuse, tampering, or

other indications that may render it inoperative. Smoke detectors must be securely mounted, with the Tenant conducting an operational test according to the manufacturer's guidance to ensure the audible alarm is working. Vacant homes will not be reoccupied if the household fire warning system is not functioning properly. At change of occupancy, smoke detector maintenance will be conducted in accordance with UFC 3-600-02. Deficient operation or faulty equipment shall be reported directly to Hickam Communities maintenance. Replacement and inspection of smoke detectors is performed during maintenance prior to your move in. Do not tamper with detectors or attempt repairs. Any non-working smoke detectors should be reported immediately to Hickam Communities maintenance at 423-1650.

6.3.3. FIRE EXTINGUISHERS. Fire extinguishers are provided for each home. If your home does not have one, please contact Hickam Communities to have one installed. Please ensure all family members know the location of the fire extinguisher and understand how to operate it. Family members are not to tamper with fire extinguishers. For fire extinguisher training, contact the Fire Department at 449-8103. If the extinguisher is utilized, please notify Hickam Communities maintenance at 423-1650 immediately for a replacement.

6.4. TO REPORT AN EMERGENCY (FIRE, AMBULANCE OR POLICE) - DIAL 911. If a fire occurs in your home, vacate the home, and immediately notify the fire department by dialing 911. Give the operator your name, telephone call back number, address and location of fire. Do not hang up until the operator acknowledges correct receipt of all information. If safe to do so, notify all residents of the building and ensure everyone has evacuated the building and all are accounted for. Once the fire department arrives on the scene, make contact, provide directions and answer any questions. All fires, regardless of size, even fires that have been extinguished, must be reported to the fire department.

6.5. COOKING. Never leave cooking unattended. Exercise extreme caution when cooking with grease or anything that produces its own grease. In the event of a cooking fire, cover the burning pan with a lid, turn off the appliance if possible, evacuate, and call the Fire Department. NEVER use water to try to put out a grease fire! Do not attempt to move the pan. The range hood exhaust fan should be cleaned often to prevent the accumulation of grease and should be in use at all times when cooking. The burners and the oven should be kept free of grease. If a fire occurs inside the oven, close the oven door to prevent spread of the fire, turn off the oven, evacuate your family and call the Fire Department and Hickam Communities.

6.6. HOUSEKEEPING. Good housekeeping and cleanliness promotes fire safety and prevention. Dispose of trash and combustibles regularly. Storage in attics is prohibited. Check around major appliances for dust accumulation, spilled flammable or combustible liquids or trash that may impede the safe operation of the appliance. Vacuuming behind the clothes dryer should be done on a monthly basis. Clean dryer lint traps after each load and clear vent hoses regularly. Take care that no plastic articles, pens, or crayons are placed in the dryer.

6.7. ELECTRICAL FIRE SAFETY. Extension cords are not to be used in place of fixed wiring. Do not overload plugs by the use of multiple strip electrical devices or pig tailing. Surge protectors are only designed to offer electrical surge protections for delicate electronic equipment; they are not designed as an acceptable method of increasing electrical plug space.

6.8 OPEN FLAMES. Keep matches and lighters away from children as these devices are leading causes of fires.

6.8.1 SMOKING. Smoking in bed is prohibited. Dispose of smoking material in a non-combustible container, and never leave lit cigarettes unattended.

6.8.2. BARBECUE GRILLS. When lit, grills must be supervised by adults at all times, and must be placed clear of structures and building overhangs. Allow a minimum 10-foot clearance from all structures, trees, and shrubs. Use only approved charcoal lighters according to package directions, and do not pour additional lighter fluid on a lit fire. Grills are to be stored in the back yard only except for those types of units that do not have a backyard.

6.8.3 OUTDOOR / COOKING / PICNICS. All activities including outdoor cooking/picnics in soil/grassed areas is permitted but should be limited to a minimum distance of 10 feet away from housing foundations, trees and shrubs. Any food/beverages accidentally spilled on the ground should not be consumed and should be disposed.

6.8.4. CANDLES. Never leave lighted candles unattended. Do not place lighted candles in areas where they could contact flammable items such as curtains. Keep all lighted candles out of the reach of children and pets.

6.8.5. OPEN BURNING IS PROHIBITED ON BASE. Open burning and the disposal of trash by burning is prohibited.

6.9. FLAMMABLE LIQUID STORAGE. Storage of flammable liquids such as gasoline, turpentine, or torch fluid is limited to a total of 5 gallons per household. Flammable liquids must be stored only in approved Underwriters Laboratory or Factory Mutual containers and must never be stored in living areas.

6.9.1. GASOLINE-POWERED EQUIPMENT. Lawn mowers, weed-eaters, power washers, and other gasoline-powered equipment must not be stored in housing living areas. Do not refuel equipment while it is running. Allow for sufficient cooling of equipment prior to refueling.

SECTION 7: SECURITY

7.1. SECURITY CONTROLS. The installation commander is responsible for the control and safeguarding of all base property. Routine patrolling of housing areas is accomplished on a regular basis by the 15th Security Forces Squadron (15th SFS). Incidents, complaints, and inquiries concerning law enforcement should be directed to the 15th SFS Control Center at 449-2677.

7.2. VISITOR PASSES. For long-term visitors, residents must contact the 15th SFS Pass and Registration Section in Building 1113, phone 449-9394. For guest visiting over 30 days, they must be approved by Hickam Communities and proper arrangements made with Security Forces for access to the base. You must report to the Main Gate to sign-on short term guests. Requests for large groups of visitors for parties, weddings, etc., should be arranged at least 10 days prior to the event.

7.3. CRIME STOP. Operation Crime Stop is a cooperative installation community effort to reduce the potential for criminal activities on the base and to report criminal acts as they occur. If you observe a crime in progress or suspicious activities anywhere on base, call Crime Stop at 449-7114. You may remain anonymous; however, it is usually beneficial to have your name and phone number in case re-contact is necessary. Security incidents should be directed to the 15th SFS at 449-2677. Hickam residents may also

call 911, which is answered by the 15th SFS. 911 calls from a cell phone (mobile phone) may be answered by the City and County of Honolulu. Calls originating on Hickam AFB requiring law enforcement response will be routed back to the 15th SFS for response.

7.4. FIREARMS. In accordance with Air Force Instruction 31-101, 15 ABWI 31-101, and PACAF Sup 31-101, all personnel residing on Air Force installations on the island of Oahu will register their privately owned weapons using the AF Form 1314. Housing residents may contact their respective units to obtain the form. Additional forms are available at 15th SFS Pass and Registration section. All personnel with privately owned weapons in the state of Hawaii must also register them with the Honolulu Police Department, without regard to whether they live on or off the installation. For additional information, contact the 15th SFS office at 449-2677.

7.5. EMERGENCY VEHICLES. All motorists must yield to emergency vehicles.

SECTION 8: GOOD NEIGHBORS

8.1. SUPPORT AND COOPERATION. Some of our military personnel work days, while others work swing or midnight shifts. At times, some personnel are working 12-hour shifts. We understand everyone's need to live a normal life, but we each must respect the privacy and rights of others and show some common sense and courtesy. Please be a good neighbor and provide your support and cooperation.

8.2. COMMON AREAS. Common areas including carports, front and side yards of multiplexes, common area grounds and parks are to be kept clean and free from all personal articles. Do not leave shoes, toys, bicycles, garden hoses, or any other personal items in these areas at any time.

8.3. NOISE CONTROL. Excessively loud music and noises are disruptive to the community. Please be considerate and cognizant of how your actions may disrupt others who are resting. Do not assume that your neighbors enjoy the same type of music or television programs that you do. Please keep volume down inside and outside your home at all times. If music, TV, stereo, etc. can be heard outside your home or in the unit next door, it is too loud. Respect the rights of others to enjoy peace and quiet in their own homes. Quiet hours (10 p.m. to 7:30 am) are strictly enforced. Music in vehicles should be kept at a level that cannot be heard outside the vehicle. Excessive bass or amplification of in-home systems or vehicle sound systems is not allowed at any time.

8.4. PARTIES. Many complaints can be avoided by informing your neighbors prior to hosting a party. The best way to prevent any misunderstanding over noise or music volume is to make arrangements with your neighbors, let them know your intent, and be considerate. Also, please ensure your guests do not park in unauthorized areas or in neighbors' assigned parking areas.

8.5. CHILDREN. Parents, divert your children's activities away from other homes so their noise does not cause disturbance to the neighborhood. Instruct your children to be considerate of others. Children playing games are not permitted within 10 feet of housing foundations or unpaved areas. Exterior play areas located in grass and/or soil areas should be located away from housing foundations at a distance of at least 10 feet. Children should avoid playing games or other related activities in these (unpaved) areas with the exception of lanais, walkways; driveways, etc. (i.e. paved areas). All questions or concerns regarding child supervision, babysitting criteria, or suspected child abuse should be directed to the Family

Advocacy/Mental Health Office at 449-0175. Please see Attachment A to this brochure for additional information on the Hickam Child Supervision Policy.

8.6. PETS. Always exercise consideration and respect for your neighbors and assure your pets do not become a nuisance to the neighborhood. (See Section 4)

8.7. RESIDENT DISPUTES. As in most close communities, there is always the potential for disputes between neighbors. The best way to handle this is for the affected parties to simply discuss the issues between themselves and seek resolution. This should be accomplished resident to resident if at all possible. In the event this does not resolve the conflict, residents should then request that the Hickam Communities property management staff work with all parties involved in the situation to bring it to resolution. If the situation is not resolved, residents are required to seek assistance through Hickam Communities property manager before going to the Housing Privatization Element Chief. If the property manager is unable to resolve the issue, residents will be referred to the Housing Privatization Element Chief for resolution. The Air Force chain of command will become involved only when all attempts to resolve the situation have not been successful. Residents may request mediation services from the Military Equal Opportunity office or seek counseling with the base chaplain. Hickam Communities staff is available to residents to provide clarification of policies and procedures.

SECTION 9: COMMUNITY/RESIDENTIAL ACTIVITIES

9.1. GARAGE SALES. For safety and security reasons, garage sales are not authorized on Hickam AFB. However, a base-wide tailgate sale is held the first and third Saturday of each month in the lot next to the Commissary. For details and to reserve a stall, call the Services Squadron at 449-3354. The Thrift Shop is also available for sale of personal belongings.

9.2. AUTOMOBILES FOR SALE. Automobiles displaying “For Sale” signs may be parked in housing areas if they are being used on a consistent basis for transportation, but may not be parked at quarters indefinitely if not in use. Vehicles for sale and not being used for transportation must be registered and placed on the Auto Resale Lot. For information, call the Service Squadron, Craft Sales Store in the Skills Development Center at 449-2457.

9.3. RESIDENTIAL BUSINESS: Residents may, with written permission from Hickam Communities, which permission shall not be unreasonably withheld, conduct a business in a housing unit of a type permitted by government regulations governing the conduct of business activities in military family housing. Residents conducting a residential business (e.g. child care) will be required to comply with and are subject to inspection for compliance with government standards. Hickam Communities granting of permission is not a warranty that the unit is suitable for the conduct of residents’ business. No door-to-door soliciting will be allowed, no advertising signs shall be posted on the unit, and no interior or exterior structural modifications or additions shall be made to accommodate residents’ business. Residents are responsible for obtaining the necessary permissions and/or licenses and will indemnify, save, and hold harmless Hickam Communities for any failures to obtain the necessary permissions and or licenses and for any damages to third parties arising from the conduct of residents' business.

SECTION 10: ENVIRONMENTAL CONCERNS

10.1. HOUSEHOLD HAZARDOUS WASTE. Hazardous waste is any material discarded from the home that threatens our environment or health and well being through improper handling or disposal. Examples are motor oil, pesticides, paint, batteries, and household cleaning products.

10.2. DISPOSAL OF HOUSEHOLD HAZARDOUS WASTE. Households have exemptions that allow for the disposal of hazardous waste in general refuse dumpsters that are not available when disposing hazardous waste generated in the workplace. General refuse goes to the City and County of Honolulu waste to energy conversion facility and we are required to follow their guidance for disposal of hazardous waste. Handy product substitution recommendations, recycling, and proper disposal instructions can be found on their web site at http://www.opala.org.

A summary describing the proper recycling and disposal procedures for Hickam AFB residents is included below.

10.2.1. RECYCLE. If you have leftover household cleaners, please offer them to your neighbors if you are unable to take them with you.

10.2.2 STORM DRAINS AND HOUSEHOLD DRAINS. Never dump household cleaning agents down storm drains, as these drains flow directly into the ocean. Care should be taken to ensure that cleaning agents are not combined because some chemicals, if mixed, can produce toxic gases. With plenty of running water, it is safe to flush the following into household drains: aluminum cleaners, window cleaners, water-based glue, lye-based paint stripper, alcohol based lotions, drain cleaners, rust removers, bathroom cleaners, ammonia-based cleaners, disinfectants, and hair relaxants or permanent wave lotions.

10.2.3. PLACING HOUSEHOLD HAZARDOUS WASTE IN THE TRASH. If treated properly, some items may be disposed of in your regular trash. These include liquids such as cooking grease that can be solidified in plastic bags with sawdust, kitty litter, old rags, or shredded newspaper. The material will soon turn into a solid clump that can be placed in the trash. Be sure that you have completely emptied the contents of aerosol spray containers before placing them in the trash. Although not a comprehensive list, the following may be disposed in the trash:

- Empty aerosol cans
- Floor care products
- Lye-based oven cleaner
- Art supplies
- Solidified fiberglass epoxy primer
- Mercury batteries
- Mothballs
- Insect sprays
- Furniture polish
- Solidified nail polish
- Solidified varnish, primer, and paint
- Solidified brake fluid
- Car wash with solvent
- Auto repair products
- Fertilizers

- Shoe polish

10.2.4. SPECIAL HANDLING. Some materials require special disposal procedures, such as window air conditioners, refrigerators and TVs. Hickam Communities has a drop off disposal program for window air conditioners at a cost of $25 per unit.

10.2.4.1. CAR BATTERIES. Take old car batteries (no more than 2) to Firestone or the Auto Hobby Shop for disposal at a nominal fee. Car batteries should never be left outside the disposal location but should be turned in during business hours when a representative is present to accept them. It is against the law in the state of Hawaii for car batteries to be abandoned in any location.

10.2.4.2. TIRES. Tires are not accepted at the Recycling Center. When purchasing tires, some vendors are willing to accept your old ones. It is against the law in the state of Hawaii for tires to be abandoned in any location.

10.2.4.3. USED ENGINE OIL. Change automobile oil at the Auto Hobby Shop, and dispose of oil in the containers provided there, or purchase oil change boxes that contain absorbents which, when properly used, allow disposal in the trash. **Changing oil in the housing area is not allowed under any circumstances.**

10.2.4.4. OTHER MATERIALS. If you are unsure on the proper disposal of some materials, please visit the web site http://www.opala.org. For additional information, contact the Environmental Office at 449-3196.

10.2.4.5. PROPANE TANK: Household propane tanks (limited to 2 per customer) may be turned into Air Liquid (845-9021) for disposal on a fee basis. Empty tanks may also be disposed of at a City Refuse Convenience Center. Never put your empty propane tanks in the trash.

10.3. LEAD-BASED PAINT. Residents should be aware that many of the homes on Hickam AFB were constructed prior to 1978, before the harmful effects of lead-based paint were known. As a result, many of our homes have the potential for lead-based paint to be present under the many subsequent coats of non-lead-based paint. Should you encounter any peeling or chalking paint that you believe presents a hazardous situation, call Hickam Communities Housing Office at 423-2300 for repairs. To avoid creating dust that could contain particles of old lead-based paint, do not disturb or sand any painted surfaces. Clean with non-abrasives such as dishwashing detergent. Please refer to the Tenant Lease attachments "Protect Your Family From Lead In Your Home" and the "Hickam Communities Lead-Based Paint / Asbestos Disclosure."

10.4. PESTICIDE-IMPACTED SOIL. Residents should be aware that many homes on Hickam AFB have had pesticides applied to the soil under the foundation slabs as a treatment for termites. As a result, many of our homes have the potential for pesticide-impacted soil to be present within five (5) feet of their foundation. Soil in this region should not be disturbed (physical contact is not a concern; however, ingestion or inhalation of impacted soil particles could pose a risk). For more information please contact the Hickam Communities Housing Office at 423-2300.

10.5. STORM WATER POLLUTION PREVENTION. Storm drain inlets collect storm water to prevent streets and adjoining property from flooding. The inlets at Hickam are not connected to the sanitary sewer, so storm water drains to the ocean without treatment. To maintain good water quality and protect the health

of Hawaii's coral reef, we all must act responsibly to prevent contamination of the storm drain systems. Take the following actions:

- Sweep sidewalks and driveways and do not hose debris into storm drains
- Clean antifreeze or oil drips with kitty litter or other absorbent material and place in the trash
- Immediately report large spills to the Hickam Fire Department at 449-8100
- Repair vehicle leaks
- Avoid overuse of fertilizers and pesticides
- Flush dirty mop water in household drains with plenty of running water
- Pick up animal waste and either flush it in the toilet or place it in the trash
- Pick up litter and debris from yards and assure that lids are secured on garbage cans
- Use only biodegradable, ammonia-free and phosphate- free soaps such as Ivory Liquid or Simple Green when washing your car
- Do not over-water lawns or other landscaping
- Do not use chlorinated cleaning agents to clean drive ways and sidewalks; use a scrub brush or high-pressure water
- Report illegal dumping to 15th Security Forces Squadron at 449-2677.
- Report blocked storm inlets to the Hickam Communities Maintenance Office at 423-1650.
- Contact the 15th Civil Engineering Squadron Environmental Flight at 449-3196 for assistance concerning storm water pollution prevention

SECTION 11: TERMINATION OF FAMILY HOUSING

11.1. GIVING NOTICE. Military members who receive PCS orders or are otherwise reassigned to another installation are required to terminate occupancy of Hickam Communities housing prior to departure. Personnel who are separating or retiring must accomplish a successful termination inspection prior to the separation or retirement date. The Tenant will provide the Hickam Communities Housing Office with at least a 28-days' notice with exceptions allowed for short notice PCS or separations. Tenant is responsible to pay rent for the entire 28 days whether or not you are occupying the unit. Contact the Hickam Communities Housing Office in person or by calling 423-2300 to schedule an appointment to give notice. Residents should schedule their household goods pick-up date and departure flight date prior to arriving for their appointment with Hickam Communities. When PCSing, one copy of orders and amendments, one copy of Transportation Management Office (TMO) arrangements, and one copy of the flight itinerary are required for processing your termination with Hickam Communities.

11.2. TERMINATION INSPECTION. The responsibility for termination of Hickam Communities housing rests solely with the Tenant who must be present at the final inspection. A Pre-Move-Out inspection is strongly encouraged. The Tenant may designate a spouse or military representative with special power of attorney which may be obtained at the Staff Judge Advocate Office. It is imperative that the quarters are ready and the military member or his/her representative is present on time. If the military member will not be present at the scheduled time, they must call the Hickam Communities Housing Office to reschedule. The Hickam Communities Housing Office will provide cleaning and damage guidelines to residents upon home assignment and review the guidelines prior to vacancy. Damage caused by tobacco smoke, pets, abuse, and other damage beyond normal wear and tear will be repaired and the cost billed to the resident. A detailed cost breakout will be provided to the resident. Photographs will be provided for repairs exceeding $300. Military members will be required to pay for all damage prior to clearing base.

11.3. MOVE-OUT CLEANING STANDARDS. Residents must clean their home to Hickam Communities standards on move-out. A Pre-Move-Out inspection is strongly encouraged. Hickam Communities has adopted a "Broom Swept" cleaning standard for residents to use when vacating their homes. Broom Swept is designed to ease the move-out process for military families and eliminate "white glove" inspections. Broom Swept condition implies that a home is left clean throughout including the kitchen, bathroom(s) and storage areas. When a home is cleaned regularly, it should only require a wipe down of surfaces, countertops, cabinets, bathrooms, appliances, floor sweeping and vacuuming prior to move-out. Hickam Communities cleaning standards will be provided to residents when resident provides notice of move-out or upon request.

Damage to the residence that is beyond normal fair wear and tear and/or caused by residents or residents' pets will be the Tenant's financial responsibility.

11.4. CARPET CLEANING. Prior to move-out, all carpets must be vacuumed thoroughly. If fleas or ticks are active at the Pre-Move-Out inspection, residents will need to arrange for flea/tick treatment prior to moving out. If fleas or ticks are active at the final inspection, residents will be assessed a damage charge for flea/tick treatment.

11.5 FORMS OF PAYMENT. Hickam Communities accepts credit cards, debit cards, money orders or cashier's check only. We do not accept cash or personal checks.

SECTION 12: CHANGES TO RESIDENT GUIDE AND COMMUNITY STANDARDS

In the event that Hickam Communities finds cause to update the Resident Guide and Community Standards, residents will be provided at least 30 days' written notice before any policy changes are effective.

ATTACHMENT A. 15 AW/CC Memorandum - Hickam Child Supervision Policy

GLOSSARY

Aggressive behavior – any animal displaying unprovoked vicious behavior such as lunging at people, continuous growling, biting, and/or fighting.

Baseline estimates – the projection performed on a project to serve as the reference point for all subsequent tracking, comparing, and auditing of water and electricity use.

Broom swept standards – the basic standard in cleaning of a home to include wiping out all appliances, vacuum or sweep floors and carpet, removing all personal items.

Common areas – area which is available for use by all tenants, (or) groups of tenants and their invitees.

Energy conservation – the practice of decreasing the quantity of energy used.

Exception to policy – a written request asking permission for something other than the standard.

Excessive consumption – going beyond sufficient or permitted limits of energy or water in which is acquired by the user.

Exterior upkeep – maintaining the outside of the home in a neat manner and orderly appearance.

Identification microchip – an American Veterinarian Identification Device implanted under the skin of animals.

Normal wear and tear - a term for damage that naturally and inevitably occurs as a result of normal use or aging.

Nuisance animals – any animal that barks, bays, cries, whines, howls, or makes any other continual unreasonable noise for 30 minutes.

Pig tailing – attaching to another type of electrical source in any form or manner.

Routine pest control – a habitual method or procedure in dealing with insects.

Yard maintenance – includes removing leaves and weeds, edging of grass along fences and walls, trimming of grass, bushes and shrubs as well as routine watering of lawn of specified days.

WEBSITES

Department of Environmental Services	http://www.envhonolulu.org/
Hawaiian Electric Company	www.heco.com
Hawaiian TelCom	www.hawaiiantel.com
Hickam Air Force Base	http://www2.hickam.af.mil/
Hickam Communities	www.HickamCommunities.com
Hickam Elementary School	www.hickam.k12.hi.us
Joint Personal Property Shipping Office	fisc_prlh_jppso@navy.mil
Military OneSource	www.militaryonesource.com
Mokulele Elementary School	www.k12.hi.us/~mokulele/newsite
Nimitz Elementary School	www.nimitzelementary.com
Oceanic Cable	http://www.timewarnercable.com/Hawaii/
Radford High School	http://www2.k12.hi.us/~radfordrams/
Recycle Hawaii	http://www.recyclehawaii.org/
Solid Waste System - Recycling	http://www.opala.org/solid_waste/
State of Hawaii	http://www.ehawaii.gov

NOTES

Hickam COMMUNITIES

A Lend Lease Community

exclusive

COASTAL LIVING

within your reach

Hickam Communities LLC
211 Mercury Street, Honolulu Hi, 96818

This document can also be found at:
www.HickamCommunities.com

EQUAL HOUSING OPPORTUNITY

APPENDIX B2
Hickam Communities Fence Policy Packet

Hickam COMMUNITIES
A Lend Lease Community

Hickam Communities LLC
211 Mercury Street
Honolulu, HI 96818
www.HickamCommunities.com

Telephone
808.423.2300
Facsimile
808.423.1645

HICKAM COMMUNITIES FENCE POLICY PACKET

(Effective Date: 15 September 2011)

ATTACHED DOCUMENTS:

1) Directions for Fence Approval and Installation

2) Fence Policy and Fence Installation Request for Hickam Communities (**sign and return to HC**)

3) Hickam Communities Fence Policy: Resident Responsibilities (**sign and return to HC**)

4) PWD Hickam Work Clearance Request, 647th CES, JBPHH: Form 103, (**acquire signatures and return to HC**)

5) Hickam Communities Fence Policy: Subcontractor Responsibilities with *Attachment A: HC Standard Operating Procedure:* Subcontractor Guidance for Managing Soil on HC Property Soil Excavation and Stockpiling during Installation of Fencing and Other Improvements (**subcontractor to sign and return to HC**)

Return all required documents to your Community Manager.

HickamCOMMUNITIES
A Lend Lease Community

Directions for Fence Approval and Installation

A. Read through, fill out and sign the attached "*Fence Policy and Fence Installation Request for Hickam Communities.*"
   NOTE: You must draw a line diagram of the fence you plan to install as explained in the form.
B. Fill out and sign the "*Hickam Communities Fence Policy: Resident Responsibilities.*"
C. Have the subcontractor who is doing your fence installation fill out and sign the "*Hickam Communities Fence Policy: Subcontractor Responsibilities with the HC Standard Operating Procedure: Subcontractor Guidance for Managing Soil and Material on HC Property During Installation of Improvements.*"
E. **You are also required to have the PWD Hickam Work Clearance Request: JBPHH Form 103, filled out and signed-off on before you can proceed to install your fence.**

Notes on JBPPH FORM 103:

- Fill out block #1 with your address and block #1b with your work order number. (Customer Service will provide a work order number through the NAVFAC TF-1 Form)
- Skip blocks 2, 3, 4, and 5
- Next, fill out blocks 6 and 7
- Skip block 8

- On this form you will be required to get signatures of approval before installing your fence. The required signatures are marked with an asterisks (*) and/or yellow highlighting on the form.

- You may fax a copy of the fence diagram and JBPHH Form 103 **to Oceanic** (625-5888) or drop them off. Call Oceanic engineering **first** at 625-8570. They may give you a fax confirmation or a phone confirmation to let you know it is okay to proceed. If you drop off the fence diagram and Form 103, be sure to provide a fax number or email address where they can send their confirmation. In either case, document the method of confirmation, date, and who you spoke with.

- You must hand deliver (4) sets of fence diagram showing foot print of intended work site (reference markings for locating work area such as buildings and or street names must be included), four (4) copies of the excavation check sheet (JBPHH Form 103), and four (4) copies of a business card or POC information, to include name/business, address and phone number **to AT&T located at 3375 Koapaka Street, Ste D-120**. Call AT&T at 659-1400 for directions (office is difficult to locate) and to answer any questions. Processing may take 3-5 days.

Please return a final copy of the signed forms JBPHH FORM 103 once you have acquired all the approving signatures/approvals to Hickam Communities for review and processing by the Community Manager and HC Maintenance office.

Hickam COMMUNITIES
A Lend Lease Community

Hickam Communities LLC
211 Mercury Street
Honolulu, HI 96818
www.HickamCommunities.com

Telephone
808.423.2300
Facsimile
808.423.1645

Fence Policy and Fence Installation Request for Hickam Communities

Date: _____

Name of Requester: _____

Address: _____

Home Phone: _____ Duty Phone: _____

Occupants must request permission, through Hickam Communities (HICKAM COMMUNITIES), to install chain link fencing at their home. **To facilitate appropriate management of pesticide-impacted soils, the fence must be installed by a subcontractor.**

NOTE: Historic homes (in Officer Field and Hale Na Koa II) where renovations have been completed, are only allowed to install simple picket fences of either aluminum or wrought iron, covering no more than approximately 600-700 square feet. Fence colors should be dark to be less obtrusive and to blend with the landscape. Chain link fences are **not** allowed in these areas.

I understand that I will be required to hire a subcontractor to install the fence in conformance with the *Subcontractors Responsibilities* and *Standard Operating Procedure* documents attached.

As a requester, I understand I am responsible for all directives outlined in this *Fence Policy and Fence Installation Request* as well as the directives in the attached documents entitled ***Resident Responsibilities***. I will also be responsible for the completion of all permitting/digging clearances.

All applicable signatures and approval must be completed before any installations can begin.

I understand HICKAM COMMUNITIES will inspect the progress of the installation at anytime. If the fence is not installed correctly I am aware that I will have to correct any discrepancies or completely remove any work I have done and return my yard back to the original condition in which I started. I understand that I may be asked to move or relocate my fence for current and upcoming construction contracts at my quarters at no cost to the government or Hickam Communities.

<u>Fence Policy and Guidelines for Hickam Communities</u>

- **The fence must be installed by a subcontractor. NO self-help fence installations will be allowed.**
- The fence may only be installed in the back yard of a family housing unit (not on the side or the front of a unit). The fence CANNOT BE ATTACHED TO THE RESIDENCE.

Hickam COMMUNITIES
A Lend Lease Community

Hickam Communities LLC
211 Mercury Street
Honolulu, HI 96818
www.HickamCommunities.com

Telephone
808.423.2300
Facsimile
808.423.1645

- Use chain-link constructed fencing of 11 gauge galvanized chain-link fabric and an end post of 21/2 inch galvanized piping. Line posts will be 1 5/8 galvanized pipe set apart at a maximum of 10 feet center to center. Posts will be set 12 inches down in the ground. The top rail will be 1 3/8 inch galvanized pipe. Tie wires will be attached every 12 inches. THERE WILL BE NO EXCEPTIONS FOR FENCE MATERIALS.
- The height of the fence must be 48 inches.
- A 36 inches wide gate, constructed of the same material as the fence, is mandatory. The gate must not open into a neighbor's yard.
- Fencing **may** extend up to 24 feet from the back of your dwelling for New Construction Homes. For existing homes, fences may extend up to the length of your neighbors existing fence, not to exceed 40 feet. However, a 6 foot easement (open lane) must be maintained between the back of your intended fence and the rear neighbors existing fence to provide emergency access to or exit from dwelling. The same policy exists if your proposed fence approaches an existing perimeter fence.
- Post installations within 5 feet of the foundation are required to be installed by Hickam Communities maintenance. Call 423-1650 to schedule appointment during normal working hours.
- Duplex, eight-plex and nine-plex apartment units which have commonly used walkways immediately in the back of the building (s) are not permitted to block such walkways with fencing.
- No motorized digging equipment, only manual digging devices authorized.
- No digging below 12 inches due to imbedded power lines.
- I agree to keep the grass trimmed under and around the fence, and to keep the fence in perfect repair.
- The fence must be installed within 7 days of commencement.
- Residents are required to process their own digging permits and approval will only be considered after the resident has received all appropriate signatures on the dig permit from Civil Engineering, Bio-Environmental, Fire Protection and Safety. Once permits are approved, submit forms to HICKAM COMMUNITIES for their final sign off.

A single line diagram must be included in the request indicating the applicant's house, dimensions of the proposed fence, amount of clearance between neighbor's adjacent and behind, location of trees/shrubs, utility boxes, storage sheds, existing base perimeter fences (if applicable), and location of proposed gate.

DUE TO VARIOUS CONFIGURATIONS AND YARDS, SOME AREAS MAY NOT PERMIT A FENCE INSTALLATION.

I have read and understand the HICKAM COMMUNITIES fence policy and guidelines and agree to the terms stated herein.

_____

Resident Signature Date

Hickam COMMUNITIES
A Lend Lease Community

Hickam Communities LLC
211 Mercury Street
Honolulu, HI 96818
www.HickamCommunities.com

Telephone
808.423.2300
Facsimile
808.423.1645

HICKAM COMMUNITIES FENCE POLICY

RESIDENT RESPONSIBILITIES

Submit Work Request to Hickam Communities (HC). Residents will obtain a fence packet and work request form from the HC Property Managers office. The forms must be completely filled out and will describe the type of improvement being requested, and will identify the subcontractor.

Fences may only be installed by a subcontractor who has submitted a signed copy of the *Standard Operating Procedure:Subcontractor Guidance for Managing Soil on HC Property Soil Excavation and Stockpiling during Installation of Fencing (issue date: February 2011 and revision date: September 9, 2011).*

Permitting and Utility Location. Residents will obtain any and all required permitting/signatures prior to start of work. Due to embedded power lines, no digging is allowed on HC property without prior approval. If digging to a depth greater than 12-inches is approved by HC, the Resident must contract a private utility location service to mark the property prior to scheduling installations. Copies of approved permits and proof of utility location will be provided to HC representatives upon request.

Maintain a Safe Work Area. Residents will comply with all of the health and safety requirements provided with the work request application. Residents must restrain all pets during work on HC property, and Residents must prevent children from entering the work area during the work, and until stockpiled soil (if any) is removed from HC property.

Residual Soil. Any residual soil stockpiled on Resident property following installation of improvements will be managed / disposed through the HC Environmental Manager and/or HC's 3rd Party Consultant.
The Resident must notify HC of stockpiled soil immediately upon completion of the installation of improvements.

Inspections / Oversight of Installations. HC reserves the right to conduct inspections of the work area at any time during or immediately following installation of improvements. HC representatives, either the Environmental Manager or 3rd Party Consultant, will conduct inspections of the work area. The Resident must have a copy of all required permitting at the work site, and will present these copies upon request from an HC representative.

Communication with HC. Resident will promptly notify HC when work commences and when it is finished on their property. HC will be notified immediately if installation work results in stockpiled soil on HC property.
Resident will notify the appropriate emergency response agencies (as needed) and the HC Property Manager's Office immediately if accidents or injuries occur during installation of improvements on HC property.

Residents must immediately report any unsafe working conditions to the HC Property Manager's Office.

Disputes. Residents will notify the HC Property Manager's Office in writing regarding any problems with an Approved Subcontractor during installation of improvements on HC property. This includes failure of the Approved Subcontractor to complete the work, or damage to HC property during the installation of improvements.

Resident Name (printed) and Signature	Resident Address	Date

DEPARTMENT OF THE AIR FORCE
15TH AIRLIFT WING
HICKAM AFB, HI

BY ORDER OF THE COMMANDER,
OPERATIONS FLIGHT
647TH CIVIL ENGINEER SQUADRON

647 CES STANDARD OPERATING
PROCEDURE 32-280
7 APR 2011

CEO

AF FORM 103 BCE WORK CLEARANCE REQUEST

COMPLIANCE WITH THIS PUBLICAITON IS MANDATORY

NOTICE: This publication is available on the "Q" Drive: 647 CES, CEO_PUB, CEOS, CEOS SOPs Folder, File: SOP 32-280.doc.

OPR: 647 CES/CEOSC
Original Standard Operating Procedure

Certified by: (MSgt John Moroney)
Pages: 2
Distribution: F

---

1. This Standard Operating Procedure (SOP) provides a standard of action to ensure a tracking system is in place to cover liability for disruption of service and subsequent repairs. This SOP fulfills the requirement for the CE Mission Performance Checklist item A1.2.1.8 *Were AF Form 103's being processed for any work that disrupted aircraft or vehicular flow, base utilities services, protection by fire or intrusion alarm system, or other routine installation activities?*

   1.1. AFI 32-1001, "Operations Management," PARA. 6.6 "Work Clearance", 1 Aug 99

2. **Responsibilities.** The CE Customer Service Unit (CSU) is responsible for annual review of this SOP and forwarding to all involved parties for review. Any organization that is planning to excavate, trench or disturb the soil more than 4" below the surface must initiate the AF Form 103, BCE Work Clearance Request Form, otherwise known as a "digging permit." Each agency potentially affected by the digging is responsible to review site plans, as-builts and shop drawings, and when applicable, mark any existing utilities in the area near the required work.

3. **Training.**

   3.1. All new personnel will be trained by their section on these procedures.

4. **Procedures.**

   4.1. Common sense and proper judgment must be used with every work request. To ensure mission essential activities are not disrupted, nor have the potential to be disrupted by the work. When in doubt Customer Service will require the digging permit be submitted by the customer.

4.2. Only agencies related to or potentially affected by the work are required to initial/approve the AF Form 103. Customer Service will determine which agencies require consultation and will draw a line through all others on the form. Customers are required to obtain the necessary coordination from the agencies designated by CSU.

4.3. A Contract number, work order number or Job Order Number is required in block 1. Customer Service will provide a work order number, when necessary.

4.4. **Air Force owned property:** Once all the approvals are obtained on the AF Form 103, the Customer seeks authorization from the PWD, FEAD or UEM Approving Officer. Work is not authorized to begin until all coordination and toning is complete and the AF Form 103 is approved.

4.5. **Hickam Community Housing (HCH):** If the digging will occur within HCH's Leased Premises, the entity performing the work obtains the dig permit application from HCH's office. They route the application through the various offices specified, and return to HCH for final approval authority. Customer Service will provide a work order number to residents for fence requests.

4.6. **Air Force owned property and HCH:** If the digging will be located in both HCH and Air Force owned property, both 4.4 and 4.5 rules apply.

4.7. **Once authorized, the AF Form 103 is valid for 30 days. If the work has not begun in 30 days, the form must be re-processed to ensure conditions have not changed.**

4.8. For other types of work requiring coordination (i.e. road closures, utility disruptions, fire suppression system work, etc), the executing organization is responsible for coordinating with the affected agency(ies) by whatever means are most expedient (e-mail, flyers, phone calls, etc).

4.9. **AT&T:** Coordination with AT&T (located off-base at 3375 Koapaka Street Ste. D120) requires four (4) copies of excavation drawings showing foot print of intended work site (reference markings for locating work area such as buildings and or street names must be included), four (4) copies of the excavation check sheet (AF Form 103), and four (4) copies of a business card or POC information, to include name/business, address and phone number.

ALLEN H. MONROE, Maj, USAF
Chief, Operations Flight

PWD HICKAM WORK CLEARANCE REQUEST									DATE PREPARED:
1. Clearance is required to proceed with work at:									
a. Work Desription:									
On Work Order No.:			Contract No.:			involving excavation or utility distribution			
per attached sketch/drawing. The area		has		has not been staked.					
2. TYPE OF FACILITY/WORK INVOLVED:									
	A. PAVEMENTS		D. FIRE DETECTION & PROTECTION SYSTEM					G. AIRCRAFT OR VEH TRAFFIC	
	B. DRAINAGE SYSTEMS		E. UTILITY		OVERHEAD		UNDERGRD	H. SECURITY	
	C. RAILROAD TRACKS		F. COMM		OVERHEAD		UNDERGRD	I. OTHER	
3. DATE CLEARANCE REQUIRED:			**4. DATE OF CLEARANCE:**					**5. REQUESTING OFFICAL:**	
6. SIGNATURE OF REQUESTER:			**7. TELEPHONE/FAX NO:**					**8. ORGANIZATION:**	

	ORGANIZATION	REVIEWER	REMARKS	CLEARED BY
9. PWD HICKAM ENGINEER	A. ALARMS-PWDH Bldg. 1207 @ 448-2883			
	B. EV Front Store Bldg. 1202 @ 449-0011			
	C. EV Restoration Bldg. 1202 @ 474-2446			
	D. HVAC-PWDH Bldg. 1202 @ 448-2736			
	E. PAVEMENTS/GROUNDS/DRAINS-PWDH Bldg. 1220 @ 449-1934			
	F. *ELECTRICAL DISTRIBUTION-UEM * Bldg 4016 @ 448-2351			
	G. CATHODIC PROTECTION-PWDH Bldg. 1207 @ 448-2858			
	H. CIVIL ENGINEER-PWDH Bldg. 1204 Mr.Yee @ 449-3130			
	I. *FIRE PROTECTION-FED FIRE- OFF BASE 650 Center Dr (B. 284) @ 471-3303 ext 608			
	J. *WATER/SEWAGE/PROPANE-UEM * Bldg. 4016 @ 448-1067			
	K. POL DISTRIBUTION/LFM-UEM Bldg. 2171 @ 448-1592			
10. SECURITY POLICE- Bldg 1001 @ 449-9710 (Flt Line) or 449-1006 (base)				
11. SAFETY Bldg. 1110 Rm. C223 @ 449-0749				
12. *COMMUNICATIONS * Bldg. 1073 @ 448-9777				
13. AIRFIELD MANAGEMENT Bldg. 2050 Rm.105 @ 449-0022/0023				
14. *CABLE (Oceanic) - OFF BASE * Mililani Tech Park @ Fax No. 625-5888				
15. COMMERCIAL UTILITIES - OFF BASE		REVIEWER	REMARKS	CLEARED BY
X	TELEPHONE	*ATT * - 3375 Koapaka St, Ste D120 @ 659-1400			
		*HI TELCOM * - 1177 Bishop St Prk on Alakea @ 546-7745			
X	ELECTRIC	HECO- 820 Ward Ave Mr. Luckett @ 543 4646			
*BELLOWS AFS TELEPHONE LINES - 30TH * SIG BAT WHEELER Bldg 600 @ 656-8066				Bellows Residents Only	
16. Other					

17. REQUEST CLEARANCE: (check)		**Approved**		**Disapproved**	**Remarks:**
18. HC POC's: Bud Coleman or Steven Quinn 211 Mercury Street 423-2300 (fax 423-2301)					
18A. NAME AND SIGNATURE OF APPROVING OFFICER (HICKAM COMMUNITIES LLC):					**18B. DATE SIGNED:**
19. NAME AND SIGNATURE OF APPROVING OFFICER (PWD/FEAD/UEM):					**19A. DATE SIGNED:**

647th CES, JBPHH: Form 103 **Mar-11**

Hickam COMMUNITIES
A Lend Lease Community

Hickam Communities LLC
211 Mercury Street
Honolulu, HI 96818
www.HickamCommunities.com

Telephone
808.423.2300
Facsimile
808.423.1645

HICKAM COMMUNITIES FENCE POLICY

SUBCONTRACTOR RESPONSIBILITIES

Overview: Pesticide-Impacted Soil at HC
Organochlorine pesticides ("pesticides") were applied to soil as a termiticide at Joint Base Pearl Harbor-Hickam during construction of buildings completed before to 1989, which is when these pesticides were banned by the US Environmental Protection Agency. Pesticide application methods for these pesticides included direct application to soil before cement building slabs, pilings, or concrete footings were installed. Following construction, pesticides may have been applied by drilling through cement slabs to apply pesticides, or applied to soil around building foundation perimeters. The concern about these pesticides in soil is that they don't breakdown easily in the environment, they are bioaccumulative and toxic, and are suspected carcinogens. The specific pesticides of concern at HC are the pesticides chlordane, aldrin, and dieldrin.

At HC, soil that contains pesticides is referred to as pesticide-impacted soil ("PI soil"), which is managed to prevent potential exposure to workers and residents. During construction and renovation projects, PI soil is managed at HC by placement beneath new hardscapes (building slabs, sidewalks, or parking lots), or placed into burial pits with a layer of orange geotextile fabric as a visual barrier, followed by a 1-foot or 2-foot clean soil cap. <u>When working at HC, all soil must be considered to be PI soil.</u>

Familiarity with HC Procedures. Subcontractors will review and follow the guidelines and the SOP *Subcontractor Guidance for Managing Soil on HC Property, Soil Excavation and Stockpiling during Installation of Fencing*, provided in **Attachment A**. The subcontractor is required to SIGN and RETURN **Attachment A**.

Conduct Work Responsibly. Work must be completed in a timely manner. All best management practices (BMPs) for control of fugitive dust emissions, stormwater control, and noise abatement will be in place, as needed, during installation of improvements.

Maintain a Safe Work Area. Approved Subcontractors will perform work under their own Health and Safety Plan, but will also comply with all HC health and safety requirements provided in the Approved Subcontractors Handbook. Subcontractor will present a copy of their health and safety plan upon request by an HC representative visiting the work site.

Inspections / Oversight of Installations. HC reserves the right to conduct inspections of the work area at any time during or immediately following installation of improvements. HC representatives, either the Environmental Manager or 3rd Party Consultant, will conduct inspections of the work area.

Approved Subcontractors must have a copy of their Subcontractor Approval from HC and Health and Safety Plan at the work site, and will present copies of these documents upon request from an HC representative.

Attachment
Attachment A: *Standard Operating Procedure: Subcontractor Guidance for Managing Soil and Material on HC Property, During Installation of Improvements.* (Original Issue Date: February 2011; Revision Date: September 9, 2011)

Standard Operating Procedure
Subcontractor Guidance for Managing Soil on HC Property
Soil Excavation and Stockpiling during Installation of Fencing

Original Issue Date: February 2011 **Revision Date:** September 9, 2011

Scope and Application:

Depending on the type and method of installation of an improvement on Hickam Communities LLC (HC) property, such as the installation of fencing or satellite dishes, small-scale soil excavation and management of soil may be required. Since all soil at HC must be considered to be pesticide-impacted (PI) soil, the Subcontractor must manage any residual soil generated from installation of improvements in accordance with HC policies, including this Standard Operating Procedure (SOP). The purpose of this SOP is to present these procedures in a clear manner; however any questions the Subcontractor may have regarding this SOP should be directed to the HC Property and/or Environmental Managers before starting work
During work on HC property:

1. No eating, drinking, or smoking should take place in the immediate work area.

2. Only manual digging devices authorized on HC property. No motorized digging equipment should be used unless prior approval received from HC.

3. No digging below 12 inches due to imbedded power lines. If digging below 12 inches is required, approval from HC must be received and a utility locator must mark the site prior to work.

Equipment and Supplies:

- Level D Personal Protective Equipment (PPE), Plastic sheeting, sand bags, signage.
- Trash bags, brooms, brushes, plastic sheeting. Dumpsters and roll-off bins, as-needed.

A. Excavating Soil: Procedure/Method:

1. **Excavation Preparation.** The HC resident is responsible for identifying and arranging any permitting required for the work. The Subcontractor must not begin work until they have received a copy of any required permitting from the HC resident and have it available at the work site. Utility locating services must be completed and the work area marked before any soil is disturbed at the Site.

2. **Secure the Excavation Area.** Before beginning installation work, the Subcontractor must secure the work area using caution tape. At no time should HC residents, children, or pets be present within the work area. If loose dogs or unattended children are present in the work area, the Subcontractor must not begin work. The Subcontractor will attempt to contact the HC resident before contacting the HC Property Manager.

3. **Excavation Implementation.** Subcontractors must don appropriate PPE prior to starting excavation. The subcontractor must not excavate or disturb any more soil than is absolutely necessary to complete the installation. During excavation and associated work, the Subcontractor and must avoid inadvertently distributing PI soil through production of excessive dust, mixing of PI soil with any water present in the work area, or tracking of PI soil out of the work area either by foot traffic, or on vehicle tires.

4. **Backfilling.** Any soil removed during installation of improvements must be placed back into the excavation, based on "last out, first in" method. Although not anticipated, if any additional soil is required to fill the excavation, only certified clean fill may be imported and used at backfill on HC property. The Subcontractor must contact the HC Environmental Manager immediately if use of clean fill is expected.

5. **Residual Soil.** Any residual soil generated during installation activities will be stockpiled and managed in accordance with the soil stockpiling procedure outlined in Section B of this SOP.

B. Stockpiling Residual Soil: Procedure/Method:

Since soil disturbed during installation activities is assumed to be PI soil, any residual soil generated during these activities will be stockpiled on plastic sheeting or tarps, and not placed directly on landscaped lawns, paved parking areas and sidewalks, or any other exposed soil already present in or around the vicinity of the work area. During installation activities, no soil must leave the work area.

1. **Select a Location for the Stockpile.** The stockpile must be placed within the boundary of the HC resident's property, and common sense practices should be used to avoid placing stockpiles in drainage areas and in locations obstructing resident movement and future access to the stockpile for removal.

2. **Stockpiled PI Soil.** Stockpiled PI soil must be kept segregated from areas of clean soil. In all cases, any excavated and stockpiled soil must be placed on plastic sheeting.

3. **Build the Stockpile.** Use hand tools (no motorized equipment) to place soil at the stockpile site. Avoid piling soil or debris to heights that cause the stockpile to become unstable.

4. **Manage the Stockpile.** Stockpiles must be managed to avoid loss or unintentional distribution of soil outside the work area. The stockpile management procedures should be in place until the stockpile is removed from site by HC. Stockpile management procedures are listed below.

a. Best management practices (BMPs) should be observed to prevent uncovered soil from creating dust, or from entering storm drains.

b. *Secure the Stockpile*. Stockpiles with PI soil will be secured with perimeter fencing as needed (e.g. placed within the resident's yard), and by covering the stockpile with plastic sheeting to prevent unauthorized persons from coming in contact with PI soil, or from inadvertent use the stockpiled PI soil as clean fill. The cover will consist of 6-millimeter polyethylene plastic sheeting weighted down with sand bags. All PI soil stockpiles will remain covered with plastic sheeting; except when the PI soil stockpiles must be uncovered to load the soil for transport to the permanent PI soil management site.

c. Clearly visible signage will be placed along the perimeter of stockpiles indicating that the stockpiled soil is considered PI.

5. **Stockpile Location Notification.** The Subcontractor must provide the location of any stockpiled soil (unit # and street address) to the HC Property and Environmental Managers immediately following the conclusion of installation activities.

C. Site Restoration: Procedure/Method:

Following installation of improvements on HC property:

1. Remove all trash and debris generated (excluding stockpiled soil) from installation activities from the work area. No trash or debris must be left, or stored for any length of time, in the HC work area. All debris (excluding soil) must "leave" with the installation crew.

2. Place all trash into bags and dispose in the proper receptacles on HC property. Do not place any solvents, petroleum hydrocarbon-based products, paints, or any hazardous materials in HC trash receptacles.

3. For large amounts of trash and debris (excluding soil), the subcontractor will arrange for delivery of a dumpster or roll-off bin with the HC Property Manager, or designee. Any dumpsters or roll-off bins will be removed from HC property immediately upon completion of the work.

4. No uneven surfaces caused by either potholes or soil mounding should remain within on HC property area following installation work requiring soil disturbing work.

5. Any hazardous materials or hazardous debris encountered during site restoration must be reported immediately to the HC Property and/or Environmental Manager, or designee. If there is an imminent threat posed by any discarded materials encountered in the work area, contact the Fire Department and the HC Property and/or Environmental Managers.

6. Remove any soil adhered to sidewalks or streets. To avoid entry of soil into storm drains, brushing and sweeping should be used to the extent possible to remove soil from sidewalks and streets. Any material collected by the street sweeper should be considered PI and be managed in accordance with this SOP.

7. Restoration of landscaping affected by installation of improvements will be coordinated through the HC Property Manager, or designee.

Exposure Risks and Controls:

The soil being stockpiled should be considered PI Soil. Controls should be in place during any activity that may require contact with the soil / material, and are listed below:
Appropriate PPE (in most cases, Level D) must be worn during soil sampling activities;

Avoid creating excessive amounts of dust; and

Properly dispose of used PPE when demobilizing from the site.

Recordkeeping and Data Tracking:

Records must be kept tracking the location of the stockpile (i.e. the unit and street address), the amount of PI soil generated. The Subcontractor must provide this information to the HC Property and Environmental Managers immediately upon completion of the work. *HC Standard Operating Procedure Subcontractor Guidance for Managing Soil and Material on HC Property During Installation of Improvements HC SOP – Managing Soil and Material on HC Property Rev.*

I certify that I have read, understood and will implement all of the Subcontractor Responsibilities and conform to all of the SOPs listed here related to managing soil on Hickam Communities property.

_____
NAME

_____
SIGNATURE

_____
COMPANY/ORGANIZATION and ADDRESS

_____
PHONE NUMBER: CONTACT INFORMATION FOR RESPONSIBLE EMPLOYEE

_____
DATE

APPENDIX C
Hickam Communities Pesticide-Impacted Soil Investigation and Management Program Manual

Table of Contents & List of Standard Operating Procedures

Pesticide-Impacted Soil Investigation and Management Program Manual

Hickam Communities Property
Oʻahu, Hawaiʻi

Prepared for

Hickam Communities LLC
Joint Base Pearl Harbor-Hickam

211 Mercury Street
Joint Base Pearl Harbor-Hickam
Honolulu, Hawai ʻi 96818

Prepared by

Tetra Tech

737 Bishop Street, Suite 3020
Honolulu, Hawai ʻi 96813
(808) 533-3366
Fax: (808) 533-3306

DCN: 2770101.0001.F03

August 31, 2011

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

LIST OF APPENDICES

APPENDIX D
Hickam Communities Land Use Control Inventory Document

Table of Contents & List of Standard Operating Procedures

Land Use Controls Inventory Document

For
Hickam Communities Property
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

Prepared for:

Hickam Communities, LLC

211 Mercury Street
Honolulu, HI 96818

Prepared by:

Tetra Tech

737 Bishop Street, Suite 3020
Honolulu, HI 96813
(808) 533-3366
Fax (808) 533-3306
Tetra Tech Project No. T28842

March 20, 2012

DCN: 2884201.0001.D03

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

APPENDIX E
Hickam Communities Monitoring Plans

E1: Long-Term Monitoring Plan for Hickam Communities Property
E2: Long-Term Maintenance Plan: Pesticide-Impacted Soil Berm

APPENDIX E1
Long-Term Monitoring Plan for Hickam Communities Property

TETRA TECH

100-SFO-T28834-01

Long-Term Monitoring Plan

Hickam Communities Property
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

April 24, 2012

complex world CLEAR SOLUTIONS™

Long-Term Monitoring Plan

Hickam Communities Property
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

Prepared for

Hickam Communities, LLC

211 Mercury Street
Joint Base Pearl Harbor-Hickam
Honolulu, Hawaiʻi 96818

Prepared by

Tetra Tech

737 Bishop Street, Suite 3020
Honolulu, Hawaiʻi 96813
(808) 533-3366
Fax: (808) 533-3306
Tetra Tech Project No. 100-SFO-T28834-01

DCN: 2883401.0002.F01

April 24, 2012

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ACRONYMS and ABBREVIATIONS, AND DEFINITIONS

berm	berms are intentionally constructed permanent piles of soil that are above grade and are generally linear in shape.
D/B	design/build
EHMP	*Environmental Hazard Management Plan*
EPOC	environmental point of contact
GIS	geographical information system
HAZCOM	hazard communication
HC	Hickam Communities, LLC, the "Project Company"
HDOH	Hawai'i Department of Health
LTMP	*Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms*
LUCID	*Land Use Controls Inventory Document*
PI	pesticide-impacted
POC	point of contact
SOP	standard operating procedure

1.0 INTRODUCTION

This *Long-Term Monitoring Plan for Hickam Communities Property (Monitoring Plan)* was prepared on behalf of Hickam Communities, LLC (HC) for residential neighborhoods managed by HC and located at Joint Base Pearl Harbor-Hickam, Oʻahu, Hawaiʻi (hereinafter "HC property") (Figure 1-1). Hickam Communities property is undergoing redevelopment, construction and renovation activities, which involves management of pesticide-impacted soil as presented in the *Environmental Hazard Management Plan for Hickam Communities Property (EHMP)*[1]. As a result of soil management activities at HC property, soil was improperly managed in four neighborhoods, which initiated a Remedial Action at HC. As a result of the Remedial Action, three removal actions were completed and a *Remedial Alternatives Analysis (RAA)*[2] was prepared which recommended a remedy for addressing remaining PI soil on HC property. This final remedy selected for HC property was presented in the *Response Action Memorandum (RAM)*[3]; the selected remedy was for the no further action with the implementation of institutional controls.

The purpose of this *Monitoring Plan* is to provide a means by which the ongoing and successful implementation of these institutional controls can be monitored, and any needed corrective actions implemented. The *Monitoring Plan* provides a schedule and procedures for monthly inspections of HC property to monitor to identify areas of unauthorized soil disturbance, and areas where landscaping is damaged or worn leaving soil exposed. The intention of these inspections is to ensure that the selected remedy for the site is being implemented according to the *RAM* and *EHMP*. Further, these inspections help ensure that there are no unacceptable changes to land uses or exposures of HC workers, residents, and guests to PI soil known or assumed to be present on HC property. These monthly reports will be provided to the Hawaiʻi Department of Health (HDOH) Remedial Project Manager on a quarterly basis.

1.1 Environmental Hazard Management Plan

This Monitoring Plan was prepared as part of the *Environmental Hazard Management Plan for Hickam Communities Property (EHMP)*[4]. The EHMP is a comprehensive document that presents the issues regarding the PI soil release, the Remedial Action implemented at HC, and a where and how PI soil has been managed on HC property. The EHMP provides a complete set of maps clearly showing where PI soil is known or assumed to be present at HC.

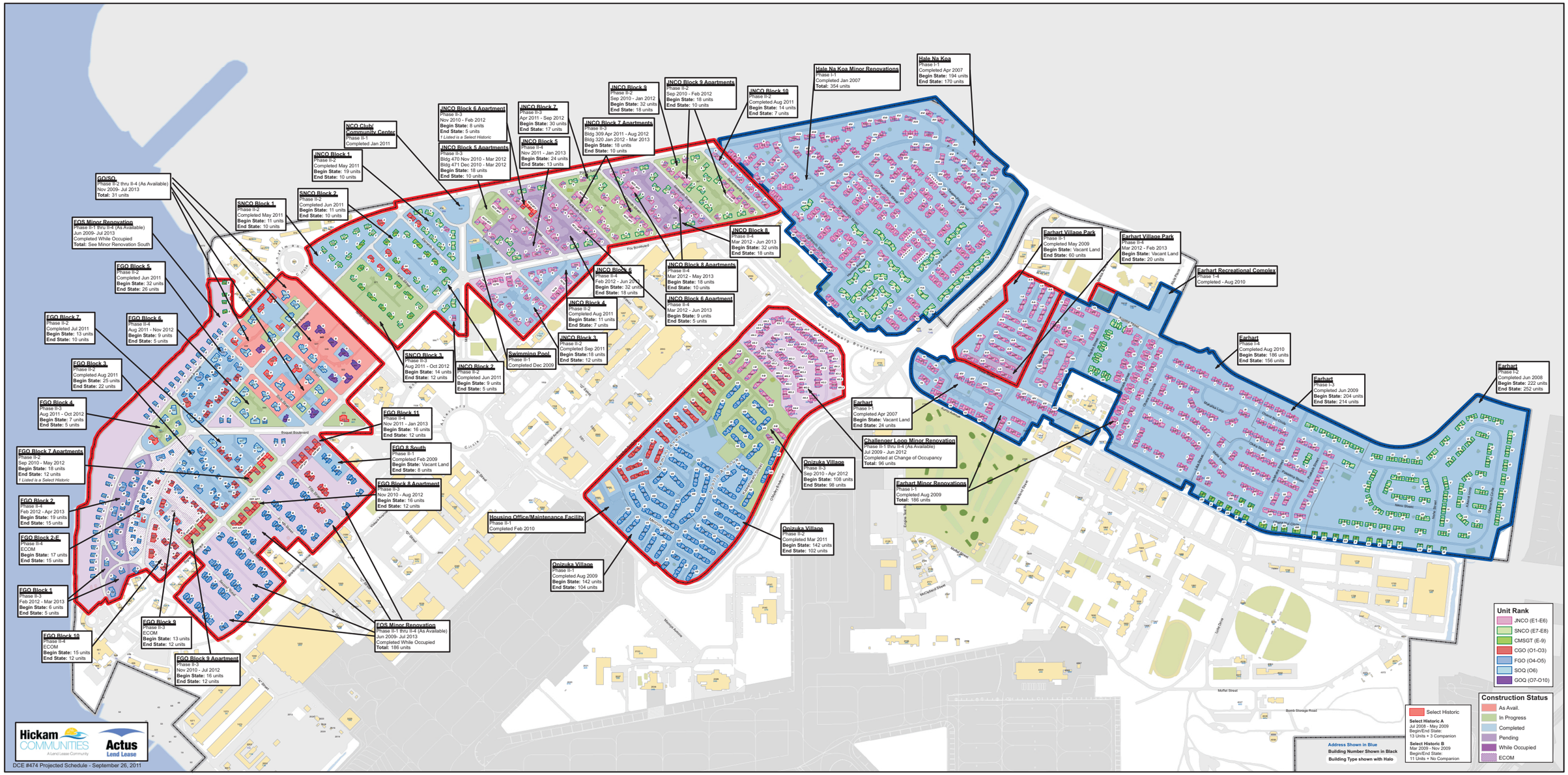
To ensure HC staff are aware of the potential hazards presented by exposed soil at HC, prior to conducting inspections under this Monitoring Plan, the EHMP will be read in its entirety by HC staff or third party consultants who will be conducting inspections and preparing reports. In addition, these staff must have completed the PI Soil Awareness Training required by HC.

1.2 Project Background

In buildings constructed from the 1940s to the 1980s, organochlorine pesticides were routinely applied to soil under and around the perimeter of building foundations at military installations to

[1] (Tetra Tech 2012d)
[2] (Tetra Tech 2012a)
[3] (Tetra Tech 2012b)
[4] (Tetra Tech 2012d)

control subterranean termites. Although use of organochlorine pesticides was banned by the US Environmental Protection Agency by the late-1980s, because these pesticides are persistent in the environment, residual concentrations can still be present in the soil beneath building foundations, and subsequently exposed when the buildings are demolished to prepare for construction of new housing, or during renovation of existing homes. Since any PI soil detected during demolition, renovation, and/or construction requires on-site management (i.e. within the boundary of HC property), PI soil should be assumed to be present under hardscapes and below a depth of 6-inches at HC property. The *EHMP* provides detailed maps indicating where PI soil was managed at HC, and where it is known or assumed to be present.



r:\new\26535\CorelEHMP\Site Location.cdr - 3/27/12 - YE

Construction Phase I

Construction Phase II

TETRA TECH

Site Location
Hickam Communities Property

Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i

Figure 1-1

1.3 Changes or Termination of the Long-Term Monitoring Plan

The long-term monitoring requirements presented in the Monitoring Plan may only be changed, suspended, or terminated with the mutual agreement and approval of both HC and HDOH.

2.0 POINTS OF CONTACT

The primary point of contact for the inspections conducted under this Monitoring Plan is the HC Environmental Point of Contact (EPOC). The contact information for the HC EPOC, and other responsible individuals, is provided in Table 1-1.

Table 1-1. Key Personnel for HC Project Sites (March 2012)

Name/Title	Roles	Responsibilities	Phone/Email
Jerry Schmitz Project Director, HC	HC Project Point of Contact (POC)	Manages overall operations at HC including construction, property management, and maintenance of HC property. Authorizes all work conducted for the project.	Office: (808) 853-3766 Cell: (808) 398-1017 Email: gerald.schmitz@lendlease.com
Jeff Seibert Development Manager, HC	HC Development POC	Manages development of HC property, including project scheduling. Coordinates work requests and status reports for the projects, including construction activities and environmental investigations.	Office: 808 853-3783 Cell: 808 426-3163 Email: jeffrey.seibert@lendlease.com
Stephen Quinn Director of Property Management, HC	HC Property POC	Oversees property management and maintenance (including landscaping) at HC. Includes resident interactions through a network of neighborhood specific Community Managers.	Cell: (808) 423-1644 Email: stephen.quinn@hickamcommunities.com
Grant Arnold Assistant Environmental Manager, HC	HC EPOC	Has the role of Environmental Point of Contact (EPOC) for HC. Provides environmental management support to HC, and is the "go to" contact regarding all environmental issues at HC.	Cell: (808) 343 2134 Email: grant.arnold@lendlease.com
Ivan Trujillo Senior Construction Manager, Lend Lease	HC D/B Contractor POC	Manages day-to-day construction work by the design/build (D/B) contractor and subcontractors at HC project sites.	Office: (808) 203-5264 Cell: Email: ivan.trujillo@lendlease.com
Kevin Quinn Project Certified Industrial Hygienist; Quinn Consultants, Inc.	HC HAZCOM POC	Provides hazard communication (HAZCOM) training to HC construction workers and provides air monitoring services to the D/B contractor.	Cell: (808) 780-9081 Email: kquinn@hawaii.rr.com
Yvonne Parry Senior Project Manager, Tetra Tech	HC Environmental Support POC	Third Party Consultant - works with the HC EPOC to oversee and conduct environmental field sampling and reporting for HC project sites and PI soil safety training to HC workers and subcontractors.	Office: (808) 394-4111 Cell: (808) 393-8829 Email: yvonne.parry@tetratech.com
Eric Sadoyama Remedial Project Manager, Hazard Evaluation and Emergency Response (HEER) Office, HDOH	HDOH Regulatory POC	Remedial Project Manager for State of Hawai'i overseeing HC project sites, and the Remedial Action conducted at HC.	Office: (808) 586-0955 Email: eric.sadoyama@doh.hawaii.gov
Cheryl Alakai. Asset Manager, Housing Office Management Office, Navy Region Hawai'i	USAF/Navy POC	Asset manager overseeing military property at Joint Base Pearl Harbor-Hickam.	Office: (808) 448-6889 Email: cheryl.alakai@hckam.af.mil

3.0 LONG-TERM MONITORING PROCEDURES

The purpose of long-term monitoring at HC is to identify areas of exposed soil at HC property an initiate a corrective action to prevent exposure of HC workers, residents, and guests to PI soil managed or remaining within HC property. The monitoring conducted at HC will ensure that the long-term integrity of the soil caps, hardscapes, and landscaping will be maintained and prevent any potential exposures to PI soil.

3.1 Potential Causes of Unauthorized Soil Disturbance

Unauthorized soil disturbance at HC consists of digging, trenching, gardening, installation of posts, fences etc. that was conducted without the knowledge or approval of HC. Areas where soil is disturbed without the appropriate securing of the site (signage and/or fencing) would be suspect. Visible orange geotextile fabric would also indicate possible unauthorized soil disturbance.

It is important to note that unexpected soil disturbance at HC can occur and would be caused by ruptures in irrigations lines, water mains, or sewer lines, or by torrential rains or earthquakes as described in Section 3.2.1.

3.2 Potential Causes of Damage to Landscaping

Damage to landscaping may be the result of several factors all of which may result in exposure of the PI soil remaining at HC. These factors include damage due to either natural or man-made causes as described in the following sections.

3.2.1 Natural Causes

Natural causes of soil cap damage include adverse weather and earthquakes. Torrential rain may create rivulets and fissures landscaped areas. Saturation of the lawns by torrential rain may also result in slumping or sliding of the soil, especially on any sloped surfaces. Due to volcanic activity in Hawai‘i, earthquakes may occur and cause destabilization of the soil and potentially expose PI soil. Earthquakes may also cause ruptures in underground utilities or landscape piping at HC property creating fissures in the soil and exposing PI soil.

3.2.2 Man-Made Causes

Man-made causes of landscaping damage would include unauthorized digging or other soil disturbance, rupture of underground utilities or irrigation piping, and any other maintenance or landscaping activities that may result in exposure of the PI soil managed at HC. Other man-made cause would consist of worn areas and bare patches in lawns due to frequent use of short-cut paths or under swing sets.

3.3 Standard Operating Procedures

Standard operating procedures (SOPs) for the Monitoring Plan have been developed to provide easily implemented guidance for all aspects of the monitoring process. These SOPs are listed below and present in Appendix A.

- SOP #01: Visual Inspection of HC Property.
- SOP #02: Documentation and Reporting.

3.4 Monthly Visual Inspections

Hickam Communities property will be inspected on a monthly basis. The scope of these inspections is for the open areas, including yards and parks, and the common areas around the residential homes. These inspections must be conducted on foot, and should not cause any disturbance to HC residents, resident property, or structures. Each monthly inspection will be conducted by HC or their third party consultant. More frequent inspections may be required after periods of torrential rain, earthquakes, or if unauthorized digging or other soil disturbance is observed by, or reported to HC. The inspections will be conducted based on the procedures provided in SOP #01 (Appendix A).

3.4.1 Soil Berm Inspections

Inspections and maintenance procedures for the soil berm used to manage PI soil is presented in the *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms (LTMP)*[5]. A copy of the *LTMP* is provided in Appendix E2 of the *EHMP*. It is important to note that soil berms used to manage PI soil at HC should not be excluded from monitoring, and any areas of exposed soil observed during monthly visual inspections of HC property must be included in the monthly inspection logs.

3.5 Emergency Response

Underground utilities including water mains, sewer lines and irrigation piping are installed at HC. A rupture in these underground utilities will require an emergency response. If these ruptures are observed during inspections, the following guidelines apply:

- Treat the soil in the rupture zone as PI soil;
- Notify the HC EPOC;
- If the health and safety of HC workers, residents, and guests may be at risk, contact the installation fire department or 911 immediately;
- Secure the site as possible; and
- Do not touch soil or attempt to repair any damage.

During an emergency response, HC primary concern is the health and safety of HC workers, residents, and guests. If the public safety is at risk, the installation fire department and/or 911

[5] (Tetra Tech 2011)

will be contacted immediately, followed by the HC EPOC (Table 1-1). More detailed information on emergency response related to PI soil is provided in the HC *Land Use Controls Inventory Document (LUCID)*[6].

[6] (Tetra Tech 2012c)

4.0 DOCUMENTATION AND REPORTING

During monthly inspections of HC property, HC staff (or the third party consultant) will record their observations in a monthly inspection log. A separate log will be prepared for each HC neighborhood based on the maps provided in Appendix A of the *EHMP*. Each log will indicate the neighborhood and date inspected, and any backup information including descriptions, sketch maps, and photographic documentation. Any areas of unauthorized soil disturbance or damage to landscaping identified during the monthly inspections requiring a corrective action should be listed on the Corrective Action Worksheet, provided in SOP 02. The Corrective Action Worksheet will provide the location of areas (if any) where disturbed soil or damaged and/or worn landscaping are observed.

The HC staff or third party consultant will provide the monthly inspection report to the HC EPOC within one week of completed inspections. This report will include all field notes, sketch maps, photographic documentation, and the Corrective Action Worksheet (SOP #02).

Please note: The EPOC must be notified the within 24 hours via email of any areas requiring corrective actions.

4.1 Corrective Action Reporting

Areas on HC property requiring corrective actions identified during monthly inspections will be recorded in the Corrective Action Worksheet provided in SOP #2. Corrective actions would include repair to areas of areas of disturbed soil (including re-installation of landscaping) or repair / replacement of damaged landscaping.

Areas requiring corrective actions must be re-inspected to verify the action has been resolved. A copy of the Corrective Action Worksheet should be updated during monthly inspections, and the status of the action, and if it has been successfully resolved provided in the updated worksheet. The EPOC will provide any backup information regarding delays in corrective action resolution. These delays may be caused by inclement weather or by the extent of the soil disturbance or damage to landscaping and/or infrastructure.

4.2 Quarterly Reports to HDOH

In accordance with this *EHMP*, HC will monitor their property through monthly inspections. The soil berm will be inspected on a quarterly basis[7]. To meet the reporting requirements, the results of these inspections will be provided to HDOH on a quarterly basis by the HC Environmental Point of Contact (EPOC) (Table 6-1). Reports will be submitted to HDOH within 30 days quarterly end: January 30, April 30, July 30, and October 30.

The quarterly report to HDOH will be provided in a letter-style format. The quarterly report will provide a summary of the:

- Monthly inspections,
- Corrective actions and status; and

[7] (Tetra Tech 2011b and 2011c)

- Planned, ongoing, and completed redevelopment and renovation activities at HC.

The appendices to the quarterly report will include the monthly inspection logs with descriptions, locations of areas requiring corrective actions, and diagrams. Photographic documentation will be provided, as needed to indicate the extent of any areas of unauthorized soil disturbance. Also provided will be a Corrective Action Worksheet which tracks the corrective actions identified during the monthly inspections. This worksheet will indicate the status of the corrective actions and the date an action is resolved.

5.0 REFERENCES

Tetra Tech. 2011. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2626001.0003.D03. Prepared for Hickam Communities LLC. July 2011.*

_____. 2012a. *Remedial Alternatives Analysis, Hickam Communities Remedial Action Site*. DCN: 2653505.0003.D06. Prepared for Hickam Communities LLC. March 14, 2012.

_____. 2012b. *Draft Remedial Action Memorandum, Hickam Communities Remedial Action Site, Joint Base Pearl Harbor-Hickam, Hawai'i*. *DCN: 2653505.0005.D01.* Prepared for Hickam Communities LLC. March 15, 2012.

_____. 2012c. *Land Use Controls Inventory Document, Hickam Communities Neighborhoods, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2884201.0001.D03.* Prepared for Hickam Communities LLC. March 20, 2012.

_____. 2012d. *Environmental Hazard Management Plan, Hickam Communities Property, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2883401.0002.D04.* Prepared for Hickam Communities LLC. March 30, 2012.

APPENDIX A

Standard Operating Procedures

SOP #01: Visual Inspection of HC Property
SOP #02: Documentation and Reporting

SOP # 01: Visual Inspection of Hickam Communities Property

Original Issue Date: March 30, 2012 **Revision Date:** 0

Scope and Application:

As part of the long-term monitoring plan implemented for Hickam Communities (HC) property, monthly inspections of the open areas are required. The open areas include yards and parks, and the common areas around the residential homes and support facilities (e.g. Community Center, pool, Hickam Communities Housing Office, etc.). The purpose of these investigations is to identify, document, and initiate corrective actions where potential pesticide-impacted (PI) soil is exposed on HC property due to unauthorized soil disturbance or damage to landscaping. For more information on PI soil at HC, please see the *Environmental Hazard Management Plan (EHMP)* (Tetra Tech 2012a).

Inspections of HC property must be conducted on foot, and should not cause any disturbance to HC residents, resident property, or structures. The standard operating procedures (SOPs) for inspection documentation and reporting requirements are provided in SOP #02.

Soil Berm. There is a soil berm located in the Earhart I-2 neighborhood that contains PI soil beneath a 2-foot clean soil cap. There is a marker layer of orange geotextile fabric beneath the clean soil cap. Even though this berm is monitored quarterly and maintained in accordance with the *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm (LTMP)* (Tetra Tech 2011), it should not be excluded from the monthly inspections. Any areas of exposed or disturbed soil on the berm should be recorded in the inspection log and reported to the HC EPOC within 24 hours. If orange geotextile fabric is visible, contact the HC EPOC immediately.

Procedure/Method:

The purpose of this SOP #01 is to provide a general guideline for conducting visual inspections of HC property. Due to the potential of exposure to PI soil, the staff conducting the inspections should not attempt to make any repairs to damaged areas.

- Visual inspections of HC property will be conducted on a monthly basis by HC or their third party consultant.
- The staff conducting the inspection must have completed the PI soil awareness training required by HC.
- The staff conducting the inspections will coordinate with the HC Environmental Point of Contact (EPOC) prior to conducting inspections.
- Each HC neighborhood will be inspected based on the maps provided in Appendix A of the EHMP. An inspection log will be prepared for each neighborhood in accordance with SOP #02.

- Corrective actions will be tracked in the Corrective Action Worksheet provided in SOP #02.

Procedure

1. Walk around common areas and around the homes in each neighborhood. Note the general appearance of the landscaping (dry, stressed, healthy) in the inspection log. Do not enter resident yards; please make observations from outside fences or other barriers. If entry into a yard is necessary, please contact the HC EPOC to arrange access.
2. The purpose of the inspections is to identify areas that will require corrective actions. Examples of what to look for:

    - Obviously disturbed and exposed soil;
    - Unauthorized cultivation or disturbance of soil;
    - Exposed orange geotextile fabric;
    - Exposed or ruptured irrigation piping;
    - Areas of damaged landscaping (uprooted trees or bushes);
    - Worn lawn with exposed soil; and/or
    - Ponded water that may be drowning landscaping and/or creating mud.

3. If an area of disturbed soil is encountered and orange geotextile fabric is visible – and there is no indication that the site is a secured work area (signage, fencing), ***CONTACT THE HC EPOC IMMEDIATELY***.
4. If unauthorized gardens or evidence of digging is observed in resident yards, do not attempt to contact the resident. Record the address in the inspection log and notify the HC EPOC within 24 hours.
5. Record your observations in the inspection log provided in SOP #02. Please remember to record your observations “neatly and completely”.

Corrective Action Identification and Tracking

Corrective actions require follow up repairs to the affected area. Please be very specific when recording corrective actions in the Corrective Actions Worksheet provided in SOP #02. Equally important is verification that a corrective action has been resolved for reported areas.

During monthly inspections:

- Review the Corrective Action Worksheet before starting a monthly inspection;
- Note neighborhoods with corrective actions reported from the previous month;
- Be sure to locate these areas and record whether or not the damage has been repaired; and
- Notify the EPOC if corrective actions have not been resolved.

Required Documents & Permits:

Inspection Log and any associated records, Corrective Action Worksheet.

Recordkeeping and Data Tracking:

Following the completion of the visual inspection, a brief letter report will be prepared for submittal to the HC EPOC. This letter report will summarize that month's inspections/corrective actions and appendices to include copies of the inspection records, photographic documentation and photo log, the updated Corrective Action Worksheet, and any other information regarding the condition of the HC property. This letter report will be provided to the HC EPOC within 5 days of completing the monthly inspections. Please see SOP #02 for specific instructions on documentation and reporting.

References:

Tetra Tech. 2011. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i. DCN: 2626001.0003.D03.* Prepared for Hickam Communities LLC. July 2011.

_____. 2012. *Environmental Hazard Management Plan, Hickam Communities Property, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2883401.0002.D04.* Prepared for Hickam Communities LLC. March 30, 2012.

SOP # 02: Documentation and Reporting

Original Issue Date: March 30, 2012 **Revision Date:** 0

Scope and Application:

As part of the long-term monitoring plan implemented for Hickam Communities (HC) property, monthly inspections are required for the open areas, including yards and parks, and the common areas around the residential homes. The purpose of these investigations is to identify, document, and initiate corrective actions where potentially pesticide-impacted (PI) soil may be exposed on HC property due to unauthorized soil disturbance or damage to landscaping at HC. For more information on soil at HC, please see the *Environmental Hazard Management Plan (EHMP)* (Tetra Tech 2012a).

Equally important as the inspections, is the accuracy and completeness of the documentation for the inspections and the subsequent reporting requirements. The procedures for inspections are provided in SOP #01, and the procedures for documentation and reporting are provided in this standard operating procedure (SOP).

During inspections, please remember to record all of your observations "neatly and completely"!

Procedure/Method:

The purpose of this SOP #02 is to provide general guidelines for documenting the visual site inspections conducted in accordance with SOP #01, and to prepare quarterly reports for the Hawai'i Department of Health (HDOH). Quarterly reports will only be submitted to HDOH by the HC Environmental Point of Contact (EPOC).

Documentation

Inspection Records. Monthly inspections must be thoroughly documented. These inspection records will include photographic documentation with a detailed photo log as needed. A template for the inspection log in provided in Appendix A. The documentation will recorded in the inspection log as described below.

- Date and time of inspection;
- Location / Neighborhood of inspection;
- Name of person conducting inspection with contact information;
- General weather conditions (rain, wind etc.);
- General observations of the condition of the neighborhood (i.e. stressed vegetation, ponded water, etc.);
- Sketch map indicating any area(s) of requiring a corrective action (are areas marked on a printed GIS map of the neighborhood); and

- Photo log of any photographs captured during the inspections.

Corrective Action Worksheet. Any areas identified during the monthly inspections requiring corrective actions (see SOP 01) must be recorded in the Corrective Action Worksheet. Further, any previous corrective action areas that have either been resolved, or are still pending must also be recorded in the Corrective Action Worksheet. The best way to keep the Corrective Action Worksheet up-to-date, is to create the worksheet as an Excel file that can be continuously updated. The template for the Corrective Action Worksheet is provided in Appendix A. The Corrective Action Worksheet is laid out as follows:

- Neighborhood;
- Date of inspection;
- Corrective Action type and extent (soil disturbance or landscaping damage);
- Date of re-inspection;
- Corrective action status; and
- Notes.

Reporting:

Monthly Inspection Logs. The monthly inspection logs must be reported in a letter-style format. The letter report will summarize that month's inspections/corrective actions and appendices to include copies:

- Inspection logs;
- photographic documentation and photo logs;
- updated Corrective Action Worksheet; and
- Other information regarding the condition of the HC property.

The monthly inspection report must be transmitted to the HC EPOC via email within 5 business days of the completion of the inspections.

Quarterly Reports. The quarterly report is prepared for submittal to HDOH. The quarterly report to HDOH will be provided in a letter-style format. The quarterly report will provide a summary of the:

- Monthly inspections,
- Corrective actions and status; and
- Planned, ongoing, and completed redevelopment and renovation activities at HC.

of monthly inspections and corrective action identification and status (resolved or pending resolution). Copies of the monthly inspection logs will be provided as an appendix to the quarterly report.

- Quarterly reports will be submitted to the HDOH Remedial Project Manager by the HC EPOC within 30 days of quarter end: January 30, April 30, July 30, and October 30.

- Draft quarterly reports must be submitted to the HC EPOC for review at least 3 days before transmittal to HDOH.

References:

Tetra Tech. 2012. *Environmental Hazard Management Plan, Hickam Communities Property, Joint Base Pearl Harbor-Hickam, Hawai'i. DCN: 2883401.0002.D04*. Prepared for Hickam Communities LLC. March 30, 2012.

APPENDIX A

INSPECTION LOG AND CORRECTIVE ACTION LOG TEMPLATES

HC INSPECTION LOG	DATE:	PAGE ____ of _____

Name:	Affiliation:

HC NEIGHBORHOOD:

TIME	ADDRESS / LOCATION	DESCRIPTION

COMMENTS / COMMUNICATIONS:

SIGNATURE OF FIELD REPRESENTATIVE:

_____

DATE:

HC PHOTO LOG	DATE:	PAGE ____ of _____

Name:	Affiliation:

HC NEIGHBORHOOD:

TIME	PHOTO #	ADDRESS / LOCATION	DESCRIPTION

SIGNATURE OF FIELD REPRESENTATIVE:

_____

DATE:

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
HALE NA KOA							
Hale Na Koa I-1							
Hale Na Koa Minor Renovations							
EARHART VILLAGE							
Earhart I-1							
Earhart I-2							
Earhart I-3							
Earhart I-4							
Earhart Village Park II-1							
Earhart Village Park II-4							
ONIZUKA VILLAGE							
Onizuka II-1							
Onizuka II-2							
Onizuka II-3							
Challenger Loop							
HISTORIC HOMES DISTRICT							
FO3 Block (Phase II-2)							
FO5 Block (Phase II-2)							
FO7 Block (Phase II-2)							

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
JNCO1 (Phase II-2)							
JNCO2 (Phase II-2)							
JNCO3 (Phase II-2)							
JNCO4 (Phase II-2)							
JNCO9 (Phase II-2)							
JNCO10 (Phase II-2)							
SNCO1 (Phase II-2)							
SNCO2 (Phase II-2)							
FO1 Block (Phase II-3)							
FO4 Block (Phase II-3)							
FO8 (Apt) (Phase II-3)							
FO9 Block (Phase II-3)							
JNCO7 (Phase II-3)							
FO2 Block (Phase II-4)							
FO6 Block (Phase II-4)							
FO10 Block (Phase II-4)							
FO11 Block (Phase II-4)							

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
JNCO5 (Phase II-4)							
JNCO6 (Phase II-4)							
JNCO8 (Phase II-4)							
SOQ/GOQ 1 (Phases II-2 through II-4)							
SOQ/GOQ 2 (Phases II-2 through II-4)							
SOQ/GOQ 3 (Phases II-2 through II-4)							

HC INSPECTION LOG	DATE:	PAGE ____ of _____

Name:	Affiliation:

HC NEIGHBORHOOD:

TIME	ADDRESS / LOCATION	DESCRIPTION

COMMENTS / COMMUNICATIONS:

SIGNATURE OF FIELD REPRESENTATIVE:

_____

DATE:

HC PHOTO LOG	DATE:	PAGE ____ of _____

Name:	Affiliation:

HC NEIGHBORHOOD:

TIME	PHOTO #	ADDRESS / LOCATION	DESCRIPTION

SIGNATURE OF FIELD REPRESENTATIVE:

_____

DATE:

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
HALE NA KOA							
Hale Na Koa I-1							
Hale Na Koa Minor Renovations							
EARHART VILLAGE							
Earhart I-1							
Earhart I-2							
Earhart I-3							
Earhart I-4							
Earhart Village Park II-1							
Earhart Village Park II-4							
ONIZUKA VILLAGE							
Onizuka II-1							
Onizuka II-2							
Onizuka II-3							
Challenger Loop							
HISTORIC HOMES DISTRICT							
FO3 Block (Phase II-2)							
FO5 Block (Phase II-2)							
FO7 Block (Phase II-2)							

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
JNCO1 (Phase II-2)							
JNCO2 (Phase II-2)							
JNCO3 (Phase II-2)							
JNCO4 (Phase II-2)							
JNCO9 (Phase II-2)							
JNCO10 (Phase II-2)							
SNCO1 (Phase II-2)							
SNCO2 (Phase II-2)							
FO1 Block (Phase II-3)							
FO4 Block (Phase II-3)							
FO8 (Apt) (Phase II-3)							
FO9 Block (Phase II-3)							
JNCO7 (Phase II-3)							
FO2 Block (Phase II-4)							
FO6 Block (Phase II-4)							
FO10 Block (Phase II-4)							
FO11 Block (Phase II-4)							

Hickam Communities LLC
Corrective Action Worksheet
Long-Term Monitoring Plan For Hickam Communites Property

Neighborhood	Date Inspected	Exposed Soil Observed		Address / Location	Date Re-Inspected	Resolved	Notes
		Soil Disturbance / Description	Landscaping Damage / Description			yes / no	
JNCO5 (Phase II-4)							
JNCO6 (Phase II-4)							
JNCO8 (Phase II-4)							
SOQ/GOQ 1 (Phases II-2 through II-4)							
SOQ/GOQ 2 (Phases II-2 through II-4)							
SOQ/GOQ 3 (Phases II-2 through II-4)							

APPENDIX E2
Long-Term Maintenance Plan: Pesticide-Impacted Soil Berms

TETRA TECH

DRAFT

100-SFO-T26260-01

Long-Term Maintenance Plan For Pesticide-Impacted Soil Berms

Permanent Soil Management Berm
Earhart I-2 Neighborhood
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

July 15, 2011

complex world CLEAR SOLUTIONS™

DRAFT

Long-Term Maintenance Plan For Pesticide-Impacted Soil Berms

Permanent Soil Management Berm
Earhart I-2 Neighborhood
Joint Base Pearl Harbor-Hickam
Oʻahu, Hawaiʻi

Prepared for

Hickam Communities, LLC

211 Mercury Street
Joint Base Pearl Harbor-Hickam
Honolulu, Hawaiʻi 96818

Prepared by

Tetra Tech

737 Bishop Street, Suite 3020
Honolulu, Hawaiʻi 96813
(808) 533-3366
Fax: (808) 533-3306
Tetra Tech Project No. 100-SFO-T26260-01

DCN: 2626001.0003.D03

July 15, 2011

Hickam Communities LLC

LONG-TERM MAINTENANCE PLAN
PESTICIDE-IMPACTED SOIL BERMS

PERMANANENT SOIL MANAGEMENT BERM
EARHART I-2 NEIGHBORHOOD
JOINT BASE PEARL HARBOR-HICKAM
OʻAHU, HAWAIʻI

July 15, 2011

DCN: 2626001.0003.D03

Reviewed by: _____ _____
Gail Eaton, PG — Date
Senior Geologist
Tetra Tech

Reviewed by: _____ _____
Yvonne Parry — Date
Senior Project Manager
Tetra Tech

Reviewed by: _____ _____
Grant Arnold — Date
Assistant Environmental Manager
Environmental Point of Contact
Hickam Communities

Reviewed by: _____ _____
Mladena Yankova — Date
Development Manager
Hickam Communities

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF APPENDICES

ACRONYMS, ABBREVIATIONS, AND DEFINITIONS

berms	berms are intentionally constructed permanent piles of soil that are above grade and are generally linear in shape.
borrow pit	A borrow pit is a source/storage area for clean fill material.
building footprint	The exposed soil within the footprint of a recently removed concrete building slab.
building zone	The 3-foot zone of soil around the perimeter of the building footprint (formerly referred to as the "buffer").
burial pit	A burial pit is designed for permanent management of pesticide-impacted soil.
CY	cubic yards
EAL	environmental action level
EPA	US Environmental Protection Agency
EPOC	environmental point of contact
GIS	geographical information system
GPS	global positioning system
HC	Hickam Communities, LLC, the "Project Company"
HDOH	Hawai'i Department of Health
Lend Lease	Lend Lease Americas LLC
LTMP	Long-Term Maintenance Plan
LUCID	*Land Use Controls Inventory Document*
mg/kg	milligrams per kilogram
mounds	mounds are intentionally constructed permanent piles of soil that are above grade, and are generally circular in shape.
msl	mean sea level
permanent soil management area	permanent soil management areas include burial pits, berms, or mounds where PI soil is placed for long-term management
PI	pesticide-impacted
PI soil	Pesticide-impacted soil is defined as soil within HC property boundaries having one or more of the organochlorine pesticides technical chlordane, aldrin, and dieldrin detected at concentrations exceeding the 1×10^{-4} cumulative risk threshold, or an Hazard Index of 1.
Project Company	Company formed in partnership between the US Air Force and Lend Lease Americas LLC to manage residential property on Joint Base Pearl Harbor-Hickam O'ahu, Hawai'i
Program Manual	*Pesticide-Impacted Soil Investigation and Management Manual*
SOP	standard operating procedure
SMP	soil management plan

1.0 INTRODUCTION

This site-specific Long-Term Maintenance Plan (LTMP) for pesticide-impacted (PI) soil berms was prepared on behalf of Hickam Communities, LLC (HC) for work being conducted at the Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam (JBPHH), O'ahu, Hawai'i (hereinafter the "Site") (Figure 1). Procedures presented in this LTMP are for a maintenance program for the soil berm constructed at the Site for permanent management of PI soil. The guidance for the PI soil management and berm construction was presented in the site-specific *Soil Management Plan for Pesticide-Impacted Soil Berms, Earhart I-2 Neighborhood* (SMP) (Tetra Tech 2011b). Additional information about PI soil at the Site, and on HC property is presented in the SMP and the HC *Pesticide-Impacted Soils Investigation and Management Manual* (Program Manual; Tetra Tech 2009). The Program Manual provides specific information about the organochlorine pesticides that are present in PI soil. In 2011, new Tier 2 Environmental Action Levels (EAL) for the organochlorine pesticides aldrin and dieldrin and a new cumulative risk threshold of 1×10^{-4} were established for HC, which is referred to as the "2011 Standard". The development of the 2011 Standard is presented in the *Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities, Joint Base Pearl Harbor-Hickam, O'ahu, Hawai'i* (HHRE) (Tetra Tech 2011c).

The purpose of this LTMP is to prevent exposure of HC workers, residents, and guests to PI soil managed within PI soil berms by providing an easily implementable maintenance program to ensure the long-term integrity of the in-ground orange geotextile marker-layer, the 2-foot clean soil cap, and landscaping installed over PI soil in the berms. Procedures for inspecting, maintaining, and preparation and tracking of related documentation are provided in the LTMP.

1.1 Pesticide-Impacted Soil Management Background

Past investigations indicate that PI soil on HC property is commonly present within the footprint of removed concrete building slabs and the 3-foot building zone around the perimeter of each building slab; open areas (OA) generally do not contain PI soil. Starting in 2006, soil management at HC property consisted of placement of PI soil under hardscapes (new building foundations, roads, sidewalks, and driveways), or into utility trenches at the Site (Tetra Tech 2006). Following implementation of the Program Manual in 2009 (Tetra Tech 2009), PI soil management included placement under hardscapes, and leaving the PI soil in-place or placing the PI soil in burial pits. For PI soil left in place or placed in burial pits, the PI soil is capped, whereby PI soil is backfilled to 1-foot below planned grade, covered with a marker layer of in-ground orange geotextile fabric, and subsequently capped with 1-foot of certified clean fill.

Recently, the use of above ground soil berms was added as an additional option to manage the remaining PI soil that will be generated at HC during the remainder of the project (Tetra Tech 2011a).

1.2 Site Background

The Site is a new housing development constructed between 2005 and 2009. Prior to construction of the housing in this new neighborhood, the previous older neighborhood was demolished and the Site graded and prepared for construction. Due to historic use of organochlorine pesticides as a termiticide in older housing developments, the Site was

investigated and PI soil was managed. Management of PI soil at the Site was conducted in accordance with the *Management Plan for Pesticide Impacted Soils* (MPPIS) (Tetra Tech 2006). However, recent soil investigations indicate that PI soil remains present within the upper 1-foot of soil at the Site (Tetra Tech 2011b). The management of the pre-existing PI soil at the Site will be addressed under a separate Soil Management Plan.

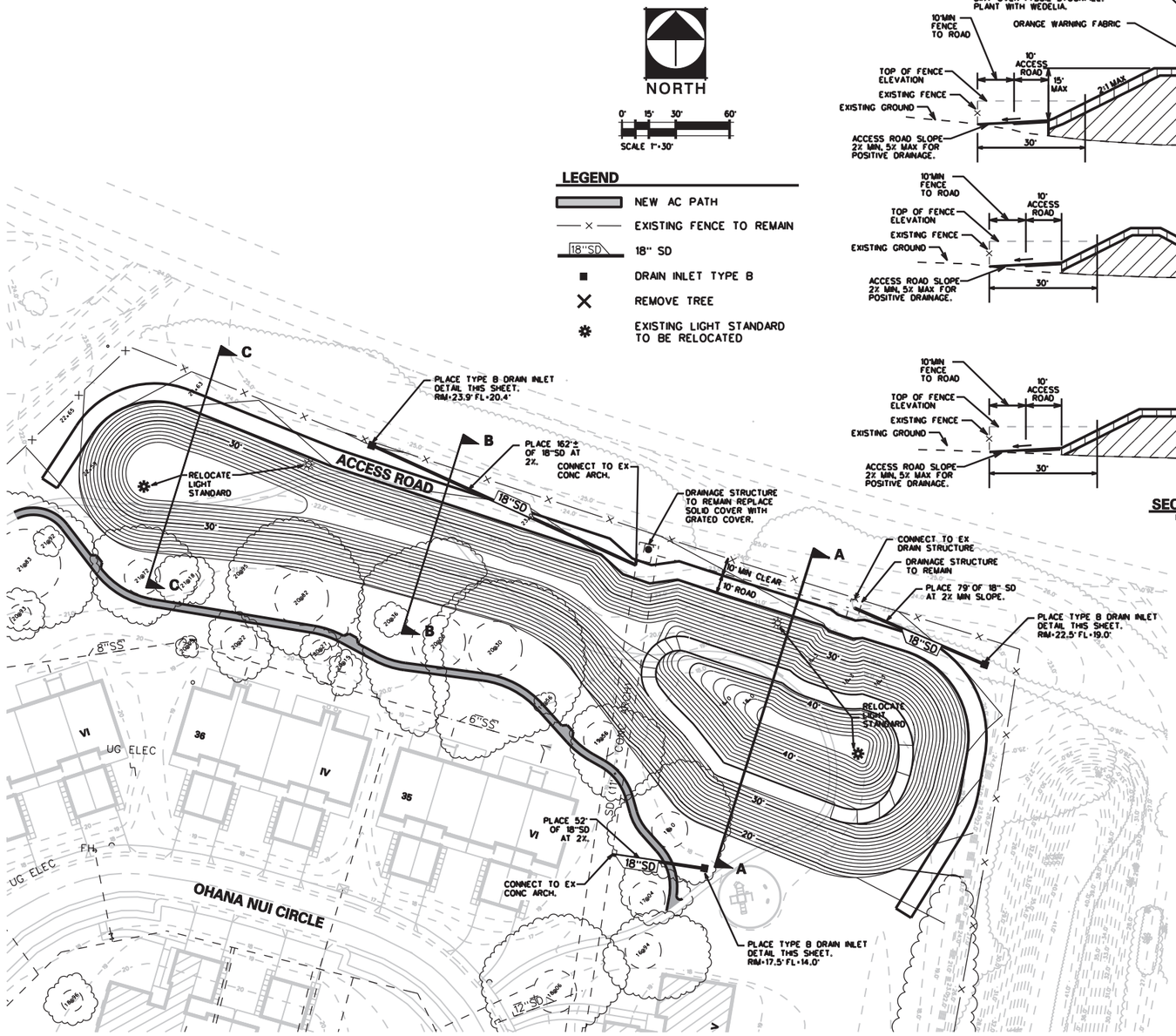
This LTMP covers the maintenance of PI soil from various sources from within the HC property boundary that was imported and added on top of the existing grade to form PI soil mounds and/or berms for long-term PI soil management.

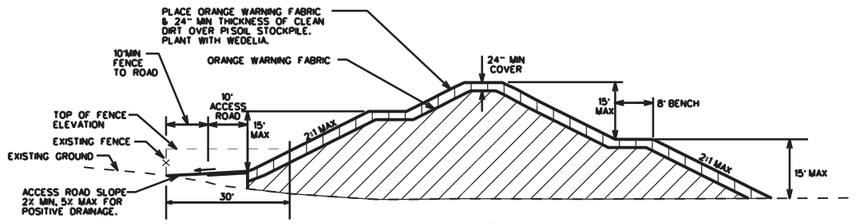
1.3 Points of Contact

The primary point of contacts for berm maintenance and repair are provided in Table 1.

Table 1. Points of Contact HC Project Sites (as of July 2011)

Name	Title/Affiliation	Phone / Email
Mladena Yankova	Development Manager, HC	Office: (808) 853-3758 Email: mladena.yankovakukin@lendlease.com
Grant Arnold	Assistant Environmental Manager, HC Environmental Point of Contact, Lend Lease	Cell: (808) 343-2134 Email: grant.arnold@lendlease.com

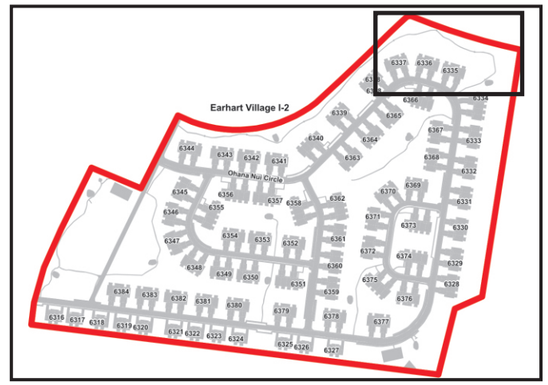


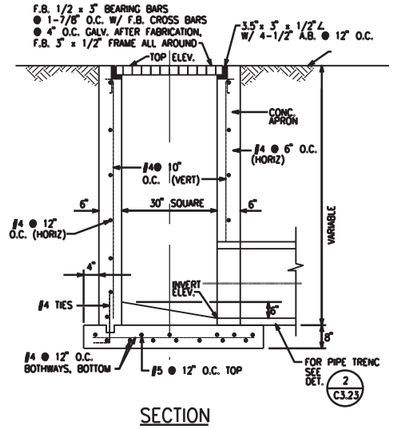


SECTION A-A
NO SCALE

SECTION C-C
NO SCALE

NOTE:
STOCKPILE CAPACITY 15,500± CUBIC YARDS OF PISOILS AND 4,000 CY CLEAN SOILS.





SECTION

Proposed Berm Location at Earhart I-2 Neighborhood

Joint Base Pearl Harbor-Hickam O'ahu, Hawai'i

Earhart Village I-2

Hardscapes

TETRA TECH

Figure 1

Source: KASL March 2011

r:\new\27958\Corel\Proposed Berm Location.cdr - 07/14/11 - YE

2.0 LONG-TERM BERM MAINTENANCE PROCEDURES

At HC property, berming of PI soil is being implemented as a long-term soil management option. The berms are constructed using PI soil, which are then covered in the following order by: (1) in-ground orange marker layer of geotextile fabric; (2) a minimum 2-foot clean soil cap: and (3) topsoil and landscaping consisting of a fairly dense ground cover plant. To prevent exposure of HC workers, residents, and guests to PI soil managed within PI soil berms, these berms must be maintained to ensure the long-term integrity of the geotextile marker-layer, the clean soil cap, and landscaping installed over PI soil in the berms (Tetra Tech 2011b).

2.1 Potential Causes of Berm Damage

Damage to PI soil berms may be the result of several factors all of which may result in exposure of the PI soil managed within the berm. These factors include damage due to either natural or man-made causes as described in the following sections.

2.1.1 Natural Causes

Natural causes of berm damage include adverse weather and earthquakes. Torrential rain may create rivulets and fissures in the berm. Saturation of the berm by torrential rain may also result in slumping or sliding of the soil used to construct the clean soil cap. Due to volcanic activity in Hawai‘i, earthquakes may occur and cause destabilization of the berm cap and potentially expose PI soil. Earthquakes may also cause ruptures in underground utilities or landscape piping installed beneath or within the berm creating fissures in the berm cap and exposing PI soil.

2.1.2 Man-Made Causes

Man-made causes of berm damage would include unauthorized digging or other soil disturbance, rupture of underground utilities or irrigation piping, and any other maintenance or landscaping activities that may result in exposure of the PI soil managed within the berm.

2.2 Standard Operating Procedures

Standard Operating Procedures for the LTMP have been developed to provide easily implemented guidance for all aspects of berm maintenance. These SOPs are listed below and present in Appendix A.

- SOP #01: Visual Inspection of Pesticide-Impacted Soil Berms
- SOP #02: Preventative Maintenance of PI Soil Berms
- SOP #03 Emergency Response

2.3 Quarterly Visual Inspections

The soil berm at the Site will be inspected on a quarterly basis. Each quarterly inspection will be conducted by HC or their third party consultant. More frequent inspections of the PI soil berms may be required, after periods of torrential rain, earthquakes, or if unauthorized digging or other soil disturbance on the berm is observed by, or reported to HC. The inspections will be conducted based on SOP #01 (Appendix A).

2.4 Preventative Maintenance

Routine preventative maintenance of PI soil berms combined with engineering and procedural controls presented in the Program Manual (Tetra Tech 2009) and the site-specific SMP (Tetra Tech 2011a) are critical for reducing the potential for exposure of HC workers, residents, and guests to PI soil. HC maintenance staff will conduct preventative maintenance of PI soil berms. Preventative maintenance procedures for the Site are summarized here, and provided in SOP #02 (Appendix A).

2.4.1 Scheduled Maintenance

The PI soil should be maintained on an established schedule that is independent of the visual inspections presented in Section 2.3 and SOP #01. Examples of scheduled maintenance for the berm include:

Irrigation Piping. Irrigation piping should be regularly inspected and tested, preferably during routine landscape maintenance activities. The berm will not be fenced and HC residents will have access to the berm for recreational activities. Due to these activities, sprinkler heads may be damaged. The loss of a sprinkler head can produce a high-pressure stream of water that can create fissures in the clean soil cap.

Landscaping. Healthy landscaping is an important part of creating a barrier to PI soil, and stabilizing the clean soil cap. Landscaping should be regularly maintained and kept free of any opportunistic plant species that may not provide adequate soil coverage, or pests that may cause damage to the berm landscaping. Recreational activities by HC residents and guests could inadvertently damage or stress vegetation on the berm. Areas of damaged or stressed landscaping should be replaced immediately.

2.4.2 Updated Maps for Underground Utilities

Maps providing the location of buried underground utilities either within or beneath the PI soil berm must be accessed prior to conducting any soil disturbing work on the berm. Although not anticipated, due to relocation of utilities work at the berm site can become problematic for maintenance crews who may be conducting soil disturbing work at the Site. Maintenance workers must coordinate with the HC EPOC prior to conducting soil disturbing work. The HC EPOC will have access to updated maps and other information.

2.5 Emergency Response

Emergency response actions may require access to underground utilities running beneath PI soil berms, or irrigation piping installed within PI soil berms. Access to utility lines and piping would be triggered by a rupture in water lines or sewer line breaks, or landscaping irrigation lines. During emergency response actions where soil must be disturbed the following guidelines apply:

- Treat the soil in the repair zone as PI soil;
- Notify the HC EPOC and Development Manager;
- If the health and safety of HC workers, residents, and guest may be at risk, contact the installation fire department or 911 immediately;
- Implement the repair and manage the soil as PI soil.

A SOP for emergency response actions (SOP #02) is provided in Appendix A, and summarized below.

2.5.1 Repair Implementation / Soil Management

Since soil disturbed during emergency repairs at a PI soil berm is assumed to be, and managed as PI soil, any soil removed during an emergency response action will be stockpiled on plastic sheeting or tarps, and not placed directly on landscaped lawns, paved parking areas and sidewalks, or exposed soil in the work area. When implementing emergency repairs, especially during water or landscaping irrigation line breaks, PI soil mixed with water generated from a water line (or similar) break, must be prevented from leaving the emergency repair zone. Shutting off supply lines at the main access valve and placement of straw or compost filter socks, silt fencing, and/or rock berms as needed to prevent water and PI soil from running into storm drains is the first priority.

At all times during emergency repairs, responders must don appropriate PPE. Until the emergency work area is verified as a non-PI soil area, responders must avoid inadvertently distributing PI soil through production of excessive dust, or tracking of PI soil either by shoes, or on vehicle tires. Any soil stockpiled during excavation of supply lines must be managed as PI soil in accordance with the Program Manual.

Following repairs, any stockpiled soil will be placed back into the berm and the geotextile marker layer, 2-foot of clean soil cap, and topsoil and landscaping re-installed. The landscaping will be replaced and the repair work documented in daily logs; which will be prepared and provided to HC according to SOP #1 (Appendix A).

2.5.2 Emergency Notifications

During emergency repairs, HC primary concern is the health and safety of HC workers, residents, and guests. If the public safety is at risk, the installation fire department and/or 911 will be contacted immediately, followed by the HC Development Manager and the HC EPOC (Table 1).

In cases where emergency repairs are required but do not immediately threaten public safety; the responders to the emergency will immediately contact the HC Development Manager and the HC EPOC.

2.6 Land Use Controls Inventory Document

Currently, HC is developing a *Land Use Controls Inventory Document (*LUCID) to document and monitor the location of PI soil left in place on HC property, including burial pits and PI soil berms. The LUCID is continuously updated and contains a GIS database, maps, survey results, and reports that indicate the location of PI soil on HC property and is anticipated by the end of 2011. Until the LUCID is completed, all maintenance and soil disturbing work on PI soil berms will be coordinated with the HC EPOC (Table 1).

3.0 DOCUMENTATION AND REPORTING

3.1 Visual Inspections

The HC staff or third party consultant conducting the quarterly visual inspections (and any additional inspections that may be required) will provide documentation of the inspection to the HC EPOC. This documentation will consist of a report that will include a cover letter detailing the findings of the inspection, in particular whether areas on the berm require repair, and copies of the field inspection records, photographic documentation, and photo log. Procedures for conducting and documenting the visual inspections in provided in SO #01 (Appendix A).

3.2 Preventative Maintenance

HC maintenance staff will contact the HC EPOC immediately if ruptures are observed during maintenance of the PI soil berms. Documentation of preventative maintenance will be provided to the HC EPOC and will consist of detailed maintenance which should include detailed descriptions of any obvious ruptures in the irrigation system, or large areas of stressed or dead landscaping or exposed soil on the berm; and their specific locations on the berm.

3.3 Emergency Response Actions

Following completion of emergency repairs, documentation of the repair, and any follow up inspections, will be presented in a letter report to include copies of the field records/daily logs photographic documentation and photo log, and any follow up inspection documentation. This report will be provided to the HC EPOC (Table 1). Procedures for preparing documentation are provided in SOP #01 (Appendix A).

4.0 REFERENCES

HDOH (Hawai‘i Department of Health). 2009. *HDOH Environmental Action Levels, Supplemental Models in Excel Format, EAL Surfer. March 2009*. Accessed at internet website URL: http://hawaii.gov/health/environmental/hazard/eal2005.html

Tetra Tech. 2009. *Pesticide-Impacted Soils Investigation and Management Program Manual*. Prepared for Hickam Communities, LLC. May.

Tetra Tech. 2011a. *Subject: Review of Berms as a Long-Term Pesticide Impacted Soil Management Option at Hickam Communities Neighborhoods, Joint Base Pearl Harbor-Hickam, O‘ahu, Hawai‘i. DCN: 2626001.001.D01*. Memorandum from Tetra Tech to Hickam Communities LLC. April 22, 2011.

Tetra Tech. 2011b. *Soil Management Plan for Pesticide-Impacted Soil Berms, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, O‘ahu, Hawai‘i. DCN: 2626001.0002.D03.* Prepared for Hickam Communities LLC. July 2011.

Tetra Tech. 2011c. *Preliminary Human Health Risk Evaluation Work Plan for Hickam Communities, Joint Base Pearl Harbor-Hickam, O‘ahu Hawai‘i*. DCN: 2653504.021.D01. Prepared for Hickam Communities LLC. May 13, 2011.

APPENDIX A

SOP # 01: Visual Inspection of Pesticide-Impacted Soil Berms

Original Issue Date: April 2011 **Revision Date:** July 15, 2011

Scope and Application:

At Hickam Communities LLC (HC) property, berming of pesticide-impacted (PI) soil is being implemented as a long-term soil management option. The berms are constructed using PI soil, which are then covered in the following order by: (1) in-ground orange marker layer of geotextile fabric; (2) a 2-foot clean soil cap: and (3) topsoil and landscaping consisting of a fairly dense ground cover plant. To prevent exposure of HC workers, residents, and guests to PI soil managed within PI soil berms, these berms must be inspected on a minimum quarterly basis to ensure the long-term integrity of the geotextile marker-layer, the clean soil cap, and landscaping installed over PI soil in the berms. The results of the inspections will be provided to the HC Environmental Point of Contact (EPOC). (Tetra Tech 2011)

More frequent inspections of the PI soil berms may be required, especially after periods of torrential rain, or if unauthorized digging on the berm is observed by, or reported to HC. Based on the criteria presented in the Procedures/Methods section of this SOP #1.

IF OBVIOUS BREACHES TO A PI SOIL BERM ARE OBSERVED
CONTACT THE HC EPOC IMMEDIATELY.

Procedure/Method:

The purpose of this SOP #01 is to provide a general guideline for conducting visual inspections of PI soil berms, marking, notification, and documentation. Due to the potential of exposure to PI soil, the staff conducting the inspections should not attempt to make any repairs to the soil berm.

1) **Visual Inspection:** Visual inspections of PI soil berms will be conducted by HC or their third party consultant to identify any areas of concern. The staff conducting the inspection must coordinate with the HC property manager (or designee) to notify HC of the date of the planned inspection and to find out if any resident notification may be required. Once notifications (if any) are completed the inspection will be conducted as presented below.

    a. Walk around the perimeter of the PI soil berm. Note the general appearance of the berm in the inspection log. Examples of what to look for:

        - Obvious exposed soil;
        - Exposed orange geotextile fabric;
        - Exposed or ruptured irrigation piping;

- Deep rivulets or breaches in the soil; and/or
- Ponding water along the base of the berm.

b. Access the berm for closer inspection. Traverse the berm lengthwise and conduct a more detailed inspection of the berm. Examples of what to look for:

- Obvious exposed soil;
- Exposed orange geotextile fabric;
- Exposed or ruptured irrigation piping;
- Smaller areas of exposed soil;
- Soft spots or slumping of soil;
- Areas of water ponding;
- Stressed vegetation; and /or
- Indications of digging or other soil disturbance.

2) **Marking the Berm.** Mark areas on the berm that need repair. Areas on the berm requiring soil cap repair or landscaping maintenance should be marked using small colored marker flags and/or spray paint. Large areas of exposed soil may be marked using stakes and caution tape.

3) **HC Notification.** Notify the HC EPOC regarding areas where repair of the clean soil cap or landscaping are needed.

4) **Documentation: Inspection Records.** Each visual inspection of PI soil berms must be documented. These inspection records will include photographic documentation with a detailed photo log as needed. The documentation will be prepared according to the procedures below.

a. Date of inspection;

b. Location / Neighborhood of inspection;

c. Name of person conducting inspection with contact information;

d. Detailed observations including whether marker flags were placed on the berm; and

e. Sketch map indicating area(s) of concern and distinguishing features.

Required Documents & Permits:

Berm inspection records and photographic documentation / photo log.

Recordkeeping and Data Tracking:

Following the completion of the visual inspection, a letter report will be prepared with a cover letter to indicate overall condition of the berm, and specifically areas of concern on the berm that will require either preventative maintenance or immediate repair. This letter report will include copies of the inspection records, photographic documentation and photo log, and any other information regarding the condition of the berm. This letter report should be provided to the HC EPOC within 5 days of completing the inspection.

Remember to contact the HC EPOC immediately if the clean soil cap is obviously breached and PI soil is potentially exposed!!

Oversight during berm maintenance and repair (if any) will be conducted by HC staff or the third party consultants at the request of HC.

References:

Tetra Tech. 2011. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, Oʻahu, Hawaiʻi. DCN: 2626001.0003.D03.* Prepared for Hickam Communities LLC. July 2011.

SOP # 02: Preventative Maintenance

Original Issue Date: April 2011 **Revision Date:** July 15, 2011

Scope and Application:

Routine preventative maintenance of PI soil berms, combined with engineering and procedural controls presented in the Program Manual (Tetra Tech 2009), are critical for reducing the potential for exposure of HC workers, residents, and guests to PI soil. This SOP #02 presents guidelines for conducting preventative maintenance of PI soil berms.

HC maintenance staff will conduct preventative maintenance on PI soil berms. All maintenance staff will coordinate maintenance activities with the HC EPOC. Any disturbance of soil on HC property must be reviewed and approved by the HC EPOC prior to starting work.

Procedure/Method:

The PI soil on the berm should be maintained on an established schedule that is independent of the visual inspections presented in SOP #01 (Tetra Tech 2011). The two primary components of preventative maintenance involve inspecting specific areas of the berm that could be a source of potential damage to the berm resulting in exposure of PI soil. The two components are:

Irrigation Piping. Irrigation piping installed in the berm should be regularly inspected and tested, preferably during routine landscape maintenance activities. The berm will not be fenced and HC residents will have access to the berms for recreational activities. Due to these activities, sprinkler heads may be damaged. The loss of a sprinkler head can produce a high-pressure stream of water that can create fissures in the clean soil cap. Procedures for inspecting and testing irrigation piping are:

- Inspect the sprinkler heads or drip system leads and connections for obvious breaks. Erosion around sprinkler heads or within the landscaping may indicate areas where the sprinkler heads are missing/damaged, or the piping has ruptured.

- Test the system by turning it on and observing the general coverage of the irrigation. Note any areas where there are obvious ruptures, or if areas of landscaping are not receiving adequate irrigation coverage.

Landscaping. Healthy landscaping is an important part of creating a barrier to PI soil, and stabilizing the clean soil cap. Recreational activities by HC residents and guests could inadvertently damage or stress vegetation on the berm. Areas of damaged or stressed landscaping should be replaced immediately.

- Landscaping should be regularly maintained and kept free of any opportunistic plant species that may not provide adequate soil coverage, or pests that may cause damage to the berm landscaping.

- Areas where the landscaping is stressed or dead may be an indication of inadequate irrigation coverage.

Required Documents & Permits:

Maintenance records / daily logs

Recordkeeping and Data Tracking:

HC maintenance staff will contact the HC EPOC immediately if ruptures are observed during maintenance of the PI soil berms. Documentation of preventative maintenance will be provided to the HC EPOC and will consist of detailed observation notes which should include detailed descriptions of any obvious ruptures in the irrigation system, or large areas of stressed or dead landscaping or exposed soil on the berm; and their specific locations on the berm.

References:

Tetra Tech. 2009. *Pesticide-Impacted Soils Investigation and Management Program Manual.* Prepared for Hickam Communities LLC. May 2009.

Tetra Tech. 2011. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, Oʻahu, Hawaiʻi. DCN: 2626001.0003.D03.* Prepared for Hickam Communities LLC. July 2011.

SOP # 03: Emergency Response – Repairs

Original Issue Date: April 2011 **Revision Date:** July 15, 2011

Scope and Application:

An Emergency Repair may be required due to a failure or rupture in underground utilities or landscaping piping installed beneath or within pesticide-impacted (PI) soil berms. These failures may cause an immediate danger to HC workers, residents and guests, or threaten to damage property (flooding, breaks in water lines, or utility outages). Responding to these emergencies at HC neighborhoods could require disturbance of soil that is expected to be pesticide-impacted (PI) soil. Emergency response for repairs involving, or potentially involving, disturbance of soil at HC neighborhoods will be implemented in accordance with this SOP #03.

All soil in an emergency response zone will be assumed to be PI soil.

Emergency response actions may require access to underground utilities running beneath PI soil berms, or irrigation piping installed within PI soil berms. Access to utility lines and piping would be triggered by a rupture in water lines or sewer line breaks, or landscaping irrigation lines. During an emergency response actions where soil must be disturbed the following guidelines apply:

- Treat the soil in the repair zone as PI soil;
- Notify the HC EPOC and Development Manager;
- If the health and safety of HC workers, residents, and guests may be at risk, contact the installation fire department or 911 immediately;
- Implement the repair and manage the soil as PI soil.

Equipment and Supplies:

Plastic sheeting or tarps, sand bags, straw or compost filter socks, silt fencing, barrier tape/removable fencing, signage, PPE.

Procedure/Method:

1. **Secure the Area.** Assess the emergency repair zone and secure the area using fencing and / or caution tape.

2. **Restrict Water Flow.** For water/irrigation/sewer line breaks, locate shut-off valves and immediately restrict water flow. Place runoff controls (e.g. straw or compost filter socks silt fencing, and/or rock berms) and other barriers to prevent water mixed with soil from leaving the emergency response zone and entering storm drains.

3. **Implement the Repair.** At all times during emergency repairs, responders must don appropriate PPE. Emergency responders must avoid inadvertently distributing PI soil through production of excessive dust, mixing of PI soil with water flowing out of the emergency response zone, or tracking of PI soil either by shoes, or on vehicle tires.

4. **Manage Removed Soil.** Since soil disturbed during emergency repairs is assumed to be PI soil, any soil removed during the response action will be stockpiled on plastic sheeting or tarps, and not placed directly on landscaped lawns, paved parking areas and sidewalks, or exposed soil in or around the vicinity of the emergency response zone. When implementing emergency repairs, especially during water/sewer line or landscaping irrigation line breaks, PI soil must be prevented from leaving the emergency repair zone. Shutting off supply lines at the main access valve and placement of straw or compost filter socks silt fencing, and/or rock berms as needed to prevent water and PI soil from running into storm drains is the first priority. Any soil stockpiled during excavation of supply lines must be managed as PI soil in accordance with the HC *Pesticide-Impacted Soils Investigation and Management Program Manual* (Program Manual) (Tetra Tech 2009).

5. **Notifications.** Securing the emergency response zone is the first priority, however, emergency responders must notify the HC Development Manager and EPOC must be immediately (Tetra Tech 2011). If an underground gas line is involved, immediately contact the installation fire department and/or 911.

6. **Site Restoration.** Following repairs, any stockpiled soil will be placed back into the excavation, followed by a marker layer of orange geotextile fabric, 2-foot of clean soil cap, and topsoil and landscaping. If stockpiled soil cannot be placed back into the excavation, the soil will be managed as PI soil in accordance with the Program Manual (Tetra Tech 2009).

Exposure Risks and Controls:

The soil at a site being disturbed during an emergency response action may be impacted with chemicals of concern, particularly organochlorine pesticides, at concentrations that exceed the regulatory levels. Controls should be in place during Site preparation and are listed below:

- Appropriate PPE (in most cases, Level D) must be worn during Site preparation activities;
- Avoid creating excessive amounts of dust;
- Prevent any water mixed with soil from leaving the Site;
- Manage any removed soil as PI soil until verified/cleared by the LUCID; and
- Properly dispose of used PPE when demobilizing from the site.

Recordkeeping and Data Tracking:

Following completion of the repair, a copy of the field records/daily logs will be provided to HC in accordance with SOP #01 (Tetra Tech 2011).

References:

Tetra Tech. 2009. *Pesticide-Impacted Soils Investigation and Management Program Manual.* Prepared for Hickam Communities LLC. May 2009.

Tetra Tech. 2011. *Long-Term Maintenance Plan for Pesticide-Impacted Soil Berms, Permanent Soil Management Berm, Earhart I-2 Neighborhood, Joint Base Pearl Harbor-Hickam, Oʻahu, Hawaiʻi. DCN: 2626001.0003.D03.* Prepared for Hickam Communities LLC. July 2011.


TETRA TECH