

FINAL ENVIRONMENTAL ASSESSMENT

Chan Residence

**Proposed Single Family Residence at
3852 Puu Kakea Place
Honolulu, Hawaii 96822
TMK 1-2-5-018:032**

January 2008

**PREPARED FOR:
Michael and Stephanie Chan
820 Bannister Street
Honolulu, Hawaii 96819**

**PREPARED BY:
OSUMI NAKAI MAEKAWA
700 Bishop Street Suite 228
Honolulu, Hawaii 96815**

TABLE OF CONTENTS

SUMMARY OF PROPOSED ACTION.....	1
CHAPTER 1 INTRODUCTION.....	2
1.1 PROJECT OVERVIEW.....	2
1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT.....	2
1.3 PREVIOUS LAND USE APPROVALS.....	5
1.4 PURPOSE AND NEED FOR THE PROJECT.....	5
1.5 ALTERNATIVES TO THE PROPOSED ACTION.....	5
1.6 NO ACTION ALTERNATIVE.....	5
CHAPTER 2 DESCRIPTION OF THE PROPOSED ACTION.....	6
2.1 EXISTING CONDITIONS.....	6
2.2 DESIGN FEATURES OF THE PROPOSED RESIDENCE.....	6
CHAPTER 3 AFFECTED ENVIRONMENT - IMPACT AND MITIGATION MEASURES.....	9
3.1 TOPOGRAPHY.....	9
3.1.1 Impacts and Mitigation Measures	9
3.2 GEOLOGY.....	9
3.2.1 Impacts and Mitigation Measures	10
3.3 DRAINAGE.....	10
3.3.1 Impacts and Mitigation Measures	10
3.4 AIR QUALITY.....	17
3.4.1 Impacts and Mitigation Measures	18
3.5 WATER QUALITY.....	18
3.5.1 Impacts and Mitigation Measures	18
3.6 NOISE.....	19
3.6.1 Impacts and Mitigation Measures	19
3.7 BIOLOGICAL RESOURCES.....	19
3.7.1 Impacts and Mitigation Measures	20
3.8 HISTORICAL, ARCHAEOLOGICAL & CULTURAL RESOURCES.....	20
3.8.1 Impacts and Mitigation Measures	20
3.9 SCENIC RESOURCES.....	20
3.9.1 Impacts and Mitigation Measures	21
CHAPTER 4 SOCIO-ECONOMIC CONDITIONS – IMPACTS AND MITIGATION MEASURES.....	22
4.1 DEMOGRAPHICS, POPULATION AND ECONOMIC CHARACTERISTICS.....	22
4.1.1 Impacts and Mitigation Measures.....	22
CHAPTER 5 PUBLIC SERVICES – IMPACTS AND MITIGATION MEASURES.....	28
5.1 TRAFFIC AND ROADWAYS.....	28
5.1.1 Impacts and Mitigation Measures.....	28

5.2	WASTEWATER.....	28
5.2.1	Impacts and Mitigation Measures.....	29
5.3	RECREATIONAL RESOURCES.....	29
5.3.1	Impacts and Mitigation Measures.....	29
5.4	POTABLE WATER.....	29
5.4.1	Impacts and Mitigation Measures.....	29
5.5	SOLID WASTE.....	30
5.5.1	Impacts and Mitigation Measures.....	30
5.6	POLICE AND EMERGENCY SERVICES.....	30
5.6.1	Impacts and Mitigation Measures.....	30
5.7	FIRE PROTECTION SERVICES.....	30
5.7.1	Impacts and Mitigation Measures.....	30
5.8	ELECTRICAL AND COMMUNICATION FACILITIES.....	30
5.8.1	Impacts and Mitigation Measures.....	31
CHAPTER 6	RELATIONSHIP TO LAND USE POLICIES AND CONTROLS OF THE AFFECTED AREA.....	32
6.1	OVERVIEW.....	32
6.2	HAWAII STATE PLAN AND FUNCTIONAL PLANS.....	32
6.3	STATE LAND USE LAW/REGULATION OF THE CONSERVATION DISTRICT.....	33
6.4	CITY AND COUNTY OF HONOLULU GENERAL PLAN.....	33
6.5	PRIMARY URBAN CENTER DEVELOPMENT PLANS.....	34
6.6	COUNTRY ZONING.....	34
CHAPTER 7	NECESSARY PERMITS AND APPROVALS.....	35
CHAPTER 8	AGENCIES AND ORGANIZATIONS CONSULTED.....	35
CHAPTER 9	DETERMINATION OF SIGNIFICANCE.....	36
REFERENCES.....		40
TABLES		
Table 1	Chan Residence, Exterior Finish of Structure.....	25
FIGURES		
Figure 1	Location and Vicinity.....	3
Figure 2	TMK and Surrounding Properties.....	4
Figure 3	Site Plan.....	7
Figure 4	East and West Elevations.....	11
Figure 5	North and South Elevations.....	13
Figure 6	Topographic Map.....	15
Figure 7	View Planes.....	22
Figure 8	Naked-Eye View Towards Property from Kalaiopua Loop.....	23
Figure 9	Telephoto View of Towards Property from Kalaiopua Loop, with Residence Superimposed.....	24

Figure 10 Conceptual Landscape Plan.....27
Figure 11 First & Ground Floor Plan.....42

APPENDICES

- A Percolation Test Report and Report, Soil Investigation, Proposed Chan Residence 3852 Puu Kakea Place, Honolulu, Hawaii, TMK 2-5-018:32, Shinsato Engineering, Inc., 2007

- B Arborist Trees Remove Report, Proposed Chan Residence 3852 Puu Kakea Place, Hoholulu, Hawaii 96822. By Abner C Unban.

- C Responses to Comments Received During the Draft Environmental Assessment 30-day Comment Period

SUMMARY OF PROPOSED ACTION

Project:	Single-Family Residence, 3852 Puu Kakea Place
Landowner / Applicant	Michael and Stephanie Chan
Accepting Agency	State of Hawaii, Department of Land and Natural Resources
Agent	Osumi Nakai Maekawa
Location	Tantalus, City & County of Honolulu, Oahu, Hawaii
Tax Map Key	1-2-5-018-032
Proposed Action	Develop a single-family residence
Land Area	90,008 Square Feet
Present Use	Vacant
State Land Use District	Conservation, Resource Subzone
Development Plan Land Use Designation	Preservation
Present Zoning	P—1 Restricted Preservation
Special Management Area	No
Anticipated Determination	Finding of No Significant Impact (FONSI)

CHAPTER 1

INTRODUCTION

1.1 PROJECT OVERVIEW

Michael and Stephanie Chan propose to develop a single-family residence on the vacant Tantalus property they will purchase within the State Conservation District. The construction of single family residence is an identified land use in the Resource Subzone of the Conservation District. The home will have four bedrooms and 4 ½ baths in approximately 5,000 square feet of living area. The design and construction of the residence will conform to standard conditions for single-family residence in the Conservation District and applicable State and Country regulations. They purpose to commence construction of the residence in 2008 and finish no later that 2010. The entire project will be privately funded.

The proposed residence is located at 3852 Puu Kakea Place, Honolulu, Oahu (see FIGURE 1, **Project Location and Vicinity**). The property is on a privately owned roadway built to provide access to five residential properties. The 90,008 square foot lot is identified by Tax Map Key 2-5-018:032 (see FIGURE 2, **TMK and Surrounding Properties**). The project is location at Puu Kakea Place of Round Top Drive at an elevation of approximately 1,350 feet. The property is not within the Special Management Area (SMA).

1.2 PURPOSE OF THE ENVIRONMENTAL ASSESSMENT

This Draft Environmental Assessment has been prepared pursuant to Hawaii Revised Statutes, Section 343-5-12, which states an environmental assessment shall be required for action which “propose any use within any land classified as conservation district by the state land use commission under chapter 205.” An associated Conservation District Use Application has been submitted to the Department of Land and Natural Resources, pursuant to Hawaii Administrative Rules, Section 13-5-31, “Permit Applications.”

1.3 PREVIOUS LAND USE APPROVALS

The property is one of five lots included in a Tantalus subdivision which was approved for single family residential development by the Board of Land and Natural Resources (BLNR) on December 15, 1989 (File No. OA-7/89-2289). This permit allowed the owner to consolidate and resubdivide the property into five lots with a privately built and maintained cul-de-sac, Puu Kakea Place. Prior to the approval of the subdivision, the subject property was one of the five irregular-shaped lots. The four lots to the south of the site, along Puu Kakea Place, are each developed with a single-family residence.

1.4 PURPOSE AND NEED FOR THE PROJECT

The proposed project will be the primary residence for Michael & Stephanie Chan and their children.

1.5 ALTERNATIVES TO THE PROPOSED ACTION

Other than the No Action Alternative, there are no alternatives to the proposed action being considered. The proposed residence has been designed to conform to its natural setting with minimal environmental impacts. Changes to the sitting, design, or construction method of the single-family residence would, at best, result in impacts similar to those of the proposed action.

1.6 NO ACTION ALTERNATIVE

Under the No Action Alternative, the subject property would remain undeveloped and the potential for environmental, social, and economic impacts disclosed in this Assessment would be precluded. Taking no action does not accomplish the stated purpose of the proposed action which is to provide a primary residence for Michael and Stephanie Chan and their children.

CHAPTER 2

DESCRIPTION OF THE PROPOSED ACTION

2.1 EXISTING CONDITIONS

The property is presently devoid of structure. There are several mature trees, scattered shrubbery and expanses of grass sloping downward to the north. The Tantalus neighborhood was established over 100 years ago as a residential community within a heavily wooded, scenic area above Honolulu. The project site is situated approximately 1.3 roadway miles north of Puu Ualakaa State Wayside Park. The property is bounded to the south by a developed single family residence; to the north by State land in the Honolulu Watershed Forest Reserve; to the west by a single family residence; and to the east by State land in the Honolulu Watershed Forest Reserve.

Primary access to the property is from Puu Kakea Place. It is a privately owned roadway, which is jointly owned by the five lots of the existing subdivision. This cul-de-sac is paved in asphalt concrete and is about 20 feet wide. The bulb of the cul-de-sac area is about 72 feet in diameter.

2.2 DESIGN FEATURES OF THE PROPOSED RESIDENCE

Plans for the proposed residence include a 5,000 square foot, 4 bedroom, 4 ½ bath home. The footprint of the residence will be 4,240 feet. The 3 bedrooms are the only second-story structure of the residence. (See FIGURE 3, **SITE PLAN**).

Architectural plans for the residence incorporate several features of classic Hawaii architecture, including hipped roof lines and extensive use of lava and moss rock surfaces. The design incorporates. Natural colors for the structure and driveways, use of lava and moss rock walls and facades, and extensive landscaping. These design features are shown in FIGURE 4, **East and West Elevations** and FIGURE 5, **South and North Elevations**).

The structure will be built on the relatively gentle slope (6% slope) of the property. Retaining walls with the landscaping ground cover will be placed in the north-east corner of the house structure. The dwelling will be sited north-west corner of the property and will not be seen from the private road.

CHAPTER 3

AFFECTED ENVIRONMENT – IMPACTS AND MITIGATION MEASURES

3.1 TOPOGRAPHY

Surface elevations range from about +1,366 feet at the south side of the parcel to +1,365 at the east side, +1,334 feet at the north side, and +1,310 feet on the eastern corner of the property. (See FIGURE 6, **Topographic Map**). From the property's southern boundary, at Puu Kakea Place, the ground surface slopes down approximately 8% to the northern boundary with the forest reserve. From the property's western boundary, the ground surface slopes down approximately 18% to the eastern boundary with the forest reserve. The residence is planned to be built on the north-west location of the property.

3.1.1 Impacts and Mitigation Measure

The design of the residence remains the property's existing slope to the north toward the Honolulu Watershed Forest Reserve and reduces the southward slope toward Puu Kakea Place (FIGURE 3, **Site Plan**).

A driveway retaining wall ranging from approximately 0 to 10 feet will be in front of the home structure (FIGURE 3, **Site plan**). In addition, a 6-foot rock wall will be built at the entrance of Puu Kakea Place for privacy and safety.

3.2 GEOLOGY

Soils at the property are classified as Tantalus silt loam, which are well-drained soils on uplands that developed from volcanic ash and material weathered from cinders. Permeability is moderately rapid and the erosion hazard is severe (U.S Department of Agriculture, 1972).

A soils investigation of the property was conducted in 2007 by Shinsato Engineering, Inc. The scope of the study included general subsurface conditions as disclosed by borings; physical characteristics of the soils encountered; recommendations for foundation design, including bearing values, embedment depth and estimated settlement; recommendations for placement of fill and backfill; and special design considerations. The full text of the study is found in APPENDIX A.

3.2.1 Impacts and Mitigation Measures

The project is not expected to significantly impact existing soil conditions at the project site. Based on the 2007 soils study, “the percolation rate of the soil is more than adequate for placement of a leach field associated with a septic wastewater system,” (Shinsato Engineering, Inc., 2007). The structural design and siting of the residence as well as the leach field will consider and accommodate the soil conditions (see Section 5.2, **Wastewater**). For discussion for erosion potential and mitigation measures, see Section 3.3, **Drainage**.

3.3 DRAINAGE

Storm water erosion control is important for this property because of the slope, soil erosion hazard, and abundant rainfall averaging 120 inches per year. There are no streams within the project site. The area under roof, representing 6,459 square feet, will be used to divert and capture rainfall for the residence’s domestic water supply. Storm water will sheet-flow in two directions: to the north-west toward the Honolulu Watershed Forest Reserve, and to the east toward the Honolulu Watershed Forest Reserve.

3.3.1 Impacts and Mitigation Measures

The runoff from the non-permeable surfaces will be directed into the roof rainwater catchment system’s 69,000-gallon, in-ground cistern or into grassy areas and gravel borders designed to encourage absorption and minimize sheet runoff. Retaining walls will further diminish the potential for significant changes in sheet flow. The retaining walls and distribution of fill from the construction of the proposed structures will create level areas on the lot so rainwater will percolate rather than run off the property.

Areas of the development requiring cut and fill include retaining walls, a septic tank, leach fields, house footings, an in-ground cistern, driveways, terrace areas, removal of vegetation at locations for structures, and structural fill. A total of 1,850 cubic yards of cut and 1,850 cubic yards of fill will be required.

Erosion control methods to be implemented by the contractor before, during, and after construction will include, but not be limited to, the following Best Management Practices:

- Perform excavation at the construction site in phases to limit the number of cubic yards of soil being moved at any one time.
- Construct perimeter walls first to retain runoff.
- Locate the construction entrance on Puu Kakea Place so that all construction-related vehicles will enter and leave from this private cul-de-sac.

- Install and maintain a temporary gravel access pad at the entrance to the property from Puu Kakea Place for all construction ingress and egress.
- Regularly inspect gravel pads, especially during periods of heavy rainfall.
- Install silt fences at the boundary of all disturbed areas and areas used for stockpiling and staging.
- Install erosion control measures prior to start of the construction phase and maintain until completion of the grading phase.
- Where applicable and feasible, put in place measures to control erosion and other pollutants before any earth moving phase of the grading is initiated
- Do not remove temporary erosion controls before permanent erosion controls are in-place and established.
- Compact the final lift of each day's work to prevent erosion of fill material.
- Cover and stake burlap and textile fabric on slopes greater than 2:1 (vertical:horizontal)
- Perform all grading work in accordance with Chapter 14, Articles 13, 14, 15, and 16, as related to grading, soil erosion and sediment control, of the Revised Ordinances of Honolulu, as needed.
- Prevent any grading operation that causes rocks, soil, or debris in any form to fall, slide or flow onto adjoining properties, streets or natural watercourses.
- Flag the limits of the grading area before the commencement of grading work.
- Make adequate provisions to prevent drainage flows from damaging the cut face of an excavation or the sloped surfaces of a fill, and prevent sediment-laden runoff from leaving the site.
- Sod or plant all slopes and exposed areas as soon as final grades have been established.
- Plant disturbed areas where work has been interrupted or delayed with temporary permanent ground cover.
- Inform the City of the location of the disposal site for the project when the application for a grading permit is made. Ensure that the disposal site fulfills the requirements of the grading ordinance.

3.4 AIR QUALITY

Air quality in the project area is excellent. The combination of elevation (+1,300 feet), prevailing trade winds, low volume of vehicular traffic and absence of other pollutant sources contribute to the air quality in the Tantalus area.

3.4.1 Impacts and Mitigation Measures

Air quality impacts attributed to the proposed action will be temporary and include exhaust emissions of construction vehicles and dust generated by short-term, construction-related activities. Grading of the soil and construction of the house and retaining walls will generate airborne particulates. Dust control measures such as regular watering and sprinkling will be implemented as needed to minimize wind-blown emissions.

Construction-related exhaust emissions will be mitigated by ensuring the project contractors maintain their internal combustion engines in proper working order and immediately repair or replace faulty equipment. The contractor, at his own expense, will keep the project area and surrounding area free from dust nuisance. The work will be in conformance with the air pollution control standards contained in Hawaii Administrative Rules, Title 11, Chapter 59, "Ambient Air Quality Standards," and Chapter 60, "Air Pollution Control." Long-term air quality impacts resulting from occupation of the residence and related vehicle traffic are not expected to cause significant increases in air pollution over existing levels. No long-term mitigation is needed.

3.5 WATER QUALITY

No surface water sources exist on the project site. The residence will use a roof water catchment system. Water will be stored in the 69,000-gallon in-ground cistern and will be used to meet all domestic water and fire protection needs. The applicants will provide treatment of the water to ensure acceptable potable quality.

3.5.1 Impacts and Mitigation Measures

Since the property abuts the Honolulu Watershed Forest Reserve, it is important that runoff from construction be controlled (see Section 3.3, DRAINAGE). All grading operations shall be performed in conformance with the applicable provisions of the water pollution control and water quality standards contained in Hawaii Administrative Rules, Chapter 11-55, "Water Pollution Control" and Chapter 11-54, "Water Quality Standards." In consultation with the Department of Health, Clean Water Branch, no NPDES is needed for construction of the single family residence since the home is not in a stream area and does not involve discharges to State waters (Person communication, Kris Poentis, May 2007). Further, no Department of the Army permit will be required for this project as waters of U.S are not affected.

3.6 NOISE

Existing noise levels at the subject property are very low given the surrounding open space and proximity to adjacent residences. The Puu Kakea Place is a private roadway with very little traffic and noise. This street is only used by the residents of the four neighboring homes.

3.6.1 Impacts and Mitigation Measures

Noise will be generated from short-term construction activity. Construction noise from machines and vehicles may impact nearby existing residence, but will be confined to daylight working hours only. Construction activities will comply with Hawaii Administrative Rules, Chapter 11-46, "Community Noise Control." No grading work shall be done on Saturdays, Sundays, and holidays at any time without prior notice to the Chief Engineer, provided that such grading work is also in conformance with HAR, Chapter 11-46. Once construction is completed, it is anticipated that the proposed residence will not have an adverse impact upon existing noise characteristics. Long-term noise impacts resulting from occupation of the residence and related vehicle traffic are not expected to cause significant increases in noise over existing levels. No long-term mitigation is needed.

3.7 BIOLOGICAL RESOURCES

There are no threatened, or endangered plant or animal species or significant habitats on the subject property. There is a rare tree called *Tetraplasandra gynoscarpa*, see APPENDIX B, Arborist Report. Much of the property is covered by introduced grasses. The lot currently contains Norfolk Island pines, Chinese banyan, and Christmas berry trees, avocado, banana, umbrella trees, kukui, Indian bamboo, and heliconia, etc. Common plants such as ti leaf, *Monstera* and fern are also located on the property.

No mammals were observed during site visits to the property, but based on general information about the Tantalus area, it is expected that resident mammals are limited to feral pigs, dogs, cats, and various rodents. Most of the birds in the area are introduced species such as doves and thrushes. Native birds that may inhabit or traverse the area include the endemic Hawaiian short-eared owl or pueo (*Asio flammeus*) and elepaio (*Chasiempis sandwichensis*). The elepaio is listed on the U.S. Fish and Wildlife Service threatened or endangered species list. The endangered Hawaii hoary bat (*Lasiurus*) also has been reported in the Tantalus area in recent years. However, no threatened or endangered species are known to be resident.

3.7.1 Impacts and Mitigation Measures

Outdoor lights will be shielded downward and not be placed higher than 25 feet in order to prevent any impacts to nocturnal avifauna. No other adverse impacts to terrestrial flora and fauna are anticipated from the construction of the single family residence and no further mitigative measures are necessary.

3.8 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

The State Historic Preservation Division (SHPD) notes that the property is part of the five-lot Brash Subdivision that was approved by the Board of Land and Natural Resources (BLNR) in 1989. In its review of the subdivision application, State Parks commented that there are no known archaeological sites on the subject property, and that given the location of the property, historic sites are not expected to be present.

The project site and surrounding vicinity are not known for traditional cultural practices. The residence will not block existing view planes, is not visible from coastal waters, and will not obstruct any natural features or landmarks. Interviews with area residents did not reveal any information regarding traditional and modern-day practices specific to the project area (i.e. gathering for hula, medicinal or other cultural practices). The property does not block access to forest resources. There are not likely to be burial sites on the subject property due to previous disturbance of the land, the nature of the soil and the project location away from the shoreline and natural cave areas. The interviews also did not yield any new information about the presence of archaeological sites, trails, or possible burial features.

3.8.1 Impacts and Mitigation Measures

No impacts to cultural resources or practices are expected to result from the proposed project activities. In the unlikely event that archaeological remnants are unearthed, work will be halted and the State Historic Preservation Division notified to assess impacts and implement mitigation measures deemed necessary.

3.9 SCENIC RESOURCES

The subject property is visible in the foreground of south-looking views from Forest Ridge Way and Kalaiopua Loop (FIGURE 7, **View Planes**). From those vantage points, the property currently appears as a grassy area between the bamboo forest in the foreground and the ridge line in the background (FIGURE 8, **View Towards Property from Kalaiopua Loop**). The property does not affect views of Diamond Head from Forest Ridge Way and Kalaiopua Loop. The lot is not visible from shoreline areas to the south. The property is not visible from Round Top Drive, only visible at the end of the Puu Kakea Place.

3.9.1 Impacts and Mitigation Measures

Lot Coverage and Visibility. The residence will result in approximately less than 9% lot coverage. The north elevation of the proposed residence will be visible from Forest Ridge Way and Kalaiopua Loop (FIGURE 9, **Telephoto View of Proposed Residence from Kalaiopua Loop**). Views of the grassy area descending into the southern area of the property will not be disrupted. From the end of Puu Kakea Place, the view of the developed property will be the lava and moss rock wall at both sides of the entrance to the permeable-surface driveway with entry gates.

Setbacks. The design features setbacks from the property line that will retain open space on the property. The setback of the residence from the edge of the lot will meet or exceed the minimum of 25 feet on all sides (HAR, Chapter 13-5, Exhibit 4, “Single Family Residential Standards: September 6, 1994”), as follows:

North setback	25’
South setback	92’
East setback	280’
West setback	28’

Landscaping. The landscaping concept for the residence was developed with the goal of leaving the majority of the land natural with currently existing vegetation. There is a rare tree called *Tetraplasandra gynoscarpa*, see APPENDIX B, Arborist Report. Much of the property is covered by introduced grasses. The lot currently contains Norfolk Island pines, Chinese banyan, and Christmas berry trees, avocado, banana, umbrella trees, kukui, Indian bamboo, and heliconia, etc. Common plants such as ti leaf, Monstera and fern are also located on the property.

There will be new landscaping around the driveway and structure, which include 20 trees of Ohia, Koa, Plumeria and Kukui. That it will not plug a hole in the canopy. We will also add native vegetation. The trees and native vegetation will be identified on the new landscaping plan. See FIGURE 10, **Conceptual Landscaping Plan**.

The remaining area of the property will be kept as the original and natural existing vegetation.

From the end of Puu Kakea Place, the view of the developed property will be the lava and moss rock wall at both sides of the entrance to the permeable-surface driveway with entry gates.

Colors. A dark green/brown palette will be used throughout the exterior of the residence. Lava and moss rock veneers will mask concrete or concrete block structures. Details of the proposed colors and finishes for the structure are shown in TABLE 1, **Exterior Finish of Structures**.

TABLE 1

**Chan Residence
Exterior Finish of Structure**

Structure	Exterior Finish
Roofing	Green / brown tile roofing.
Copper Gutters and Fascia	Weathered green copper color
1 by 4 Cedar Soffits (Overhang)	Painted brown
Exterior Walls	Mixture of brown / tan with tinge of orange synthetic stucco with lava rock veneer
Windows and Doors	Aluminum metal frames with powder coat finish in brown
Support Columns	Cast concrete with lava rock veneer
Patio and Lanai Areas	Quartzite stone in gray color
Driveways	Concrete. Grass block at turn around

CHAPTER 4

**SOCIO-ECONOMIC CONDITIONS – IMPACTS NAD MITIGATION
MEASURE**

**4.1 DEMOGRAPHICS, POPULATION, AND ECONOMIC
CHARACTERISTICS**

Census Block #32, containing the proposed residence (entitled “Roundtop/Tantalus”), had a resident population of 885 in 2000 compared to 853 in 1990. Thus the community is considered a relatively stable residential area. Population in the Makiki/Lower Punchbowl/Tantalus Neighborhood Board area tends to be older than the island as a whole. In 2000, nearly 18 percent of the area’s population was 65 years of age or older (State of Hawaii, Department of Business, Economic Development and Tourism, 2001).

4.1.1 Impacts and Mitigation Measures

Development of the proposed residence will not materially change the character of the neighborhood since Tantalus is already a residential neighborhood with many homes of a character similar to that proposed by the applicants. On a short-term basis, the proposed project will support construction and construction-related employment. In the long term, the proposed single-family residence will not have an impact on employment opportunities, nor will it have a significant impact on population levels. Therefore, no mitigation measures are necessary or proposed.

CHAPTER 5

PUBLIC SERVICES – IMPACTS AND MITIGATION MEASURES

5.1 TRAFFIC AND ROADWAYS

Primary access to the residence will be via Puu Kakea Place, a private roadway. This cul-de-sac provides access from Round Top Drive to each of the five lots in the subdivision. It is paved in asphalt concrete and is 20 feet wide. The bulb of the cul-de-sac is 72 feet in diameter.

Round Top Drive is a winding, two-lane roadway that connects with Tantalus Drive further mauka of the subject property. It is constructed of asphalt concrete, averages 20 feet in width, and provides access to the numerous homes located on Tantalus as well as scenic vistas of urban Honolulu.

5.1.1 Impacts and Mitigation Measures

The proposed action is not expected to significantly alter the total volume of traffic on Round Top Drive. Construction trucks will enter and exit from Puu Kakea Place.

5.2 WASTEWATER

The Tantalus area is not served by the municipal sewer system. Therefore, all treatment of wastewater must be performed on-site through a wastewater treatment system designed to dispose of approximately 800 gallons of domestic effluent per day (using the standard of 200 gallons per bedroom). The system will consist of an underground septic tank with a capacity of 1,664 gallons and an 1,064-square foot leach field at the center of the property (FIGURE 3, **Site Plan**). DLNR File No. OQA-7/6/89-2289 provides an Individual Wastewater System for each of the five lots of the subdivision.

The Department of Health *Recommended Standards* (Chapter 10) indicate that leach fields (absorption trenches) should not be used in soils with a percolation rate slower than 60 minutes per inch. Percolation rates measured during preliminary geotechnical testing of the project site showed more rapid percolation rates of 4.21 and 6.67 minutes per inch. Therefore, geotechnical engineers concluded that “leach fields (absorption trenches) may be used for disposal of septic sewage effluent” on the project site (Shinsato Engineering, Inc., 2007, APPENDIX A)

5.2.1 Impacts and Mitigation Measures

The individual wastewater treatment system for the proposed residence will conform with the Hawaii Administrative Rules, Chapter 11-62, "Wastewater Systems." Based on the elevation of the proposed individual wastewater treatment system and the nature of the soil percolation rate, the septic system and leaching field are not expected to result in adverse impacts.

5.3 RECREATIONAL RESOURCES

For many years the Tantalus area has successfully combined residential uses with a series of public trails. In the vicinity of the subject property are the Makiki Valley Trail, Moleka Trail and Manoa Cliff Trail.

5.3.1 Impacts and Mitigation Measures

The Moleka trail runs along the north side of the property, from 20-40 feet below subject property, and heavy bamboo forest between the property and the trail serves as a green belt. It will be identified on the new site plan.

The trail running along the west side of the property is from 60-80 feet below subject property. The trail is heavily landscape with trees and bushes along the property and serves as a green belt. It will be identified on the new site plan.

The trails will not be impacted by any noise or visual factors.

Consequently, there are no expected effects on recreational resources from the project and no mitigation measures are proposed.

5.4 POTABLE WATER

The Board of Water Supply does not serve Tantalus. Domestic water for the residence will be supplied from an on-site catchment system and storage cistern. There also is no groundwater in the vicinity of the residence. According to a 2007 soils investigation of the subject property, three test borings to depths of 9 to 9.5 feet were conducted and no groundwater was encountered. (Shinsato Engineering, Inc.; Soils Investigation Report Proposed Chan Residence; 2007, APPENDIX A).

5.4.1 Impacts and Mitigation Measures

No adverse impacts will occur with regard to the potable water supply, due to absence of municipal water in the area and the owners' intention to install an individual water catchment system. No mitigation measures are necessary.

5.5 SOLID WASTE

Solid waste from the proposed project will be disposed of by the City collection system.

5.5.1 Impacts and Mitigation Measures

The impact to solid waste collection services will be one additional family in the Tantalus neighborhood. Consultation with the City Department of Environmental Services, Refuse Division, indicates that the current collection system will not be materially affected by the proposed single-family residence (personal communication, David Shiraishi, May 2002). No mitigation measures are necessary.

5.6 POLICE AND EMERGENCY SERVICES

The Tantalus area is served by the Honolulu Police Department and Emergency Services Department.

5.6.1 Impacts and Mitigation Measures

There will be no significant impact on police or emergency services as a result of the proposed single-family residence. No mitigation measures are needed.

5.7 FIRE PROTECTION SERVICES

The property is under the jurisdiction of the Honolulu Fire Department. However, the residence is not served by municipal water for firefighting purposes.

5.7.1 Impacts and Mitigation Measures

As part of the building permit process, the applicant will develop a fire contingency plan that will be approved by the appropriate agencies, and will provide necessary fire protection to the subject property. This will include a sprinkler system within the residence which will draw water from the 69,000-gallon in-ground cistern.

5.8 ELECTRICAL AND COMMUNICATION FACILITIES

Electrical power for the Tantalus neighborhood is provided by Hawaiian Electric Company; Telephone service by Hawaiian Telecom; and cable service by Oceanic Cable. Propane gas for the proposed residence will provide fuel cooking, domestic hot water, generator and radiant heat. There will be two 124-gallon propane tanks.

5.8.1 Impacts and Mitigation Measures

No adverse impacts are expected from the single family residence connecting to existing facilities. The propane tanks for heating, cooking, and emergency electricity generation will be constructed according to standards of the City and County of Honolulu and The Gas Company. These include installation of the tanks on a concrete pad minimum of 10 feet from the property line and a minimum of 10 feet from any ignition source..

CHAPTER 6

RELATIONSHIP TO LAND USE POLICIES AND CONTROLS OF THE AFFECTED AREA

6.1 OVERVIEW

State and County policy, land use plans and controls are established to guide development in a manner that enhances the overall living environment of Hawaii, and that ensures the long-term social, economic, environmental, and land use needs of Hawaii are met. The use of the site for single-family residential development is in accordance with State and County land use plans and polices, as discussed below.

6.2 HAWAII STATE PLAN AND FUCTIONAL PLANS

The Hawaii State Plan, adopted in 1987, consists of three parts:

- An overall theme with broad goals, objectives and policies
- A system designed to coordinate public planning to implement the goals, objectives, and polices of the State Plan; and
- Priority guidelines which are statements of Statewide interrelated problems deserving immediate action.

The State Functional Plans are intended to provide more detail for implementing the State Plan. They guide State and County actions under specific functional topics. One functional plan related to the development of the Chan residence is the State Housing Functional Plan. The goal for housing is to:

Develop greater opportunity for Hawaii's people to secure reasonably priced, safe, sanitary, livable homes located in suitable environments that satisfactorily accommodate the needs and desires of families and individuals (Housing Functional Plan, 1991).

The project will fulfill the housing needs of the Chan family. Another State Functional Plan that is relevant to this project is the State Conservation Lands Functional Plan, whose objective is:

The objective of the State Conservation Functional Plan is provide for a management program allowing for judicious use of the State's natural resources balanced with the need to protect these resources to varying degrees."

“Judicious use” of Conservation District resources and lands includes the provision for single family residences, as detailed in the Hawaii Administrative Rules, Chapter 13-5 (Section 6.3 following).

6.3 STATE LAND USE LAW / REGULATION OF THE CONSERVATION DISTRICT

The State Land Use Commission classifies all lands in the State of Hawaii into one of four land use designations: Urban, Rural, Agricultural and Conservation. The proposed residence is in the State Conservation District. Land uses in the Conservation District are regulated by the State Department of Land and Natural Resources. Hence, the project must conform to requirements of Hawaii administrative Rules, Title 13, Subtitle 1 Administration, Chapter 5, "Conservation District," which regulates all Hawaii lands within the conservation land use designation. Chapter 13-5 divides the Conservation District into subzones and provides for identified land uses in each subzone. The subject property is located in the Resource Subzone, in which the proposed use falls under identified land use "R-8, (D-1) A single family residence that conforms to design standards of this chapter [Chapter 13-5]."

The existing subdivision is one of five lots approved in 1989 for residential development within the Conservation District. This Environmental Assessment supports a Conservation District Use Application (CDUS) which describes how the proposed residence will conform with the design standards set for in Chapter 13-5. The CDUS must be approved by the Board of Land and Natural Resources before any development can occur.

6.4 CITY AND COUNTY OF HONOLULU GENERAL PLAN

The current edition of the City and County of Honolulu General Plan was adopted in 1992. The Plan is a comprehensive statement of objectives and policies for Honolulu's future development. It presents the basic growth policy for Oahu which calls for "full development of the Primary Urban Center (the area from Kahala to Pearly City), development of the secondary urban center at Kapolei and the Ewa and Central Oahu urban-fringe areas, and managing the physical growth and development in the remaining urban-fringe and rural areas to sustain their low density or rural characteristics" (<http://honolulu/doo/org/planning/92plan>).

The proposed residence is located in the Primary Urban Center. The Population Objective of the General Plan, Objective C, is "to establish a pattern of population that will allow the people of Oahu to live and work in harmony." Policy 1 calls for the City and County of Honolulu to "Facilitate the full development of the Primary Urban Center" (<http://honolulu/dpp/org/planning/92plan>). This project is consistent with the Oahu General Plan's basic growth policy of the "full development of the Primary Urban Center."

6.5 PRIMARY URBAN CENTER DEVELOPMENT PLANS

Oahu is divided into 8 planning areas. Each area has a Development Plan which implements the objectives and policies of the General Plan and guides the long-range land use and infrastructure planning for each area. The subject property is located in the Primary Urban Center area where residential development has existed for over 100 years. The currently-approved Primary Urban Center Development Plan is include in the Revised Ordinances of Honolulu as Ordinance 81-89. A draft update of the Development Plan was prepared in 1995. The next step is review by the Honolulu Planning Commission. The draft identifies areas such as Tantalus as established neighborhoods where infill may occur but multi-unit development is discouraged. The plan also advocates development that retains the character of established neighborhoods (personal communication, Bob Standfield, Department of Planning and Permitting, May 2007).

This project is consistent with the Primary Urban Center Development Plan because it constitutes infill established neighborhoods with single family residential development. In addition, the home has been designed to preserve the character of this established neighborhood.

6.6 COUNTY ZONING

Tantalus is zoned by the City as Preservation (P-1, Restricted Preservation). Land uses in the Preservation Zone are regulated solely by the State DLNR in accordance with the rules governing the State Conservation District (see Section 6.3). As such, the residence meets the development standards of Chapter 13-5, Hawaii Administrative Rules, which governs land use within the State Conservation District.

CHAPTER 7

NECESSARY PERMITS AND APPROVALS

For the proposed project the applicant is required to obtain from the State of Hawaii, Board of Land and Natural Resources approval for a Conservation District Use Permit. From the City & County of Honolulu, Department of Planning and Permitting, the applicant will need buildings and grading permits.

CHAPTER 8

AGENCIES AND ORGANIZATIONS CONSULTED

State of Hawaii

- Department of Health, Clean Water Branch

City & County of Honolulu

- Department of Planning and Permitting
- Department of Environmental Services

Others

- Mrs. Faye Parker, 3849 Puu Kakea Place, Honolulu, Hawaii 96822 (homeowner, Brash Subdivision; oral history)
- Mrs. Lei'a Twigg-Smith 3868 Round Top Drive, Honolulu, Hawaii 96822 (homeowner, Brash Subdivision: oral history)

CHAPTER 9

DETERMINATION OF SIGNIFICANCE

Based on significant criteria set forth in Hawaii Administrative Rules, Title 11, Department of Health, Chapter 200, “Environmental Impact Statement Rules,” the proposed project is not expected to have a significant impact on the environment. As such, the recommended preliminary determination for the proposed project is a Finding of No Significant Impact (FONSI). The findings and reasons supporting this determination are discussed below.

1. Involves an irrevocable commitment to loss or destruction of any natural or cultural resource

The proposed project will not result in a loss of natural or cultural resources. The proposed action will create minimum disturbance to the present vegetation in the area. The only landscaping which will be done is that which is necessary to maintain the area surrounding the structure and driveway, the rest of the land will remain natural, retaining current vegetation. There are no threatened or endangered species of plants or wildlife that inhabit the project site. The majority of the site will remain in its natural state.

There are no known archaeological sites on the subject property. The State Historic Preservation Division (SHPD) notes that the property is part of the five-lot Brash Subdivision that was approved by the Board of Land and Natural Resources (BLNR) in 1989. In its review of the subdivision application, State Parks commented that there are no known archaeological sites on the subject property, and that given the location of the property, historic sites are not expected to be present.

2. Curtails the range of beneficial uses of the environment

Presently, the subject property is vacant. The proposed single-family residence is an identified land use in the Conservation District, Resource Subzone, according to 13-5-24 of the Hawaii Administrative Rules. This lot was created under CDUS File No. OA-7/6/89-2289 for the specific purpose of single-family residential use. The proposed action does not curtail beneficial uses of the environment.

3. Conflicts with the State’s long-term environmental policies or goals and guidelines as expressed in Chapter 343, HRS, and any revisions thereof and amendments thereto, court decisions, or executive orders.

The proposed project has been planned and designed in conformance with the environmental policies and guidelines established in Chapter 343, HRS> The subject property is not under an Executive Order.

4. Substantially affects the economic and social welfare of the community or state

The proposed project is minor in scope and will not impact the economy or social welfare of the community or state.

5. Substantially affects public health

Factors affecting public health, including air quality, water quality, and noise levels, are expected to be only minimally affected, or unaffected by the construction and use of the Chan residence. Potential impacts will be mitigated in accordance with Department of Health regulations.

6. Involves substantial secondary impact, such as population changes or effects on public facilities

Due to the nature of the proposed single-family residence, there are no substantial secondary or indirect impacts such as population changes or effects on public facilities.

7. Involves a substantial degradation of environmental quality

Impacts to air and water quality, noise levels, natural resources, and land use associated with the construction and occupation of the Chan residence are anticipated to be minimal. Mitigation measures will be employed as practicable to further minimize potentially detrimental effects to the environment resulting from project activities. The proposed project does not involve substantial degradation of environmental quality.

8. Is individually limited but cumulatively has considerable effect upon the environment or involves a commitment for larger actions

The proposed single-family residence is relatively minor in scope and adverse cumulative impacts on the environment are not anticipated, nor does the proposed project involve a commitment for larger actions on the subject property.

9. Substantially affects a rare, threatened or endangered species

There are no threatened or endangered plant or animal species on the subject property. There is a rare tree called *Tetraplansandra gynoscarpa*, see APPENDIX B, Arborist's Report.

10. Detrimentially affects air or water quality or ambient noise levels

On a short-term basis, ambient air and noise conditions will be affected by construction activities related to the proposed single-family residence, but these impacts can be controlled by measures described in the Environmental Assessment. Once the project is completed, air and noise conditions in the project vicinity should return to their present levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area such as a flood plain, tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal waters

The project site is located inland from any coastal waters within an area determined by the Federal Emergency Management Agency to be outside of the 500 year flood zone. Based on area topography, the project site is unlikely to be affected by flooding. All structures proposed for this project will be built according to equivalent standards for seismic zone 1, as established by the Uniform Building Code. The project is not located in an environmentally sensitive area and is unlikely to affect or suffer damage from natural forces such as flooding, hurricanes or earthquakes.

12. Substantially affects scenic vistas and viewplanes identified in country or state plans or studies

The Primary Urban Center Development Plan (Ordinance No. 81-79) identified important view to be protected. From public places in urban Honolulu, these include; mauka views of the Koolau mountain range ridges, and valleys; views of forest areas; and view to the mountains from streets and other public areas in Waikiki. From a regional perspective, the proposed project will not obstruct the above-mentioned views, due to the great viewing distance, it is behind Puu Kakea, and the fact that the mountain is very heavily vegetated. The proposed project will be constructed below tree heights in the vicinity. The residence will not interfere with any views of the Tantalus ridgeline from urban Honolulu.

13. Requires substantial energy consumption.

Construction and daily activities associated with the proposed single-family residence area small-scale and will not require substantial amounts of electrical energy.

FINDINGS

In accordance with the provisions set forth in Chapter 343, Hawaii Revised Statutes, and the significance criteria in Section 11-200-12 of Title 11, Chapter 200, it is anticipated that the project will have no significant adverse impact to water quality, air quality, existing utilizes, noise levels, social welfare, archaeological sites, or wildlife habitat. All anticipated impacts will be temporary and will not adversely impact the environmental quality of the area. It is expected that an Environmental Impact Statement (EIS) will not be required, and that a Finding of No Significant Impact (FONSI) will be issued for this project.

REFERENCES

- City and County of Honolulu, Land Use Ordinance, May 1999
- City and County of Honolulu, Primary Urban Center Development Plan, Ordinance 81.79
- City and County of Honolulu, Revised Ordinances of the City and County of Honolulu, 1990
- City and County of Honolulu, Board of Water Supply, Water System Standards, Volume I, 1985
- Osumi Nakai Maekawa, Designer, East and West Elevations, Chan Residence, 2007.
- Osumi Nakai Maekawa, Designer, North and South Elevations, Chan Residence, 2007.
- Osumi Nakai Maekawa, Designer, Proposed Residence Superimposed on View from Kalaiopua Loop, 2007.
- Osumi Nakai Maekawa, Designer, Site Plan, Chan Residence, 2007.
- Osumi Nakai Maekawa, Designer, Conceptual landscaping Plan, Chan Residence, 2007.
- First American Real Estate Solutions, L.P., Win2Data, 2001
- <http://cfpub.epa.gov/npdes>
- <http://honolulu/dpp/org/planning/92plan>
- Hawaii Revised Statutes, Chapter 343.
- Hawaii Administrative Rules, Chapter 11-54.
- Hawaii Administrative Rules, Chapter 11-55.
- Hawaii Administrative Rules, Chapter 11-59.
- Hawaii Administrative Rules, Chapter 11-60.
- Hawaii Administrative Rules, Chapter 11-200.
- Hawaii Administrative Rules, Chapter 13-5.
- Shinsato Engineering, Inc., Soils Investigation Report Proposed Chan Residence, 2007
- State of Hawaii, Department of Business, Economic Development and Tourism, State of Hawaii Data Book, 2001.
- State of Hawaii, Department of Business, Economic Development and Tourism, State Geographical Information System.
- State of Hawaii, Department of Land and Natural Resources, State Conservation Lands Functional Plan, 1991.
- State of Hawaii, Department of Land and Natural Resources, Bureau of Conveyances, Library 250, p. 152.

State of Hawaii, Hawaii Housing Authority, State Housing Functional Plan, 1991

Stearns, Harold T., Knute N. Vaksvik, Geology and Ground-Water Resources of the Island of Oahu, Hawaii, Territory of Hawaii, 1936.

United States Geological Service, Honolulu Quadrangle.

University of Hawaii Press, Atlas of Hawaii, Second Edition, 1983.

University of Hawaii Press, Atlas of Hawaii, Third Edition, 1998.

U.S. Department of Agriculture, Soil Survey of the Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, United States Department of Agriculture, Soil Conservation Service, 1972.

U.S. Federal Emergency Management Agency (FIRM), FIRM Flood Insurance Rate Maps, 1982.

APPENDIX A

Percolation Test Report

And

Report, Soil Investigation

Proposed Chan Residence, 3852 Puu Kakea Place, Honolulu, Hawaii 96822

TMK: 1-2-5-018:032

By Shinsato Engineering, Inc

June 2007

APPENDIX B

ARBORIST'S REPORT ON RISK ASSESSMENT

**By Abner C Undan
Certified Arborist #1129**

June 2007

APPENDIX C

Responses to Comments Received During the Draft Environmental Assessment 30-day
Comment Period