

AN ENVIRONMENTAL IMPACT

ASSESSMENT REPORT

MOTU OUTLOOK ACCOMMODATION

UNITS

TE KOITI RAUKURA 6C3, AVANA,

NGATANGIIA.

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PART A

EIA Objective

The objective of the EIA is to identify potential environmental, social and economic impacts of the proposal and to ensure that adverse impacts from this development are avoided where possible. Consistent with this objective, this EIA is self-contained document containing sufficient information to make an informed decision on the potential impacts. This document should provide:

- *for interested bodies and persons*: a basis for understanding the proposal, alternatives and preferred solutions, the existing environment that would be affected, both on and off the site, the impacts that may occur, and the measures to be taken to mitigate all adverse impacts.
- *for groups or persons with rights or interests in land*: an outline of the effects of the proposed proposal on that land, including access arrangements.
- *for government decision makers*: a framework against which decision-makers are able to consider the environmental aspects of the proposed proposal in view of legislative and policy provisions and provide sufficient information to decide whether the proposal can proceed; OR as appropriate, set conditions for approval to ensure environmentally sound development and, where required by legislation, recommend an environmental management and monitoring program.
- *for the proponent*: a definitive statement of measures or actions to be undertaken to minimise any adverse impacts during and following the implementation of the proposed proposal. A draft Environmental Management Plan (EMP) that describes acceptable impacts and environmental management strategies to agreed performances criteria is the recommended means of achieving this objective.

The proponent is required to address the Terms of Reference to the satisfaction of the National Environment Service and the completion of the EIA does not mean that the proposal will necessarily be approved.

The EIA is a standalone document and contains sufficient information and other appended studies/surveys to avoid the need to retrieve previous reports.

3. Stakeholder Consultation

To facilitate the assessment process, the proponent is encouraged to regularly consult with relevant/appropriate stakeholders throughout the EIA process.

Copies of the EIA shall be provided to the community and, on request, to relevant individuals with an interest in the proposal.

PART B

EXECUTIVE SUMMARY

Title of Proposal: Muri Motu Outlook. A Pacific Property Ltd business development.

Proponent: Mr Steve Anderson, Matavera,

Contact; Phone: 25235, email; admin@andersons.co.ck

Mr Don Carlaw, Tupapa.

The main purpose of this proposed development is to add three (3) single self-contained timber framed tourist accommodation units to the existing 3 bungalows on the land section Te Koiti Raukura, Pt Sec 6C3, Avana, investing in the growing tourism industry here in the Cook Islands. The section is on a slope of more than 10% and is already developed with a residential house and 3 bungalows uphill from the proposed site of the 3 units. The units will be on posts hence no major excavations are required. The units will be placed with maximum view of the lagoon and motu's from Avana towards Aroko. To date tourism remains the largest industry in the Cook Islands, accounting for over 60 per cent of the country's GDP. The project supports the government NSDP Goal 2: "Expand economic opportunities, improve economic resilience and productive employment to ensure decent work for all"

As soon as all permits are approved the preliminary works will commence keeping in mind to comply with recommendations from this report, relevant standards and legislations.

This development will be guided by the recommendations from this report and terms and conditions imposed by the National Environment Services. The Contractor will be responsible for implementing the works in accordance to architect's specifications and the Cook Islands Building Standards and relevant AS/NZ building standards and the Public Health Sewage Code and Regulations 2014.

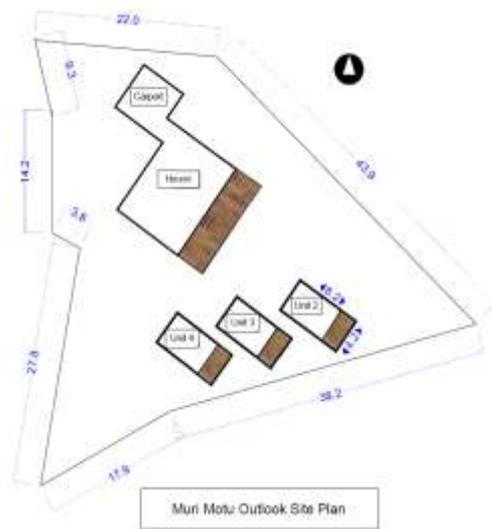
There are three existing bungalows on the property and vacant space at the lower end of the section. It is thought to build additional tourism accommodation units on the vacant space with a beautiful view overlooking the lagoon and motu's. The idea is to take advantage of the growing tourism sector. The proponents will benefit financially and will the local economy from the proposal.

EIA for MOTU OUTLOOK ACCOMMODATION UNITS, AVANA.

The consequences of not proceeding with this development are that opportunities for economic returns to the proponent and the local economy will be lost.

There are no alternative options considered as the land area is only suitable for this type of development.

This is a simple development. Plans are completed and construction permits from relevant authorities are sought. Once permits are approved construction commences thereafter. As stated above, the Contractor will be responsible for implementing the works in accordance to architect's specifications and the Cook Islands Building Standards and relevant AS/NZ building standards. The Contractor will also be guided by the terms and conditions imposed by the National Environment Services.



The principal environment and health impacts predicted are pollution of ground water and lagoon from untreated or non-compliant wastewater treatment and land application system, improper dumping of toxic chemicals on the site, fire, health hazards from improper storage/disposal of solid waste.

Deterioration of building material by rust from sea spray.

Mitigation measures proposed are that;

Wastewater treatment system selected is compliant to the Public Health Sewage Regulations 2014, is installed by registered drain layers/plumbers as approved by the Public Health.

Proper disposal of toxic chemicals if any.

Buildings to be constructed to withstand cyclone winds according to Cook Islands and AS/NZS building Standards. Use rust proof materials for beach area. During operation the owners will ensure that their solid waste is properly separated, recycled and disposed at landfill and the sewage system is working properly. Owner should monitor the immediate environment for any detrimental impacts that the development imposes on the environment and likewise, nature has on the development. These are to be recorded, submitted to relevant authorities for advice or immediately mitigated if possible.

The project is being designed within the parameters of the Environment Act 2003, Building Act 2003, Building Control and Standards Act 1991 and Building Control Standards Regulations 1991. In addition to these are the requirements of the Public Health Act 2004 and Energy Act 1998.

An Environmental Management Plan (EMP) is provided in this report which sets out the responsibilities of the respective parties in monitoring and mitigating potential impacts. The EMP includes the establishment of communication systems between, owner, contractor, building control, NES and Public Health and regular inspections during and after the construction works.

The project supports the government NSDP Goal 2: “Expand economic opportunities, improve economic resilience and productive employment to ensure decent work for all” and the national vision “to enjoy the highest quality of life consistent with the aspirations of our people in harmony with our culture and environment”.

GLOSSARY OF TERMS

A glossary of technical terms, acronyms and abbreviations should be provided.

REA	Rarotonga Environment Authority
EIA	Environmental Impact Assessment
TOR	Terms of Reference
EMP	Environment Management Plan
NES	National Environment Services
MHWM	Mean High Water Mark
GDP	Gross Domestic Product
NSDP	National Sustainable Development Plan

Wastewater water spent or used water of residential, public or commercial origin.

1. INTRODUCTION

This EIA is prepared to seek the full permit approval from the National Environment Services (NES) and Rarotonga Environment Authority (REA) for the proposed development.

This EIA report is prepared to assist in the facilitating the approval process for the proposed project construction works.

The report aims to describe the project and the potential risks economically, socially, culturally and environmentally when implemented. The risks are identified and mitigation measures are proposed and put in place to reduce or eliminate potential impacts.

This report will be available for public review and comment prior to final consideration by the Rarotonga Environment Authority.

1.1 Proposal Proponent

Proponents: Mr Steve Anderson, Matavera,

Contact; Phone: 25235, email; admin@andersons.co.ck

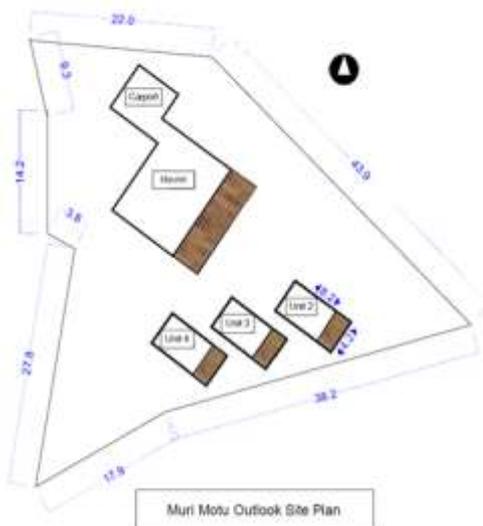
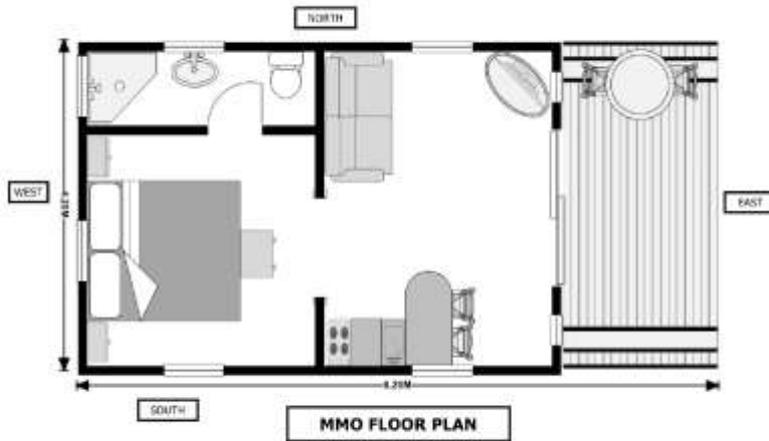
Mr Don Carlaw, Tupapa.

This is a joint venture, Pacific Property Ltd business development

1.2 Proposal Description

EIA for MOTU OUTLOOK ACCOMMODATION UNITS, AVANA.

The proposal is to build three (3) timber frame single self-contained accommodation units on the land section, Te Koiti Raukura, Pt Sec 6C3, Avana. The units will be on timber pilings hence avoiding major excavations on site.



There is an existing residential house and three bungalows on the section. The land is stable and could structurally support the proposed buildings. There is existing sealed access to site, services like water, electricity and telecommunications can be connected to the units from on the section.

A wastewater treatment system will be designed to comply with the Public Health Sewage Regulations and Code 2014 and ASNZS 1574:2012 and other relevant on-site wastewater treatment system and Plumbing Standards.

The proposed works will commence as soon as approval for all relevant permits are received. Proponent has selected his contractor and materials are on the island.

The works will commence with setting out profiles for building foundations and service lines to bungalow units.

Construction of bungalows units

Installation of services

Finishing works including services connections.

Landscaping

Completion.

1.3 Proposal Objectives and Scope

The objective of this proposal is to build 3 timber framed single self-contained units on the section Te Koiti Raukura, Pt Sec 6C3, Avana aimed at the tourism market.

The units are to be located on the hill slope in Avana approximately 100m from foreshore with unobstructed view of the lagoon and motu and are designed to be safe and comfortable for anyone who prefers to stay there.

The units will be built on a section with an existing residential building and three bungalows. There are no alternatives to the overall designs and placing of buildings at this point of time.

The section is leased by the proponents. The construction of this project is estimated to take up to about 3-4 months to be completed. At this point of time no works has been carried out on the section.

The consequences of not proceeding with the proposal will be an investment/economic opportunity loss for the proponent and the island.

1.4 Environmental Impact Assessment (EIA) Process

1.4.1 Methodology of the EIA

a) Application stage

At the end of October 2017 the proponent submitted an Environment Significance Declaration form to NES to determine whether a full or partial EIA is required.

This stage involves the preparation and lodgement of an ESD form for the proposal to NES Rarotonga. NES then assesses the proposal under Part 5 Section 36 of the Environment Act 2003 and determined if it would potentially have significant social, economic and environment effects and therefore an EIA would be required.

A Terms of Reference (TOR) for the EIA is then prepared by the NES from information contained in the ESD form and submitted to the applicant as a guide for the preparation of the EIA report.

b) Public notification stage

Section 36(5) of the Environment Act 2003 requires the EIA report to be publicly notified so that interested or affected persons have the opportunity to provide feedback on the proposal. This formal public consultation period is for a 30 day period from the date the NES notifies the EIA report.

As public concerns/issues are received, the NES will forward this to the applicant for the applicant to satisfactorily address these concerns/issues and provide comments back to the NES.

c) Approval stage

As public review concludes any written issues from the public are received by the NES, the NES will forward these to the proponent for a response. When NES is satisfied that all

concerns (if any) have been addressed, NES and REA will deliberate on the approval of a construction permit. There are three possible outcomes:

- i. Issue a permit for the proposed project specifying the terms and conditions to which the permit is subject; or
- ii. Request that the proponent submit modifications regarding the proposed project; or
- iii. Where there are reasonable grounds to do so (taking particular account of the purpose of the Act), refuse to issue a permit for the proposed project and state the reasons for such refusal.

1.4.2 Objectives of the EIA

The objective of the EIA is to identify potential environmental, social and economic impacts from this development and to ensure that any adverse impacts are avoided, minimised and mitigated where possible.

For this proposal the EIA looks at potential impact the;

- Development will have on the section and neighbouring properties,
- Wastewater will have on the quality of ground and lagoon waters
- Cyclonic winds and heavy sea surges on the development
- Way neighbours and the community feels about the development
- Development may impact on the use of scarce natural resources.
- Adverse impacts that nature may have on the development.

The EIA will also look at the benefits the development may bring to the community and the nation and how it contributes to the National Goals and Outcomes of our National Sustainable Development Plan (NSDP).

The proposed Environmental Management Plan (EMP) for this project is detailed in section 5.

1.4.3 Submissions

Public submissions on the EIA report shall be lodged to the NES within 30 days from the date of public notice from the general public and other interested parties;

All submissions shall be in writing and addressed to the NES.

The Service shall request comments from any Government department or agency, or person affected by or having expertise relevant to the proposed project or its environmental impact.

1.5 Public Consultation

The proponent to undertake consultation with individuals, Aronga Mana, neighbours, interest groups with specific focus on impact identification and mitigation of adverse social, economic and environmental issues.

1.5.1 Relevant Legislation and Policy Requirement

The project is being designed within the parameters of the Environment Act 2003, Building Act 2003, Building Control and Standards Act 1991 and Building Control Standards Regulations 1991. In addition to these are the requirements of the Public Health Act 2004 and Energy Act 1998.

The Environment Act 2003 provides the legal framework for the administration of any land prior to development. It informs the functions and roles of NES, which amongst other things embraces the protection and management of the environment and its resources in a sustainable way.

This project is covered under Part 5 Environment Impact Assessment, Section 36 (13) of the National Environment Act 2003.

Section 36 (1) states: No person shall undertake activity likely to cause significant environment impacts except in accordance with a project permit issued under this section. A project permit is obtained from the permitting authority, the REA. Section 36 (2): A person who proposes to undertake an activity of the kind referred to in subsection (1) shall apply to the permitting authority for a project permit in respect of the activity in accordance with the procedures (if any) prescribe by regulations. Section

36 (3): Every application for a project permit shall be submitted to the Service and shall include an environmental impact assessment, setting out details of:

- a) The impact of the proposed project upon the environment, in particular
 - i. The adverse effects that the project will have on the environment; and
 - ii. A justification for the use or commitment of depletable or non-renewable resources (if any) to the project; and
 - iii. A reconciliation of short-term uses and long-term productivity of the resources; and
- b) The proposed action to mitigate adverse environmental effects and the proposed plan to monitor environmental impacts arising out of the project; and
- c) The alternatives to the proposed project.

The Public Health Act 2004, Section 13 establishes “building health standards” which include provisions of adequate and convenient water supply for human consumption and sanitary purposes; adequate and convenient means for storage and disposal of waste; adequate and convenient toilets; and adequate drainage, lighting, space and ventilation.

Building permits are being applied for from the following authorities, to allow the project to proceed into construction:

National Environment Service; Ministry of Health; and Building Control, Ministry of Infrastructure.

1.5.2 Planning Process and Standards

As described above the planning process for this development is consistent with the current land use and long-term policy framework for the majority of the area and that is for development of the nation’s tourism sector.

The planning process includes the designing and positioning of the proposed buildings to maximise the beach and lagoon view and at the same time protect the building and its surroundings from cyclonic winds and sea surges and the ground water and lagoon from wastewater pollutants. The construction and operational activities shall be monitored and controlled in compliance to the following legislation, standards and codes:

EIA for MOTU OUTLOOK ACCOMMODATION UNITS, AVANA.
National Environment Act 2003, Section 36 (5) and 50 (8), Public Health Act 2004,
Building Act 2003, Cook Island Building Regulation and Code, AS/NZ building
standards, Building Control and Standards Act 1991 and Building Control Standards
Regulations 1991 and Energy Act 1998.

The proposed works will commence as soon as approval for all relevant permits are received.

The physical works will commence with:

Site preparation

Setting out profiles for building foundations and service drainage

Construction of accommodation units

Finishing works

Landscaping

Commissioning.

2.1 Proposal Justification

The proponents are well known businessmen on Rarotonga and are now expanding their business interest in to the tourism sector, although on a smaller scale.

Even though this proposal is on a small scale it is anticipated to contribute some economic benefit to the proponent, government (in terms of taxes), local businesses (shops, service providers, rental businesses), farmers, fishermen, arts and craft and market vendors.

2.2 Alternatives to the Proposal

At this point of time there are no alternatives to the proposal.

If there are concerns from the community the proponent would sit and listen to any issue raised and the proponent will then see if these can be resolved. If the concern is the site, the proponent has no alternative sites to this that have the view and readily available services.

3. DESCRIPTION OF PROPOSAL/DEVELOPMENT

3.1 Location

EIA for MOTU OUTLOOK ACCOMMODATION UNITS, AVANA.

The proposed development is to be located on the land section Te Koiti Raukura, Pt Sec 6C3, in Avana, Ngatangia. This is a leased property.





3.2 Staging

1. Site preparation
2. Setting out profiles for building foundations and service drains
3. Construction of bungalows
4. Finishing works
5. Landscaping

Commissioning.

Maximum of 6 workers expected on site.

3.3 Emergency Management

Emergency Plans during construction:

In relation to emergency management:

- Emergency access is readily available from Main Road via right of way to site of works.
- There is no potential disruption to community utility networks (i.e., water, and electricity);

- There will be no permanent road closures or vehicle limitations during construction works.

The contractor shall ensure that all safety rules and regulations relating to construction site and works are enforced.

Accidents on-site: Police, Fire and Ambulance emergency number will be kept on site.

Emergency Access: Clear access way for emergency vehicles on to site.

Full First-Aid kit to be stored on site easily accessible for the workers.

Cyclone warnings: in the case of extreme weather warnings contractor will ensure that the building site is secure and all loose materials on the building site are stacked securely on site. Electricity and water services on site will be turned off and secured from damage. Machinery will be relocated off site.

Work will resume when clearance is given by the relevant authorities.

3.4 Infrastructure Requirement

All infrastructure requirements are available on site.

No relocating or upgrading of infrastructures supporting the development.

3.4.1 Transport

There is an existing 4m wide sealed road from the main road servicing the section and properties above the proposed development area. It is anticipated that this development will not disrupt traffic movement in the Avana area as this is a fairly small development.

Anticipated movement of traffic will come from delivery trucks for building materials (mainly for timber, roofing and concrete for timber piles).

Traffic that will be generated by the workers on site is minimal.

No alternative proposal for relocation or realignment of access to the project site is required.

3.4.2 Storm Water Drainage

There is road side drainage at the southern boundary of section and along the section boundary side of the access road. These flows on to the main road and across in to the lagoon.

There is some sort of drainage along the Muri boundary of section. A well-formed drain is located further own towards the main road the drains the southern area from the section. This drains into the lagoon.

Groundwater and surface water flows straight into the lagoon.

Surface water do carry contaminants into the lagoon. These should drain on grass swales to rid some contaminants before draining into lagoon.



Drainage at bottom of section



Open drain towards main road



Drain outlet to beach

3.5 WASTE MANAGEMENT

3.5.1 Character and Quantities of Waste Materials

During construction

Solid waste – construction waste, construction material wrappings, workers' food wrappings and empty drink cans and bottles.

Liquid waste - washing equipment, cleaning paint containers on site

During operation

Solid waste– normal household waste, white-ware, e-waste,

Liquid waste- sewage (black and grey water)

Chemical waste – use of toxic chemicals, washing powders containing phosphate, Contact NES for proper disposal of chemicals.

Mitigation

Wastewater treatment and disposal to comply with Public Health Sanitation Regulation and Code 2014 monitored by Public Health. Experienced designers and installers recommended.

Set up to recycling, reuse and composting systems. eg aluminium cans, e-waste, organic/food waste, composting. Store e-waste in secure areas for proper disposal by relevant authorities. Encourage reuse of materials to save resources and landfill space.

During construction, minimise waste going to the landfill and this can be achieved by careful use of building materials to avoid wastage, selecting construction waste for re-use and recycling.

3.5.2 Solid Waste Disposal

During construction typical solid waste are; construction waste materials, demolition waste, material wrappings, workers' food wrappings and empty can drinks or bottles.

It is encouraged to minimise waste going to the landfill and this can be achieved by careful use of building materials to avoid wastage, selecting construction waste for re-use and recycling and food, equipment and material wrappings can be recycled, composted and remaining can be securely stored for the landfill. Drinks containers can be separated into aluminium, glass and plastic for recycling and disposal.

During operation solid waste are classified normal household waste, white-ware, ferrous, e-waste eg printer cartridges, printers, mobile phones, batteries etc.

Check with Cook Islands General Transport for recycling of whiteware, ferrous materials, e-waste and batteries.

It is recommended that bins be set up for plastic bottles, glass bottles, aluminium cans, empty food cans and normal household waste. Food waste to be fed to animals or used for composting. Any e-waste to be stored properly away from the elements, contact NES or General Transport for advice.

The bins shall be securely closed to prevent foul odour and avoid vermin on site.

These shall be properly delivered to landfill and recycling depot.

4.0 ENVIRONMENT VALUES AND MANAGEMENT OF IMPACTS

4.1 Land

4.1.1 Description of Environment Values

The land section is on a slope of about 25 deg of undulated land surface. The ground is stable and have good cover of grass. On the north and inland sides adjacent to the section is mainly bush. On the south side are residential buildings.



Access road, property on left of photo



Residential homes below section

4.1.1.1 Soils

The soil type is friable to firm slightly sticky, plastic, clayey to clay loam A horizons with weakly developed cutans. It seems that soils have sticky and plastic A horizons, compact subsoils (cohesive), and are imperfectly drained.

Ground is stable well grassed and not prone to erosion in its present state. The development would not influence potential erosion and storm water runoff quality.

4.1.1.2 Landuse/Characteristics

The area is on a slope of about 30 degrees and is mainly residential with natural bushland to the west, hill side. The area would have been just bushland and would have not been suitable for agriculture purposes because of its slope..

The area would have been occupied with residential homes in the past twenty -thirty years.

4.1.1.3 Landscape Character

The land section is on a slope of approximately 30 deg. The slope is undulated and difficult for development unless buildings on piles or slope is excavated to form an earth platform to accommodate buildings etc.

4.1.2 Potential Impacts and Mitigation Measures

Potential Impacts

Contamination of ground water, erosion from; Poorly designed developments could impact on the land and surrounding areas. Poorly designed wastewater treatment systems, poor storage and disposal of solid waste, lack of surface water drainage the

Mitigation

Proper design and management of development.

4.1.2.1 Landuse Suitability

The development would not change the existing or potential use of land. The land area is mainly residential with one or two tourist accommodation businesses, not suitable for agricultural purposes.

4.1.2.2 Land Contamination

The possible land contamination would come from construction waste (paints, cleaning chemicals, oil leaks from machinery) solid waste (poorly secured and uncontrolled solid waste storage and disposal and lastly from liquid waste in the form of untreated effluent. Poorly treated effluent would contaminate the ground water and eventually have a detrimental impact to the lagoon ecosystem.

Solid waste should not to be dumbered on the section as this could attract vermin on site and could produce leachate which could leak into ground water and contaminate it.

Mitigation measures are noted in 4.3 Wastes.

4.2 Water Resources & Quality

4.2.1 Description of Environmental Values

Ground water quality in this specific area has not yet been tested. Water table at the section is more than 3m deep and the soil permeability is poor. This development would not have any adverse impact on the water quality in the area. It is highly recommended to provide at least a

6000L capacity water tanks for roof catchment at each of the units to supplement eticulated water supply.

4.2.2 Potential Impacts and Mitigation Measures

The buildings will be built on timber posts hence would minimise sediment transportation from site.

Development is away from lagoon hence risk of construction materials being destroyed by heavy sea surges is unlikely.

4.3 Waste

4.3.1 Description of Environmental Values

There are generally three forms of waste; solid waste, liquid waste, and hazardous waste.

Solid waste: includes building waste, white-ware, vehicles, ferrous materials, cardboard, paper, glass, plastics and normal household waste.

Liquid waste: household sewage (black and grey water) from households and commercial and storm-water runoff,

Hazardous waste includes asbestos, e-waste, batteries, toxic chemicals etc

4.3.2 Potential Impacts and Mitigation Measures

Impacts;

Possible contamination of ground water from poorly designed wastewater treatment and land application systems could pollute the lagoon ecosystem, surface runoff into the lagoon without some type of treatment can also have some detrimental impact on to the lagoon ecosystem.

Mitigation:

- Propose methods of disposal (including the need to transport wastes off-site for disposal) to be used for any trade wastes, liquid wastes and solid wastes in compliance with relevant regulation and standards;

Surface Runoff

- Surface water runoffs to drain into wetlands, grassed swales or grassed drains before draining to lagoon.

Liquid Waste

- An on-site wastewater treatment and land application system design shall be submitted to Public Health for consent permit. The treatment of household wastewater for the on-site treatment methods to comply with the Public Health Sewage Regulations 2014. The selected wastewater treatment and land application design shall be checked and approved by the Public Health before a building permit is given. The designer and installer must be experienced and competent and are approved designers/installers on the Public Health register.
Disposal of septic sludge, commercial waste, trades waste and solid waste to be carried out by approved contractors.

Solid waste

- The potential level of impact on the surrounding community due to nuisance;
- Proper collection and storage of waste to avoid bad odour, vermin and insects on site,
- Reuse old materials suitable for other uses where possible
- Recycle waste where possible
- Encourage composting or organic material
- Store waste in enclosed bins with no exposure to the elements
- Avoid large stockpiles of materials on site
- Avoid overloading bins
- Avoid storing waste on site for long periods of time
- Provide sufficient recycling and waste bins on site
- Use licensed contractors for the disposal of waste if available
- Dispose of waste on a regular basis or as needed ☐ Maintain records of disposal times and contractors
- Secure bins to avoid waste strewn around the property by dogs

Hazardous waste

- Limit use of toxic chemicals, Contact NES for proper disposal of hazardous waste

4.4 Social

4.4.1 Description of Environmental Values

Community infrastructure and services, access and mobility will not be affected by this proposed development. This is a small development and would not impact on the residential homes nearby. Dust during construction is expected to be minimal. Noise could be a nuisance to neighbours during construction and will be kept to a minimum.

4.4.2 Potential Impacts and Mitigation Measures

Ensure noise is kept to a minimum by ensuring electrical and mechanical tools are serviced and in good working order. Monitor noise level daily. No work on Sundays and working hours between 8am and 6pm Mon – Sat.

4.5 Health and Safety

4.5.1 Description of Environmental Values

The health and safety of the workers and the community is paramount on any construction site. The hazards are many on construction sites, with the main ones are faulty carpentry tools and equipment, loose construction materials scattered around the site causing physical injuries to contract workers, people including children wandering on site. Noise and dust. Untidy storage of organic waste on site attracts vermin and improper sanitation system are health hazards. Undersized effluent disposal areas are prone to ponding of effluent which could be detrimental to the health.

It is pertinent that the contractor and owner ensures that all safety measures required to protect the workers on site and the general public are in place and monitored throughout the project duration. Comply with all regulations in relation to workplace safety.

4.5.2 Potential Impacts and Mitigation Measure

This section defines and describes the objectives and practical measures for protecting or enhancing health and safety community values, describes how nominatquantitative standards and indicators may be achieved for social impacts management, and how the achievement of the objectives will be monitored, audited and managed.

Potential Impact

The potential impact is the hazards faced on any construction site. The potential impacts could be fatal or serious injuries to workers and the inquisitive public. Also, there are health concerns resulting from improper disposal of both solid and liquid waste. The main hazard on construction sites are typically uncovered drains, loose building materials scattered around the site, faulty carpentry tools and equipment, lack of warning signage on the site, inexperienced workers etc, Injuries are common on any construction site as a result of the above.

Mitigation Measures:

During construction – comply with all regulations in relation to workplace safety. It is recommended that workers have proper protection clothing as required on construction sites. (eg work boots, ear muffs, gloves, safety glasses and dust masks etc). Check daily that all equipment’s like ladders, electrical tools etc are safe to use.

Ensure experienced workers and leading hand closely supervises the workers.

Use of earphones for music during work hours should be restricted or banned.

Temporary fencing could be erected to prevent people, especially children from wandering on site during and after construction hours.

Any major excavations shall be properly covered and fenced to prevent people from accidently falling in to it.

Put away electrical tools when not in use.

At all times keep the site clean with building materials secured and properly stockpiled away from immediate worksite.

Must have experienced workers and foreman on site.

Safety procedures to be monitored daily.

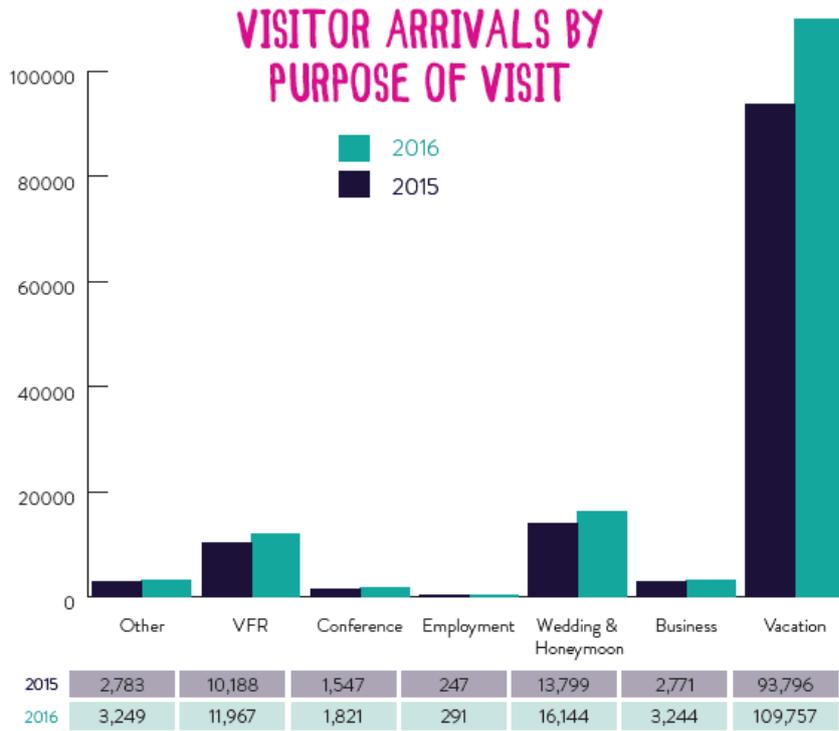
4.6 Economy

4.6.1 Description of Environmental Values

Tourism is the main driver of the country’s economy. 2016 was a record year for tourists with 146,473 visitors. (Cook Islands Statistic Bulletin January 2017).

Tourism provides the economic base of the Cook Islands with services contributing about 65% of GDP. There is need for tourist accommodation to cater for the increasing number of traveler’s to the Cook Islands.

Country of Residence	CALENDAR YEAR		
	Jan - Dec16	Jan - Dec15	% Change
New Zealand	99,490	83,976	+18%
Australia	23,796	21,558	+10%
UK	2,740	2,628	+4%
USA	6,192	5,368	+15%
Canada	2,212	1,883	+17%
Europe	8,027	6,449	+24%
ASIA	1,881	1,295	+45%
Pacific Islands	1,523	1,568	-3%
Other Countries	612	407	50%
Total Visitor Arrivals	146,473	125,132	17%



Tourism CIs data

The location and the booming tourism industry are the main reasons for the development. Economic development in the Cook Islands is hindered by the isolation of the country from foreign markets, the limited size of domestic markets, lack of natural resources, periodic devastation from natural disasters, and inadequate infrastructure. Farmers and fishermen from within and outside the area will benefit from this tourism trade by supplying hotels cafes and restaurants with their produce. This development will further strengthen the economy with the additional incoming foreign currency and employment opportunities. It is anticipated that the existing economic environment will be enhanced by the proposal.

The proposal will not have any negative effects on the local economy for the following reasons:

1. There will be no impact on the existing housing market, particularly rental accommodation, or transportation, as the proposed contractors who live on Rarotonga all have existing accommodation and vehicles.
2. The economic viability of the development has been established by bookings to date. Once the development has been completed, the future economic opportunities both for the proponents and the local economy are substantial. The opportunity cost for foregoing this development will be in the thousands of dollars per year.

4.6.2 Potential Impacts and Mitigation Measures

Potential impact;

Dirty, unpleasant environment and petty crime may deter tourists from electing to come to the Cook Islands.

Dependent on imported food stuff.

Mitigation:

Continue to educate the people of the Cook Islands to look after the environment. Continue to support initiatives by the Environment Services, Public Health and other environment groups for a clean and healthy environment.

Farmers encouraged to grow to supply local hotels. Government to protect local produce.

Provide security to tourist premises, maybe harsher penalties for criminals that target the tourism sector.

As stated above this development will add significantly to an already highly valued area in terms of its contribution to the economy of the Cook Islands.

4.7 Hazards and Risk

4.7.1 Description of Environmental Values

Hazards are present on any construction site and it's the contractor's responsibility to minimise these and to reduce the risks of injuries on site.

4.7.2 Potential Impacts and Mitigation Measures

Potential Impact

Loose building materials around the building site could cause injury to workers or visitors.

Faulty electrical and carpentry tools

The risk of damage to the buildings from cyclone winds if not designed or constructed to the required standards are high.

Risk of fire to the property.

Mitigation

As described above construction tools, equipment and machinery shall be fully serviced or replaced, workers to be suitably protected with proper protective gears, work site to be fenced off if required with warning signs posted round site. Construction materials to be properly stockpiled on site.

Put plan in place for minimising damage to property and evacuation plan for clients if required during a cyclone or tsunami warning.

Ensure fire extinguishers and smoke detectors are installed inside the buildings. Ensure route direction for fire fighters in the event of a fire is easily accessible and clear to read. Ensure property is safe from bush fires.

4.8 Erosion Control

4.8.1 Description of Environmental Values

The soil type on the section is friable to firm slightly sticky, plastic, clayey to clay loam and the ground surface is well grassed hence potential erosion of soil is minimal in its present state and unless major excavations on site are undertaken will the possibility of serious erosion is expected.

This development will not engage major excavation on site, excavations will be limited to building post footings and service drains hence impact to soil erosion is minimal

4.8.2 Potential Impacts and Mitigation Measures

Potential impacts to soil and ground stability from this development is expected to be minimal however great care must be taken during construction that stockpiled excavated material is properly protected to prevent surface water from transporting soil to the lagoon. Big excavations not properly constructed and shored could trigger ground instability and erosion.

Mitigation

Manage storm water appropriately - Establish sediment and erosion controls around stockpiles where appropriate

Minimise size of stockpiles

Establish diversion drains around disturbed areas if required

Drain storm water into appropriate infrastructure

Minimise the risk of erosion caused by machinery and disturbance to soils/land - Control access points to a limited number

Avoid or minimise the use of large machinery

EIA for MOTU OUTLOOK ACCOMMODATION UNITS, AVANA.

IMPACTS	ACTION	BY	MONITORING	BY
Land contamination	Compliant sanitation system. No discharge of toxic substances on site and waterways	contractor	During and after installation.	Public health. Tutaka.
Water contamination	Compliant sanitation system. No discharge of toxic substances on site and waterways	contractor	During and after installation	Public health. Tutaka
Waste Solid liquid	Proper recycling and storage/ disposal process for solid waste. Compliant sanitation systems	Contractor/ developer	weekly	Developer Developer/Public Health
Noise & Vibration	Operation hours. Check and repair construction and carpentry tools	Contractor/ developer	daily	contractor
access	NA	developer		
Vegetation clearance	No removal of trees at beach front.	Contractor/ developer	During and after construction	NES
Health & Safety	Elect safety officer to ensure all Health & Safety requirements are met	contractor	daily	Contractor/developer/public health.
Hazard & Risks	Remove possible hazards, erect warning signs	Contractor/ owner	During construction	contractor

6.0 ENVIRONMENT MANAGEMENT PLAN (EMP)

Environment Management Purpose

The purpose of this EMP is to set a plan for the continuous protection of the environment during and post construction in order to minimise or avoid potential adverse impacts to the environment, population and the economy as stated in this EIA report.

Environment Management Objective

To ensure the proposed works are carried out in compliance with relevant standards and regulations and regular monitoring of the environment is carried out during and after construction to reduce or eliminate adverse impacts reoccurring.

Environment Management Standards

No construction works shall commence until a;

- Wastewater treatment design is approved by Public Health
- Waste water design and installation to be carried out by Public Health approved designers/installers
- EIA approved by NES
- Building permit is approved by the Building Controller.

Inspection of construction works to be carried out by building controller

All works shall be performed with best trades practice.

All construction equipment and carpentry tools shall be checked daily and repaired if found faulty.

A health and safety officer shall be nominated from the work force to monitor and ensure all Health and Safety procedures are in place during construction.

A monitoring plan shall be in place for all issues indicated in this EIA.

A complaint register shall be in place to record complaints and also a mechanism to gauge the effectiveness of the monitoring and mitigation process.

Corrective Actions

Any issues arising from the construction works, the relevant authority shall be notified and issues rectified as soon as possible.

Any damages caused by the works outside the worksite shall be fixed/ repaired as soon as possible.

Owner Responsibilities

To monitor for any adverse impacts that may occur to the environment during and after construction of this development and report immediately to the relevant authorities.

CONCLUSION

The proposal maybe small however the proponents are aware of the adverse impact the development may impose on to the environment and he agrees to undertake mitigation measures to minimise these risk of these happening.

With the potential impacts and mitigation measures identified and addressed in this report the developer and contractor are required to monitor and implement these to protect our environment, our health and the economy.

It is anticipated that potential adverse impact to the environment and the community will not be significant, however the proponent will ensure that careful monitoring is ongoing. This proposal is expected to be beneficial to the proponent and the local economy. Relevant Authorities like NES and Public Health are expected to play their part in monitoring or corresponding to developer/contractor for complaints from the public. The proponent seeks full EIA approval from the Rarotonga Environment Authority.

6. REFERENCES

“Cook Islands Weather”.....*Cook Islands Met Services*

“Using Local knowledge to understand Climate Variability in the Cook Islands”.....*prepared by Dr Teina Rongo and Celine Dyer , Climate Change Cook Islands, Office of the Prime Minister.*

“Soils of the Cook Islands”*by Leslie (1980)*

“AS/NZS 1547: 2012”.....*Australian and New Zealand Standards.*

“Environment Act 2004”*National Environment Services, Cook Islands*

“Ministry of Health Act 2014”*Ministry of Health, Cook Islands.*

Google Earth

7.0 RECOMMENDED APPENDICES

A1 Terms of Reference

Attached

A2 Drawings/maps



TE KOITI RAUKURA PT SEC 6C3
AVANA TAPERE NGATANGIHA DISTRICT
SCALE 1: 500





A4 Consultation Report

Proponents

A5 Specialist Report

NA

A6 Contacts

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