

# Environmental and Social Monitoring Report

---

January – June 2017

## Cook Islands: Cook Islands Renewable Energy Sector Project

Prepared by the Ministry of Finance and Economic Management, Government of Cook Islands for the Asian Development Bank.

This environmental and social monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



# **CIRESP ENVIRONMENTAL AND SOCIAL MONITORING REPORT**

**January - June 2017**

**304965 - SMR3**

**30 June 2017**

Prepared by Hydro-Electric Corporation  
ABN48 072 377 158

t/a Entura 89 Cambridge Park Drive,  
Cambridge TAS 7170 Australia



**WE OWN  
WE OPERATE  
WE CONSULT**

---

Entura in Australia is certified to the latest version of ISO9001, ISO14001, and OHSAS18001.

Entura hold electrical contractors license number 1052448

©Entura. All rights reserved.

Entura has prepared this document for the sole use of the client and for a specific purpose, as expressly stated in the document. Entura undertakes no duty nor accepts any responsibility to any third party not being the intended recipient of this document. The information contained in this document has been carefully compiled based on the client's requirements and Entura's experience, having regard to the assumptions that Entura can reasonably be expected to make in accordance with sound professional principles. Entura may also have relied on information provided by the client and/or other parties to prepare this document, some of which may not have been verified. Subject to the above conditions, Entura recommends this document should only be transmitted, reproduced or disseminated in its entirety.

---

## Document information

|                     |                                                   |
|---------------------|---------------------------------------------------|
| Title               | CIRESP Environmental and Social Monitoring Report |
|                     | January - June 2017                               |
| Client organisation | MFEM                                              |
| Client contact      |                                                   |
| Document number     | 304965 - SMR3                                     |
| Project manager     | Chris Blanksby                                    |
| Project reference   | 509673                                            |

## Revision history

### Revision 0

|                      |                                                                           |                              |                      |
|----------------------|---------------------------------------------------------------------------|------------------------------|----------------------|
| Revision description |                                                                           |                              |                      |
| Prepared by          | Teresa Manarangi-Trott,<br>Teariki Rongo, J Tim O'Meara,<br>David Procter | On-File                      | 30/06/2017           |
| Reviewed by          | Chris Blanksby                                                            | On-File                      | 30/06/2017           |
| Approved by          | Chris Blanksby                                                            | On-File                      | 30/06/2017           |
|                      | (name)                                                                    | (signature)                  | (date)               |
| Distributed to       | (name)                                                                    | MFEM, REDD<br>(organisation) | 30/06/2017<br>(date) |



## Contents

|                                                                            |          |
|----------------------------------------------------------------------------|----------|
| <b>1. Introduction</b>                                                     | <b>1</b> |
| 1.1 Project background                                                     | 1        |
| 1.2 Institutional arrangements                                             | 2        |
| <b>2. Works in Progress</b>                                                | <b>2</b> |
| <b>3. Summary of monitoring activities, results, and follow-up actions</b> | <b>3</b> |
| 3.1 Social safeguards                                                      | 3        |
| 3.2 Environmental safeguards                                               | 3        |

## Appendices

|             |                                                   |
|-------------|---------------------------------------------------|
| Appendix A: | Land Acquisition Completion Report                |
| Appendix B: | Environmental Safeguard Monitoring Matrix         |
| Appendix C: | Site preparation environmental monitoring reports |
| Appendix D: | POE Safeguards Monitoring Specialist Reports      |





# 1. Introduction

1. This is the third Semi-Annual Safeguard Monitoring Report for the CIRESP. The report covers the period 1 January – 30 June 2017. The purpose of the report is to document social and environmental safeguard monitoring activities and their results.

## 1.1 Project background

2. The Government of the Cook Islands is implementing The Cook Islands Renewable Electricity Chart (CIREC), which aims to supply 100% of the Cook Islands electricity generation from renewable sources by 2020. The Asian Development Bank (ADB) is supporting the Government of the Cook Islands to implement the CIREC through the Cook Islands Renewable Energy Sector Project (CIRESP) (the Project), which aims to provide a secure, sustainable, and environmentally sound source of electricity for private and commercial consumers. The project is jointly funded by the ADB, European Union (EU), Global Environment Facility (GEF), Pacific Environment Community (PEC) and Government of Cook Islands (GCI).
3. The Project is divided into two phases. Phase 1 will include subprojects on Atiu, Mitiaro, Mauke, and Mangaia. Phase 2 includes a subproject on Aitutaki. In addition to these Phases, the Project includes a separate subproject for supply of a battery energy storage system (BESS) on Rarotonga.
4. The CIRESP has two outcomes:
  - (i) Solar Photovoltaic Power System Development. In Phase 1, the project will construct four solar PV power systems with a total installed capacity of approximately 1.2 MW. The subprojects will also install advanced secondary battery storage and control systems (all islands), new diesel backup generators (Mauke and Mitiaro), and new power stations (Mauke and Mitiaro), and will rehabilitate the distribution networks on Mitiaro, Mauke, and Mangaia. The Phase 2 subproject will install a solar PV power system, advanced secondary battery storage and control system, and a new diesel backup generator on Aitutaki. The separate subproject on Rarotonga will construct a 4 MWh, 1 MW BESS for the purpose of enabling more solar PV generation to be installed on Rarotonga.
  - (ii) Institutional Strengthening and Project Management Support. The project will provide institutional strengthening to the Renewable Energy Development Division (REDD) for: (i) developing the energy efficiency policy implementation plan including an energy audit and monitoring scheme to enhance demand side energy efficiency management practices for targeted major electricity consumer groups; (ii) developing capacity for renewable energy technology assessment and appropriate off-take tariff setting for power purchase agreements for private sector funded projects, and (iii) updating the CIREC Implementation Plan through refining electricity load demand up to 2020, renewable technology choice, and least cost investment plan.
5. The Project has been assigned an ADB Safeguard Category B for Involuntary Resettlement and Indigenous Peoples and Category B for Environment.

## 1.2 Institutional arrangements

6. The Ministry of Finance and Economic Management (MFEM) is the executing agency (EA) and will be responsible for the overall management of the project including implementation of mitigation measures, social and environmental safeguard reporting and obtaining necessary approvals. Te Aponga Uira (TAU) and REDD are the project Implementing Agencies (IAs). A Project Steering Group (PSG) has been established for the Project which is comprised of representatives of ADB, REDD, Office of Prime Minister (OPM), MFEM, TAU, The Cook Islands Investment Corporation (CIIC) and New Zealand High Commission. A Project Management Unit (PMU) has also been established.
7. A contract for Project Owner's Engineers, (POE) was signed by the Cook Islands Government (CIG) and Entura and became effective as at February 2015 for the ADB funded Loan 3193/Grant 0415-COO Renewable Energy Sector Project.

## 2. Works in Progress

8. A Turnkey contract was awarded for Phase 1 subprojects in August, 2016 (excluding undertaking land preparation and civil works). Under this contract, detailed civil designs have been prepared and procurement and shipment of parts is well underway. In April 2017, the Turnkey Contractor commenced health programs on Atiu and Mangaia (having commenced similar programs on Mitiaro and Mauke last year).
9. A Civil Works tender under National Competitive Bidding was issued on December 9, 2016, based on the civil designs completed under the turnkey contract. The tender closed on January 27, 2017. The evaluation determined there were no responsive bidders and so, with dispensation of the ADB and GCI, a variation was awarded to the Phase 1 Turnkey Contractor to include the civil works in their scope of work. Materials for the civil works have been ordered and shipped (for Mitiaro). Civil works commenced on-site on Mitiaro on June 23, 2017. Civil works have not commenced on other islands at this time.
10. A power distribution Turnkey contract was awarded for Phase 1 subprojects on Mauke and Mitiaro in March, 2017. This was awarded to the same Turnkey contractor as for the Phase 1 renewable energy systems (see paragraph 8). Preliminary designs for the distribution system were prepared and submitted to GCI in June 2017, and long lead time equipment orders have been made. Work is expected to be undertaken in conjunction with the Civil works, in the second half of 2017.
11. Under Phase 2, a feasibility study has been prepared and approved for Aitutaki, and tender documents have been prepared, but no other work has occurred under Phase 2.
12. A contract for the BESS subproject on Rarotonga was awarded on 1 June, 2017. To date, no work on site has been undertaken. This subproject has been allocated Category C for social and environment.
13. The remainder of this monitoring report thus concerns only the four Phase 1 subprojects.
14. Land preparation continues be undertaken by the respective Island Council staff under supervision of the PMU and monitoring by the Monitoring Specialist. Clearing has now been

completed on Mitiaro and has commenced on Atiu, Mauke and Mangaia. Appendix C and D provide the results of monitoring undertaken during site preparation.

### 3. Summary of monitoring activities, results, and follow-up actions

#### 3.1 Social safeguards

15. Social safeguards monitoring included collation of remaining documentation to for the land acquisition completion report, and review of progress in completing related land acquisitions on Mangaia and Mauke.
16. Voluntary land transfer and land use agreements have been executed for the respective solar sites on each of the four Phase 1 islands. The process of distributing compensation payments to the respective landowners has been completed.
17. Preparation of land lease agreements is still in process for certain existing assets on Mangaia and Mauke that would be affected by the project. The timetable for completing those agreements and compensating the respective landowners appears to be a matter of some weeks or perhaps even months. The land completion report will be re-issued with complete documentation once obtained for the remaining two islands of Mangaia and Mauke before any civil works commence on those islands.
18. The current status of social safeguard monitoring activities is detailed in the first issue of the land completion report, included in **Appendix A**. On the basis of this report, ADB has cleared Civil Works to proceed on Mitiaro and Atiu.

#### 3.2 Environmental safeguards

19. Environmental monitoring during this monitoring period has included onsite monitoring of site preparation works on Mitiaro, Atiu, Mangaia and Mauke by the POE Safeguards Monitoring Specialist.
20. The Island Councils preference has been to undertake site preparation works over an extended period of time. It has therefore not been possible for the POE Safeguards Monitoring Specialist to be present during all site clearance work as originally planned. Arrangements have been made for the NES Officer to be present whenever possible during site clearing whilst the POE Safeguards Monitoring Specialist conducts regular monitoring visits.
21. Monitoring of site preparation works was undertaken against the commitments made by the sub-project Island Councils and documented in the Project Owner's Engineer Monitoring Activity Plan submitted in the previous semi-annual safeguards monitoring report.
22. In addition to the monitoring of site preparation works, the POE Safeguards Monitoring Specialist has been in regular contact with the Island Councils and Island NES Officers, including visits to sub-project islands prior to works commencing, to discuss the implementation of environmental commitments.

23. Monitoring found that works are generally being undertaken in accordance with the Project Owner's Engineer Monitoring Activity Plan. Whilst formal Health and Safety and Hazardous Materials Management Plans have yet to be completed for site preparation for most sub-project sites health and safety and hazardous materials management (all hazardous materials stored and used at existing facilities) was, with the exception of the provision of PPE on Mitiaro and Atiu, found to be adequate. The PMU will continue to work with the ICs to complete plans or determine suitable alternatives. Draft Health and Safety and Hazardous Materials Management Plans have been received for civil and turnkey works and are currently being finalised.
24. A brief summary of monitoring undertaken at each subproject site is provided below.
25. Atiu –Monitoring was undertaken in March during the clearance of the site boundary. Monitoring found that neither the Health and Safety and Hazardous Materials Management Plans had been completed at the commencement of works. The ICI has been identified to assist in the preparation of plans. The provision of suitable PPE was also raised as an issue and is being monitored.
26. Mitiaro –Monitoring was undertaken in March during site filling works (note monitoring undertaken in 2016 during site clearance is reported in previous semi-annual safeguards monitoring report). The removal of dried vegetation from makatea was found to be difficult. On the approval of the NES Officer and POE Safeguards Monitoring Specialist dried vegetation was burnt or scraped to the edge of the site (not into existing vegetation). Monitoring also found that Health and Safety and Hazardous Materials Management Plans had not been completed and PPE was not provided.
27. Mangaia – Monitoring was undertaken in May at the commencement of site clearing. Monitoring found that neither Health and Safety or Hazardous Materials Management Plans had been completed at the commencement of work and a spill kit was not available on site. It was observed that PPE had been provided to all on-site workers.
28. Mauke – Monitoring was undertaken in April during site boundary establishment and initial site clearing for the access track. Monitoring found that a Hazardous Materials Management Plan had yet to be prepared and a spill kit was not available on site at the time of monitoring. Ants were also found in a shipment of batteries and were quickly killed. A sample was sent to the Ministry of Agriculture for identification.
29. A detailed checklist of environmental safeguard monitoring activities, results, and follow-up actions appears below in **Appendix B**.
30. The results of monitoring of the Project Owner's Engineer Monitoring Activity Plan are contained in **Appendix C** whilst site reports prepared by the POE Safeguards Monitoring Specialist are provided in **Appendix D**.

## **A      Appendix A: Land Acquisition Completion Report**

# Land Acquisition Completion Report

---

June 2017

## Cook Islands: Cook Islands Renewable Energy Sector Project

Prepared by the Ministry of Finance and Economic Management, Government of Cook Islands for the Asian Development Bank.

This environmental and social monitoring report is a document of the borrower. The views expressed herein do not necessarily represent those of ADB's Board of Directors, Management, or staff, and may be preliminary in nature.

In preparing any country program or strategy, financing any project, or by making any designation of or reference to a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.



# **CIRESP ENVIRONMENTAL AND SOCIAL MONITORING REPORT January – June 2017**

**9 June 2017**

Prepared by Hydro-Electric Corporation  
ABN48 072 377 158

t/a Entura 89 Cambridge Park Drive,  
Cambridge TAS 7170 Australia



**WE OWN  
WE OPERATE  
WE CONSULT**



---

Entura in Australia is certified to the latest version of ISO9001, ISO14001, and OHSAS18001.

Entura hold electrical contractors license number 1052448

©Entura. All rights reserved.

Entura has prepared this document for the sole use of the client and for a specific purpose, as expressly stated in the document. Entura undertakes no duty nor accepts any responsibility to any third party not being the intended recipient of this document. The information contained in this document has been carefully compiled based on the client's requirements and Entura's experience, having regard to the assumptions that Entura can reasonably be expected to make in accordance with sound professional principles. Entura may also have relied on information provided by the client and/or other parties to prepare this document, some of which may not have been verified. Subject to the above conditions, Entura recommends this document should only be transmitted, reproduced or disseminated in its entirety.

---

## Document information

|                     |                                           |
|---------------------|-------------------------------------------|
| Title               | CIRESP Land Acquisition Completion Report |
|                     | June 2017                                 |
| Client organisation | MFEM                                      |
| Client contact      |                                           |
| Document number     | 304965                                    |
| Project manager     | Chris Blanksby                            |
| Project reference   | 509673                                    |

## Revision history

### Revision 0

|                      |                                                                           |                              |          |
|----------------------|---------------------------------------------------------------------------|------------------------------|----------|
| Revision description | Preliminary submission for clearance of Mitiaro and Atiu                  |                              |          |
| Prepared by          | Teresa Manarangi-Trott,<br>Teariki Rongo, J Tim O'Meara,<br>David Procter | On-File                      | 24/05/17 |
| Reviewed by          | Chris Blanksby                                                            | On-File                      |          |
| Approved by          | Chris Blanksby                                                            | On-File                      |          |
|                      | (name)                                                                    | (signature)                  | (date)   |
| Distributed to       | (name)                                                                    | MFEM, REDD<br>(organisation) | (date)   |



## Table of Contents

|                                                                            |          |
|----------------------------------------------------------------------------|----------|
| <b>1. Introduction</b>                                                     | <b>1</b> |
| 1.1 Project background                                                     | 1        |
| 1.2 Institutional arrangements                                             | 1        |
| <b>2. Works in Progress</b>                                                | <b>2</b> |
| <b>3. Summary of monitoring activities, results, and follow-up actions</b> | <b>2</b> |
| 3.1 Social safeguards                                                      | 2        |
| <b>Appendix A: Copies of Land Transfer Agreements</b>                      | <b>4</b> |
| <b>Appendix B: Land Acquisition Monitoring Matrix</b>                      | <b>4</b> |



# 1. Introduction

1. This is the final Land Acquisition Completion Report. The purpose of the report is to document that all land matters have been considered by the Cook Islands Government and comply with ADB social safeguard requirements and 2014 Resettlement Plan (RP).

## 1.1 Project background

2. The Government of the Cook Islands is implementing The Cook Islands Renewable Electricity Chart (CIREC), which aims to supply 100% of the Cook Islands electricity generation from renewable sources by 2020. The Asian Development Bank (ADB) is supporting the Government of the Cook Islands to implement the CIREC through the Cook Islands Renewable Energy Sector Project (CIRESP) (the Project), which aims to provide a secure, sustainable, and environmentally sound source of electricity for private and commercial consumers.
3. The Project is divided into two phases. Phase 1 will include subprojects on Atiu, Mitiaro, Mauke, and Mangaia. Phase 2 will now include only a subproject on Aitutaki.
4. The CIRESP has two outcomes:
  - (i) Solar Photovoltaic Power System Development. In Phase 1, the project will construct four solar PV power systems with a total installed capacity of approximately 1.2 MW. The subprojects will also install advanced secondary battery storage and control systems (all islands), new diesel backup generators (Mauke and Mitiaro), and new power stations (Mauke and Mitiaro), and will rehabilitate the distribution networks on Mitiaro, Mauke, and Mangaia. The Phase 2 subproject will install a solar PV power system, advanced secondary battery storage and control system, and a new diesel backup generator on Aitutaki.
  - (ii) Institutional Strengthening and Project Management Support. The project will provide institutional strengthening to the Renewable Energy Development Division (REDD) for: (i) developing the energy efficiency policy implementation plan including an energy audit and monitoring scheme to enhance demand side energy efficiency management practices for targeted major electricity consumer groups; (ii) developing capacity for renewable energy technology assessment and appropriate off-take tariff setting for power purchase agreements for private sector funded projects, and (iii) updating the CIREC Implementation Plan through refining electricity load demand up to 2020, renewable technology choice, and least cost investment plan.
5. The Project has been assigned an ADB Safeguard Category B for Involuntary Resettlement and Indigenous Peoples and Category B for Environment.

## 1.2 Institutional arrangements

6. The Ministry of Finance and Economic Management (MFEM) is the executing agency (EA) and will be responsible for the overall management of the project including implementation of mitigation measures, social and environmental safeguard reporting and obtaining necessary approvals. Te Aponga Uira (TAU) and REDD are the project Implementing Agencies (IAs). A Project Steering Group (PSG) has been established for the Project which is comprised of

representatives of ADB, REDD, Office of Prime Minister (OPM), MFEM, TAU, The Cook Islands Investment Corporation (CIIC) and New Zealand High Commission. A Project Management Unit (PMU) has also been established.

7. A contract for Project Owner's Engineers, (POE) was signed by the Cook Islands Government (CIG) and Entura and became effective as at February 2015 for the ADB funded Loan 3193/Grant 0415-COO Renewable Energy Sector Project.

## 2. Works in Progress

8. A Turnkey contract was awarded for Phase 1 subprojects in August, 2016 (excluding undertaking the distribution system, land preparation and civil works). Under this contract, detailed civil designs have been prepared and procurement of parts has commenced. In November, 2016, the Turnkey Contractor undertook a reconnaissance mission to each of the Phase 1 islands (with REDD and the POE Monitoring Specialist) and also commenced health programs on Mitiaro and Mauke. Site clearing has been carried out on Mitiaro, but no other site works have begun on any of the islands.
9. A variation to the Phase 1 Turnkey Contract to include Civil Works was signed on 14 March, 2017, and ADB's No Objection Letter was provided on 22 May, 2017. Under this variation, the Phase 1 Turnkey Contractor's scope is expanded to include construction of the power house, tracks, and array foundations and framing.
10. Land preparation has been completed on Mitiaro and commenced on Atiu and Mauke. Mangaia land preparation will commence in August. This work is undertaken by the respective Island Council staff under supervision of the PMU and monitoring by the Monitoring Specialist. Fuel supplies is provided to islands. The POE monitoring plan for these site has been prepared and approved in the December 2016 Safeguards Monitoring report. This includes commitments of the Island Council, and draft erosion and sediment control plans.
11. A Turnkey contract for rehabilitation of the electricity distribution system on Mauke and Mitiaro was signed on 27 March 2017, and ADB's No Objection Letter was provided on 18 April 2017. Under this contract, the Contractor will install or replace high voltage and low voltage cable and substations/ transformers on Mauke and Mitiaro, as well as connections to customers and the power station, as the existing systems are at the end of life and no longer suitable for the new power system.

## 3. Summary of monitoring activities, results, and follow-up actions

### 3.1 Social safeguards

12. Social safeguards monitoring included attendance at stakeholder meetings and court hearings and review of Cook Islands Investment Corporation (CIIC) and Land Court documentation to determine compliance with the project Resettlement Plan (RP).

13. Voluntary land transfer and land use agreements have been executed for the respective solar sites on each of the four Phase 1 islands. The process of distributing compensation payments has been completed for all islands and land receipts and agreements are attached in Appendix A
14. Preparation of land lease agreement for the power station on Mangaia (Taengakoro Sec 36 Keia Tapere, Oneroa District) has been completed and awaits confirmation by Cook Islands Investment Corporation. Landowner consultations and discussions have been held and the landowners confirm their willingness to sign the land lease agreement immediately. This Land Completion Report will be re-issued once this is confirmed and compensation payments made.
15. During the land acquisition discussions on Mauke it was identified that there were 6 substation and transformer sites, each on different properties occupying approximately 9sq meters on each property. The substations were established more than 40 years ago. Government believes that informal agreement for the use of this land was established at that time, and there has been no indication from landowners that this is not the case. However, the Government is committed to formalising the acquisition of the substations/transformer land sites, including compensation payments, and is currently working to obtain agreement in principle from the landowners for each of the sites prior to completion of formal land agreements. To this end, the land site maps have been requested from the chief surveyor and these will be taken to Mauke, when formal consultations will be held with the landowners and agreement in principal will be sort. It is expected that the landowners will sign the site maps to affirm their intent. This Land Completion Report will be re-issued once this is confirmed. Subsequently, Government will work to complete the formal land transfer including compensation payments.
16. The updated checklist of social safeguard monitoring activities, results, and follow-up actions for land acquisition appears below in **Appendix B**.



## Appendix A: Copies of Land Transfer Agreements

Voluntary land transfer and land use agreements attached for the islands of

- Atiu
- Mauke
- Mangaia
- Mitiaro

### Land Receipts

- Atiu
- Mauke
- Mangaia
- Mitiaro

Letters of Agreement for land sites for Substations on Mauke (To be provided in a re-issue of this report)

Lease Agreement for Mangaia Power Station Site. (To be provided in a re-issue of this report)



## Appendix B: Land Acquisition Monitoring Matrix

The following matrix presents the current status and expected implementation schedule of land acquisition and resettlement activities for each Phase 1 subproject as listed in the Project Administration Manual:

| Step     |                                                                             | Current Status                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Further Actions and Expected Completion Date                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------|-----------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1</b> | <b>Confirmation of land requirements and identification of land owners.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|          | Atiu                                                                        | Completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|          | Mitiaro                                                                     | Completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|          | Mauke                                                                       | Completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|          | Mangaia                                                                     | Completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>2</b> | <b>Land surveys and valuations.</b>                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|          | Atiu                                                                        | Land survey and valuation completed.<br>The RP lists 9 coconut trees on the site, but the subsequent land transfer agreement accords no value to non-land assets, which implies the trees are deemed to be of no economic value.                                                                                                                                                                                                                                           | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|          | Mitiaro                                                                     | Land survey and valuation completed.<br>(Note that the amount listed in the land use agreement is \$966.78 less than the amount calculated from the unit rate multiplied by the area also listed in the land use agreement.)                                                                                                                                                                                                                                               | None.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|          | Mauke                                                                       | Survey and valuation of land completed for solar site.<br>Survey of transformer and substation sites completed but maps not yet produced.<br>Agreement on leases for existing transformer and substation sites and for payment of lease arrears is work in progress.<br><br>The RP lists a wide range of affected non-land assets including 8 coconut trees on the solar site, but the subsequent land use agreement limits compensation to \$20 per coconut tree, with no | "Five small parcels of land totalling approximately 100 m <sup>2</sup> (0.01 ha) will be acquired on Mauke at the sites of the existing substation (Makatea 9J33) and four transformers (Vaipipi 10J, Vaiuna 11A2, Makatea 9A [at the old Power House], and Makatea 9C/9G). The fifth site lies well off the road on the site of the old airstrip (Tinokura 1N2). The project will replace all five assets."<br><br>For these substations <u>letters of agreement in principle</u> from the current landowners are being sought, prior to formalization of the land transfer.<br><br>Landowners understand it is their responsibility to provide CIIC with the number of coconut trees to be compensated. No issue for compensation if the invoice is |

| Step     |                                                                                                                                                    | Current Status                                                                                                                                                                                                                                                                                         | Further Actions and Expected Completion Date                                                                                                                                                                    |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          |                                                                                                                                                    | value accorded to other trees or to pig fencing on the site.                                                                                                                                                                                                                                           | provided.                                                                                                                                                                                                       |
|          | Mangaia                                                                                                                                            | Survey and valuation of land completed for solar site.<br>Site of existing power station has been surveyed but map has not yet been produced.<br>Agreement on new lease and on potential payment for lease arrears is work in progress.<br>Survey and valuation of affected non-land assets completed. | A map of the existing power station site has been completed.<br>Landowners have indicated intent to execute the proposed land lease agreement.<br>Finalisation of this agreement is currently being undertaken. |
| <b>3</b> | <b>REDD and PMU, in coordination with CIIC, updates the RP, including agreements on compensation rates, and discloses updated RP to APs.</b>       |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                 |
|          | Atiu                                                                                                                                               | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mitiaro                                                                                                                                            | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mauke                                                                                                                                              | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mangaia                                                                                                                                            | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
| <b>4</b> | <b>Submission to CIIC of land survey reports, preparation for formal negotiations with landowners, and budget allocation for land acquisition.</b> |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                 |
|          | Atiu                                                                                                                                               | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mitiaro                                                                                                                                            | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mauke                                                                                                                                              | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
|          | Mangaia                                                                                                                                            | Completed.                                                                                                                                                                                                                                                                                             | None.                                                                                                                                                                                                           |
| <b>5</b> | <b>IA submits the updated RP to ADB for approval and posting on ADB website.</b>                                                                   |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                 |
|          | Atiu,<br>Mitiaro,<br>Mauke,<br>Mangaia                                                                                                             | Updated RP submitted to ADB in Jun 2015 but has not yet been posted on ADB website.                                                                                                                                                                                                                    | Post updated RP on ADB web site – Q1 2017.                                                                                                                                                                      |

| Step     |                                                                                                                   | Current Status                                                                                                                                                                                                                                                                                                                                                                                                    | Further Actions and Expected Completion Date                                                                                                                 |
|----------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>6</b> | <b>Consultation with affected landowners to negotiate detailed terms of land use agreements.</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                              |
|          | Atiu                                                                                                              | Completed.                                                                                                                                                                                                                                                                                                                                                                                                        | None.                                                                                                                                                        |
|          | Mitiaro                                                                                                           | Completed.                                                                                                                                                                                                                                                                                                                                                                                                        | None.                                                                                                                                                        |
|          | Mauke                                                                                                             | Completed for solar site but not for sites of existing transformers and substation.                                                                                                                                                                                                                                                                                                                               | Complete consultations with landowners of existing transformer and substation sites – Q2 2017.                                                               |
|          | Mangaia                                                                                                           | Completed for solar site but not for site of existing power station.                                                                                                                                                                                                                                                                                                                                              | Complete consultations with landowners of existing power station site – Q2 2017                                                                              |
| <b>7</b> | <b>Agreements on land acquisition together with necessary approvals by Cabinet [Court] and Executive Council.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                              |
|          | Atiu                                                                                                              | Completed.                                                                                                                                                                                                                                                                                                                                                                                                        | None.                                                                                                                                                        |
|          | Mitiaro                                                                                                           | Completed.                                                                                                                                                                                                                                                                                                                                                                                                        | None.                                                                                                                                                        |
|          | Mauke                                                                                                             | Completed for solar site but not for sites of existing transformers and substation.                                                                                                                                                                                                                                                                                                                               | Complete consultations with landowners of existing transformer and substation sites – Q2 2017.                                                               |
|          | Mangaia                                                                                                           | Completed for solar site but not for site of existing power station.                                                                                                                                                                                                                                                                                                                                              | Complete agreement for existing power station site – Q2 2017.                                                                                                |
| <b>8</b> | <b>Execution of land acquisition agreements and payment of compensation.</b>                                      |                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                              |
|          | Atiu                                                                                                              | Land acquisition agreement was executed.<br>Funds have been paid to landowner trust fund, but the amount paid corresponds to the amount owed to Mauke.<br>In addition, the Atiu Land Transfer Agreement (Sections 5 and 8) requires the Purchaser to prepare and the Vendor to execute a Memorandum of Land Transfer as a condition of Settlement. The required Memorandum has not yet been prepared or executed. | All completed<br><br>The PMU has received legal advice that the Memorandum or Land Transfer is not a contractual requirement. No further action is required. |
|          | Mitiaro                                                                                                           | Land use agreement was executed by court.<br>The agreed amount as listed in the land use agreement has been paid to CIGPC but not yet to landowners.<br>Note that the Mitiaro Land Use Agreement does not mention a Memorandum of Land Transfer, so none is required.                                                                                                                                             | All completed.<br><br>The PMU has received legal advice that the Memorandum or Land Transfer is not a contractual requirement. No further action is required |

| Step     |                                                                               | Current Status                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Further Actions and Expected Completion Date                                                                                                                                                                                                              |
|----------|-------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|          | Mauke                                                                         | <p>Land acquisition agreement executed for solar site.</p> <p>Funds for solar site have been paid to landowner's legal counsel, but the amount paid corresponds to the amount owed to Atiu.</p> <p>No agreement yet or payments for sites of existing transformers and substation.</p> <p>No payment yet for economic trees.</p> <p>In addition, the Mauke Land Transfer Agreement (Sections 5 and 9) requires the Purchaser to prepare and the Vendor to execute a Memorandum of Land Transfer as a condition of Settlement. The required Memorandum has not yet been prepared or executed.</p>                                                                                                                                                                            | <p>All completed.</p> <p>Landowners responsibility to provide an invoice for coconut tree reimbursement</p> <p>The PMU has received legal advice that the Memorandum or Land Transfer is not a contractual requirement. No further action is required</p> |
|          | Mangaia                                                                       | <p>Land use agreement executed by court for new solar site.</p> <p>Funds have been paid to CIGPC but not yet to landowners.</p> <p>No agreement yet for formal acquisition of existing power station site.</p> <p>Valuation of affected economic trees at solar site agreed, and funds have been paid to GIGPC but not yet to landowners.</p> <p>In addition, the Mangaia Land Use Agreement (Sections 3 and 9) requires execution of Memorandum of Land Transfer as a condition of settlement. The Memorandum appears as Schedule 3 of the Agreement. The Memorandum was signed—apparently at the same time the Agreement was signed—but not dated, which is irregular. The Land Use Agreement requires completion of a valid Memorandum as a condition of settlement.</p> | <p>Execute Lease Agreeemtn for existing Power Station</p> <p>The PMU has received legal advice that the Memorandum or Land Transfer is not a contractual requirement. No further action is required</p>                                                   |
| <b>9</b> | <b>IA submits land acquisition and compensation completion report to ADB.</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                           |
|          | Atiu,<br>Mitiaro,<br>Mauke,<br>Mangaia                                        | Activities not yet complete as listed above.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | All Activities are completed.                                                                                                                                                                                                                             |

| Step |                                          | Current Status                           | Further Actions and Expected Completion Date |
|------|------------------------------------------|------------------------------------------|----------------------------------------------|
| 10   | IA submits safeguard monitoring reports. |                                          |                                              |
|      | Atiu,<br>Mitiaro,<br>Mauke,<br>Mangaia   | Six-monthly monitoring reports required. | Report to be submitted in June 2017.         |





## Appendix B: Environmental Safeguard Monitoring Matrix

The following matrix presents the current status of pre-construction and construction phase environmental commitments contained in the IEE (and National EIA).

| Project activity/ stage       | Environmental Commitment                                                                                                                                                    | Current Status                                                                                                                                                                    | Further Actions                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Pre-construction</b>       |                                                                                                                                                                             |                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                            |
| Statutory clearances/ permits | Undertake an environmental technical report, in accordance with the <i>Environment Act 2003</i> .                                                                           | Complete                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                            |
|                               | Ensure EIA is approved and Environmental Permit received prior to the commencement of onsite works.                                                                         | Environmental Permits received for Phase 1 projects.                                                                                                                              | Monitor requirements for Phase 2 sub-projects                                                                                                                                                                                                                                                                                                                                                              |
| Climate Change                | Locate project sites inland and above predicted sea level rises.                                                                                                            | Complete                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                            |
|                               | Ensure components procured are suitable for tropical marine and coastal environments and meet relevant international standards.                                             | Complete                                                                                                                                                                          | Marinisation of generators has been completed. Special (Oxidor) surface treatment has been selected for distribution system components. Ratings of all other equipment have been reviewed and confirmed as suitable for operation in at least C4 (High) corrosive environment. Exposed materials (power station walls, roof, windows) limited to concrete, aluminium and stainless steel to minimise risk. |
|                               | Design subproject to withstand extreme weather events (e.g. cyclones).                                                                                                      | Complete                                                                                                                                                                          | All equipment designed to cyclone rating (75m/s wind speed) and buildings are earthquake rated                                                                                                                                                                                                                                                                                                             |
| Drainage and erosion          | The civil works design will include appropriate drainage structures that adequately control surface water flow and prevent erosion of surrounding land (particularly Atiu). | Drainage and sediment control plans have been prepared for site works undertaken by the Island Councils<br>Civil contractor will prepare additional plans relevant to their work. | Continue to monitor implementation of plans.<br>Review civil plans prior to civil works commencing.                                                                                                                                                                                                                                                                                                        |
| Project                       | Ensure that EMP is included in the bidding documents.                                                                                                                       | Complete                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                            |

| Project activity/ stage         | Environmental Commitment                                                                                                                                                                                                                                                                                                                                                                                        | Current Status                                                                                                                                                                               | Further Actions                                                                                                                  |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| administration                  | Prepare environmental contract clauses for contractors, namely the special conditions (e.g. reference EMP and monitoring table).                                                                                                                                                                                                                                                                                | Complete                                                                                                                                                                                     |                                                                                                                                  |
| Equipment design and selection  | PCBs should not be used in transformers and other project facilities or equipment.                                                                                                                                                                                                                                                                                                                              | Detailed design complete<br>Specifications included in tender documents to ensure compliance                                                                                                 | Verify compliance                                                                                                                |
| Equipment design and selection  | Undertake desktop noise modelling to ensure selected generators meet or exceed IFC EHS Guidelines – Noise.                                                                                                                                                                                                                                                                                                      | Detailed design complete                                                                                                                                                                     | Modelling is not yet complete and is planned to be undertaken in Q3, 2017                                                        |
|                                 | New diesel generators will comply with relevant American emission standards.                                                                                                                                                                                                                                                                                                                                    | Complete                                                                                                                                                                                     | Diesel generators satisfy all specified emissions standards.                                                                     |
| Resettlement (land acquisition) | Affected people will be compensated as per entitlement matrix proposed in the project Resettlement Plan                                                                                                                                                                                                                                                                                                         | In progress – refer Appendix A.                                                                                                                                                              |                                                                                                                                  |
| Social                          | A list of relevant local contractors will be provided in tender documentation to facilitate the engagement of local industry by the selected construction contractor.                                                                                                                                                                                                                                           | Complete.                                                                                                                                                                                    |                                                                                                                                  |
| <b>Construction</b>             |                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                              |                                                                                                                                  |
| Air quality and dust            | Vehicles carrying soil, sand, crushed aggregate or other fine materials to or from the project site will be covered<br>The project site, material stockpiles and access roads, including those from the wharf and material stockpile areas, will be wetted or stabilised if dust is generated.<br>Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads. | Proposed actions by Island Councils (ICs) to meet commitments during site preparation have been documented.<br>Requirements included in tendered documents for civil and turnkey site works. | Continue to monitor compliance during site preparation.<br>Monitor compliance for civil and turnkey works when works commence.   |
|                                 | Waste management during the subprojects will seek to reduce, reuse and recycle waste as far as possible and dispose of waste in an appropriate way.                                                                                                                                                                                                                                                             | Site preparation –waste (vegetation and soil) reused.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                    | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                                 | No hazardous wastes will be disposed of on any of the subproject islands.                                                                                                                                                                                                                                                                                                                                       | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                    | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
|                                 | Vegetation cleared from the site will be disposed of in consultation with the POE and Island Environmental Officer (e.g.                                                                                                                                                                                                                                                                                        | Site preparation – vegetation will be chipped or broken into firewood (Atiu) for                                                                                                             | Continue to monitor compliance during site preparation.                                                                          |

| Project activity/ stage | Environmental Commitment                                                                                                                                                                                                                                                                                                                             | Current Status                                                                                                                                                         | Further Actions                                                                                                                  |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                         | chipped and made available to local residents as mulch).                                                                                                                                                                                                                                                                                             | local residents.<br>Civil works – NA<br>Turnkey works – NA                                                                                                             |                                                                                                                                  |
|                         | The construction contractor will consult with the POE and Island Environmental Officer to identify opportunities to avoid and reduce the generation of waste and to recycle or re-use waste generated.                                                                                                                                               | Site preparation – Waste (vegetation and soil) reused.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                             | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                         | Construction wastes that cannot be re-used or recycled on the island will be transported off site for reuse, recycling or disposal.                                                                                                                                                                                                                  | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                              | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
|                         | If excess spoil is generated during site preparation it will be stored at an established stockpile site (e.g. airport) for re-use.                                                                                                                                                                                                                   | Site preparation – established stockpile sites identified for all Phase 1 subprojects<br>Civil works – NA<br>Turnkey works – NA                                        | Continue to monitor compliance during site preparation.                                                                          |
|                         | Hazardous waste (if generated) will be transported off the subproject island and disposed of in accordance with manufactures requirements at a facility approved by the NES.                                                                                                                                                                         | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                              | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
|                         | Concrete waste (including water) will be captured and taken off the subproject island for disposal.                                                                                                                                                                                                                                                  | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                              | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
|                         | Bins for recycling and general rubbish will be provided at the project site and materials laydown area for the disposal of construction wastes.                                                                                                                                                                                                      | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                              | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
| Noise and vibration     | Wherever possible working hours will be between 8am and 5pm Monday to Friday. Where safety or technical reasons require work to be completed outside of these hours noise levels will be minimised as much as possible and the Island Council together with nearby residents will be informed. Work will not be undertaken on Sundays and holy days. | Site preparation – no work outside of hours expected. If required, consultation with Mayor and EO.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                         | Noisy activities e.g. site clearance will be carried out in the least sensitive time periods to be determined in consultation with the Island Council.                                                                                                                                                                                               | Site preparation – no work outside of hours expected. If required, consultation with Mayor and EO.<br>Civil works – TBC civil CEMP                                     | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |

| Project activity/ stage     | Environmental Commitment                                                                                                                                                                   | Current Status                                                                                                                                                   | Further Actions                                                                                                                  |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                             |                                                                                                                                                                                            | Turnkey works – TBC turnkey CEMP                                                                                                                                 |                                                                                                                                  |
|                             | Equipment and plant will be maintained in good order. Noise reduction components (e.g. mufflers) will be inspected prior to the commencement of works to ensure they are fully functional. | Site preparation – plant and equipment regularly serviced by Island Authority mechanic.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP      | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                             | Noise level not to exceed 85 dB(A) (over 8 hr period).                                                                                                                                     | Site preparation – proposed plant and equipment will not exceed requirement<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                  | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
| Water resources and quality | Where feasible construction techniques will be specify methods (e.g. piling) that minimise the need to alter the topography (e.g. levelling) and hence surface water drainage on the site. | Detailed design not yet complete<br>Specifications included in tender documents to ensure compliance.                                                            | Verify compliance                                                                                                                |
|                             | Water required for construction (e.g. concrete mixing) will be sourced with the agreement of the Island Council, Island Environmental Officer and POE.                                     | Site preparation – water for dust control sourced with consent of EO<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                         | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
| Hazardous materials         | The Contractor(s) will prepare a hazardous materials management plan.                                                                                                                      | Site preparation – IC to prepare plan prior to site works (includes hydrocarbon management).<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP | Continue to work with IC to prepare plans.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing.              |
|                             | Transport of hazardous materials will be by an appropriately experienced and equipped contractor.                                                                                          | Site preparation –all refuelling at existing facilities.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                     | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                             | Hazardous materials will be stored in appropriate containers that are in good condition with adequate labelling.                                                                           | Site preparation – hydrocarbons stored in power stations. No onsite storage.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                 | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                             | Hazardous materials (including fuel and oils) storage will be appropriately bundled.                                                                                                       | Site preparation –No onsite storage.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                         | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |

| Project activity/ stage | Environmental Commitment                                                                                                                                                                                                            | Current Status                                                                                                                                                                | Further Actions                                                                                                                  |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|                         | Spill kits and containment devices appropriate for the type and volume of hazardous materials on site will be located at the storage area(s), on the site and on vehicles carrying hazardous materials.                             | Site preparation – Spill kits purchased for each subproject and will be stored on each site during works.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing. |
|                         | Hazardous materials will not be disposed of on the subproject island but will be transported offsite and disposed of at a facility approved by the NES.                                                                             | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                     | Review Civil and Turnkey sub-project CEMPS prior to works commencing.                                                            |
| Erosion control         | All land disturbances will be confined to the minimum practicable working area to ensure that the minimum land area is exposed to erosion for the shortest possible time.                                                           | Complete                                                                                                                                                                      | Boundaries of all sub-project sites cleared with supervision of PMS.                                                             |
|                         | Existing drainage lines will be protected and diversion of drainage lines avoided.                                                                                                                                                  | Drainage and sediment control plans have been prepared for each phase 1 subprojects.                                                                                          | Continue to monitor requirement for plans and implementation.                                                                    |
|                         | Surface water will be diverted around the construction footprint using structures such as catch drains, silt fences or bunds. Surface water will not be diverted across erosion prone slopes.                                       | Drainage and sediment control plans have been prepared for each phase 1 subprojects.                                                                                          | Continue to monitor requirement for plans and implementation.                                                                    |
|                         | Erosion control works and measures will be installed to control surface water runoff and prevent the export of sediments from the site                                                                                              | Drainage and sediment control plans have been prepared for each phase 1 subprojects.                                                                                          | Continue to monitor requirement for plans and implementation.                                                                    |
|                         | Sediment traps (e.g. silt fences) will be constructed across all drainage lines and erosion controls from site that are likely to receive runoff from exposed or disturbed soils. Sediment basins will be installed where required. | Drainage and sediment control plans have been prepared for each phase 1 subprojects.                                                                                          | Continue to monitor requirement for plans and implementation.                                                                    |
|                         | The site will be covered with geotextile fabric immediately after clearing to prevent the loss of top soil (Atiu and if deemed necessary by the POE and Island Environmental Officer for remaining subprojects).                    | Site preparation – Geotextile fabric ordered.<br>Civil works – NA<br>Turnkey works – NA                                                                                       | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing  |
|                         | A shade tolerant groundcover will be established across the site as soon as practicable after site clearance. The species of groundcover used will be selected in consultation with the Island Environmental Officer.               | Site preparation – grass cuttings used to encourage seeding of grass, initial monitoring suggests sites naturally revegetate rapidly.<br>Civil works – NA                     | Continue to monitor revegetation. Ensure grass cover is promoted.                                                                |

| Project activity/ stage | Environmental Commitment                                                                                                                                                                                          | Current Status                                                                                                                                                                                                                                             | Further Actions                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                                                                                                                                                                                   | Turnkey works – NA                                                                                                                                                                                                                                         |                                                                                                                                 |
|                         | Sediment and erosion control measures will be monitored regularly to ensure their continued correct functioning.                                                                                                  | Site preparation – IC commitment to monitor<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                                                            | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
|                         | Cabling trenches will remain open for the shortest duration possible to reduce erosion and where possible will not be open during periods of heavy rain.                                                          | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                                                                                  | Review Civil and Turnkey sub-project CEMPS prior to works commencing                                                            |
|                         | Spoil from excavated trenches will be stored on the uphill side of the trench such that any sediment from the spoil is deposited in the trench.                                                                   | Site preparation – NA<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                                                                                  | Review Civil and Turnkey sub-project CEMPS prior to works commencing                                                            |
| Ecology/ site clearance | To ensure vegetation clearing is restricted to within the site boundary and is the minimum practically required a representative of the POE and the Island Environmental Officer will be on site during clearing. | Slow rate of clearing not viable to be on site for all site preparation works. NES Officer generally on site for clearing.<br>Civil works – NA<br>Turnkey works – NA                                                                                       | Continue to monitor compliance during site preparation.                                                                         |
|                         | On Atiu trees on sloping land within the project site boundary (close to the north west boundary) will not be cleared.                                                                                            | Complete.<br>Civil works – NA<br>Turnkey works – NA                                                                                                                                                                                                        |                                                                                                                                 |
|                         | Cleared vegetation will be removed and will not be stockpiled on site or pushed into existing vegetation adjacent to the site.                                                                                    | Where possible all vegetation cleared to date has been chipped or broken down for firewood for use by local residents. Some vegetation (eg stumps) have been disposed of at locations approved by the NES officer or on Mitiaro burnt or scraped off site. | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
|                         | Machinery storage and materials lay down areas will be established in previously disturbed areas to avoid increasing the footprint of the project site.                                                           | Site preparation – no machinery storage on site.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                                                       | Review Civil and Turnkey sub-project CEMPS prior to works commencing                                                            |
|                         | As far as is practicable existing stockpiles of fill material will be used. If new fill material is required it will be sourced from locations approved by the Island Environmental Officer and                   | Site preparation – no machinery storage on site.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                                                                                                                       | Review Civil and Turnkey sub-project CEMPS prior to works commencing                                                            |

| Project activity/ stage | Environmental Commitment                                                                                                                                                                                                                  | Current Status                                                                                                                                | Further Actions                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                         | OEPMS that do not result in the disturbance of native vegetation.                                                                                                                                                                         |                                                                                                                                               |                                                                                                                                 |
|                         | Immediately after clearing the site will be planted with low growing grass species to help stabilise the site and minimise the spread of weeds (there is a risk of weeds spreading into newly cleared sites at all subproject locations). | Site preparation – Mitiaro and Mauke completed. Revegetation commenced at both subproject site.<br>Civil works – NA<br>Turnkey works – NA     | Continue to monitor compliance during site preparation.                                                                         |
|                         | Bermuda grass ( <i>Cynodon dactylon</i> ) exists on Mauke and Mitiaro and the site shall be mowed after clearing to encourage this species to establish.                                                                                  | Site preparation – Complete<br>Civil works – NA<br>Turnkey works – NA                                                                         |                                                                                                                                 |
|                         | Biosecurity measures will be implemented to prevent introduction of invasive species cause damage to flora and fauna.                                                                                                                     | Site preparation – machinery to be washed down prior to entry to worksite<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
| Social                  | Opportunities will be made available by the contractor for local contractors and businesses to be engaged during construction and commissioning of the power station.                                                                     | Site preparation – IC to undertake work<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                   | Review Civil and Turnkey sub-project CEMPS prior to works commencing                                                            |
|                         | The Island Council, Visitors Centre, landowners, local residents and stakeholders will be kept informed of the project via monthly meetings during construction.                                                                          | Site preparation – IC undertaking work and will notify landowners<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP         | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
|                         | As far as is practicable works will be timed to avoid disruption to local events.                                                                                                                                                         | Site preparation – IC ensure works undertaken at appropriate time<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP         | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
|                         | Fencing shall be installed on all areas of excavation greater than 1m deep.                                                                                                                                                               | Site preparation – fencing available and will be installed if required<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP    | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
|                         | The contractor(s) will be required to develop an occupational health and safety plan prior to the commencement of any works on site.                                                                                                      | Site preparation – Initial monitoring indicates compliance issues.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP        | POE to continue to work with ICs to develop plans.                                                                              |
|                         | Workers shall be provided (before they start work) with                                                                                                                                                                                   | Site preparation – Monitoring suggests                                                                                                        | POE to continue to monitor compliance                                                                                           |

| Project activity/ stage | Environmental Commitment                                                                                                                                                                  | Current Status                                                                                                                             | Further Actions                                                                                                                 |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
|                         | appropriate personnel protective equipment (PPE).                                                                                                                                         | PPE not available on Mitiaro or Atiu.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                                  | during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing                                |
|                         | Adequate sanitation, potable water and first aid facilities will be supplied by the contractor.                                                                                           | Site preparation – facilities at existing power stations will be used.<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP |                                                                                                                                 |
| Heritage                | In the event of an artefact being uncovered during construction work will cease immediately and the Island Council and POE notified. Work will not recommence until authorised by the POE | Site preparation – site works yet to be completed<br>Civil works – TBC civil CEMP<br>Turnkey works – TBC turnkey CEMP                      | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |
| Construction activities | If unexpected environmental impacts occur during construction phase, the POE will update the EMP, and the environmental protection measures will be designed to address the impacts.      | No unexpected environmental impacts to date.                                                                                               | Continue to monitor compliance during site preparation.<br>Review Civil and Turnkey sub-project CEMPS prior to works commencing |





## Appendix C: Site preparation environmental monitoring reports

### Atiu

|                                                  |                                                                      |                                                  |                        |
|--------------------------------------------------|----------------------------------------------------------------------|--------------------------------------------------|------------------------|
| <b>CIRESP - Atiu Site Preparation Monitoring</b> |                                                                      | <b>Inspection Date:</b> 08/03/2017 to 11/03/2017 |                        |
| <b>Monitor(s)</b>                                |                                                                      | <b>Inspection Times:</b>                         |                        |
| <b>Name:</b> Teariki Rongo                       | <b>Position:</b> Owners Engineer Environmental Monitoring Specialist | <b>Start time:</b> NA                            | <b>Finish time:</b> NA |

| Item No                     | Environmental Commitment<br><i>(all commitments relevant to site preparation contained in the IEE and Cook Islands Technical Report)</i>                                            | Island Council Commitment                                                                                                                                                                                          | Findings<br>(OK, NC or N/A) | Comments                                                                                                                                                  |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water resources and quality |                                                                                                                                                                                     |                                                                                                                                                                                                                    |                             |                                                                                                                                                           |
| 1.1                         | The civil works design will maintain existing surface water drainage patterns across the project site.                                                                              | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                                                                                                  | NA                          | Site clearing works are unlikely to alter drainage patters. Continue to monitor.                                                                          |
| 1.2                         | Implement erosion and hazardous materials controls as outlined in the Atiu Environmental Technical Report EMP                                                                       | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation. Refer Erosion and Sediment Control.                                                              | NA                          | Only site boundary cleared. ESC Plan will be implemented when site clearing commenced. Silt fencing ordered.                                              |
| 1.3                         | Water required for construction (e.g. concrete mixing) will be sourced with the agreement of the Island Council, Island Environmental Officer and OEPMS.                            | If water is required for dust control it will be sourced with consent of the EO                                                                                                                                    | NA                          | Water not required for boundary clearing.                                                                                                                 |
| Waste                       |                                                                                                                                                                                     |                                                                                                                                                                                                                    |                             |                                                                                                                                                           |
| 2.1                         | Waste management during the subprojects will seek to reduce, reuse and recycle waste as far as possible and dispose of waste in an appropriate way.                                 | Refer to commitments below.                                                                                                                                                                                        | NA                          |                                                                                                                                                           |
| 2.2                         | Vegetation cleared from the site will be disposed of in consultation with the OEPMS and Island Environmental Officer (e.g. chipped and made available to local residents as mulch). | IC chipper is not large enough to chip all timber generated from site preparation. Large timber will be cut to firewood size and smaller timber chipped for mulch. Both will be made available to local residents. | OK                          | Vegetation from boundary clearing (and site preparation) will be made available to local residents under the supervision of the IC Mayor and NES officer. |

|                              |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                               |    |                                                                                                            |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|------------------------------------------------------------------------------------------------------------|
| 2.3                          | The construction contractor will consult with the OEPMS and the Atiu Island Environmental Officer to identify opportunities to avoid and reduce the generation of waste and to recycle or re-use waste generated.                                                                                   | If extra soil is generated during site preparation it will be provided to landowners for fill. Timber will be reused as described in 2.2.                                                                                                     | NA | Extra soil not generated during boundary clearing, unlikely to be generated during site preparation works. |
| 2.4                          | If excess spoil is generated during site preparation it will be stored at an established stockpile site on Atiu (e.g. airport) for re-use.                                                                                                                                                          | If excess spoil is generated it will be stored temporality in accordance with the Erosion and Sediment Control Plan prior to be provided to local landowners for use as fill.                                                                 | NA | See above                                                                                                  |
| 2.5                          | If portable toilet facilities (e.g. port a loo) are required they will be emptied into existing septic tanks for treatment.                                                                                                                                                                         | Toilets at power house will be used during site preparation.                                                                                                                                                                                  | OK | Power station fence will be opened to allow access to the toilet.                                          |
| Noise                        |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                               |    |                                                                                                            |
| 3.1                          | Wherever possible working hours will be between 8 am and 5 pm Monday to Friday. Where safety or technical reasons require work to be completed outside these hours' noise levels will be minimised as much as possible and the Atiu Island Council together with nearby residents will be informed. | No works outside specified hours are planned. If required, works will only take place with consent of Mayor and EO.                                                                                                                           | OK | Boundary clearing works within working hours                                                               |
| 3.2                          | Noisy activities (e.g. site clearance) will be carried out in the least sensitive time periods to be determined in consultation with the Atiu Island Council.                                                                                                                                       | All works planned to be undertaken between 8am and 5pm Mon – Fri and will exclude sensitive periods (eg holidays). Works outside these hours will only be completed with consent of Mayor and EO and will not occur during sensitive periods. | OK | See above.<br>No works planned outside designated hours.                                                   |
| 3.3                          | Equipment and plant will be maintained in good order. Noise reduction components (e.g. mufflers) will be inspected prior to the commencement of works to ensure they are fully functional.                                                                                                          | All plant and equipment will be serviced by IA mechanic prior to the commencement of work.                                                                                                                                                    | OK | Plant and equipment well maintained by mechanic and found to be in good order during monitoring.           |
| 3.4                          | Noise level not to exceed 85 dB(A) (over 8 hr period).                                                                                                                                                                                                                                              | Plant and equipment proposed for site clearance will not exceed noise limit.                                                                                                                                                                  | OK | See above.                                                                                                 |
| Ecology/ nature conservation |                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                               |    |                                                                                                            |
| 4.1                          | Vegetation clearing will be restricted to within the site boundary. The OEPMS will be on site during site clearing.                                                                                                                                                                                 | IC aware of commitment. OEPMS will mark site boundary prior to clearing and be onsite during clearing.                                                                                                                                        | OK | OEPMS marked site boundary and was present during boundary clearing.                                       |

|     |                                                                                                                                                                                                                                                                   |                                                                                                                                         |    |                                                                                                                                                                                                                                                                                                                                                                                  |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.2 | Trees on sloping land within the project site boundary (close to the north west boundary) will not be cleared.                                                                                                                                                    | IC aware of commitment. OEPMS will mark site boundary prior to clearing and be onsite during clearing.                                  | OK | Pine trees, especially those on the sloping boundary will be cut to ground level rather than removed to avoid soil disturbance.                                                                                                                                                                                                                                                  |
| 4.3 | Cleared vegetation will be removed and will not be stockpiled on site or pushed into existing vegetation adjacent to the site.                                                                                                                                    | IC have identified site to process cleared trees and stockpile mulch and firewood temporarily prior to distribution to local residents. | OK | Timber to be made available to local residents. Tree stumps and timber will be stored in the south east (top) corner of the site for collection by local residents. As clearing will be conducted slowly it is not expected that a significant stockpile of vegetation will be created. Some tree stumps may be disposed of in disused quarry pits with approval of NES officer. |
| 4.4 | Machinery storage and materials lay down areas will be established in previously disturbed areas to avoid increasing the footprint of the project site.                                                                                                           | Machinery will be stored at existing location in adjacent power station. No laydown area required for site preparation works.           | OK |                                                                                                                                                                                                                                                                                                                                                                                  |
| 4.5 | As far as is practicable existing stockpiles of fill material will be used. If new fill material is required it will be sourced from locations approved by the Island Environmental Officer and OEPMS that do not result in the disturbance of native vegetation. | No new fill is required for the site                                                                                                    | NA |                                                                                                                                                                                                                                                                                                                                                                                  |
| 4.6 | Immediately after clearing, the site will be planted with low growing grass species to help stabilise the site and minimise the spread of weeds.                                                                                                                  | IC is committed to seeding site with appropriate grass species selected in consultation with EO and OEPMS.                              | NA | NES Officer has been made responsible for planting <i>vetiver</i> grass. Grass will be established by spreading cuttings from adjacent sports field and school.                                                                                                                                                                                                                  |
| 4.7 | Biosecurity measures to prevent introduction of invasive species will be carried out.                                                                                                                                                                             | All plant and equipment will be cleaned and inspected for vegetation and dirt prior to entering and leaving the site.                   | OK | Plant clean prior to entering the site for site clearance works. Plant planned to be cleaned (loose dirt removed) for site preparation works.                                                                                                                                                                                                                                    |

| Social            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                  |    |                                                                                                               |
|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------|
| 5.1               | The Atiu Island Council, Visitor Centre, landowners, local residents and stakeholders will be kept informed of the project via monthly meeting during construction including details of: 1. The progress of the works and expected completion date; 2. Scheduled delivery of materials and equipment to Atiu; 3. Any disruptions to the use of the wharf or site access roads; and 4. Upcoming works that are likely to be noisy. As far as practicable works will be timed to avoid disruption to local events. | IC undertaking works and will keep local residents and landowners informed of expected site preparation schedule | OK | Site preparation works will proceed slowly at the direction of the IC. Local residents will be kept informed. |
| Air quality       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                  |    |                                                                                                               |
| 6.1               | Vehicles carry soil, sand, crushed aggregate or other fine materials to or from the project site will be covered                                                                                                                                                                                                                                                                                                                                                                                                 | No fill is required to be imported to site.                                                                      | NA |                                                                                                               |
| 6.2               | The project site, material stock piles and access roads including materials that may be required from the wharf and other material stockpile areas, will be wetted or stabilized if dust is generated.                                                                                                                                                                                                                                                                                                           | If soil is stockpiled on site, if required, it will be wetted to prevent dust generation.                        | NA | No stockpiling required for boundary clearing. No soil stockpiling likely to be required.                     |
| 6.3               | Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads.                                                                                                                                                                                                                                                                                                                                                                                                    | All earthmoving machinery will be cleaned at the existing power station prior to entering a public road.         | NA | Plant not moved to public roads during site visit. IC aware of commitment.                                    |
| 6.4               | Landowners adjacent to the Project will be consulted and screening vegetation provided if required.                                                                                                                                                                                                                                                                                                                                                                                                              | IC committed to consulting adjacent landowners and providing screening vegetation if requested.                  | NA | Monitor during next visit.                                                                                    |
| Health and Safety |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                  |    |                                                                                                               |
| 7.1               | The contractor(s) will be required to develop a health and safety plan prior to the commencement of any works on site.                                                                                                                                                                                                                                                                                                                                                                                           | IC to provide health and safety plan to OEPMS for review prior to commencement of works.                         | NC | Health and safety plan has not yet been prepared. ICI will assist IC with preparation of plan.                |
| 7.2               | The project site will be fenced as early as practicable during construction to prevent public access to potentially unsafe areas.                                                                                                                                                                                                                                                                                                                                                                                | Fencing TBD                                                                                                      | NA | Fencing to be established after site preparation complete.                                                    |
| 7.3               | Workers shall be provided (before they start work) with appropriate personnel protective equipment (PPE).                                                                                                                                                                                                                                                                                                                                                                                                        | IC to provide PPE.                                                                                               | NC | PPE equipment raised as an issue – currently not available. OEPMS to assist IC.                               |

|                              |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                                                                                                                                     |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 7.4                          | Adequate sanitation, potable water and first aid facilities will be supplied by the contractor.                                                                                                                                                                                                                       | Facilities present at power station and will be used during site preparation.                                                                   | OK |                                                                                                                                                                                                                                                     |
| Hazardous materials          |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                                                                                                                                     |
| 8.1                          | The Contractor(s) will prepare a hazardous materials management plan that shall at a minimum include: 1. The type and quantity of hazardous materials that will be present on site; 2. Safety Data Sheets for all hazardous materials; 3. A spill response plan including training for staff in the use of spill kits | IC to provide a hazardous materials management plan to OEPMS prior to commencement of works                                                     | NC | Hazardous materials management plan has not been provided.                                                                                                                                                                                          |
| 8.2                          | Hazardous materials (including fuel and oils) storage will be secure and appropriately bunded.                                                                                                                                                                                                                        | No onsite storage of hazardous materials required during site preparation. All refuelling and maintenance undertaken at existing power station. | OK | Refuelling for site boundary clearance done at power station.<br>Fuel storage identified as an issue and potential to use additional tank on Atiu. Refuelling of plant and equipment will still take place at existing facilities at power station. |
| 8.3                          | Spill kits and containment devices appropriate for the type and volume of hazardous materials on site will be located at the storage area(s), the site and on vehicles carrying hazardous materials.                                                                                                                  | Spill kits and been purchased through the PMU for Atiu site.                                                                                    | OK |                                                                                                                                                                                                                                                     |
| Erosion and sediment control |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                                                                                                                                     |
| 9.1                          | Ensure civil works design includes appropriate drainage structures that adequately control surface water flow and prevent erosion of surrounding land.                                                                                                                                                                | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                              | NA | ESC will be implemented during site clearing.                                                                                                                                                                                                       |
| 9.2                          | All land disturbances will be confined to the minimum practicable working area to ensure that the minimum land area is exposed to erosion for the shortest possible time.                                                                                                                                             | Site preparation clearing will be confined to the site boundary which is the smallest area required for the construction of the project.        | OK | OEPMS marked site boundary and monitored clearance.                                                                                                                                                                                                 |
| 9.3                          | Existing drainage lines will be protected and diversion of drainage lines avoided                                                                                                                                                                                                                                     | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                              | NA | Refer 9.1                                                                                                                                                                                                                                           |

|          |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                   |    |                                                                                              |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|----|----------------------------------------------------------------------------------------------|
| 9.4      | Erosion control works and measures will be installed to control surface water runoff and prevent the export of sediments from the site by ensuring: 1. Discharge of stormwater is to stable preferably vegetated land; and 2. Erosion control measures closely follow land contours to reduce runoff velocity from exposed soils. | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation. | NA | Refer 9.1                                                                                    |
| 9.5      | Sediment traps (e.g. silt fences) will be constructed across all drainage lines and erosion controls from site that are likely to receive runoff from exposed or disturbed soils. Sediment traps will be installed where required.                                                                                                | Atiu Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation. | NA | Refer 9.1                                                                                    |
| 9.6      | The site will be covered with geotextile fabric immediately after clearing to stabilise the site.                                                                                                                                                                                                                                 | Geotextile fabric will be used where required as determined by the OEPMS and EO.                                  | NA | Silt fencing is currently being ordered.                                                     |
| 9.7      | A shade tolerant groundcover will be established across the site as soon as practicable after site clearance. The species of groundcover used will be selected in consultation the Atiu Environment Officer.                                                                                                                      | IA to provide seeds for sowing after site clearing. Species selection will be in consultation with the Atiu EO.   | OK | Establishment of grass to be encouraged by spreading cut grass from sports field and school. |
| 9.8      | Sediment and erosion control measures will be monitored regularly to ensure their continued correct functioning.                                                                                                                                                                                                                  | IC to monitor installed erosion and sediment control devices (eg silt traps / sediment fences daily).             | OK | NES officer will be onsite during the installation of the silt fencing                       |
| Heritage |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                   |    |                                                                                              |
| 10.1     | In the event of an artefact being uncovered during construction work will cease immediately and the Island Council and OEPMS notified. Work will not recommence until authorised by the OEPMS                                                                                                                                     | IC aware and commitment.                                                                                          | NA |                                                                                              |

**Mitiaro**

|                                                    |                                                                      |                                                 |                        |
|----------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------|------------------------|
| <b>CIRES - Mitiaro Site Preparation Monitoring</b> |                                                                      | <b>Inspection Date:</b> 17/03/2017 to 20/3/2017 |                        |
| <b>Monitor(s)</b>                                  |                                                                      | <b>Inspection Times:</b>                        |                        |
| <b>Name</b> Teariki Rongo                          | <b>Position:</b> Owners Engineer Environmental Monitoring Specialist | <b>Start time:</b> NA                           | <b>Finish time:</b> NA |

| <b>Item No</b>              | <b>Environmental Commitment</b><br><i>(all commitments relevant to site preparation contained in the IEE and Cook Islands Technical Report)</i>                                                                      | <b>Island Council Commitment</b>                                                                                                                                                                                | <b>Findings</b><br>(OK, NC or N/A) | <b>Comments</b>                                                             |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-----------------------------------------------------------------------------|
| Water resources and quality |                                                                                                                                                                                                                      |                                                                                                                                                                                                                 |                                    |                                                                             |
| 1.1                         | The civil works design will maintain existing surface water drainage patterns across the project site.                                                                                                               | No surface water drainage on subproject site. Drainage is directly through permeable makatea.                                                                                                                   | NA                                 |                                                                             |
| 1.2                         | Implement erosion and hazardous materials controls as outlined in the Mitiaro Environmental Technical Report EMP                                                                                                     | OEPMS and PMU agreed that erosion and sediment control plan was unnecessary for Mitiaro as the high levels of natural drainage through the makatea rock mean the risk of erosion and sedimentation is very low. | NA                                 |                                                                             |
| 1.3                         | Water required for construction (e.g. concrete mixing) will be sourced with the agreement of the Island Council, Island Environmental Officer and OEPMS.                                                             | If water is required for dust control it will be sourced with consent of the EO                                                                                                                                 | NA                                 | Dust control not required. Wet weather conditions during site clearance.    |
| Waste                       |                                                                                                                                                                                                                      |                                                                                                                                                                                                                 |                                    |                                                                             |
| 2.1                         | Vegetation cleared from the site will be disposed of in consultation with the OEPMS and Island Environmental Officer (e.g. chipped and made available to local residents as mulch).                                  | Vegetation will be removed using an excavator to dislodge roots in makatea. Cleared vegetation will be chipped and made available to residents for mulch.                                                       | OK                                 | Some vegetation was not able to be chipped and was left on site (refer 4.2) |
| 2.2                         | The construction contractor will consult with the OEPMS and the Mitiaro Island Environmental Officer to identify opportunities to avoid and reduce the generation of waste and to recycle or re-use waste generated. | If extra soil is generated during site preparation it will be provided to landowners for fill. Vegetation will be reused as described in 2.1.                                                                   | NA                                 | Excess soil not generated.                                                  |



|                              |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                               |    |                                                                                                                                                                               |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2.3                          | If excess spoil is generated during site preparation it will be stored at an established stockpile site on Mitiaro (e.g. airport) for re-use.                                                                                                                                                          | If excess spoil is generated it will be stored temporality in accordance with the Erosion and Sediment Control Plan prior to be provided to local landowners for use as fill.                                                                 | OK | No excess spoil generated. Broken rock was used to level site and fill in crevices.                                                                                           |
| 2.4                          | If portable toilet facilities (e.g. port a loo) are required they will and emptied into existing septic tanks for treatment.                                                                                                                                                                           | Facilities at existing power station to be used.                                                                                                                                                                                              | OK | Motor cycle was on site for transport to power station toilet.                                                                                                                |
| Noise                        |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                               |    |                                                                                                                                                                               |
| 3.1                          | Wherever possible working hours will be between 8 am and 5 pm Monday to Friday. Where safety or technical reasons require work to be completed outside these hours' noise levels will be minimised as much as possible and the Mitiaro Island Council together with nearby residents will be informed. | No works outside specified hours are planned. If required, works will only take place with consent of Mayor and EO.                                                                                                                           | OK | No works observed outside designated hours.                                                                                                                                   |
| 3.2                          | Noisy activities (e.g. site clearance) will be carried out in the least sensitive time periods to be determined in consultation with the Mitiaro Island Council.                                                                                                                                       | All works planned to be undertaken between 8am and 5pm Mon – Fri and will exclude sensitive periods (eg holidays). Works outside these hours will only be completed with consent of Mayor and EO and will not occur during sensitive periods. | OK |                                                                                                                                                                               |
| 3.3                          | Equipment and plant will be maintained in good order. Noise reduction components (e.g. mufflers) will be inspected prior to the commencement of works to ensure they are fully functional.                                                                                                             | TBC                                                                                                                                                                                                                                           | OK | All machinery was in good working order.                                                                                                                                      |
| 3.4                          | Noise level not to exceed 85 dB(A) (over 8 hr period).                                                                                                                                                                                                                                                 | Plant and equipment proposed for site clearance will not exceed noise limit.                                                                                                                                                                  | OK | See above                                                                                                                                                                     |
| Ecology/ nature conservation |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                               |    |                                                                                                                                                                               |
| 4.1                          | Vegetation clearing will be restricted to within the site boundary. The OEPMS will be on site during site clearing.                                                                                                                                                                                    | IC aware of commitment. OEPMS will mark site boundary prior to clearing and be onsite during clearing.                                                                                                                                        | OK | OEPMS and NES Officer onsite during clearing of site boundary (refer previous monitoring report). NES officer onsite for remainder of clearing.                               |
| 4.2                          | Cleared vegetation will be removed and will not be stockpiled on site or pushed into existing vegetation adjacent to the site.                                                                                                                                                                         | Dried vegetation will be removed for storage and disposal.                                                                                                                                                                                    | NC | Dried vegetation was difficult to remove from makatea and, with approval from NES Officer and OEPMS, was burnt on site or scraped to the site boundary (not into vegetation). |

|             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |    |                                                                                                                                                                                                           |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.3         | Machinery storage and materials lay down areas will be established in previously disturbed areas to avoid increasing the footprint of the project site.                                                                                                                                                                                                                                                                                                                                                | Machinery will be stored at existing storage location. No laydown area required for site preparation works.                                                                                                            | OK |                                                                                                                                                                                                           |
| 4.4         | As far as is practicable existing stockpiles of fill material will be used. If new fill material is required it will be sourced from locations approved by the Island Environmental Officer and OEPMS that do not result in the disturbance of native vegetation.                                                                                                                                                                                                                                      | New fill will be sourced from stockpiles at the airport and at the harbour.                                                                                                                                            | OK | Fill was sourced from both the harbour and airport. NES officer had concerns over fill from airport site which were addressed (refer to attached monitoring report).                                      |
| 4.5         | Immediately after clearing, the site will be planted with low growing grass species to help stabilise the site and minimise the spread of weeds.                                                                                                                                                                                                                                                                                                                                                       | IC is committed to seeding site with appropriate grass species selected in consultation with EO and OEPMS.                                                                                                             | OK | Topsoil has been spread on site and Bermuda grass has self seeded. No further seeding is considered necessary.                                                                                            |
| 4.6         | Biosecurity measures to prevent introduction of invasive species will be carried out.                                                                                                                                                                                                                                                                                                                                                                                                                  | All plant and equipment will be cleaned and inspected for vegetation and dirt prior to entering and leaving the site.<br>Fill bought to site will be from existing stock piles and will be free from invasive species. | OK | Machinery was clean at the time of the monitoring. Fill bought from site did contain vegetation but not invasive species.                                                                                 |
| Social      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |    |                                                                                                                                                                                                           |
| 5.1         | The Mitiamo Island Council, landowners, local residents and stakeholders will be kept informed of the project via monthly meeting during construction including details of: 1. The progress of the works and expected completion date; 2. Scheduled delivery of materials and equipment to Mitiamo; 3. Any disruptions to the use of the wharf or site access roads; and 4. Upcoming works that are likely to be noisy. As far as practicable works will be timed to avoid disruption to local events. | IC undertaking works and will keep location residents and landowners informed of expected site preparation schedule                                                                                                    | OK | IC kept residents informed.<br>One complaint was received regarding the formation of potholes on a road used to cart fill. The IC fixed the potholes immediately.                                         |
| Air quality |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                        |    |                                                                                                                                                                                                           |
| 6.1         | Vehicles carry soil, sand, crushed aggregate or other fine materials to or from the project site will be covered                                                                                                                                                                                                                                                                                                                                                                                       | IC aware of commitment.                                                                                                                                                                                                | NC | Loads were not covered however, dust was not found to be an issue. Drivers of transport vehicles on Mitiamo were advised by the Mayor and EO to keep speed levels down to avoid causing dusty conditions. |

|                     |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                               |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 6.2                 | The project site, material stock piles and access roads including those from the wharf and material stockpile areas, will be wetted or stabilized if dust is generated.                                                                                                                                               | If soil is stockpiled on site it will be wetted to prevent dust generation.                                                                     | OK | Fill material was stockpiled for brief periods prior to spreading on site. Where necessary stockpiles were wetted to prevent dust generation. |
| 6.3                 | Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads.                                                                                                                                                                                                         | All earthmoving machinery will be cleaned on site existing power station prior to entering a public road.                                       | OK | Machinery cleaned on site. Material (sand and rock dust) did not stick to machinery.                                                          |
| Health and Safety   |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                               |
| 7.1                 | The contractor(s) will be required to develop a health and safety plan prior to the commencement of any works on site.                                                                                                                                                                                                | IC to provide health and safety plan to OEPMS for review prior to commencement of works.                                                        | NC | Plan not provided                                                                                                                             |
| 7.2                 | The project site will be fenced as early as practicable during construction to prevent public access to potentially unsafe areas.                                                                                                                                                                                     | Fencing TBD                                                                                                                                     | NA | Fencing not yet installed. Site is not considered unsafe.                                                                                     |
| 7.3                 | Workers shall be provided (before they start work) with appropriate personnel protective equipment (PPE).                                                                                                                                                                                                             | IC to provide PPE.                                                                                                                              | NC | PPE not provided                                                                                                                              |
| 7.4                 | Adequate sanitation, potable water and first aid facilities will be supplied by the contractor.                                                                                                                                                                                                                       | Facilities present at power station and will be used during site preparation.                                                                   | OK | IC provided water and facilities at power station were used.                                                                                  |
| Hazardous materials |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                                                                               |
| 8.1                 | The Contractor(s) will prepare a hazardous materials management plan that shall at a minimum include: 1. The type and quantity of hazardous materials that will be present on site; 2. Safety Data Sheets for all hazardous materials; 3. A spill response plan including training for staff in the use of spill kits | IC to provide a hazardous materials management plan to OEPMS prior to commencement of works                                                     | NC | Plan not provided                                                                                                                             |
| 8.2                 | Hazardous materials (including fuel and oils) storage will be secure and appropriately banded.                                                                                                                                                                                                                        | No onsite storage of hazardous materials required during site preparation. All refuelling and maintenance undertaken at existing power station. | NA |                                                                                                                                               |
| 8.3                 | Spill kits and containment devices appropriate for the type and volume of hazardous materials on site will be located at the storage area(s), on the site and on vehicles carrying hazardous materials.                                                                                                               | Spill kits and been purchased through the PMU for Mitiamo site.                                                                                 | OK |                                                                                                                                               |

| Erosion and sediment control |                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                               |    |                                                                                     |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------|
| 9.1                          | Ensure civil works design includes appropriate drainage structures that adequately control surface water flow and prevent erosion of surrounding land.                                                                                                                                                                         | OEPMS and PMU agreed that erosion and sediment control plan was unnecessary for Mitiaro as the high rate of natural drainage through the makatea rock mean the risk of erosion and sedimentation is very low. | NA | No drainage structures required.                                                    |
| 9.2                          | All land disturbances will be confined to the minimum practicable working area to ensure that the minimum land area is exposed to erosion for the shortest possible time.                                                                                                                                                      | Site preparation clearing will be confined to the site boundary which is the smallest area required for the construction of the project.                                                                      | OK | OEPMS and NES officer on site during clearing of site boundary.                     |
| 9.3                          | Existing drainage lines will be protected and diversion of drainage lines avoided                                                                                                                                                                                                                                              | NA (refer 9.1).                                                                                                                                                                                               | NA | No drainage lines on site.                                                          |
| 9.4                          | Erosion control works and measures will be installed to control surface water runoff and prevent the export of sediments from the site by ensuring: 1. Discharge of stormwater is to stable preferably vegetated land; and Erosion control measures closely follow land contours to reduce runoff velocity from exposed soils. | NA (refer 9.1).                                                                                                                                                                                               | NA |                                                                                     |
| 9.5                          | Sediment traps (e.g. silt fences) will be constructed across all drainage lines and erosion controls from site that are likely to receive runoff from exposed or disturbed soils. Sediment traps will be installed where required.                                                                                             | NA (refer 9.1).                                                                                                                                                                                               | NA |                                                                                     |
| 9.6                          | A shade tolerant groundcover will be established across the site as soon as practicable after site clearance. The species of groundcover used will be selected in consultation the Mitiaro Environment Officer.                                                                                                                | IA to provide seeds for sowing after site clearing. Species selection will be in consultation with the Mitiaro EO.                                                                                            | OK | Topsoil spread on site and bermuda grass self seeding. No further seeding required. |
| 9.7                          | Sediment and erosion control measures will be monitored regularly to ensure their continued correct functioning.                                                                                                                                                                                                               | NA (refer 9.1).                                                                                                                                                                                               | NA |                                                                                     |

| Heritage |                                                                                                                                                                                               |                          |                                                       |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------|
| 10.1     | In the event of an artefact being uncovered during construction work will cease immediately and the Island Council and OEPMS notified. Work will not recommence until authorised by the OEPMS | IC aware and commitment. | NA<br>No artefacts uncovered during site preparation. |

**Mauke**

| CIRES - Mauke Site Preparation Monitoring |                                                               | Inspection Date: 21/04 to 24/04/17 |                 |
|-------------------------------------------|---------------------------------------------------------------|------------------------------------|-----------------|
| Monitor(s)                                |                                                               | Inspection Times:                  |                 |
| Name Teariki Rongo                        | Position: Owners Engineer Environmental Monitoring Specialist | Start time: NA                     | Finish time: NA |

| Item No                     | Environmental Commitment<br><i>(all commitments relevant to site preparation contained in the IEE and Cook Islands Technical Report)</i>                                                                           | Island Council Commitment                                                                                                                                                                 | Findings<br>(OK, NC or N/A) | Comments                                                                                                                                                                                          |
|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Water resources and quality |                                                                                                                                                                                                                    |                                                                                                                                                                                           |                             |                                                                                                                                                                                                   |
| 1.1                         | The civil works design will maintain existing surface water drainage patterns across the project site.                                                                                                             | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                                                                       | NA                          | Only access road cleared at the time of inspection. Erosion and sediment control plan will be implemented during site clearance. It is unlikely that site clearance will alter drainage patterns. |
| 1.2                         | Implement erosion and hazardous materials controls as outlined in the Mauke Environmental Technical Report EMP                                                                                                     | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation. Refer Erosion and Sediment Control.                                    | NA                          | Only access road cleared at the time of inspection. Erosion and sediment control plan will be implemented during site clearance.                                                                  |
| 1.3                         | Water required for construction (e.g. concrete mixing) will be sourced with the agreement of the Island Council, Island Environmental Officer and OEPMS.                                                           | If water is required for dust control it will be sourced with consent of the EO                                                                                                           | NA                          | No dust control required                                                                                                                                                                          |
| Waste                       |                                                                                                                                                                                                                    |                                                                                                                                                                                           |                             |                                                                                                                                                                                                   |
| 2.1                         | Vegetation cleared from the site will be disposed of in consultation with the OEPMS and Island Environmental Officer (e.g. chipped and made available to local residents as mulch).                                | IC own and operate a chipper. Cleared vegetation will be chipped and made available to residents for mulch.                                                                               | OK                          | Cleared vegetation from access road was made available to local residents for fire wood.                                                                                                          |
| 2.2                         | The construction contractor will consult with the OEPMS and the Mauke Island Environmental Officer to identify opportunities to avoid and reduce the generation of waste and to recycle or re-use waste generated. | If extra soil is generated during site preparation it will be used to cover the local dump, the vegetation will be chipped as mulch and made available to local residents and landowners. | OK                          | No extra soil generated during the inspection.                                                                                                                                                    |

|                              |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                    |    |                                                                     |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------|
| 2.3                          | If excess spoil is generated during site preparation it will be stored at an established stockpile site on Mauke (e.g. airport) for re-use.                                                                                                                                                          | If extra soil is generated during site preparation it will be used to cover the local dump.                                                                                                                                                                                        | OK | As above                                                            |
| 2.4                          | If portable toilet facilities (e.g. port a loo) are required they will be emptied into existing septic tanks for treatment.                                                                                                                                                                          | Toilet block is available at the Sports field near the project site.                                                                                                                                                                                                               | OK | Toilet facilities also provided at Infrastructure Division Office.  |
| Noise                        |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                    |    |                                                                     |
| 3.1                          | Wherever possible working hours will be between 8 am and 5 pm Monday to Friday. Where safety or technical reasons require work to be completed outside these hours' noise levels will be minimised as much as possible and the Mauke Island Council together with nearby residents will be informed. | No works outside specified hours are planned. If required, works will only take place with consent of Mayor and EO.                                                                                                                                                                | OK | EO and Mayor authorised site clearance to be undertaken on Saturday |
| 3.2                          | Noisy activities (e.g. site clearance) will be carried out in the least sensitive time periods to be determined in consultation with the Mauke Island Council.                                                                                                                                       | All works planned to be undertaken between 8am and 5pm Mon – Fri and will exclude sensitive periods (e.g. holidays). Works outside these hours will only be carried out with consent of Mayor and EO and will not occur during sensitive periods.                                  | OK | Work was within 8am – 5pm                                           |
| 3.3                          | Equipment and plant will be maintained in good order. Noise reduction components (e.g. mufflers) will be inspected prior to the commencement of works to ensure they are fully functional.                                                                                                           | Most of IA machinery is less than a year old and in good mechanical condition. The machine operators have been trained to do the daily checks and report any issues. The mechanical workshop is adjacent to the proposed solar power site should any maintenance work be required. | OK | Machinery observed to be in good order.                             |
| 3.4                          | Noise level not to exceed 85 dB (A) (over 8 hr period).                                                                                                                                                                                                                                              | Plant and equipment proposed for site clearance will not exceed noise limit.                                                                                                                                                                                                       | OK | See above                                                           |
| Ecology/ nature conservation |                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                    |    |                                                                     |
| 4.1                          | Vegetation clearing will be restricted to within the site boundary. The OEPMS will be on site during site clearing.                                                                                                                                                                                  | IC aware of commitment. OEPMS will mark site boundary prior to clearing and be onsite during clearing.                                                                                                                                                                             | OK | OEPMS marked site boundary.                                         |
| 4.2                          | Cleared vegetation will be removed and will not be stockpiled on site or pushed into existing vegetation adjacent to the site.                                                                                                                                                                       | IC maintain and existing area for stockpile next to project site. Chipped vegetation will be stockpiled at this location prior to collection by local residents.                                                                                                                   | OK |                                                                     |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                  |          |                                                                                                                                                                                                                                                             |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4.3    | Machinery storage and materials lay down areas will be established in previously disturbed areas to avoid increasing the footprint of the project site.                                                                                                                                                                                                                                                                                                                                            | IC machinery storage shed is adjacent project site. There is ample material storage space adjacent project site. There is no need to establish a machinery and storage space area.               | OK       | Machinery stored in IC machinery shed                                                                                                                                                                                                                       |
| 4.4    | As far as is practicable existing stockpiles of fill material will be used. If new fill material is required it will be sourced from locations approved by the Island Environmental Officer and OEPMS that do not result in the disturbance of native vegetation.                                                                                                                                                                                                                                  | No new fill is expected to be required. However, if necessary fill will be sourced by the IC from local landowners.                                                                              | NA       | No new fill anticipated                                                                                                                                                                                                                                     |
| 4.5    | Immediately after clearing, the site will be planted with low growing grass species to help stabilise the site and minimise the spread of weeds.                                                                                                                                                                                                                                                                                                                                                   | IC is committed to seeding site with appropriate grass species selected in consultation with EO and OEPMS.                                                                                       | OK       | OEPMS and NES determined that seeding was not required. Site is expected to reseed from grass and shrubs that will not be disturbed.                                                                                                                        |
| 4.6    | Biosecurity measures to prevent introduction of invasive species will be carried out.                                                                                                                                                                                                                                                                                                                                                                                                              | All plant and equipment will be cleaned and inspected for vegetation and dirt prior to entering and leaving the site.<br><br>Fill brought to site will be from lands free from invasive species. | OK<br>NC | Plant and equipment cleaned prior to entering site. Biosecurity issues identified with inspections (species of ant) being detected in shipment of battery packages. Ants were quickly killed and sample sent to Ministry of Agriculture for identification. |
| Social |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                  |          |                                                                                                                                                                                                                                                             |
| 5.1    | The Mauke Island Council, landowners, local residents and stakeholders will be kept informed of the project via monthly meeting during construction including details of: 1. The progress of the works and expected completion date; 2. Scheduled delivery of materials and equipment to Mauke; 3. Any disruptions to the use of the wharf or site access roads; and 4. Upcoming works that are likely to be noisy. As far as practicable works will be timed to avoid disruption to local events. | IC undertaking works and will keep location residents and landowners informed of expected site preparation schedule                                                                              | OK       | IC notified residents of the commencement of work.                                                                                                                                                                                                          |
| 5.2    | Landowners adjacent to the power station will be consulted and screening vegetation provided if requested.                                                                                                                                                                                                                                                                                                                                                                                         | The IA shall consult with landowners adjacent to the power station of the need for screening vegetation. Should they need it this will be communicated to the Contractor for action.             | NA       | Monitor during site preparation.                                                                                                                                                                                                                            |



| Air quality         |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                            |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------|
| 6.1                 | Vehicles carry soil, sand, crushed aggregate or other fine materials to or from the project site will be covered                                                                                                                                                                                                      | IC aware of commitment.                                                                                                                         | NA | No material imported to site at the time of the inspection.                                |
| 6.2                 | The project site, material stock piles and access roads will be wetted or stabilized if dust is generated.                                                                                                                                                                                                            | If soil is stockpiled on site, if required, it may be wetted to prevent dust generation.                                                        | NA | No material stockpiled at the time of inspection.                                          |
| 6.3                 | Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads.                                                                                                                                                                                                         | All earthmoving machinery will be cleaned at the machinery shed next to the project site prior to entering a public road.                       | OK |                                                                                            |
| Health and Safety   |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                            |
| 7.1                 | The contractor(s) will be required to develop a health and safety plan prior to the commencement of any works on site.                                                                                                                                                                                                | IC to provide health and safety plan to OEPMS for review prior to commencement of works.                                                        | OK | Plan provided                                                                              |
| 7.2                 | The project site will be fenced as early as practicable during construction to prevent public access to potentially unsafe areas.                                                                                                                                                                                     | Fencing TBD                                                                                                                                     | NA |                                                                                            |
| 7.3                 | Workers shall be provided (before they start work) with appropriate personnel protective equipment (PPE).                                                                                                                                                                                                             | IC to provide PPE.                                                                                                                              | OK | IC have provided PPE to their workers and contractors have adequate PPE.                   |
| 7.4                 | Adequate sanitation, potable water and first aid facilities will be supplied by the contractor.                                                                                                                                                                                                                       | Facilities present at power station and will be used during site preparation.                                                                   | OK | Facilities provided at Infrastructure Division Office.                                     |
| Hazardous materials |                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                 |    |                                                                                            |
| 8.1                 | The Contractor(s) will prepare a hazardous materials management plan that shall at a minimum include: 1. The type and quantity of hazardous materials that will be present on site; 2. Safety Data Sheets for all hazardous materials; 3. A spill response plan including training for staff in the use of spill kits | IC to provide a hazardous materials management plan to OEPMS prior to commencement of works                                                     | NC | Plan was not provided prior to the commencement of work. IC are aware of responsibilities. |
| 8.2                 | Hazardous materials (including fuel and oils) storage will be secure and appropriately banded.                                                                                                                                                                                                                        | No onsite storage of hazardous materials required during site preparation. All refuelling and maintenance undertaken at existing power station. | NA | No onsite storage of hazardous materials.                                                  |

|                              |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                          |    |                                                                                                                                      |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----|--------------------------------------------------------------------------------------------------------------------------------------|
| 8.3                          | Spill kits and containment devices appropriate for the type and volume of hazardous materials on site will be located at the storage area(s), on the site and on vehicles carrying hazardous materials.                                                                                                                           | Spill kits and been purchased through the PMU for Mauke site.                                                                            | NC | Spill kits were not available at time of inspection.                                                                                 |
| Erosion and sediment control |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                          |    |                                                                                                                                      |
| 9.1                          | Ensure civil works design includes appropriate drainage structures that adequately control surface water flow and prevent erosion of surrounding land.                                                                                                                                                                            | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                       | NA | Plan yet to be implemented                                                                                                           |
| 9.2                          | All land disturbances will be confined to the minimum practicable working area to ensure that the minimum land area is exposed to erosion for the shortest possible time.                                                                                                                                                         | Site preparation clearing will be confined to the site boundary which is the smallest area required for the construction of the project. | NA | Refer 9.1                                                                                                                            |
| 9.3                          | Existing drainage lines will be protected and diversion of drainage lines avoided                                                                                                                                                                                                                                                 | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                      | NA | Drainage lines unlikely to be impacted by site preparation works.                                                                    |
| 9.4                          | Erosion control works and measures will be installed to control surface water runoff and prevent the export of sediments from the site by ensuring: 1. Discharge of stormwater is to stable preferably vegetated land; and 2. Erosion control measures closely follow land contours to reduce runoff velocity from exposed soils. | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                       | NA | Refer 9.1                                                                                                                            |
| 9.5                          | Sediment traps (e.g. silt fences) will be constructed across all drainage lines and erosion controls from site that are likely to receive runoff from exposed or disturbed soils. Sediment traps will be installed where required.                                                                                                | Mauke Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                       | NA | Refer 9.1                                                                                                                            |
| 9.6                          | A shade tolerant groundcover will be established across the site as soon as practicable after site clearance. The species of groundcover used will be selected in consultation the Mauke Environment Officer.                                                                                                                     | IA to provide seeds for sowing after site clearing. Species selection will be in consultation with the Mauke EO.                         | OK | OEPMS and NES determined that seeding was not required. Site is expected to reseed from grass and shrubs that will not be disturbed. |
| 9.7                          | Sediment and erosion control measures will be monitored regularly to ensure their continued correct functioning.                                                                                                                                                                                                                  | IC to monitor installed erosion and sediment control devices (e.g. silt traps / sediment fences daily).                                  | NA | Refer 9.1                                                                                                                            |

| Heritage |                                                                                                                                                                                               |                          |                                                        |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------|
| 10.1     | In the event of an artefact being uncovered during construction work will cease immediately and the Island Council and OEPMS notified. Work will not recommence until authorised by the OEPMS | IC aware and commitment. | OK<br>No artefacts discovered during initial clearing. |

**Mangaia**

|                                                     |                                                              |                                          |                     |
|-----------------------------------------------------|--------------------------------------------------------------|------------------------------------------|---------------------|
| <b>CIRESP - Mangaia Site Preparation Monitoring</b> |                                                              | <b>Inspection Date: 24/05 – 26/05/17</b> |                     |
| <b>Monitor(s)</b>                                   |                                                              | <b>Inspection Times:</b>                 |                     |
| <b>Name</b> Teariki Rongo                           | <b>Position:</b> Environment and Social Safeguard Specialist | <b>Start time:</b>                       | <b>Finish time:</b> |

| <b>Item No</b>                     | <b>Environmental Commitment</b><br><i>(all commitments relevant to site preparation contained in the IEE and Cook Islands Technical Report)</i>                                            | <b>Island Council Commitment</b>                                                                                                                          | <b>Findings</b><br>(Not OK, OK, NC or N/A) | <b>Comments</b>                                                                                                                                                                            |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Water resources and quality</b> |                                                                                                                                                                                            |                                                                                                                                                           |                                            |                                                                                                                                                                                            |
| 1.1                                | The civil works design will maintain existing surface water drainage patterns across the project site.                                                                                     | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                                     | NA                                         | Not monitored on this visit. It is unlikely that site preparation will alter surface water drainage as the site is located on makatea which is highly permeable.                           |
| 1.2                                | Implement erosion and hazardous materials controls as outlined in the Mangaia Environmental Technical Report EMP                                                                           | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation. Refer Erosion and Sediment Control. | NA                                         | Will be implemented during site preparation if required.                                                                                                                                   |
| 1.3                                | Water required for construction (e.g. concrete mixing) will be sourced with the agreement of the Island Council, Island Environmental Officer and OEPMS.                                   | If water is required for dust control it will be sourced with consent of the EO                                                                           | NA                                         | No dust control required during monitoring. IC aware of commitment during upcoming site preparation.                                                                                       |
| <b>Waste</b>                       |                                                                                                                                                                                            |                                                                                                                                                           |                                            |                                                                                                                                                                                            |
| 2.1                                | Vegetation cleared from the site will be disposed of in consultation with the OEPMS and Island Environmental Officer (e.g. chipped and made available to local residents as mulch).        | IA own and operate a shredder. The saw mill operator has also expressed interest in some of the trees. The rest will be shredded for local residents.     | NA                                         | Cut vegetation will be provided to local residents. Unusable tree stumps will be removed from site and disposed of in shallow makatea crevices that have been identified for this purpose. |
| 2.2                                | The construction contractor will consult with the OEPMS and the Mangaia EO to identify opportunities to avoid and reduce the generation of waste and to recycle or re-use waste generated. | IC will use any extra soil to repair road to Tavaenga back road, and, used to fill in the crevice nearby.                                                 | NA                                         | No soil generated during monitoring trip.                                                                                                                                                  |

|                              |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                 |    |                                                                                         |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|-----------------------------------------------------------------------------------------|
| 2.3                          | If excess spoil is generated during site preparation it will be stored at an established stockpile site for re-use.                                                                                                                                                                                    | Timber and excess soil will be made available to local residents for reuse.                                                                                                                                                                     | NA | Timber and makatea rock will be made available. Mayor and EO are will make people aware |
| 2.4                          | If portable toilet facilities (e.g. port a loo) are required they will and emptied into existing septic tanks for treatment.                                                                                                                                                                           | The existing toilet at the old pineapple factory will be used.                                                                                                                                                                                  | OK | Facilities at power station will also be used.                                          |
| Noise                        |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                 |    |                                                                                         |
| 3.1                          | Wherever possible working hours will be between 8 am and 5 pm Monday to Friday. Where safety or technical reasons require work to be completed outside these hours' noise levels will be minimised as much as possible and the Mungaia Island Council together with nearby residents will be informed. | No works outside specified hours are planned. If required, works will only take place with consent of Mayor and EO.                                                                                                                             | OK | Site preparation works monitored within designated hours.                               |
| 3.2                          | Noisy activities (e.g. site clearance) will be carried out in the least sensitive time periods to be determined in consultation with the Mungaia Island Council.                                                                                                                                       | All works planned to be undertaken between 8am and 5pm Mon – Fri and will exclude sensitive periods (e.g. holidays). Works outside these hours will only be completed with consent of Mayor and EO and will not occur during sensitive periods. | OK | No work outside designated hours observed and none planned.                             |
| 3.3                          | Equipment and plant will be maintained in good order. Noise reduction components (e.g. mufflers) will be inspected prior to the commencement of works to ensure they are fully functional.                                                                                                             | Most of IA machinery is in good mechanical condition. All machinery planned to be used during site preparation will undergo a mechanical inspection prior to the commencement of works.                                                         | OK | All equipment observed to be in good order.                                             |
| 3.4                          | Noise level not to exceed 85 dB (A) (over 8 hr period).                                                                                                                                                                                                                                                | Plant and equipment proposed for site clearance will not exceed noise limit.                                                                                                                                                                    | OK | See above.                                                                              |
| Ecology/ nature conservation |                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                                                 |    |                                                                                         |
| 4.1                          | Vegetation clearing will be restricted to within the site boundary. The OEPMS will be on site during site clearing.                                                                                                                                                                                    | IC aware of commitment. OEPMS will mark site boundary prior to clearing and be onsite during clearing.                                                                                                                                          | OK | Site boundary marked during visit.                                                      |
| 4.2                          | Cleared vegetation will be removed and will not be stockpiled on site or pushed into existing vegetation adjacent to the site.                                                                                                                                                                         | IC will shred the small branches, mill the bigger trees, or cut the trees that cannot go through the shredder for firewood. Vegetation will not be stockpiled on the project site.                                                              | NA | To be implemented during site preparation. IC aware and plan to implement commitment.   |

|        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |    |                                                                                                                     |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------|
| 4.3    | Machinery storage and materials lay down areas will be established in previously disturbed areas to avoid increasing the footprint of the project site.                                                                                                                                                                                                                                                                                                                                                                | If required, machinery will be stored at the project site for the duration of the site preparation stage                                                                                                                    | NA | To be implemented during site preparation                                                                           |
| 4.4    | As far as is practicable existing stockpiles of fill material will be used. If new fill material is required it will be sourced from locations approved by the OEPMS that do not result in the disturbance of native vegetation.                                                                                                                                                                                                                                                                                       | If required, new fill will be brought in from the wharf dredging's.                                                                                                                                                         | NA | Yet to be determined                                                                                                |
| 4.5    | Immediately after clearing, the site will be planted with low growing grass species to help stabilise the site and minimise the spread of weeds.                                                                                                                                                                                                                                                                                                                                                                       | IC is committed to seeding site with appropriate grass species selected in consultation with EO and OEPMS.                                                                                                                  | NA | Grass cuttings from Oneroa Sports field are planned to be used. Likely that site will naturally revegetate rapidly. |
| 4.6    | Biosecurity measures to prevent introduction of invasive species will be carried out.                                                                                                                                                                                                                                                                                                                                                                                                                                  | All plant and equipment will be cleaned and inspected for vegetation and dirt prior to entering and leaving the site.<br><br>Fill brought to site will be from existing stock piles and will be free from invasive species. | OK | Plant and equipment observed to be clean prior to boundary clearance work.                                          |
| Social |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             |    |                                                                                                                     |
| 5.1    | The Mangaia Island Council, Visitor Centre, landowners, local residents and stakeholders will be kept informed of the project via monthly meeting during construction including details of: 1. The progress of the works and expected completion date; 2. Scheduled delivery of materials and equipment to Mangaia; 3. Any disruptions to the use of the wharf or site access roads; and 4. Upcoming works that are likely to be noisy. As far as practicable works will be timed to avoid disruption to local events. | IC undertaking works and will keep location residents and landowners informed of expected site preparation schedule                                                                                                         | OK | Mayor and EO committed to keeping local residents informed of planned works.                                        |
| 5.2    | Landowners adjacent to the power station will be consulted and screening vegetation provided if requested.                                                                                                                                                                                                                                                                                                                                                                                                             | The IA shall consult with landowners adjacent to the power station of the need for screening vegetation. Should they need it this will be communicated to the Contractor for action.                                        | NA | IC in contact with landowners adjacent to power station.                                                            |

| Air quality         |                                                                                                                                                                                                                                                                                                                       |                                                                                                          |    |                                                                                                                                                                           |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6.1                 | Vehicles carry soil, sand, crushed aggregate or other fine materials to or from the project site will be covered                                                                                                                                                                                                      | IC aware of commitment.                                                                                  | NA | No materials taken to or from site during monitoring trip.                                                                                                                |
| 6.2                 | The project site, material stock piles and access roads including those from the wharf and material stockpile areas, will be wetted or stabilized if dust is generated.                                                                                                                                               | If soil is stockpiled on site it, if need be, it will be wetted to prevent dust generation.              | NA | No stockpile during monitoring trip.                                                                                                                                      |
| 6.3                 | Earth moving equipment will be cleaned prior to leaving site to prevent the tracking of soil on nearby roads.                                                                                                                                                                                                         | All earthmoving machinery will be cleaned at the existing power station prior to entering a public road. | OK | Equipment observed to be clean during monitoring trip.                                                                                                                    |
| Health and Safety   |                                                                                                                                                                                                                                                                                                                       |                                                                                                          |    |                                                                                                                                                                           |
| 7.1                 | The contractor(s) will be required to develop a health and safety plan prior to the commencement of any works on site.                                                                                                                                                                                                | IC to provide health and safety plan to OEPMS for review prior to commencement of works.                 | NC | No plan documented however, arrangements have been made for facilities and nearby hospital will be used in case of accident. Hospital has been notified of planned works. |
| 7.2                 | The project site will be fenced as early as practicable during construction to prevent public access to potentially unsafe areas.                                                                                                                                                                                     | Fencing TBD                                                                                              | NA | Fencing planned to erected at the completion of site preparation work.                                                                                                    |
| 7.3                 | Workers shall be provided (before they start work) with appropriate personnel protective equipment (PPE).                                                                                                                                                                                                             | IC to provide PPE.                                                                                       | OK | Workers involved in boundary clearing observed to be wearing appropriate PPE.                                                                                             |
| 7.4                 | Adequate sanitation, potable water and first aid facilities will be supplied by the contractor.                                                                                                                                                                                                                       | The existing toilet at the old pineapple factory will be used.                                           | OK | Additional toilet at power station also made available.                                                                                                                   |
| Hazardous materials |                                                                                                                                                                                                                                                                                                                       |                                                                                                          |    |                                                                                                                                                                           |
| 8.1                 | The Contractor(s) will prepare a hazardous materials management plan that shall at a minimum include: 1. The type and quantity of hazardous materials that will be present on site; 2. Safety Data Sheets for all hazardous materials; 3. A spill response plan including training for staff in the use of spill kits | IC to provide a hazardous materials management plan to OEPMS prior to commencement of works              | NC | Hazardous materials management plan not prepared. No issues with storage or usage of hazardous materials (e.g. fuel).                                                     |

|                              |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                 |    |                                                                                                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8.2                          | Hazardous materials (including fuel and oils) storage will be secure and appropriately bunded.                                                                                                                                                                                                                                    | No onsite storage of hazardous materials required during site preparation. All refuelling and maintenance undertaken at existing power station. | NA |                                                                                                                                                                   |
| 8.3                          | Spill kits and containment devices appropriate for the type and volume of hazardous materials on site will be located at the storage area(s), on the site and on vehicles carrying hazardous materials.                                                                                                                           | Spill kits and been purchased through the PMU for Mangaia site.                                                                                 | NC | Spill kits not on site.                                                                                                                                           |
| Erosion and sediment control |                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                 |    |                                                                                                                                                                   |
| 9.1                          | Ensure civil works design includes appropriate drainage structures that adequately control surface water flow and prevent erosion of surrounding land.                                                                                                                                                                            | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during suite preparation.                           | NA | To be monitored during site preparation. OEPMS and EO to determine need for Erosion and Sediment Control Plan. Site is on makatea and unlikely to produce runoff. |
| 9.2                          | All land disturbances will be confined to the minimum practicable working area to ensure that the minimum land area is exposed to erosion for the shortest possible time.                                                                                                                                                         | Site preparation clearing will be confined to the site boundary which is the smallest area required for the construction of the project.        | OK | OEPMS marked boundary and monitored commencement of clearing.                                                                                                     |
| 9.3                          | Existing drainage lines will be protected and diversion of drainage lines avoided                                                                                                                                                                                                                                                 | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                            | NA | Refer 9.1                                                                                                                                                         |
| 9.4                          | Erosion control works and measures will be installed to control surface water runoff and prevent the export of sediments from the site by ensuring: 1. Discharge of stormwater is to stable preferably vegetated land; and 2. Erosion control measures closely follow land contours to reduce runoff velocity from exposed soils. | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                            | NA | Refer 9.1                                                                                                                                                         |
| 9.5                          | Sediment traps (e.g. silt fences) will be constructed across all drainage lines and erosion controls from site that are likely to receive runoff from exposed or disturbed soils. Sediment traps will be installed where required.                                                                                                | Mangaia Erosion and Sediment Control Plan provided by OEPMS. IC agreed to implement on site during site preparation.                            | NA | Refer 9.1                                                                                                                                                         |
| 9.6                          | A shade tolerant groundcover will be established across the site as soon as practicable after site clearance. The species of groundcover used will be selected in consultation the Mangaia EO.                                                                                                                                    | IA to provide seeds for sowing after site clearing. Species selection will be in consultation with the Mangaia EO.                              | NA | Refer 4.5                                                                                                                                                         |



|          |                                                                                                                                                                                               |                                                                                                         |    |                                                                                                         |
|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|----|---------------------------------------------------------------------------------------------------------|
| 9.7      | Sediment and erosion control measures will be monitored regularly to ensure their continued correct functioning.                                                                              | IC to monitor installed erosion and sediment control devices (e.g. silt traps / sediment fences daily). | NA | Refer 9.1                                                                                               |
| Heritage |                                                                                                                                                                                               |                                                                                                         |    |                                                                                                         |
| 10.1     | In the event of an artefact being uncovered during construction work will cease immediately and the Island Council and OEPMS notified. Work will not recommence until authorised by the OEPMS | IC aware and commitment.                                                                                | OK | No artefacts discovered during initial boundary clearing.<br>Traditional Leader representative is aware |

## **Appendix D: POE Safeguards Monitoring Specialist Reports**

**Atiu Site Visit Report– 08/03 – 11/03/17**

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b>           | <ul style="list-style-type: none"><li>• To brief and discuss with the Mayor, the EO and the NES Officer on the Atiu Site Preparation Environmental Monitoring Commitments</li><li>• To identify and mark all site survey boundaries (pegs)</li><li>• To supervise clearance of the site boundaries</li><li>• To assist the Island Administration to initiate site clearance work</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>Performance Criteria</b> | <ul style="list-style-type: none"><li>• Understanding of the Atiu Site Preparation Environmental Monitoring Commitments</li><li>• Marked pegs</li><li>• Cleared site boundaries</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Date:</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Wednesday 08/03/17</b>   | <p>AM: Depart Rarotonga and Arrive on Atiu<br/>PM: Team met with Mayor and EO, briefing and discussion on Atiu Site Preparation Environmental Monitoring Commitments; and Site Visit</p> <p><b>Issues raised and discussed:</b></p> <ol style="list-style-type: none"><li>1. Fuel storage and budget constraints – There is a need to secure fuel storage tank as the AIA do not have enough fuel storage capacity on the island. Mayor and EO will ask ICI for the use/share of the 4,000 litre storage tank currently on the island for the quarry project.</li><li>2. There is transport shortage, if clearing is to start now. Mayor and EO will manage available transport for carting tree stumps.</li><li>3. Disposal of vegetation – Mayor proposed to dispose of tree stumps at the quarry pits, and it was agreed that the Team will visit the quarry site before departing. As the Atiu site is not one of the first sites to be worked on, and with the other projects going on on the island, the Mayor emphasized that once the site boundaries have been clearly identified clearance will be at their own pace. The Landowners and the community will be asked to come and help themselves to the firewood, especially the pastiche trees. These trees will be the first to be uprooted. Smaller branches will be chipped and made available to people who are interested.</li><li>4. Proper safety gear for the workers is an issue, especially for those who will be on foot and cutting trees.</li><li>5. Mechanic for servicing the machinery is good and have maintained the required machinery for the site clearing. Operator have adopted a routine oiling and check procedure before operation.</li><li>6. NES Officer will be onsite every time work is done on the site, i.e. clearing and when firewood is carted off the site.</li><li>7. Grassing of cleared surface – Mayor and EO agreed to the Team's suggestion to use grass from the school and adjacent sports field as a way to speed up grass cover. Need a lawn mower with a catcher. Will look into this.</li><li>8. The construction of the silt fence and the supply of the silt fence materials was raised. The Team agreed to discuss this further on site.</li></ol> |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <p>9. NES Officer will be asked to maintain the silt fence and plant <i>vetiver</i> grass (for soil erosion control) along the top north-south boundary, east-west boundary and north-south bottom boundary.</p> <p>10. Storage of project containers – Mayor and EO affirmed that the sports field next to the site will be used for this. The landowners of Vaitamina and the Teenui Sports Association will be approached.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Thursday 09/03/17 | <p>AM: Briefing with NES Officer on Atiu Site Preparation Environmental Monitoring Commitments; discussion on site with Mayor and EO; and Survey and Site Clearance</p> <p><b>Issues raised and discussed (on-site):</b></p> <ol style="list-style-type: none"> <li>1. Discussion with the operator on minimal disturbance of the ground surface while clearing and to keep within the boundary of the surveyed site.</li> <li>2. NES raised the issue of a first aid kit on site, in case of accidents.</li> <li>3. Team agreed, if there is enough time, depending on the risks of exposed soil, to put in the drainage lines.</li> <li>4. NES Officer briefed of the requirements of the Atiu Site Preparation Environmental Monitoring Commitments especially his commitments.</li> <li>5. Pine Trees - Due to the deep rooted nature of the pine trees, those pine trees within the boundary, especially those along the east-west sloping boundary will be cut to the ground instead to avoid major soil disturbance on the slopes.</li> <li>6. Team discussed that since the site slope is generally around 3°, levelling of the site should remain as close to the current slope as possible. Roller can be used once disturbed grounds are filled and compacted.</li> <li>7. Team agreed that ICI assist the Mayor and EO prepare a health and safety plan for the site clearance and there is an urgent need to have direct access from the site to the Power station toilet by machinery operators and supervisors during any site clearance activity.</li> <li>8. The Team agreed to uproot the trees surrounding two pegs along the southern boundaries to prevent it from being disturbed during ongoing clearance.</li> <li>9. Team explained to the Mayor and NES Officer on the construction of the silt fence using 2meter acacia posts from the site at 2 meter apart. The materials required will be the silt fence material (shade cloth), Number 8 wire and staples. (Awaiting new survey plans to confirm silt fence materials required)</li> <li>10. Team discussed with the Mayor the slight diversion work required to the taro patch road at the south east corner of the site. Mayor agreed that they will do this as soon as possible.</li> </ol> |
| Friday 10/03/17   | <p>AM: Survey and Site Clearance continue<br/>PM: Survey and site clearance continue and completed; and site visit to quarry.</p> <p><b>Issues discussed (on-site):</b></p> <ol style="list-style-type: none"> <li>1. Mayor reaffirmed that the clearing process will be ongoing and the</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <p>landowners and community will be encouraged and called together to remove vegetation that are useful for firewood and mulch. This will help with the problem of disposal and will speed up the clearing process.</p> <ol style="list-style-type: none"> <li>2. The Team agreed the south-east top corner of the site can be used to store tree stumps while being slowly removed from the site as the Mayor and EO manage the available transport. This will allow the site to be grassed once cleared.</li> <li>3. Team suggested to Mayor that the NES Officer could be tasked to supervise the removal of the vegetation by Landowners and the community and to make sure everyone is operating safely on the site.</li> <li>4. Team visited the quarry site and was shown around by quarry manager Man Unuia. Mr Unuia showed the Team the quarry pits proposed to dispose the tree stumps.</li> </ol> |
| Saturday 11/03/17 | AM: Return to Rarotonga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

### **Conclusion:**

- ✓ There is more understanding between the Mayor, EO and NES Officer of the Atiu Site Preparation Environmental Monitoring Commitments. Team agreed for Teariki to continue dialogue with the Atiu Team (Mayor, EO and NES Officer) on the commitments.
- ✓ Pegs identified and marked (See attached photos)
- ✓ Boundaries cleared (See attached photos)

### **Recommendations:**

1. Team to return to Atiu DTC to supervise the installation of the silt fence, silt traps and erosion drains
2. NES Officer to be on-site every time there is site clearing work
3. ICI to assist the Island Administration with its Health and Safety Plan
4. Opening at the Power station fence for easy access to Power station toilet
5. Mayor and EO to provide letter signed by the management of the Sports field to confirm the use of the area to store the project containers
6. Mayor and EO to provide letter to confirm the use of the quarry pits to dispose of tree stumps

### **Visiting Team**

Teariki Rongo (Environment and Social Safeguard Specialist)

Paul Maoate (Geotech engineer)

'Nama' (Land Surveyor)



## Some Site Photos



## Mitiaro Site Visit Report– 17/03 – 20/03/17

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b>           | <ul style="list-style-type: none"> <li>To address non-compliant issues to the Mitiaro Site Preparation Environmental Monitoring Commitment plan, especially regarding to onsite work</li> <li>To identify and mark all site survey boundaries (pegs)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Performance Criteria</b> | <ul style="list-style-type: none"> <li>Marked pegs</li> <li>Site Cleared and filled</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Date:</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Friday 17/03/17</b>      | <p>AM: Team Depart Rarotonga and Arrive on Mitiaro<br/>PM: Site Inspection with the Mayor</p> <p><b>Issues raised and discussed:</b></p> <ol style="list-style-type: none"> <li>The site was 75% filled and the MIA had started bringing in materials from a new source, i.e. top soil from the side of the airport runway. The fill needed sorting as it contained beach vegetation material. Island Administration workers were called in to manually remove the vegetation before material was compacted and spread as top soil.</li> <li>Removal of dry vegetation from the site – Hard to remove and dried vegetation that was left on the site was piled and burnt or scraped to the side using the excavator. See photos.</li> <li>Safety gear – Workers involved were machinery operators (excavator and front end loader and truck drivers. Some wore visibility vests but no other forms of safety ware were apparent.</li> <li>Machinery – All machinery was in good working order at the time.</li> <li>NES Officer has left the island 2 weeks prior to the visit due to illness. NES Officer has stopped removal of sand as fill from the agreed source at the airport site.</li> <li>Grassing of cleared surface – Already, Bermuda grass has started growing on the site. There was no need for seeding or other efforts to grass the surface. MIA workers will be spreading top soil on the site. They will also be required to weed out any noxious weeds that may start growing during the period between now and start of construction</li> <li>Storage of project containers – Site was confirmed and filling continued using top soil removed from the airport.</li> <li>Surveyor Identified all pegs,</li> </ol> |
| <b>Saturday 18/03/17</b>    | <p>AM: Loading and transport of fill to the site continued, and surveyor with Geotech Engineer and EO constructed pegs to mark the site boundaries.<br/>PM: Loading and transport of fill to site continued until 2.00pm.</p> <p><b>Issues raised and discussed (on-site):</b></p> <ol style="list-style-type: none"> <li>Discussion on quality of fill. There have been some changes to the plan regarding the source of the fill as was agreed during the planning stage. Landowners where the fill from the harbour dredging was stock piled decided they want to keep almost half of the material for their own use. This meant, more fill from the side of the airport, which needed to be</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                 | <p>sorted and vegetation removed.</p> <ol style="list-style-type: none"> <li>2. The Team investigated the airport site where removal of subsurface sand was stopped by the NES Officer and found the following: the site is outside the environmental restricted area; and there will be insignificant impact on the area if controlled removal is done. With the verbal approval of the Mayor and EO, the MIA operators (front end loader) started to remove from the site a further 500mm of material from the cleared surface. Transport of fill to the solar site continued.</li> <li>3. Mayor raised that there was one complaint from a local resident. The complaint regarding transporters causing pot holes to worsen on a side road. This was quickly dealt with by the MIA, the road fixed and fill transport re-routed onto the main road.</li> <li>4. Mayor advised that there were no issue with dust and noise during transportation of fill and excavator working on site.</li> </ol> |
| Monday 20/03/17 | <p>AM: Site fill work continued<br/>PM: Team departed Mitiaro.</p> <p>Issues discussed (on-site):</p> <ol style="list-style-type: none"> <li>1. Mayor agreed to have the MIA workers on site to remove vegetation from the fill in case there is vegetation in the fill material and to help manually spread the top soil on the site to help with growth of grass or low vegetation on the site. This will be done until the site is filled, estimated one week of work.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

### **Conclusion:**

- ✓ There is more understanding between the Mayor and EO of the Mitiaro Site Preparation Environmental Monitoring Commitments.
- ✓ Pegs identified and marked (See attached photos)
- ✓ Formal approval in writing from the Mitiaro Island Authority on further removal of sand from the airport site as discussed above will be required.

### **Recommendations:**

1. Teariki to meet with NES regarding decision by NES Officer on Mitiaro to stop removal of fill material from the area outside of the restricted foreshore area.
2. In the absence of the NES Officer on the island, the EO and Mayor to keep an eye on any environmental issues that may arise.
3. Clearing and fill work to stay within the site boundary

### **Visiting Team**

Teariki Rongo (Environment and Social Safeguard Specialist)

Paul Maoate (Geotech engineer)

Nama Benson (Land Surveyor)



Some Site Photos



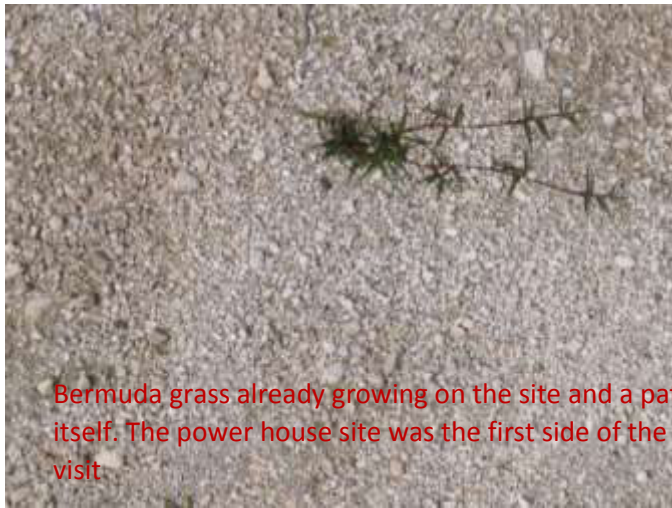
Top photo and Left and Right below - Burning remaining dried vegetation on the western side of the site (the remaining side to be filled)





Top photos show site filling and bottom photo show MIA workers spreading top soil and removing small bits of branches from the top soil





Bermuda grass already growing on the site and a patch on the power house site has already establish itself. The power house site was the first side of the site to be filled and compacted 3 weeks prior to this visit



Land boundary pegs – Top Left (north south boundary, Bottom Left (boundary next to the road), Top Right (North South boundary on the hospital side) and Bottom Right – one of the inside pegs.



### **Mauke Site Visit Report– 21/04 – 24/04/17**

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b>           | <ul style="list-style-type: none"><li>• To brief the Mayor and discuss with EO and NES Officer on the Mauke Site Preparation Environmental Monitoring Commitments</li><li>• To identify and mark all site survey boundaries (pegs)</li><li>• To supervise clearance of the site boundaries, especially the access road</li><li>• To assist the Island Administration to initiate site clearance work</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Performance Criteria</b> | <ul style="list-style-type: none"><li>• Understanding of the Mauke Site Preparation Environmental Monitoring Commitments</li><li>• Marked pegs</li><li>• Proposed building and solar farm site marked</li><li>• Cleared site boundaries</li><li>• Access road cleared</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Date:</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Friday 21/04/17</b>      | <p>PM: Arrive on Mauke and met with Mayor and EO soon after, and provide brief and discussion on Mauke Site Preparation Environmental Monitoring Commitments; and Site Visit</p> <p><b>Issues raised and discussed:</b></p> <ol style="list-style-type: none"><li>1. Machinery will be available Saturday morning to start the clearing work.</li><li>2. Proper safety gear for the workers was not an issue as operators have the proper gear, and those to be assigned the tasks of cutting trees also have the proper safety gear.</li><li>3. No discussion was had with the Island's medical people regarding any health plan, due to the late arrival of the Team. EO advised as the site is in close proximity to the infrastructure yard (right there) where a first aid kit is available. Workers will have access to toilet facility and drinking water supply if required from the Infrastructure Division Office.</li><li>4. Mechanic servicing is fairly good and the mechanic have maintained the required machinery for the site clearing. Operators have adopted a routine oiling and checking procedure before operation.</li><li>5. Disposal of vegetation – There were no issues as there were few trees to be removed. Lime trees inside the boundary will be transplanted elsewhere, and plans to transplant the macadamia nut trees to the water catchment area is being planned.</li><li>6. Disposal of old machineries to clear access – A site have been identified by the Island Council and NES Officer. No issues here and the machineries will be removed in due course. See photo of machinery pushed to the side along proposed access road.</li><li>7. Old Agriculture chemical shed – No issues, this will be removed to allow access to the site. Shed is falling apart due to age and lack of maintenance. Chemicals that use to be stored in the building has been removed.</li><li>8. NES Officer was not on the island during this visit but since there were no major issues, communicating with him by e-mail on the progress will continue.</li></ol> |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          | <p>9. Grassing of cleared surface – As the site is vegetated at the moment with grass and shrub, this was not seen as an issue. Grass will naturally grow when the site is cleared.</p> <p>10. Storage of project containers – There is no issue here as containers are already on site. If need be there is room at the back of the site that could be used for this purpose.</p> <p>11. Biosecurity breach – EO Advised that some insects (species of ant) was found in one of the battery packages. This was quickly terminated and sample sent to Ministry of Agriculture for identification. Still waiting for results.</p> |
| <b>Saturday 22/04/17</b> | <p>AM: Briefing with the machinery operators on the clearing works, identification of boundaries.</p> <p><b>Issues raised and discussed (on-site):</b></p> <p>1. No issues clearance of access road started and completed.</p>                                                                                                                                                                                                                                                                                                                                                                                                   |
| Sunday 23/04/17          | No work                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Monday 24/04/17          | AM: Return to Rarotonga                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

### **Conclusion:**

- ✓ There was more understanding between the Mayor, EO and machinery operators of the Mauke Site Preparation Environmental Monitoring Commitments.
- ✓ Team agreed for Teariki to continue dialogue with the Mauke EO and NES Officer on the commitments.
- ✓ Pegs identified and marked
- ✓ Road access clearing was completed (see photos below)
- ✓ Need to follow up with PMU on Biosecurity breach

**Note:** proposed building and solar farm site was not available at the time of completing this report

### **Recommendations:**

1. Teariki to return to Mauke to check completed site preparation works
2. NES Officer to be on-site during the rest of the site preparation works
3. Follow up with PMU on Biosecurity breach

### **Visiting Team**

Teariki Rongo (Environment and Social Safeguard Specialist)

Paul Maoate (Geotech engineer)

‘Nama Benson (Land Surveyor)



### Some Site Photos



## Mangaia Site Visit Report– 24/05 – 26/05/17

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Objectives</b>           | <ul style="list-style-type: none"> <li>• To brief the Mayor and discuss with the EO and representative of the Aronga Mana on the Mangaia Site Preparation Environmental Monitoring Commitments</li> <li>• To clearly identify and mark all site survey boundaries (pegs), proposed building and solar farm sites</li> <li>• To supervise clearance of the site boundaries</li> <li>• To assist the Island Administration to initiate site clearance work</li> <li>• To facilitate land agreement for the current power house site</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Performance Criteria</b> | <ul style="list-style-type: none"> <li>• Understanding of the Mangaia Site Preparation Environmental Monitoring Commitments</li> <li>• Marked pegs</li> <li>• Proposed building and solar farm site marked</li> <li>• Cleared site boundaries</li> <li>• Agreement on current power house site</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Date:</b>                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Wednesday 24/05/17</b>   | <p>AM: Depart Rarotonga and Arrive on Mangaia<br/> PM: Team met with Mayor, EO, and Manager for Infrastructure, Officer in charge of power house and Secretary for Aronga Mana. To brief them and stimulate discussion on the Mangaia Site Preparation Environmental Monitoring Commitments; and Site Visit</p> <p><b>Issues raised and discussed:</b></p> <ol style="list-style-type: none"> <li>1. Health and Safety of workers on the site and the general public during site preparation – EO advised all machinery operators and Infrastructure employees are fully aware of the safety issues as discussed with him in December 2016. Operators and workers have been issued with safety ware. See Photo attached. Toilet at the power station will be used by the workers on site if need be. Also, arrangements will be made with the owners of the Pineapple factory to make available the toilet facility in the building for use of the workers. The site is also close to the hospital and hospital workers will be advised of the work so that they are prepared in the case of accidents. Have discussed this with the resident Doctor during the Infra-Tech visit earlier in the year.</li> <li>2. Fencing the site after site clearance and prior to construction will be done to prevent the public from getting onto the site to avoid risk of harm during construction.</li> <li>3. Disposal of vegetation – EO advised that all tree stumps will be removed from site and disposed of in makatea crevices identified for this purpose. The removal of the vegetation will start once all trees have been uprooted and cut to pieces after clearing. PMU handed over two chain saws to assist with the cutting of trees.</li> <li>4. Disposal of lose and broken makatea rocks – Mayor advised that all rocks will be taken to the quarry for crushing. If however Landowners want some to backfill lands close by, this can be arranged.</li> </ol> |

|                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                   | <ol style="list-style-type: none"> <li>5. Servicing all Mangaia machinery have been good, especially since all heavy equipment have been working on the quarry site to support Government's road improvement programme. Like on the other islands visited each operator of machinery have adopted a routine oiling and check procedure before operation.</li> <li>6. As there is no ES Officer on the Island, EO has taken on this role and is working with the Infrastructure Manager to deal with environmental issues.</li> <li>7. Grassing of cleared surface – Mayor and EO agreed to the use of grass from the Oneroa Sports field but indicated that natural process will cause vegetation cover to grow once the site is cleared in the next few months. The quicker the site is prepared the sooner the process will start.</li> <li>8. Storage of project containers – Mayor and EO confirmed that the site opposite the site will be used for this purpose, as well as the area behind the pineapple factory. Mayor confirmed that there is no problem with the land as this has already been discussed with the landowners.</li> <li>9. Noise and inconvenience to the public during site preparation and construction – EO and Mayor advised that the site is mainly used by the power station workers, and one resident next to the power house. This should not be a problem. In any case, removal activities will use the Ara-o-Tane Road at the end of the village.</li> <li>10. Land Agreement – the Mayor and representative of the Traditional Leaders advised that this is an important matter and they don't see this as a problem. Romani (PMU) advised that he is yet to receive the final draft agreement and this will be available in the morning and if there is any concerns the Social and Environmental Safeguard will assist him in addressing those concerns.</li> </ol> |
| Thursday 25/05/17 | <p>AM: Visit Infrastructure yard; site visit with Mayor and EO and initial talk with machinery operator; identification of boundaries markers, and Site Clearance</p> <p><b>Issues raised and discussed (on-site):</b></p> <ol style="list-style-type: none"> <li>1. Discuss with site manager of the yard management – No issues that need addressing</li> <li>2. Boundary makers were easily identified (see photograph)</li> <li>3. Discussion with the operator on initial site clearing requirement, i.e. all trees have to be uprooted (See photo)</li> <li>4. Survey Team could not mark out building and solar farm sites due to presence of large makatea rocks in the area identified for the sites.</li> <li>5. Team discussed that since the site slope is generally around 3<sup>o</sup>, levelling of the site should remain as close to the current slope as possible.</li> <li>6. Mayor advised that the Proposed Land Agreement has been endorsed.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Friday 26/05/17   | <p>AM: Check working progress on the site boundary clearance, and depart for Rarotonga</p> <p><b>Issues discussed:</b></p> <ol style="list-style-type: none"> <li>1. No issues raised, Mayor and EO was happy that the project has started and this is a very good sign after all the visits by various teams.</li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |



### **Conclusion:**

- ✓ There is more understanding between the Mayor, EO, and Infrastructure Manager but especially the EO of the Mangaia Site Preparation Environmental Monitoring Commitments. Team agreed for Teariki to continue dialogue with the Mangaia Mayor and EO on the commitments.
- ✓ Pegs identified and marked (See attached photos)
- ✓ Boundaries cleared (See attached photos)
- ✓ Proposed Land Agreement for the current power house agreed

### **Recommendations:**

1. Teariki to Mangaia DTC to do a site check after the site is completely cleared and makatea rocks removed or levelled.
2. Paul and Nama to return to Mangaia DTC to mark out building and solar farm location

### **Visiting Team**

Teariki Rongo (Environment and Social Safeguard Specialist)

Paul Maoate (Geotech engineer)

Nama Benson (Land Surveyor)

### **Some Site Photos**



