

Documents

# Rarotonga Road Network Improvements Supply and Construction of Road Network for Project City 3: Chip Seal Road Surfacing

**Contract N° C13/13.3**

**Prepared by**

**Infrastructure Cook Islands**

21/10/2013

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**Revision History**

Revision N°	Prepared By	Description	Date
A	Andy Wilding, Tenga Mana		Nov 2012
B	Tenga Mana		Oct 2013

**Document Acceptance**

Action	Name	Signed	Date
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# **A TENDERING**

## **A1 INTRODUCTION**

- 1.1 Under this contract the Principal wishes to implement the construction stage using chip seal pavement surfacing for the road network upgrade on Rarotonga (Project City 3), Cook Islands.
- 1.2 The project site generally, is inclusive of the areas covered in the list below, see also Project Area Map included in the Drawings in Appendix CC.3:
- Avatiu Rd from Ara Metua to Main Rd
  - Ara Metua from Avatiu Rd to Takuvaine Rd
  - Takuvaine Rd from Ara Metua to Central Motel
  - Moss Rd
  - Puoromea Rd
- 1.3 Tenderers are advised that the basecourse and sealing chips materials are supplied by the Principal. Tenderers will be responsible for the cartage of these materials from the stockpile sites (Rarotonga Mining quarry and Blackrock). Tenderers are also advised to include the cartage costs in their rates for the respective material being used and itemised in the Schedule of Prices.
- 1.4 All tenders and related documentation must be presented in the English language.

## **A2 CONDITIONS OF TENDERING**

The conditions of tendering shall be those included in NZS 3910:2003 - CONDITIONS OF CONTRACT FOR BUILDING AND CIVIL ENGINEERING CONSTRUCTION.

### **2.1 Submission of Tenders**

- 2.1.1 The tender shall be submitted upon the Form of Tender provided in Appendix AA.1
- 2.1.2 Any Tender may be rejected which does not comply with the requirements of or which contains provisions not required by the Tender Documents.
- 2.1.3 Any Tender received after the time of closing of tenders will be marked accordingly and returned to the Tenderers unopened..
- 2.1.4 All tenders received shall be recorded by the Tender Team on the Record of Tenders Received form prior to the tender being deposited in the Tender Box.
- 2.1.5 No tender proposal shall be opened or revealed until the agreed time for the Tender Box opening.

### **2.2 Negotiations with the Tender Team**

- 2.2.1 Negotiations will not be permitted between the Tender Team and any prospective tenderers during the tender advertising period.
- 2.2.2 No gifts or entertainment of any nature will be permitted between any parties involved throughout the tender process including; tenderers or potential tenderers, tender team members, tender evaluation team members, the Secretary of the Infrastructure Cook Islands, or any member or organisation that may have an involvement with any aspect of the tender process.

### **2.3 Acceptance of Tender**

- 2.3.1 The Principal shall not be bound to accept the lowest priced tender or the highest scored tender or any tender.
- 2.3.2 The adequacy of the tenders shall be assessed using the method outlined in Appendix AA.3

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- 2.3.3 The Principal reserves the right to require further clarification on any information or pricing supplied with any tender and to negotiate with any individual Tenderer at any time, or change the requirements for tendering
- 2.3.4 A Tender shall be deemed to be accepted when a notice in writing of such acceptance is handed to the Tenderer or is left at the address furnished by the Tenderer.
- 2.3.5 Post offer negotiations and details on progress payments shall take place between the Principal and the successful Tenderer before the letter of acceptance is issued.
- 2.3.6 The tender, together with the Principal's written acceptance thereof shall constitute the Contract between the Principal and the successful Tenderer.
- 2.3.7 The successful Tenderer shall be notified in writing by the Principal or its Representative, that it's tender has been accepted.

## **2.4 Notification of Acceptance**

- 2.4.1 Tenders shall remain open for acceptance and shall not be withdrawn for a period of sixty (60) working days from the date of tender closing.
- 2.4.2 Unsuccessful Tenderers who have submitted bona fide tenders complying with the Tender Documents shall be notified in writing by the Principal or it's Representative within 10 working days of the acceptance of the successful tender.
- 2.4.3 The Principal shall not be obligated to reconsider any unsuccessful tenders.
- 2.4.4 If no tender has been accepted by the Principal within twenty (20) working days after the closing of tenders, each Tenderer shall be notified in writing by the Principal or its Representative whether it's tender is still under consideration or is no longer being considered.

## **A3 SCHEDULE TO CONDITIONS OF TENDERING**

This Schedule is as the Schedule to Conditions of Tendering in the New Zealand Standard referenced above, except where varied and/or modified below.

Numbers in brackets refer to Conditions of Tendering clauses.

- (102.1) Add: Tenderers are not to place these documents on electronic tender systems without having obtained the Principal's or Engineer's written authority to do so.
- (102.2) A Tender Documents deposit of two hundred dollars (\$200.00), is required and shall be lodged with the tender by cash or crossed cheque made payable to the Principal, and shall be held by the Engineer.
- (103.1) No appointment need be made to view the Site.
- (104.1) During the tender period any enquiries regarding the Tender Documents shall be made to Tenga Mana at the Infrastructure Cook Islands, Arorangi, Rarotonga, Cook Islands .
- (105.1) Tenders shall close at 3pm Friday 26 September 2014 at the office of:

Infrastructure Cook Islands  
Arorangi  
Rarotonga  
Cook Islands

Tenders are to be addressed to

The Secretary  
Infrastructure Cook Islands  
Arorangi  
Rarotonga  
Cook Islands

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Tenders shall be submitted in Two complete hard copies, be packaged and labelled "CONFIDENTIAL" and have the following information exhibited on the outside:

- Name of receiving party, contact person and contact details.
- Name of tenderer, contact person and contact details.
- Contract title and number.
- Tender closing date and time.

(105.2) Tenders shall be deposited in the Tenders Box at the Infrastructure Cook Islands before the closing time. Fax and electronic tenders will not be acceptable. All late tenders will be returned unopened.

(105.3) Tenders shall be submitted on the Form of Tender provided at Appendix AA.1.

Supplementary information required to be submitted with the tender is:

- Completed Form of Tender, Appendix AA.1
- Completed Schedule of Prices, Appendix AA.2.
- Information required for Mixed Attribute Tender Evaluation, Appendix AA.3.
- Contractor's Occupational Health and Safety Management Information, Appendix AA.4.
- Proposed Subcontractors.
- Preliminary Construction Programme
- Construction management organisation, personnel and their CV's
- Preliminary Quality Plan (refer C01)
- Preliminary Traffic Management Plan

(105.6) Pursuant to clause 9.3.8 of the General Conditions of Contract, no percentage for On-Site Overheads shall be nominated.

Pursuant to clause 9.3.9 of the General Conditions of Contract, no percentage for Offsite Overheads and Profit shall be nominated.

Pursuant to clause 9.3.10 of the General Conditions of Contract, no rate per Working Day in compensation for time related Cost and profit incurred in relation to an extension of time shall be nominated.

(107.2) Delete "and tender price" and "and the other tender prices".

(108) No Obligation (New Clause)

(108.1) No legal or other obligations shall arise between a Tenderer and the Principal or any agent of the Principal in relation to the conduct, outcome or otherwise of the tender process unless and until written notification of tender acceptance has been received by the Tenderer.

## APPENDIX AA.1

### FORM OF TENDER

To                    The Secretary,  
                         Infrastructure Cook Islands  
                         Arorangi  
                         Rarotonga  
                         Cook Islands

Having examined the Tender Documents dated     for the construction of the above-named Contract Works, we offer to complete, hand over to the Principal and remedy defects in the whole of the said Contract Works in conformity with these Tender Documents     for the sum of.

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(\$ \_\_\_\_\_ ) stated exclusive of Value Added Tax, together with such other sum as may be ascertained in accordance with the contract. This tender includes full allowance for Notice(s) to Tenderers number(s).....

We undertake to complete and hand over the whole of the Contract Works within the period stated in the Conditions of Contract.

We agree to abide by this tender for a period of     Weeks from the date fixed for receiving the same and it shall remain binding upon us and may be accepted by you at any time before the expiry of that period.

Unless and until a Contract Agreement is prepared and executed, this tender together with your written acceptance thereof, shall constitute a binding contract between us.

We understand that you are not bound to accept the lowest or any tender you may receive, and that you may accept a non-conforming tender.

We understand that no contract shall come into existence, and no legal or other obligations shall arise between us and you (or between us and any other agent of the Principal) in relation to the conduct, outcome or otherwise of the tender process, prior to and apart from your acceptance of our tender.

We provide the following information required to be submitted with this tender:

- Completed Schedule of Prices (Appendix AA.2).
- Information required for mixed attribute tender evaluation (Appendix AA.3).
- Completed Contractor's Occupational Health and Safety Management Information form (Appendix AA.4), including nominations of Contractor's Representative and the Contractor's Site Safety officer.
- Name and address of proposed bond surety.
- Proposed Subcontractors.
- Preliminary Construction Programme.
- Construction management organisation, personnel and their CV's.
- Preliminary Quality Plan.
- Preliminary Traffic Management Plan

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Signature: ).....  
Tenderer: ).....  
Address: ).....  
Date: ).....  
E-Mail Address: ).....  
Phone N°: ).....  
Facsimile N°: ).....



**APPENDIX AA.2      SCHEDULE OF PRICES**

NAME OF TENDERER: .....

1. The Tenderer shall complete all sections of the Schedule of Prices
2. The tendered rates shall allow for costs related to imported materials
3. The currency to be used shall be New Zealand Dollars.
4. The Schedule of Prices shall be read in conjunction with the remainder of the Contract Documents. General directions and descriptions of work and Materials given in the Specification have not necessarily been repeated in this Schedule. All prices/rates shall be stated exclusive of VAT.
5. Measurement is generally in accordance with NZS 4224:1983 "Code of Practice for Measurement of Civil Engineering Quantities"
6. The whole Schedule of Prices is "provisional" indicating that substantial changes in the quantities may be required as a result of conditions which cannot reasonably be ascertained in advance.
7. Qualifications to Standard Method of Measurement and price inclusions of items are as set out at Appendix CC.2.

PROJECT: Project City 3

Contract No.: C13/13.3

Date: 28/10/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	COST
<b>1.</b>	<b>PRELIMINARY AND GENERAL</b>				
1.1	Site Safety Management Plan	Item	LS		
1.2	Quality Assurance Plan	Item	LS		
1.3	Environmental Management Plan	Item	LS		
1.4	Traffic Management Plan	Item	LS		
1.5	As-Built drawings	Item	LS		
1.6	Clean up and clear site on Completion of Works	Item	LS		
1.7	Contractors Site Management	Item	LS		
1.8	Maintain insurances for duration of the Contract	Item	LS		
	<b>Subtotal:</b>				
<b>2.</b>	<b>ROAD SHOULDER WORKS</b>				
2.1	Excavate 0.5 - 1.0m wide x 100mm deep or as required to formation level road shoulders including edges at intersections	m <sup>2</sup>	5,200		
2.2	Cart to stockpile excavated materials	m <sup>3</sup>	520		
2.3	Supply, place and compact 100mm thick basecourse up to level of existing pavement	m <sup>3</sup>	520		
	<b>Subtotal:</b>				
<b>3</b>	<b>Road Crossing Ducting Works</b>				
3.1	Supply and construct access chambers including cover	nos	2		
3.2	Supply and mortar plaster finish interior of access chambers	nos	2		
3.3	Supply and saw-cut road pavement to allow for 600mm wide trench for ducting	m	40		
3.4	Supply and excavate 600mm wide x 800mm deep trench	m <sup>3</sup>	10		
3.5	Supply and install service conduits	nos	6		
3.6	Supply, place and compact trench fill	m <sup>3</sup>	10		
3.7	Cart to dump excess spoil	m <sup>3</sup>	5		
3.8	Supply and lay one coat 12mm chip seal over trenched area	m <sup>2</sup>	12		

	<b>Subtotal</b>				
<b>4.</b>	<b>ROADSIDE DRAINAGE WORKS</b>				
4.1	Supply and construct soak trenches	nos	2		
4.2	Supply and install 900mm diameter collecting pits including cover	nos	2		
4.3	Supply and construct 500mm wide concrete spoon drains and connect to collecting pits	m	20		
4.4	Excavate for, prepare foundation and construction of kerb and channel as directed by the Engineer	m	200		
	<b>Subtotal</b>				
<b>5.</b>	<b>CHIP SEAL PAVEMENT</b>				
5.1	Excavate pavement by milling to depth 100mm or as required at failed or damaged pavement areas	m <sup>2</sup>	10,000		
5.2	Cart excavated materials to dump	m <sup>3</sup>	1,000		
5.3	Supply, place and compact sub-basecourse up to existing pavement level	m <sup>3</sup>	1,000		
5.4	Supply, place, cement stabilise and compact to formation level 100mm thick x 8m wide basecourse	m <sup>3</sup>	2,400		
5.5	Supply, lay and compact one coat x 8m wide 18mm chip seal	m <sup>2</sup>	24,000		
5.6	Supply, lay and compact one coat x 8m wide 12mm chip seal	m <sup>2</sup>	24,000		
5.7	Supply, lay and compact one coat x 8m wide 5mm chip seal	m <sup>2</sup>	24,000		
5.8	Broom finish loose chips from the newly sealed pavements and cart to dump	m <sup>2</sup>	24,000		
	<b>Subtotal:</b>				
<b>7.</b>	<b>PAVEMENT MARKINGS</b>				
7.1	Supply and mark continuous intersection lines 100mm thick	m	300		
7.2	Supply and mark continuous centrelines 100mm thick	m	300		
7.4	Supply and mark discontinue centrelines 100mm thick	m	2,600		
7.5	Supply and mark discontinue edge lines 100mm thick	m	200		
	<b>Subtotal:</b>				
<b>8.</b>	<b>MISCELLANEOUS WORKS</b>				
8.1	Re-build and raise existing valve and hydrant boxes to new pavement	nos	20		

	surface level				
8.2	Re-establish survey control marks buried under the new pavement	nos	50		
	<b>Subtotal:</b>				
<b>9.</b>	<b>CONTINGENCIES</b>				
9.1	Allow for contingency sum				100,000.00
	<b>Subtotal:</b>				<b>100,000.00</b>
<b>10.</b>	<b>CONTRACT TOTAL</b>				
11.1	Total (Excluding VAT)				
11.2	Total (Including VAT)				

## **APPENDIX AA.3 MIXED ATTRIBUTE TENDER EVALUATION**

### **A OVERVIEW**

The weighted scoring method shall be used to evaluate the tenders because it highlights the criteria most important to the Principal. However, with this method other criterions would determine how the Tenderer with the best tender rates would score compared with the other Tenderers.

### **B GENERAL**

The Tender shall be submitted in two envelopes as follows:

#### **1. Envelope 1: Proposal excluding price**

Tenderers must provide identical copies of their Non-price Attribute submission. One copy must be marked original and the other marked copy.

The non-price attribute submission must not exceed pages of single sided A4 size pages of ordinary type (12 point Times Roman or similar typeface). The page limit includes all subcontractor attribute information. A3 size paper shall be deemed to be two A4 pages, and shall be numbered accordingly.

Tenderers shall number the pages, and for any submissions that exceed the page limit, the first pages, excluding the additional pages, only will be considered for the tender evaluation.

Additional pages may be included as follows: Title Page (one page)

- Index (one page)
- CVs (two pages for each person nominated in the tender)
- Proposed Subcontractors
- Preliminary Programme

#### **2. Envelope 2: Price**

Completed and signed Tender Form, refer Appendix AA.1.

Completed Schedule of Prices, refer Appendix AA.2.

### **C NON-PRICE ATTRIBUTES**

#### **1. Attribute Submission and Weighting**

The Tenderer shall provide information on the six Non-Price Attributes listed below.

The Tenderer shall provide sufficient relevant information for each attribute of the contractor and proposed key subcontractors, to allow the Tender Evaluation Team (TET) to mark the attribute as provided for in the table below.

Attribute	Overall Attribute Weighting %
Relevant Experience	5%
Track Record	10%
Technical Skills	7%
Resources	8%
Management Skills	5%
Methodology	10%
Price	55%

## 2. Tenderer and Tenderer's Subcontractor Information

The submission for each attribute shall clearly distinguish the attributes of the tenderer and the tenderer's subcontractor(s).

The Methodology shall clearly define the role of each key subcontractor and the role of the main contractor for each key part of the Contract Works. The key parts of the Contract Works are:

## 3. Relevant Experience

Tenderers must provide details of projects that demonstrate the suitability of their experience and that of their subcontractors to complete the Contract Works. The scoring for projects which are less than 80 percent complete, or more than five years old will be downgraded.

At least three of the projects must be the same as submitted for Track Record.

Tenderers shall provide the following details for each project nominated for Relevant Experience:

- Project name, location, contract value and when the project was completed;
- The Engineer's or Client's name, company and contact telephone number(s).

For each factor the Tenderer must provide detail of the percentage of work carried out by their own directly employed labour and resources, and the percentage undertaken by subcontract.

## 4. Track Record

Tenderers must provide details of projects under construction or completed, that demonstrate their Track Record. Tenderers must provide the same information for their key subcontractors detailing successfully completed projects of a similar nature. The scoring for projects which are less than 80 percentage complete, or more than five years old will be downgraded.

At least three of the projects must be the same as submitted for Relevant Experience.

Tenderers shall provide the following details for each project nominated for Track Record:

- Project name, location, contract value and when the project was completed;
- The Engineer's or Client's name, company and contact telephone number(s).

The Tenderer shall supply names and current contact telephone numbers of persons to act as referees. Referees shall be from the client organisation and/or the client's agent and must have been directly responsible for supervising or overseeing the nominated projects. Providing inadequate contact information or non-applicable referees may result in downgraded scoring.

## 5. Technical Skills

Attach a curriculum vitae (CV) for each of the key positions identified below (two pages per CV). The CVs need to demonstrate specific experience relevant to the position and should separately identify technical and managerial skills where relevant to the position.

The Tenderer must state the percentage of time and over what duration each of the above nominated persons will be allocated to the contract and whether they will be based on or off the Site.

The Tenderer must nominate the following personnel and state (in *no more* than half a page per person) the key Practical Experience and Technical skills of each.

Position
Contractor's Representative (as per NZS 3910, Clause 5.2)
Site Manager
Supervisor responsible for Pavement & Surfacing
Safety Manager
Traffic Control Personnel

**6. Resources**

The Tenderer must submit details of the resources to be provided for carrying out each of the key parts of the Contract Works and demonstrate their suitability for the activity.

In addition, the Tenderer shall provide the following information for the resources listed:

- Information on the availability of backup resources;
- Age and condition of the plant;
- Details whether the plant is leased or partially owned or fully owned by the Tenderer.

**7. Management Skills**

Each of the key positions identified in the “*Management Skills Personnel*” section below will be evaluated for management skills. The CVs for these personnel need to demonstrate specific experience relevant to the position and should separately identify technical and managerial skills.

The Tenderer must state the percentage of time and over what duration each of the nominated persons will be allocated to the contract and whether they will be based on or off the Site.

The Tenderer must nominate the following personnel and state (in *no more* than half a page per person) the key management skills each will contribute to the project in terms of their management experience.

Note that the Tenderer may nominate the same person to fill more than one role, but the TET will take into account the effort required for each role.

Management Skills Personnel
Contractor's Representative
Site Manager

**8. Methodology**

Tenderers must describe the methodology they will use to carry out the Contract Works on time and to the standards and requirements specified in the Contract Documents.

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The methodology should highlight any special features of the way the Tenderer intends to work and their management of quality. It should also highlight how the Tenderer will manage the perceived significant risks.

The Principal seeks a “no surprises” financial management and reporting strategy. The Tenderer’s methodology shall describe how they would co-operate with the Principal to achieve this. In particular, Tenderers shall describe their proposed financial management and reporting methodology for this contract and their approach to minimising the risk to the Principal of additional costs, this being one of the Principal’s key objectives.

## **D EVALUATION PROCEDURE**

### **1. Tender Evaluation Team**

A Tender Evaluation Team (TET) will be formed to evaluate tenders. The TET will be supported by other expert advisors as required.

### **2. Envelope 1: Non-price Attribute Evaluation**

The TET will individually read, evaluate and grade the Non-price Attributes using the evaluation forms in section E of this Appendix.

For the evaluation of Relevant Experience, Track Record, Technical and Management Skills they will take into account:

- Records of contracts the Tenderers have completed;
- Their personal knowledge of any of the Tenderers’ experience;
- Information from referees of other organisations the Tenderers have worked for.

For the evaluation of the Tenderer’s Resources attribute, they will take into account their personal views about the suitability of the Tenderer’s resources to adequately carry out the work.

For the evaluation of the Tenderer’s Methodology attribute, they will take into account their personal views about best practice and the appropriate methodology to complete the Contract Works.

### **3. Interviews or Enquiries**

Interviews may be held with or enquiries sent to individual Tenderers during the evaluation period should any further clarification be required regarding the Tenderer’s submission.

### **4. Agreement of Non-price Attribute Grades**

The TET will meet to agree each Tenderer’s Non-price Attribute scores and overall grade. The TET will evaluate the proposals based on a direct comparison of each tender submission, and rank each tender in order based on the markings gained in the evaluation.

Assistance from expert advisor’s will be requested as required. The TET will endeavour to reach a consensus. If the TET cannot reach a consensus, the TET Chairperson shall consider the team’s attribute scores and decide the final attribute score.

### **5. Non-price Attribute Evaluation Report**

The TET will complete a Non-Price Attribute evaluation report for each tender.

### **6. Envelope 2: Price**

Following the Non-Price Attribute evaluation process described above, the TET will open Envelope 2: Price, for each acceptable tender.



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**7. Tender Evaluation Report (TER)**

The TET will prepare a tender evaluation report. This report will be used in accepting and awarding the contract according to the Principal's contract administration procedures.

The report will include recommendations regarding the preferred tender and Tenderer, and any applicable terms or conditions relating to the tender acceptance.

If the Principal accepts the recommendation of the TET, the TER will be submitted to the Tender Committee (TC) for review and endorsement. Once the TC endorse the TER it will advise the Principal of its decision. The Principal thereafter will act according to the recommendation by the TC. If the TC recommend the contract to be awarded to the preferred Tenderer, the Principal can either award the contract to the preferred Tenderer, or if appropriate, pre-award discussions will be sought with the preferred Tenderer.

**8. Requests to View Tender Evaluation Documents**

Tender evaluation documents shall remain confidential and not be disclosed by the Principal to the Tenderers.

**E TENDER EVALUATION MARKING FORMS**

The TET will use the following tender evaluation marking forms to evaluate each Tenderer's Non-price Attributes submission.

Weighted Score Calculations										
	Score	5	4	3	2	1	0.75	0.5	0.25	
Relevant Experience	5%	5	4	3	2	1	0.75	0.5	0.25	
Track Record	10%	10	8	6	4	2	1.5	1	0.50	
Technical Skills	7%	7	5.6	4.2	2.8	1.4	1.05	0.7	0.35	
Company Resources	8%	8	6.4	4.8	3.2	1.6	1.2	0.8	0.40	
Management Skills	5%	5	4	3	2	1	0.75	0.5	0.25	
Methodology	10%	10	8	6	4	2	1.5	1	0.50	
Contract Price	55%	55	44	33	22	11	8.25	5.5	2.75	
	100%									

### Scoring Sheets

Contractors											
Criterion	Weight	Score	W. Score	Score	W. Score	Score	W. Score	Score	W. Score	Score	W. Score
Relevant Experience	5%										
Track Record	10%										
Technical Skills	7%										
Company Resources	8%										
Management Skills	5%										
Methodology	10%										
Price	55%										
Total	100%										
Name of Assessor: .....		Signature: .....					Date: ...../...../.....				

**APPENDIX AA.4 CONTRACTOR'S OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT INFORMATION**

Please complete the information below and return it with your tender, unless previously supplied during prequalification. You may also be asked to substantiate or send copies of the documents referred to below:

<b>1.1</b>	<b>SAFETY POLICY AND MANAGEMENT COMMITMENT</b>	<b>YES</b>	<b>NO</b>
	a) Do you have a written safety policy? If 'Yes' please enclose a copy.	<input type="checkbox"/>	<input type="checkbox"/>
	b) If the answer to (a) is 'yes', is the safety policy communicated to employees?	<input type="checkbox"/>	<input type="checkbox"/>
	c) Please supply H&S Organisation chart and staff description for the tendered job and within your organisation.		
	d) Name the most senior person co-ordinating safety matters on the tendered job, and their experience. Name: ..... Experience: ..... .....		

<b>1.2</b>	<b>PROCEDURES</b>		
	a) Do you have a safety manual?	<input type="checkbox"/>	<input type="checkbox"/>
	b) Do you have written working practices and safety instructions? Provide an example of one of these.	<input type="checkbox"/>	<input type="checkbox"/>
	c) Do you have procedures for maintaining plant, equipment and vehicles in a safe condition? If they are not in the safety manual provide a brief outline.	<input type="checkbox"/>	<input type="checkbox"/>

<b>1.3</b>	<b>HAZARD IDENTIFICATION</b>		
	a) Do you have a system to identify hazards prior to the start of this job? If it is not in the safety manual provide a brief outline.	<input type="checkbox"/>	<input type="checkbox"/>
	b) Do you have a system to identify new hazards during the term of the contract? If it is not in the safety manual provide a brief outline.	<input type="checkbox"/>	<input type="checkbox"/>
	c) Does your system assess the significance of hazards?	<input type="checkbox"/>	<input type="checkbox"/>
	d) Give an example of a past hazard encountered and the controls that were applied to manage it.		

<b>1.4</b>	<b>SAFETY TRAINING</b>		
	a) Is formal safety training given to employees?	<input type="checkbox"/>	<input type="checkbox"/>

	b)	Have the personnel who will undertake specific work received formal training in all relevant areas?	<input type="checkbox"/>	<input type="checkbox"/>
	c)	What specialised safety training has been provided.		
<b>1.5</b>		<b>SAFETY RECORDS</b>	<b>YES</b>	<b>NO</b>
	a)	What type of safety records are kept by your organisation?		
		i) Fatalities?	<input type="checkbox"/>	<input type="checkbox"/>
		ii) Serious Harm?	<input type="checkbox"/>	<input type="checkbox"/>
		iii) Accidents (including near misses)?	<input type="checkbox"/>	<input type="checkbox"/>
		iv) Hazards ?	<input type="checkbox"/>	<input type="checkbox"/>
		v) Material Safety Data Sheets (MSDS)	<input type="checkbox"/>	<input type="checkbox"/>
	b)	Have you or your company received any caution or been prosecuted by an enforcement authority in the last 5 years? If yes, please provide an explanation.	<input type="checkbox"/>	<input type="checkbox"/>
<b>1.6</b>		<b>ACCIDENT INVESTIGATION</b>		
	a)	Does your organisation maintain a register for recording accidents and/or cases where any employee suffers serious harm?	<input type="checkbox"/>	<input type="checkbox"/>
	b)	Do you conduct an investigation into any accidents which result in harm to an employee, or serious non-injury incidents? Provide an example of an investigation you have completed.	<input type="checkbox"/>	<input type="checkbox"/>
	c)	Do you advise the following parties of the results of the investigation:		
		i) the employees?	<input type="checkbox"/>	<input type="checkbox"/>
		ii) the Engineer?	<input type="checkbox"/>	<input type="checkbox"/>
<b>1.7</b>		<b>SAFETY AWARENESS</b>		
	a)	Do you have in-house safety meetings? If yes, how frequently.	<input type="checkbox"/>	<input type="checkbox"/>
	b)	Does your organisation conduct safety inspections?	<input type="checkbox"/>	<input type="checkbox"/>
	c)	Explain how you involve your staff in safety programmes.		
	d)	Do you have procedures for control of the safety performance of sub-contractors? If they are not in the safety manual provide a brief outline.	<input type="checkbox"/>	<input type="checkbox"/>
<b>1.8</b>		<b>EMERGENCY PROCEDURES</b>	<b>YES</b>	<b>NO</b>
	a)	Do you have an Emergency Plan? Outline how this will apply to the job in this tender.	<input type="checkbox"/>	<input type="checkbox"/>
	b)	Does the Emergency Plan identify responsibilities and procedures to be followed?	<input type="checkbox"/>	<input type="checkbox"/>

- 
- c) Have all staff received training in emergency procedures?
  - d) Have emergency drills been carried out within the last 6 months?

**1.9 PROPOSED SAFETY MANAGEMENT PERSONNEL FOR THIS CONTRACT**

a) Please supply the name, qualifications and experience of whom you propose will be the Contractor's Site Safety Officer

Contractor's Site Safety Officer: .....

Name: ) .....

Date: ) .....

Name Printed:) .....

Position: ) .....

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## **B CONDITIONS OF CONTRACT**

### **B1 GENERAL CONDITIONS OF CONTRACT**

The General Conditions of Contract shall be those included in NZS 3910:2003 - CONDITIONS OF CONTRACT FOR BUILDING AND CIVIL ENGINEERING CONSTRUCTION.

### **B2 SCHEDULES TO GENERAL CONDITIONS OF CONTRACT**

The schedules listed below apply to this contract and replace or add to the schedules printed in NZS 3910:2003.

First Schedule	Special Conditions of Contract Part A – Specific Conditions of Contract Part B – Other Conditions of Contract
Second Schedule	Contract Agreement
Third Schedule	Form of Contractor’s Performance Bond
Sixth Schedule	Form of Producer Statement – Construction
Seventh Schedule	Information as to Contract Works Insurance
Eighth Schedule	Information as to Public Liability Insurance
Ninth Schedule	Information as to the Contractor’s Construction Machinery Insurance
Tenth Schedule	Information as to the Contractor’s Motor Vehicle Insurance

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## FIRST SCHEDULE                      SPECIAL CONDITIONS OF CONTRACT

### PART A – SPECIFIC CONDITIONS OF CONTRACT

Numbers in brackets refer to General Conditions of Contract clauses.

- (1.2)            The Principal is the Secretary of the Infrastructure Cook Islands
- (1.2)            There are no Separable Portions in this contract.
- (2.1.1)        This contract is a measure and value contract.
- (2.5.1)        This contract is a construction contract in public roads and accordingly the provisions of Appendix B to the General Conditions of Contract included in NZS 3910:2003, shall apply together with the following Special Conditions: .
- (2.6.3)        Clauses B1 and B2 of Appendix B shall apply to this contract.
- (2.6.4(a))     A site-specific safety plan is required, as set out in C0100.12. Details shall be submitted within 2 Weeks of the date of acceptance of tender.
- (2.6.4(b))     A traffic management plan for the site is required, as set out in C0100.16. Details shall be submitted within 2 Weeks of the date of acceptance of tender.
- (2.8.1)        One set of "For Construction" Specifications and Drawings shall be supplied free of charge to the Contractor upon the acceptance of tender` in addition to tender, consent, and Contract Agreement sets.
- (2.8.3)        Provisions of Section C01 - Preliminary and General - of the Specifications shall be read as part of the General Conditions and Special Conditions.
- (3.1.1)        A Contractor's bond is required.
- (3.1.2)        The Contractor's bond shall be for the sum of 10% of the Contract Sum. The Form of Contractor's Performance Bond, is set out in the Third Schedule attached.
- (5.4.1)        The Contractor shall be given possession of the Site 10 Working Days after the Date of Acceptance of Tender.
- (5.4.3)        Any necessary access to adjoining properties shall be arranged by the Contractor.
- (5.5.2)        The Contractor is not required to provide facilities for separate contractors.
- (5.6.6(g))     No further risks are specifically excepted by the Special Conditions.
- (5.7.5)        Safety hazards associated with the Contract Works or the Site are as set out in C0100.13.
- (5.10.1)       The Contractor shall provide a programme. The format and content of the programme shall be as specified in clause C0100.17(5.11.2) There are no parts of the Contract Works to which Appendix D applies.
- (5.17.1)       Quality management systems are required, details shall be submitted within 2 Weeks of the date of acceptance of tender. Details to be provided are as set out in C0100.14.
- (5.18.1(a))    As-built drawings are required, as set out in C0100.18.
- (5.18.1(b))    Operation and maintenance manuals are not required.
- (6.1.2)        The Engineer is Tenga Mana of the Infrastructure Cook Islands.
- (7.1.2(d))     Risks specifically excepted are set out in (5.6.6 (g)) above.

- 
- (8.1) The Contractor shall insure as provided in 8.1.
- (8.1.2) The amount of the insurance to be effected in respect of the Contract Works and Materials shall be for not less than the sum of the following:
- (a) The Contract Price, after the acceptance of the tender or other offer, excluding any additions or deductions which may be required to be made during the course of the contract;
  - (b) For the Cost of demolition, disposal and preparation for replacement work, the sum of 20 % of the Contract Price as described in (a) above
  - (c) For professional fees including the Cost of clerks of works and inspectors, the sum of 5% of the Contract Price as described in (a) above
  - (d) The value of items incorporated, or to be incorporated, in the Contract Works, the Cost of which is not included in the Contract Price, the sum of \$ NIL.....
  - (e) For increased construction Costs not already provided for in the Contract Price during the period from the acceptance of the tender or other offer until the issue of the Defects Liability Certificate for the Contract Works, the sum of 5 % of the Contract Price as described in (a) above
- The insurance shall make provision for automatic change of cover for items (a) and (e) above, to provide for any additions or deductions from the Contract Price which occur after acceptance of the tender.
- (8.2.1) Contractor's Plant insurance is required for each item of construction machinery on the Site owned by the Contractor that has a market value of more than \$ 10,000.
- (8.3) The Contractor shall insure as provided in 8.3.
- (8.3.1) Public liability insurance shall be effected for an amount not less than \$ 1,000,000.
- (8.3.2) Motor vehicle third party liability insurance shall be effected for an amount not less than \$ 1,000,000.
- (8.4.1) Professional indemnity insurance for design by the Contractor is not required.
- (8.5.4) Information as to Contractor's Insurances are set out in the following Schedules:
- Seventh Schedule – Information as to Contract Works insurance
  - Eighth Schedule – Information as to public liability insurance
  - Ninth Schedule – Information as to the Contractor's construction machinery insurance
  - Tenth Schedule – Information as to the Contractor's motor vehicle insurance
- (10.2.1) The period to be used for calculating the Due Date for Completion, in respect of the Contract Works is 20 Weeks.
- (10.4.5(a)) A producer statement is required prior to the issue of the Certificate of Practical Completion. The form of the statement is set out in the Sixth Schedule.
- (10.4.5(b)) The Contractor shall provide to the Engineer such as-built drawings in draft format, as are required under the Specifications, prior to the Engineer issuing the Certificate of Practical Completion.
- (10.5.1) Liquidated damages shall be applied as follows:
- In respect of the Contract Works \$950 per Week, to a maximum of 10% of the Contract Price .
- (10.6.1) A bonus shall not be payable.
- (11.1.1) The Period of Defects Liability shall be Twelve Months.



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In addition, any other part of the Contract Works whose proper operation or performance has been affected by the Defect, shall also carry a further Period of Defects Liability, calculated from the date of completion of successful replacement or repair of the Defect, of: 12 months.

(11.3.2(a)) A producer statement in the form set out in the Sixth Schedule is required prior to the issue of the Defects Liability Certificate.

(11.3.2(b)) Prior to the issue of the Defects Liability Certificate the Contractor shall provide final As-built drawings to the approval of the Engineer.

(11.5.1) No guarantees are required.

(12.1.1) The Principal's requirements for receipt and processing of claims are as follows:

Claims shall be submitted from the 27<sup>th</sup> of the Month and within 5 days thereafter, claims submitted after this period will not be processed until the following month.

(12.1.2(b)(iv)) Advances for Temporary Works, Plant or Materials not yet on Site shall be made to the Contractor.

(12.3.1) The percentage to be retained from each progress payment and the limit of the total sums retained shall be:

In respect of the Contract Works:

Total retention  
10% of the Contract Price  
with a maximum of \$200,000 when aggregated

Defects liability retention  
50% of total retention

(12.3.3) An additional bond shall not apply.

(12.8.2) Cost fluctuation adjustments shall not be paid.

(12.9.1) There are no Provisional Sums.

(12.10.1) There are no Prime Cost Sums.

(12.11.1) The contingency sum to be included in the contract is \$100,000

(15.1.2) For the purposes of service of notices:

(a) The Principal is The Secretary, Infrastructure Cook Islands

of postal address PO Box 102  
Rarotonga  
Cook Islands

Fax N<sup>o</sup> 682 24321

(b) The Engineer is Tenga Mana

of postal address Infrastructure Cook Islands  
PO Box 102  
Rarotonga  
Cook Islands

Fax N<sup>o</sup> 682 24321

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(c) Payment claims shall be addressed to

The Engineer  
Contract No. C13/13.3  
Infrastructure Cook Islands  
PO Box 102  
Rarotonga  
Cook Islands

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**FIRST SCHEDULE                      SPECIAL CONDITIONS OF CONTRACT**

**PART B – OTHER CONDITIONS OF CONTRACT**

Numbers in brackets refer to General Conditions of Contract clauses.

(1.2)            Add to the definition of Contractor:

“If the Contractor is a joint venture, consortium or other unincorporated grouping of two or more Persons:

- (a)    These Persons shall be jointly and severally liable to the Principal for the performance of the Contract;
- (b)    These Persons shall nominate a leader with authority to bind the Contractor and each of these Persons, and shall notify the Principal accordingly; and
- (c)    The composition or legal status of the Contractor shall not alter without the prior consent of the Principal.”

**SECOND SCHEDULE      CONTRACT AGREEMENT**

**THIS AGREEMENT** is made on the..... day of ..... 20 .....

**BETWEEN**

("the Contractor")

**AND**

("the Principal")

**Her Majesty the Queen** in the right of the Government of the Cook Islands, acting by and through the Secretary of the Infrastructure Cook Islands (ICI) or any person with authority to act on his behalf.

**IT IS AGREED AS FOLLOWS:**

1. **THE** Contractor shall carry out the obligations imposed on the Contractor by the Contract Documents.
2. **THE** Principal shall pay the Contractor the sum of \$..... or such greater or less sum as shall become payable under the Contract Documents together with Value Added Tax at the times and in the manner provided in the Contract Documents.
3. **EACH** party shall carry out and fulfil all other obligations imposed on that party by the Contract Documents.
4. **THE** Contract Documents are this Contract Agreement and the following which form part of this agreement:
  - (a) The Contractor's tender;
  - (b) The notification of acceptance of tender;
  - (c) Notices to tenderers;
  - (d) The Schedule of Prices;
  - (e) The Conditions of Tendering;
  - (f) The General Conditions of Contract, NZS 3910:2003;
  - (g) The Special Conditions of Contract
  - (h) Specifications issued prior to the Date of Acceptance of Tender;
  - (i) Drawings issued prior to the Date of Acceptance of Tender;

**WITNESS** to the signature of the Contractor:      ) .....

Contractor:      ) .....

**WITNESS** to the signature of the Principal:      ) .....

Principal:      ) .....

**THIRD SCHEDULE            FORM OF CONTRACTOR’S PERFORMANCE BOND**

**THIS DEED** is made on the..... day of..... 20 .....

**BY** .....

**of** .....  
("the Contractor")

**AND** .....

**of** .....  
("the Sureties")

**IT IS MADE IN THE FOLLOWING CIRCUMSTANCES**

- A**            The Contractor has entered into an agreement with The Ministry of Infrastructure and Planning of Arorangi, Rarotonga, Cook Islands ("the Principal") to carry out and fulfil the obligations imposed on the Contractor by the Contract Documents.
  
- B**            The Contractor has agreed to provide the Principal with security in the form of a bond to ensure performance of the Contractor's obligations under the Contract Documents.

**BY THIS DEED**

- 1.            **THE** Contractor and Sureties are jointly and severally held and bound to the Principal in the sum of    and bind themselves, their successors and assigns jointly and severally for the payment of that sum.
  
- 2.            **THE** condition of this bond is that it shall be null and void if:
  - (a)    The Contractor duly carries out and fulfils all the obligations imposed on the Contractor by the Contract Documents prior to the commencement of the Period of Defects Liability referred to in the Contract Documents; or
  
  - (b)    The Contractor satisfies and discharges the damages sustained by the Principal in respect of all defaults by the Contractor up to the commencement of the Period of Defects Liability or the termination of the contract; or
  
  - (c)    The Sureties satisfy and discharge up to the amount of the bond the damages sustained by the Principal in respect of all defaults by the Contractor up to the commencement of the Period of Defects Liability or the termination of the contract; or
  
  - (d)    A Practical Completion certificate has been issued in respect of the Contract Works in accordance with clause 10.4 of the General Conditions of Contract.
  
- 3.            **EXCEPT** as provided in clause 2 above this bond shall be and remain in full force and effect.
  
- 4.            **THE** Sureties shall not be released from any liability under this bond:
  - (a)    By any alteration in the terms of the contract between the Principal and the Contractor;
  
  - (b)    By any alteration in the extent or nature of the Contract Works to be completed, delivered and having defects remedied;

- (c) By any allowance of time by the Principal or by the Engineer appointed by the Principal under the Contract Documents;
- (d) By any forbearance or waiver by the Principal or by the Engineer in respect of any of the Contractor's obligations or in respect of any default on the part of the Contractor.

5. **THIS** bond shall be governed by New Zealand law.

**THE COMMON SEAL** of: ) .....

was affixed in the presence of: ) .....

**THE COMMON SEAL** of: ) .....

was affixed in the presence of: ) .....

**SIGNED** by: ) .....

in the presence of: ) .....

**SIGNED** by: ) .....

in the presence of: ) .....

NOTE - This bond must be executed by the Contractor and by the Surety or Sureties in the manner required for execution of a deed. Any of these parties which is a company must execute the bond by having it signed, under the name of the company, by two or more directors. If there is only one director, it is sufficient if the bond is signed under the name of the company by that director, but the signature must be witnessed by another person. The witness must not only sign but must also add their occupation and address. Alternatively, companies may execute under power of attorney. Any party which is a body corporate (other than a company) must execute by affixing its seal, which must be attested in the manner provided for in the rules of, or applicable to, the body corporate.

In the case of a party who is an individual, they must sign and another person must witness their signature. The witness must not only sign but must also add their occupation and address.

**SIXTH SCHEDULE FORM OF PRODUCER STATEMENT - CONSTRUCTION**

**ISSUED BY** .....  
("the Contractor")

**TO** .....  
("the Principal")

**IN RESPECT OF** .....  
(Description of Contract Works)

**AT** .....  
(Address)

.....

..... has contracted to.....  
("the Contractor") ("the Principal")

to carry out and complete certain building works in accordance with a Contract, titled .....  
.....("the Contract")  
(Project)

I, ..... a duly authorised representative of .....  
(Duly Authorised Agent) ("the Contractor")

believe on reasonable grounds that.....has carried out and completed  
("the Contractor")

All  Part only as specified in the attached particulars of the building works in accordance with the Contract.

SIGNATURE OF Authorised Agent on behalf of: ) .....

Date: ) .....

Contractor: ) .....

Address: ) .....

) .....

**SEVENTH SCHEDULE INFORMATION AS TO CONTRACT WORKS INSURANCE**

**To Whom It May Concern:**

**FROM:** .....  
(Name of insurance company)

.....  
(Branch)

.....  
(Address)

**We confirm having effected contract works insurance for:**

**CONTRACTOR** .....  
(Insert Name of Contractor)

**PRINCIPAL** .....  
(Insert Name of Principal)

In respect of:.....  
(Project Title)

8.1.2 The sums insured are:

(a) Contract Price	\$.....	(plus VAT)
(b) Cost of demolition	\$.....	(plus VAT)
(c) Professional fees	\$.....	(plus VAT)
(d) Value of items incorporated or to be incorporated	\$.....	(plus VAT)
(e) Increased construction costs	\$.....	(plus VAT)
TOTAL SUM INSURED	\$.....	(plus VAT)

The policy deductibles are:

Non-earthquake (VAT inclusive)	\$.....
Earthquake (VAT inclusive)	\$.....
Other (name).....(VAT inclusive)	\$.....

We advise the "special" terms, copy attached, have been applied to this policy. Yes/No

8.5.3 8.8.4 Policy cover terms included are:

(a) Automatic reinstatement	Yes/No
(b) No cancellation for non-payment without prior notification	Yes/No
(c) Severally insured	Yes/No
(d) No settlement delay due to exercise or subrogation	Yes/No
Project Specific Policy	Yes/No

8.1.3 Construction period .....  
 Defects liability period .....  
 (both subject to alteration under construction contract)  
 Annual run-off policy Yes/No

8.1.5 Annual cut-off policy Yes/No  
 Policy expiry date .....

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.



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The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

**Insurance Company Stamp:** ) .....  
(Or name of insurance broking company confirming cover)

**Date:** ) .....

**Signed By:** ) .....

**Signatory's Title:** ) .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

**EIGHTH SCHEDULE INFORMATION AS TO PUBLIC LIABILITY INSURANCE**

**To Whom It May Concern:**

**FROM:** .....  
(Name of insurance company)

.....  
(Branch)

.....  
(Address)

**We confirm having effected public liability insurance for:**

**CONTRACTOR** .....  
(Insert Name of Contractor)

**PRINCIPAL** .....  
(Insert Name of Principal)

In respect of:.....  
(Project Title)

Annual policy: Yes/No Policy expiry date: .....

8.3.2 The limit of indemnity \$..... (plus VAT)

Sub limit insured for vibration, removal or weakening of support \$..... (plus VAT)

Deductible is (including VAT) \$.....

Deductible for vibration, removal or weakening of support (including VAT) \$.....

We advise that "additional" terms, copy attached, have been specifically applied to this project Yes/No

The policy covers liability arising out of:

- The ownership / use of construction machinery not required to be registered for road use Yes/No
- The use of hired plant Yes/No
- The ownership / use of watercraft up to 8m Yes/No
- The use of explosives Yes/No

8.5.3 Policy cover terms included are:

- (a) Automatic reinstatement Yes/No
- (b) No cancellation for non-payment without prior notification Yes/No
- (c) Severally insured Yes/No
- (d) No settlement delay due to exercise or subrogation Yes/No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

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**Insurance Company Stamp:** ) .....  
(Or name of insurance broking company confirming cover)

**Date:** ) .....

**Signed By:** ) .....

**Signatory's Title:** ) .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

**NINTH SCHEDULE INFORMATION AS TO THE CONTRACTOR'S CONSTRUCTION MACHINERY INSURANCE**

**To Whom It May Concern:**

**FROM:** .....  
(Name of insurance company)

.....  
(Branch)

.....  
(Address)

**We confirm having effected construction machinery insurance for:**

**CONTRACTOR** .....  
(Insert Name of Contractor)

In respect of:.....  
(Project Title)

Annual policy: Yes/No Policy expiry date: .....

8.2.1 The sums insured are:  
Schedule of construction machinery attached \$..... (plus VAT)  
The policy deductible is (VAT inclusive) \$.....  
We advise that "special" terms, copy attached, have been Yes/No  
applied to this policy

8.5.3 Policy cover terms included are:  
(a) Automatic reinstatement Yes/No  
(b) No cancellation for non-payment without prior notification Yes/No  
(d) No settlement delay due to exercise or subrogation Yes/No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

**Insurance Company Stamp:** ) .....  
(Or name of insurance broking company confirming cover)

**Date:** ) .....

**Signed By:** ) .....

**Signatory's Title:** ) .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

**TENTH SCHEDULE INFORMATION AS TO THE CONTRACTOR'S MOTOR VEHICLE INSURANCE**

**To Whom It May Concern:**

**FROM:** .....

(Name of insurance company)

.....  
(Branch)

.....  
(Address)

**We confirm having effected motor fleet insurance for:**

**CONTRACTOR** .....

(Insert Name of Contractor)

In respect of:.....

(Project Title)

Annual policy: Yes/No

Policy expiry date: .....

8.3.1

The sums insured are:

Section 2 - liability

\$..... (plus VAT)

The policy deductibles are – Section 2 (VAT inclusive)

\$.....

We advise that "special" terms, copy attached, have been

Yes/No

applied to this policy

8.5.3

Policy cover terms included are:

(a) Automatic reinstatement

Yes/No

(b) No cancellation for non-payment without prior notification

Yes/No

(d) No settlement delay due to exercise or subrogation

Yes/No

We undertake that this policy will not be cancelled or amended by us within the period of insurance without written advice to the insured party which has arranged the insurances.

The insurance issued is subject to the terms and conditions of the policy. We do not warrant that this policy complies with the requirements of NZS 3910:2003.

**Insurance Company Stamp:** ) .....

(Or name of insurance broking company confirming cover)

**Date:** ) .....

**Signed By:** ) .....

**Signatory's Title:** ) .....

(Clause numbers refer to NZS 3910:2003 and are for information only)

## **C SPECIFICATIONS AND DRAWINGS**

### **C0100 PRELIMINARY AND GENERAL**

#### **C0100.1 THE CONTRACT WORKS**

The Contract Works include (but are not necessarily limited to):

- Site Clearance
- Basecourse Construction
- Chip Sealing Construction
- Drainage
- Kerbs & Channel
- Pavement Markings

#### **C0100.2 SITE INFORMATION**

The Site is located in Avarua Township.

#### **C0100.3 DOCUMENTS**

The Specifications are divided into various sections for convenience and reference only. No claims will be admitted in respect of work not specifically mentioned in a particular section but which is provided for, expressed or implied elsewhere in the Specifications or the Drawings. The Drawings forming part of the Contract Documents are as listed at Appendix CC.3. The Method of Measurement adopted for the preparation of the Schedule of Prices is as detailed at Appendix CC.2.

#### **C0100.4 MATERIALS AND WORKMANSHIP**

All Materials shall be new, unless otherwise specified, and in accordance with the requirements of the Specifications. Where a particular Standard is not called for in the Specifications, Materials shall comply with the relevant New Zealand Standards (NZS) or NZS/AS, Australian Standards (AS), or British Standards (BS) where appropriate NZS do not exist. Reference to any Standard in the Specifications relates to the latest edition at time of tender and shall include any amendment to or substitution for the referenced Standard, unless stated otherwise.

Where an item is mentioned by a trade name or other specific reference, it shall be deemed to mean the type of item so mentioned, or any other equivalent thereto in quality, finish, durability and serviceability for the purpose intended. The quoting of a trade name shall not be construed as any desire to restrict the use of competitors' Materials, and the Contractor is at liberty to offer for the Engineer's approval any Materials considered by the Contractor to be of equivalent quality. Approval or otherwise of offered alternatives shall be at the Engineer's discretion. No warranty is expressed or implied that Materials specified are regularly stocked by merchants. Where sample approval is specified, samples of Materials shall be provided and the Engineer's approval obtained prior to incorporating such Materials in the Contract Works. Samples of approved Materials shall be retained on Site for comparison with those built into in the Contract Works.

Tenderers are advised that the basecourse and sealing chips materials are supplied by the Principal. Tenderers will be responsible for the cartage of these materials from the stockpile sites (Rarotonga Mining quarry and Blackrock). Tenderers are also advised to include the cartage costs in their rates for the respective material being used and itemised in the Schedule of Prices.

#### **C0100.5 COOPERATION WITH THE PRINCIPAL**

The Contractor shall so plan and execute the Contract Works that interference with the Principal's activities on and adjacent to the Site is kept to a minimum and all reasonable requests by the Principal to that end are met.

**C0100.6 SITE MEETINGS**

Site meetings shall be held at regular fortnightly intervals, presided over and minuted by the Engineer, and attended by the Contractor's Site representative. The Principal shall have the right to attend. The Contractor shall provide suitable facilities for the holding of such meetings. From time to time, Subcontractors may be required by the Engineer to attend (but this should be rare, since the Contractor is expected to resolve all subcontract matters outside such meetings).

**C0100.7 REPORTING**

Monthly progress reports shall be prepared by the Contractor and submitted to the Engineer in one copy. The first report shall cover the period up to the end of the first calendar month following the Date of Acceptance of Tender. Reports shall be submitted monthly thereafter, each within 14 days after the last day of the period to which it relates. Reporting shall continue until the Contractor has completed all work which is known to be outstanding at the completion date stated in the certificate of Practical Completion of the Contract Works. Each report shall include:

- (a) charts and detailed descriptions of progress, including each stage of design, documentation, procurement, manufacture, delivery to Site, construction, erection, testing and commissioning.
- (b) photographs showing the status of construction and progress on the Site;
- (c) for the procurement of each main item of Materials to be supplied by the Contractor, the name of the manufacturer, manufacture location, percentage progress, and the actual or expected dates of shipment and arrival at the Site;
- (d) copies of records of the Contractor's personnel and Plant on Site.
- (e) problems encountered during construction at the Site.
- (f) copies of quality assurance documents, test results and certificates of Materials;
- (g) safety statistics, including details of any hazardous incidents and activities relating to environmental aspects and public relations; and
- (h) comparisons of actual and planned progress with details of any events or circumstances which may jeopardise the completion in accordance with the Contract Documents, and measures being (or to be) adopted to overcome delays.

**C0100.8 RECORDS**

The Contractor shall complete an approved daily diary record by 10 am of each Working Day covering activities relating to the previous Working Day, detailing all work carried out including Plant and manpower hours, Subcontractors, and dayworks ordered by the Engineer. Such diary records shall be submitted to the Engineer at the end of each Week. The format of such records shall be prepared and approved by the Engineer before work commences on Site.

**C0100.9 SITE SAFETY MANAGEMENT SYSTEM**

The Contractor shall establish and maintain a Site-Specific Safety Management Plan that ensures the safety of all persons on the Site in accordance with the Health and Safety in Employment Act 1992 ("HSEA").

The Principal has designated the responsibility for control of the place of work, to the Contractor.

Without limiting the responsibilities of Separate Contractors under the HSEA for the health and safety aspects of their own separate contracts, the Contractor shall be responsible for reviewing and, once acceptable to the Contractor, approving the Site-Specific Safety Management Plans of the Separate Contractors. All Separate Contractors will be required to co-ordinate their safety management plans with that of the Contractor. For the avoidance of

doubt, control of the workplace includes those parts of the workplace where Separate Contractors are working.

The site-specific safety management plan shall ensure compliance with the OHS and shall include, but not be limited to:

- An up to date register of all site hazards and how they are being managed;
- Safety rules and procedures relevant to the Site;
- Contractors safety policy, training procedures and recent safety records;
- Requirements for safety equipment. Identification of specialised equipment for specific tasks;
- Requirements for safety meetings, as frequently as is necessary, and in any event at least weekly;
- Evacuation and emergency procedures.

The Contractor shall provide first aid facilities and personnel with relevant first aid training, as required by the relevant laws.

The Contractor shall develop a procedure that complies with the HSEA and any other relevant legislation for identifying, assessing, eliminating, isolating and minimising hazards that are or may exist on the Site.

The Contractor shall conduct Site-wide safety audits as frequently as required to ensure the safety of all persons on the Site and, in any event, at least fortnightly.

The operation of the safety plan shall be reviewed by the Contractor as frequently as required to ensure the safety of all persons on the Site and, in any event, at least monthly. Safety plans shall also be reviewed and resubmitted prior to commencement of a new scope of work not previously defined in the safety plan. Records of reviews shall be kept within the document.

The Contractor's Site Safety Officer shall attend all safety audits and safety reviews and shall provide data on the Contractor's health and safety plan.

Without limiting the foregoing, the Contractor shall establish and maintain a register of hazards for the Site in which the Contractor shall record any identified hazard, the date it was identified and any steps taken to eliminate, mitigate, mark or isolate the hazard. A copy of each revision of the register shall be forwarded to the Engineer and to the party designated with the responsibility for the control of the place of work .

Regulations applicable at the Site are as set out at Appendix CC.2.

#### **C0100.10 HAZARDOUS SUBSTANCES AND MATERIALS**

Hazardous substances and materials may be specified and used in construction. It is the Contractor's responsibility to ensure that these are stored in accordance with applicable rules and regulations and that all persons who may come in contact with such hazardous substances and materials are adequately protected from unnecessary exposure. This also includes a responsibility to ensure that all persons using hazardous substances and materials are properly trained and are provided with appropriate operating equipment, safety clothing, etc.

Further to 5.7.5 of the General Conditions, the Principal is aware of the following hazards associated with the Contract Works, the Site, or for which special measures are required:

#### **C0100.11 QUALITY MANAGEMENT**

The Contractor shall carry out the Contract Works in all respects in accordance with the requirements of a quality plan, meeting the Quality System Standard to demonstrate compliance with the requirements of the contract. Such plan shall be prepared by the Contractor and submitted to the Engineer for approval within 2 Weeks of the Date of Acceptance of Tender. Such plan shall identify, primarily, the 'Inspection and Test Plans' (ITPs) covering the checks, inspections and tests to be carried out by or on behalf of the Contractor, in order to ensure proper performance in the carrying out of the Contract Works. No responsibility is assumed by the Principal for any delay in the approval of the Quality Plan to meet the required parameters.

Compliance with the quality plan shall not relieve the Contractor of any of its duties, obligations or responsibilities under the Contract Documents.

Details of all procedures and compliance certificates shall be submitted to the Engineer for information before each stage of the Contract Works is commenced. When any document is



issued to the Engineer, it shall be accompanied by relevant signed quality statements. The Engineer shall be entitled to audit any aspect of the system and require corrective action to be taken.

#### **C0100.12 TRAFFIC MANAGEMENT**

The Contractor shall prepare and submit a Traffic Management Plan to the Engineer for review within 2 Weeks of the Date of Acceptance of Tender (refer NZTA (Transit) document "Code of Practice for Temporary Traffic Management, COPTTM). Such plan shall identify the measures and the sequences of operations to be adopted by the Contractor, in order to satisfy the applicable regulations and constraints. No responsibility is assumed by the Principal for any delay in the review of the Traffic Management Plan to meet the required parameters.

#### **C0100.13 CONTRACTOR'S PROGRAMME**

The Contractor's programme shall be set out by an approved method of programming on a time scale.

Any programme revisions shall be supplied to the Engineer, and the Contractor shall maintain an up-to-date copy in the Site Office through the contract period.

The programme shall be updated monthly and such updating shall be submitted with all progress payment claims, as well as the monthly progress reports as detailed in C0100.10.

#### **C0100.14 CONSTRUCTION RECORD DRAWINGS**

The Contractor shall prepare and submit to the Engineer copies of such drawings, diagrams and schedules as shall provide an adequate record of the constructed or installed works, in the Contract Works. Such documents shall be to the approval of the Engineer in terms of both contents and format, and as such shall be received prior to the Engineer issuing the certificate of Practical Completion.

#### **C0100.15 TEMPORARY FACILITIES**

The Contractor shall provide all temporary facilities, as may be required. These shall be located at suitable locations as agreed with the Engineer and shall include materials storage, lunchroom, toilets etc. .

The Contractor shall provide and, upon completion, remove all temporary electricity, water, etc., supplies that may be necessary, to the requirements of the relevant Authorities.

The Contractor shall provide, erect and maintain throughout the contract three signboards which shall be approved by and located as directed by the Engineer. The Principal will not permit any other sign to be displayed at the Site, except for warning and directional signs.

#### **C0100.16 DAMAGE TO PROPERTY**

The Contractor shall record the state of roads, drives and footpath, their surfaces and details, with annotated photographs before the Contract Works commence, and shall obtain the adjoining owners' agreement in writing as to the existing condition of their properties. These records shall be submitted to the Engineer prior to commencing work on site. The Contractor shall be responsible for any loss or damage to all such property as a result of the execution of the Works. The Contractor shall make good any such loss or damage at its own cost.

#### **C0100.17 SURVEY**

Setting-out shall be carried out by a Surveyor from the Benchmark or Control Survey mark shown on the Drawings. The Surveyor shall certify the correctness of setting-out to the Engineer in writing.

Any boundary peg disturbed by the Contract Works shall be relocated by a Registered Surveyor at no cost to the Principal.

**C0100.18 KEEP ACCESS OPEN**

The Contractor shall keep at least half the width of the roadway open and passable to traffic at all times. However, the Contractor is advised that it can close the entire road but this shall be subjected to agreement with the Project Manager, Project Engineer, Principal and Police

The Contractor shall allow priority access for emergency vehicles through the construction site at all times.

The least possible interference, consistent with the carrying out of the Contract Works, shall be inflicted on traffic.

Barricades, warning signs, and, if necessary, watchmen shall be maintained at each end of the section of the road being worked upon to fully protect and divert passing traffic and to control speeds.

The Contractor shall ensure that access, including temporary vehicular access, is maintained at all times to private properties affected by the Contract Works.

The Contractor shall maintain appropriate vehicular access to commercial/industrial properties to the Engineer's approval at all times, unless essential work is being undertaken immediately at their entrances. In that case, the owners/occupiers shall be notified by the Contractor in writing one Week in advance of the length of time that the entrance(s) are to be closed, and the starting time(s) of the closing(s).

The Contractor shall undertake no work on private property until the Contractor is in receipt of a Consent from the landowner. A copy of the Consent is to be forwarded to the Engineer.

CONTRACT for Project City 3, Contract No. C13/13.3 at Avarua for the Infrastructure Cook Islands

**APPENDIX CC.1 SITE REGULATIONS**

There shall be no working on Sundays

**APPENDIX CC.2 METHOD OF MEASUREMENTS**

Except as otherwise stated or qualified in this Appendix CC.2, the method of measurement adopted shall be NZS 4224:1983 - "Code of Practice for Measurement of Civil Engineering Quantities".

**C0201 SITE CLEARANCE**

**C0201.1 DESCRIPTION**

The work specified in this Section includes clearing, grubbing and removal of all vegetation and debris within the designated limits of the Site and disposal off Site.

Except where provided for otherwise, it shall also include the demolition, removal and disposal of any structures or fences that obtrude into or encroach upon or obstruct the work.

Vegetation and objects designated to remain shall be preserved free from injury or damage.

**C0201.2 CONSTRUCTION**

**1. Clearing and Grubbing**

All surface objects, trees, stumps, roots, and other protruding obstructions designated for removal shall be cleared and/or grubbed. Non-perishable solid objects located more than 1 metre below subgrade level may remain in place.

In fill areas, holes resulting from removal of obstructions shall be backfilled and compacted with suitable material in accordance with C0203. The same procedure shall apply to all holes created by grubbing in excavation areas where the depth of holes exceeds the proposed depth of excavation.

Disposal methods shall be in accordance with applicable laws, ordinances, and regulations. All vegetable material shall be disposed of by mulching and spreading on Site to reduce erosion.

Materials and debris which cannot be mulched shall be disposed of by methods and at locations acceptable to the Engineer. If disposal is by burial within the project limits, the cover material shall be at least 300 mm thick and be graded and shaped to present a pleasing appearance. The Contractor shall make all arrangements with property owners and relevant local authorities in obtaining consents for disposal locations outside the limits of the project. The cost of disposal and obtaining consents shall be included in the price for site clearance, and a copy of the consents shall be furnished to the Engineer.

If permitted, perishable material may be burned under the Contractor's constant care at times and in a manner that will not jeopardise the surrounding vegetation, adjacent property, or anything designated to remain.

Low-hanging, unsound or unsightly branches on remaining trees or shrubs shall be removed as directed. Branches of trees extending over the carriageway shall be trimmed to give a clear height of 6 metres above the finished surface. Trimming shall be done in accordance with proper tree surgery practices.

**2. Trimming (Grading)**

Where specified, the Contractor shall trim areas within the excavation or filling limits. Trimming shall include the removal of brush, roots sod, grass, residue of agricultural crops, sawdust, decayed vegetable matter and other deleterious material from the ground surface.

**C0207A KERBS CHANNELS FOOTPATHS AND VEHICLE CROSSINGS**

**C0207A.1 DESCRIPTION**

The work specified in this section consists of construction of concrete kerbs, channels, footpaths, vehicle crossings.

**C0207A.2 STANDARD SPECIFICATIONS**

This Specification shall be read in conjunction with the following Standards, which are deemed to form a part of this Specification. In the event of this Specification being at variance with any provision of the Standards, the requirements of this Specification take precedence over the provision of the Standards. Reference to any Standard shall include any amendments thereto and any Standard in substitution therefor. All materials and workmanship shall comply with these Standards unless expressly noted otherwise.

NZS 3104:2003	Concrete production
NZS 3114: 1987	Concrete surface finishes
NZS 3124:1987	Concrete construction for minor works
NZS 4404:2010	Land Development and Subdivision Infrastructure
NZS 4121:2001	Design for Access and Mobility (Buildings etc)

**C0207A.3 MATERIALS**

**1. Mortar**

Mortar shall consist of two three parts of fine, sharp, well graded sand to one part of cement measured by dry loose volume, well mixed by hand or in a suitable mechanical mixer with just sufficient water to make it slightly moist. It shall be mixed in small quantities as required. Any mortar not used within 30 minutes of mixing shall be discarded.

**2. Concrete**

Concrete can be Ordinary grade.

**C0207A.4 CONSTRUCTION**

**1. General**

The construction of concrete kerbs, channels footpaths and vehicle crossings shall comply with the requirements of NZS 4404 which shall be deemed to form a part of this Specification except as modified herein.

**2. Kerbs**

Kerbs shall be cast insitu

**3. Channels**

Channels shall be cast insitu from 20 MPa concrete in accordance with the details shown in NZS 4404 and to the lines and levels shown in the Drawings. Where shown channels shall be reinforced.

Formwork shall be straight and parallel to kerb lines and shall be sufficiently braced to ensure that no deflection occurs during construction. Concrete shall be poured continuously between stop ends.

Contraction joints in unreinforced channels shall be formed at 4 metre centres, at right angles to the kerb line, by insertion of "Malthoid" D.P.C or equivalent strip. The joint material shall be set flush with the surface and shall be a minimum of 25 mm deep.

The top surface of channels shall be finished smooth and even with a steel trowel. Channels shall not pond water at any point.

**C0212 BITUMINOUS PRIME COAT**

**C0212.1 DESCRIPTION**

The work specified in this section includes preparing and treating an existing surface with bituminous material and, if required, blotter material.

**C0212.2 STANDARD SPECIFICATIONS**

This Specification shall be read in conjunction with the following Standards, which are deemed to form a part of this Specification. In the event of this Specification being at variance with any provision of the Standards, the requirements of this Specification take precedence over the provision of the Standards. Reference to any Standard shall include any amendments thereto and any Standard in substitution therefor. All Materials and workmanship shall comply with these Standards unless expressly noted otherwise.

TNZ M/1:1995	Asphaltic Bitumens
BCA E/2:1997	Performance of Bitumen Distributors
ASTM D2397:2002	Cationic emulsified asphalt
BCA 9904:2000	Safe Handling of Bituminous Materials used in Roothing

**C0212.3 MATERIALS**

The bituminous primer shall be CAT 60 emulsion complying with ASTM D2397 unless otherwise approved by the Engineer. The bitumen binder shall be 80/100 penetration grade.

The Contractor shall furnish vendor's certified test reports for all bituminous material proposed for use on Site. The report shall be delivered to the Engineer before permission is granted for use of the material and shall not be interpreted as the basis for final acceptance. Where required by the Engineer all such test reports shall be subject to verification by testing samples of materials received for use.

Blotter Material shall be clean dry sand or fine stone screenings free from clay or organic matter.

**C0212.4 PLANT**

The Contractor shall provide equipment for heating and uniformly applying the bituminous material and blotter material.

The bitumen distributor shall have a current BCA E/2 Certificate of Compliance.

**C0212.5 CONSTRUCTION**

**1. Weather Limitations**

Prime coat shall not be applied on a wet surface, or when the surface temperature is below 10°C, or when the weather conditions would prevent the proper application of the prime coat.

**2. Surface Preparation**

The surface to be primed shall be shaped and compacted to the required grade and cross-section, free from ruts and corrugations, loose or segregated material, or other irregularities.

Immediately before applying the prime coat, the full width of the surface to be primed shall be swept with a power broom to remove all loose dirt and other objectionable material. All

sweepings shall be removed from the Site. The prepared surface of a basecourse shall fully comply with the requirements of TNZ B/2 before priming proceeds.

**3. Application of Bituminous Material**

Primer shall be applied by a pressure distributor at a rate such that all primer is absorbed within 24 hours. The spraying temperature shall be matched to the grade of the primer. Where necessary to prevent primer from flowing off the surface two applications shall be made. Building paper shall be used at the start and end of each spread to ensure that the application at junctions is not excessive.

Following the application, the primed surface shall be allowed to dry without being disturbed until it will not be picked up by traffic or plant. Any areas having an excess or deficiency of primer shall be corrected by the addition of sand or primer.

**4. Application of Blotter Material**

If the primer fails to penetrate within the specified time and/or the roadway must be used by traffic, blotter material shall be spread in the quantities required to absorb any excess primer.

**5. Maintenance**

The primed surface shall be maintained by the Contractor until the surfacing layer has been placed. Suitable precautions shall be taken by the Contractor to protect the primed surface against damage during this interval, including supplying and spreading any sand necessary.

**C0213 - BITUMINOUS SEAL COAT**

**C0213.1 DESCRIPTION**

The work specified in this section consists of one or more applications of bituminous material and cover aggregate to an existing basecourse, primed or sealed surface.

**C0213.2 STANDARD SPECIFICATIONS**

This Specification shall be read in conjunction with the following Standards, which are deemed to form a part of this Specification. In the event of this Specification being at variance with any provision of the Standards, the requirements of this Specification take precedence over the provision of the Standards. Reference to any Standard shall include any amendments thereto and any Standard in substitution therefor. All Materials and workmanship shall comply with these Standards unless expressly noted otherwise.

TNZ M/1:1995	Asphaltic Bitumens
TNZ M/6:2002	Sealing Chip
TNZ M/13:1989	Adhesion Agents
TNZ P/3:1995	First Coat Sealing
TNZ P/4:1995	Resealing
TNZ P5/P:1985	Rubber Latex in Reseal Binders
TNZ Q/1:1995	Chip sealing
TNZ T/3:1981	Measurement of Texture by the Sand Circle Method
TNZ T/5:1987	Size, Shape and Grading of Grades 1-4 Sealing Chips
TNZ -	Bituminous Sealing Manual 1993
TNZ P/17:2002	Performance Based Specification for Chip Seals
BCA 9904:2000	Safe Handling of Bituminous Materials used in Roding

**C0213.3 MATERIALS****1. Sealing Chips**

The sealing chips shall be of the grade specified in Schedule 213.A appended to this Section of the Specification and shall comply with the requirements of TNZ M/6, P/3 and P/4. Where the chips are to be supplied by the Contractor, the source of supply shall be nominated with the tender. All material shall be stockpiled in accordance with TNZ P/3, and sampled to ensure compliance with the specifications. The sampling and testing shall be undertaken by an IANZ accredited laboratory. The Contractor shall meet the cost of testing. No material shall be delivered to Site until approved by the Engineer, and all material delivered to Site shall be from the approved stockpile.

Only one source of supply shall be used for each grade of chip supplied.

**2. Bituminous Binder****3.**

Bituminous binder shall be in accordance with Schedule 213.A appended to this Section of the Specifications and shall comply in all respects with TNZ M/1.

**4. Diluents**

Cutting and fluxing diluents shall comply with the requirements of TNZ M/1. The Contractor shall be responsible for determining the quantity of AG0 (if any) and cutter, to be added. Total diluents shall not exceed the quantities specified in Table 1 of TNZ P/3 or P/4 as applicable.

**5. Adhesion Agent**

An adhesion agent approved and blended in accordance with the requirements of TNZ M/13 "Specification for Adhesion Agents" shall be incorporated in the sealing binder.

**6. Polymer Additive**

A polymer additive shall be incorporated into the binder as specified in Schedule 213.A (appended to this Section of the Specifications).

Full technical details and Specifications for the Polymer additive shall be submitted to the Engineer for approval with the tender.

**7. Blending**

Blending of additives, fluxes and AG0 shall be carried out by the Contractor in strict compliance with the manufacturers recommendations and all relevant safety regulations and procedures. The total quantity of each component incorporated into the sealing binder shall be accurately measured by a volume metering or weighing device certified by the Trade Measurement Unit of the Consumer Affairs Ministry. The binder shall be thoroughly mixed before use.

The Engineer will not supervise this operation. The Contractor shall provide the blending certificates as specified in TNZ P/3 and P/4.

**8. Sampling and Testing**

All sampling and testing shall be carried out by the Contractor and shall be in accordance with TNZ P/3 or P/4 as applicable and these specifications.

**C0213.4 PLANT**

Construction plant shall comply with the relevant requirements of TNZ P/3 and TNZ P/4.

**C0213.5 CONSTRUCTION****1. Sealing Period and Working Hours**

Refer to TNZ P/3 or P/4 as applicable.

## **2. Edge Definition**

Refer to TNZ P/3 or P/4 as applicable.

## **3. Surface Preparation**

Surface preparation for sealing or resealing shall be in accordance with TNZ P/3 or P/4 as applicable.

## **4. Weed Killer**

If required by Schedule 213.A (appended to this Section of the Specification) a 600 mm wide strip along all edges to be sealed shall be treated with a long term soil sterilant to effect total weed control for a period of not less than 12 months. A written guarantee to this effect will be required.

## **5. Binder Temperatures**

Binder temperatures shall be in accordance with TNZ P/3 or P/4 as applicable.

## **6. Rate of Application**

It shall be the Contractor's responsibility to determine the correct application rate for the sealing chips for the seal coat, and the correct application rate and diluent content for the binder, such that the chips are firmly held and bleeding or flushing does not occur. The following procedure shall be followed:

- (a) The Contractor shall calculate the rate of application of sealing chips and binder, using the guidelines in the TNZ "Bituminous Sealing Manual" or other acceptable method, and shall submit the design to Engineer prior to application of the seal coat.
- (b) The Contractor shall then construct a test strip using the application rate he has determined. The test strip shall be checked to ensure that the binder application rate is correct. The binder application shall be adjusted as required.
- (c) Sealing may then proceed using the adjusted application rate, provided that the road surface is not significantly different to that used for the test strip.
- (d) If the surface texture changes significantly, the sealing rate shall be recalculated and adjusted if necessary.

## **7. Sealing Operations**

- (a) General
  - (i) Sealing operations shall be in accordance with TNZ P/3 or P/4 as applicable and the additional specifications herein.
  - (ii) The Contractor shall comply in all respects with Quality Assurance requirements as set out in TNZ Specification Q/1.
  - (iii) See Fig 213.1 appended for illustrations of the following sealing systems.

### **(b) Single Layer Sealcoat**

This process shall comprise a single application of binder, followed by a single layer of sealing chip. This may be a first coat, second coat or reseal.

In the case of a second coat seal, or a reseal, it is important that a "match" is obtained between the sealing chip sizes.

After the sealing chip has been applied, the surface shall be rolled in accordance with the relevant TNZ standard.



(c) Racked-in Sealcoats

A racked-in sealcoat comprises a single application of binder followed by two chip applications to establish a "Racked-In" surface. The first application of stone shall be the larger grade chip which must be left open enough to allow the smaller grade chip to fill the gaps and make contact with the binder.

The larger size chip shall be spread ensuring uniform coverage, followed immediately by one pass of an approved steel wheeled roller. Rubber tyred rollers shall not be used except for finish rolling, due to pick up of the binder.

The smaller chip shall then be spread, rolled with an approved steel wheeled roller and finished with a rubber tyred roller.

Care shall be taken with selection of chips to ensure compatibility of the two sizes supplied.

(d) Double Layer

This process comprises 2 separate applications of binder, and two separate applications of sealing chips.

The first application of binder shall be made and the larger-grade sealing chip spread, ensuring a uniform coverage. A single pass of an approved-type roller shall then be made. It is important to ensure that there are open windows left to allow for the second application of binder. The second application of binder shall then be made. This shall be followed by application of the smaller grade of sealing chip. Once this is completed the total seal surface shall be rolled, and finished with approved-type rollers.

In this process the total binder quantity may be applied, either in the ratio of 60/40, or 40/60 per coat.

Care shall be taken with selection of the chips to ensure compatibility of sizes for effective interlock.

(e) Sandwich Seal

This process comprises a single application of binder, with separate applications of 2 grades of sealing chip, for treatment of flushed seal areas.

The larger sized sealing chip shall be spread first ensuring uniform coverage, and then a single coat of binder applied. The second layer of smaller sized sealing chip shall then be applied immediately over the top of the binder, and this layer rolled to finish the surface.

No rolling shall be undertaken before the application of the second smaller sized sealing chips.

Care shall be taken with selection of the chips to ensure compatibility of sizes for effective interlock.

**8. Protection and Repairs**

Protection and repairs to the completed sealcoat(s) shall be in accordance with TNZ P/3 and TNZ P/4.

**C0213.6 MAINTENANCE AND ACCEPTANCE**

















The maintenance period for this work shall be 12 months. Acceptance at the end of the maintenance period shall be on a lot basis. Each lot shall comprise a 200 metre length of pavement. Acceptance shall be based on surface texture and chip retention and shall be in accordance with TNZ P/17.

**C0213.7 SCHEDULE 213.A**

<b>SCHEDULE 213.A</b>	
<b>LOCATION</b>	

TYPE OF SEAL COAT		
SEALING BINDER		
Asphaltic cement		Contractor to nominate
Kerosene		Contractor to nominate
AGO		Contractor to nominate
Adhesion Agent		Contractor to nominate
Application Rate	1st coat	Contractor to nominate
" "	2nd coat	Contractor to nominate
Polymer		Contractor to nominate type
SEALING CHIPS		
Grade of Chip	1st application	
	2nd application	
Precoating		
Supplier		Contractor
Spread rate	1st application	Contractor to nominate
	2nd application	Contractor to nominate
WEED KILLER		Not Required
Minimum Polished Stone Value		

Figure 213.1

Material laying order	Work phases	Use condition
▼	SINGLE-LAYER	
2		
1		
▼	RACKED-IN	
3		
2		
1		
▼	DOUBLE-LAYER	
4		
3		
2		
1		
▼	"SANDWICH"	
3		
2		
1		

**C3205 PAVEMENT MARKING**

**C3205.1 MATERIALS**

Non-reflectorised pavement surface markings shall be carried out in accordance with the Drawings and TNZ P/12. Paint markings shall comply with the relevant parts of the TNZ "Manual of Traffic Signs and Markings".

The paint shall comply with TNZ M/7-W, thinned and applied strictly in accordance with the manufacturer's written instructions.

**C3205.2 APPLICATION**

The portion of pavement to be painted shall be clean and dry, and cured if new work, when the paint is applied.

The lines to be painted shall be marked out by the Contractor with chalk and approved by the Engineer prior to painting.

The painting shall be by an experienced operator using approved equipment. The paint shall be thoroughly mixed immediately before use and mechanically agitated while the machine is in operation. The rate of application shall provide a uniform complete cover with a minimum dry film thickness of 0.2 mm.

Tolerance on width of paint lines shall be + 10 mm - 5 mm from the standard dimension. On completion the Contractor shall leave the Site clean and tidy, and any spillages shall be removed without damage to the pavement.

Completed markings shall be protected by cones or other approved means until the markings are dry.

**C3205.3 SKID RESISTANCE**

Skid resistance of road markings shall be to Section 14 of TNZ/P12.