

RARAKAU FOREST CARBON PROJECT MONITORING REPORT NUMBER 1

Document Prepared By Sean Weaver of Carbon Partnership Ltd.

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1 PROJECT DETAILS

1.1 Summary Description of Project

The Rarakau Forest Carbon Project involves the protection of previously logged indigenous forest on 738 ha of land owned by the Rowallan Alton Incorporation – a Maori incorporation. This forest protection is made possible by the creation and sale of carbon assets instead of timber assets on this land.

The Rarakau Forest Carbon Project forests are protected by a Memorandum of Encumbrance (legal covenant) on the title of the land. The beneficiary of the Memorandum of Encumbrance is Ekos - a charitable trust functioning as the Programme Operator of the Rarakau Programme.

This Monitoring Report comprises both the Simplified Project Management Report and Simplified Project Monitoring Report as specified in the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.

1.1.1 Simplified Project Management Report Methodology

According to Section 11.3.9 of the Rarakau Forest Carbon Project PDD, the Rarakau Forest Carbon Project will prepare a Simplified Project Management Report for its first 3rd party verification, covering the Project Management Years 2009-2011 inclusive. Thereafter Project Owners will prepare a full Project Management Report for subsequent 2nd party verifications by the Programme Operator. Section 11.4.6 of the Rarakau Forest Carbon Project PDD states: “The Simplified Project Monitoring Report will incorporate the requirements of the Simplified Project Management Report (see Section 11.3.9 of this PDD), also required for first verification.”

The Simplified Project Management Report elements of this Simplified Project Monitoring Report contain the following information:

Simplified Project Management Report Requirement	Location in this Monitoring Report
Map of the Eligible Forest Area using aerial imagery generated in 2011	Figures 1.7d,e
Map of the Project Management Areas	Figure 3.3.4
Statement by the Project Owner and Project Developer that describes the Project Activities that have been undertaken between the Project Start Date and the end of the first Monitoring Period.	Sections 2.1.2.1 to 2.1.2.4
Records of any <i>de minimis</i> timber harvesting that has occurred since the Project Start Date.	Section 3.3.3.4
Statement on Activity Shifting Leakage	Sections 2.1.2.4, 3.3.3.5
Notes any issues relating to the risk of reversals	Section 2.1.2.3
Director's Certificate	Supplied in Appendix 1

1.1.2 Simplified Project Monitoring Report Methodology

According to the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012, the Inception Project for the Rarakau Programme is required to prepare a Simplified Project Monitoring Report for its first verification, but thereafter is required to prepare a full Project Monitoring Report using the full project Monitoring Methodology specified in Sections 11.4.1 to 11.4.5 of this methodology.

The Simplified Project Monitoring Report will fulfil all components of the VCS Monitoring Report Template (VCS version 3) with the exception that Section 3.2 will list the data and parameters monitored but the full monitoring procedures will not be implemented until the second verification. In place of data generated from monitoring activities the Project Owner will supply a Director’s Certificate to assert that the Project Activity has taken place according to the requirements of this methodology and the PDD between the Project Start Date and the end of the first Monitoring Period.

Section 3.2 of this Monitoring Report lists the data and parameters monitored as required.

1.2 Sectoral Scope and Project Type

The project type for the Rarakau Forest Carbon Project is Improved Forest Management – Logged to Protected Forest (IFM-LtPF). The Rarakau Forest Carbon Project is the Inception Project (first activity instance) of the Grouped Project entitled the ‘Rarakau Programme’.

1.3 Project Proponent

Table 1.3. Project Proponent Rarakau Forest Carbon Project		
Project Proponents		
Entity	Role	Contact Details
Rowallan Alton Incorporation	Project Owner	Doug Hauraki Secretary, Rowallan Alton Incorporation 14 Albert St Island Bay 6023 Wellington, New Zealand Ph: +64 4 383 8990 Email: doug@haurakiwhanau.co.nz
Carbon Partnership Ltd	Project Developer	Sean Weaver Principal, Carbon Partnership Ltd 29 Central Takaka Rd, RD1 Takaka 7183, Golden Bay, New Zealand Ph: +64 3 525 6073 Skype: seanweaver www.carbonpartnership.co.nz sean@carbonpartnership.co.nz

1.4 Other Entities Involved in the Project

Table 1.4 Other Entities Involved In The Rarakau Forest Carbon Project		
Entity	Role	Contact Details
Ekos (a charitable trust)	Programme Operator	Kathy Olsen Trustee Ekos P.O. Box 19171 Courtenay Place

		Wellington 6149, New Zealand Ph: +64 4 805 0098 x 861
Markit Environmental Registry	Project Registry	Joanna Silver Vice President Markit Environmental 4th floor Ropemaker Place 25 Ropemaker Street London, EC2Y 9LY Ph: +44 20 7260 2192 Office Ph: +44 758 439 2860 Mobile joanna.silver@markit.com www.markit.com www.markitenvironmental.com
Det Norske Veritas	Project Validator/verifier	Noel Peters Manager Climate Change and Environmental Services Oceania DNV Climate Change and Environmental Services Ph: +61 (2) 9922 1966 Mobile: +61 428 225 555 Fax: +61 (2) 9929 8792 Email: Noel.Peters@dnv.com Web: www.dnv.com
Venture Partners Ltd	Legal support	Greg Fahey Director Email: greg.fahey@venturepartners.co.nz Mobile: +64 (0)21 270 2222 Skype: gregeco Web: www.venturepartners.co.nz Address: 106 Bond Street, Dunedin 9016, New Zealand
Aerial Surveys Ltd	Aerial imagery	Steve Smith Business Development Manager Unit A1, 8 Saturn Place Albany 0632 PO Box 302 072 North Harbour 0751 AUCKLAND NEW ZEALAND P: +64 9 415 3101 F: +64 9 414 0090 E: steve.smith@aerialsurveys.co.nz W: www.aerialsurveys.co.nz
Sinclair Knight Merz	Additionality analysis	Tim Hewitt Environmental Consultant SINCLAIR KNIGHT MERZ Ph: +64 4 914 8448 Level 3, 86 Customhouse Quay PO Box 10 283 Wellington Email: THewitt@globalskm.com
GreenCo Ltd	Forest inventory	Clayton Wallwork Director GreenCo Ltd. Unit 7, 212 Antigua St PO Box 36-568 Christchurch, 8146 NEW ZEALAND Phone: +64 3 379 8583 Cell ph: +64 21 596 861 Email: info@greenco.co.nz

1.5 Project Start Date

1 January 2009

1.6 Project Crediting Period

1 January 2009 – 31 December 2011 (3 years) as the first crediting period during the Project Period of 1 January 2009 – 31 December 2058 (50 years).

1.7 Project Location

The project area is a subset of the Rowallan-Alton Maori lands (13,217 ha), which collectively lie directly east of the Hump Ridge and west of the Waiau River in western Southland, New Zealand (Burrows et al. 1992). The area is divided into approximately 150 sections, most of which remain in Maori ownership. Eleven of these sections (A7 11-13 & R8 8-15) totalling 1,367 ha, are managed by the Rowallan Alton Incorporation.

Project Maps for the Rarakau Forest Carbon Project are provided below.

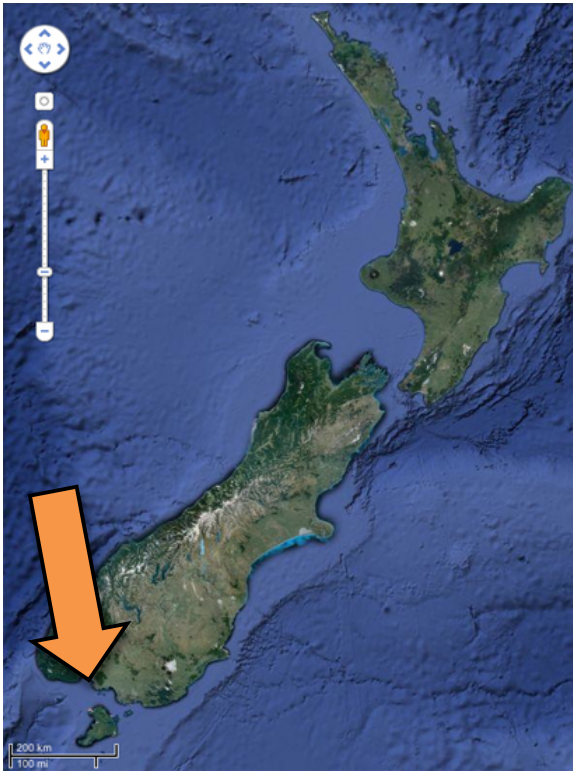


Figure 1.7a: Project Location Map 1, showing the project location in western Southland, New Zealand. Source: Google Earth.

Figure 1.7b. Project Location Map 2: Rarakau Forest Carbon Project Area Location in Western Southland (yellow rectangle). Source: Google Earth.



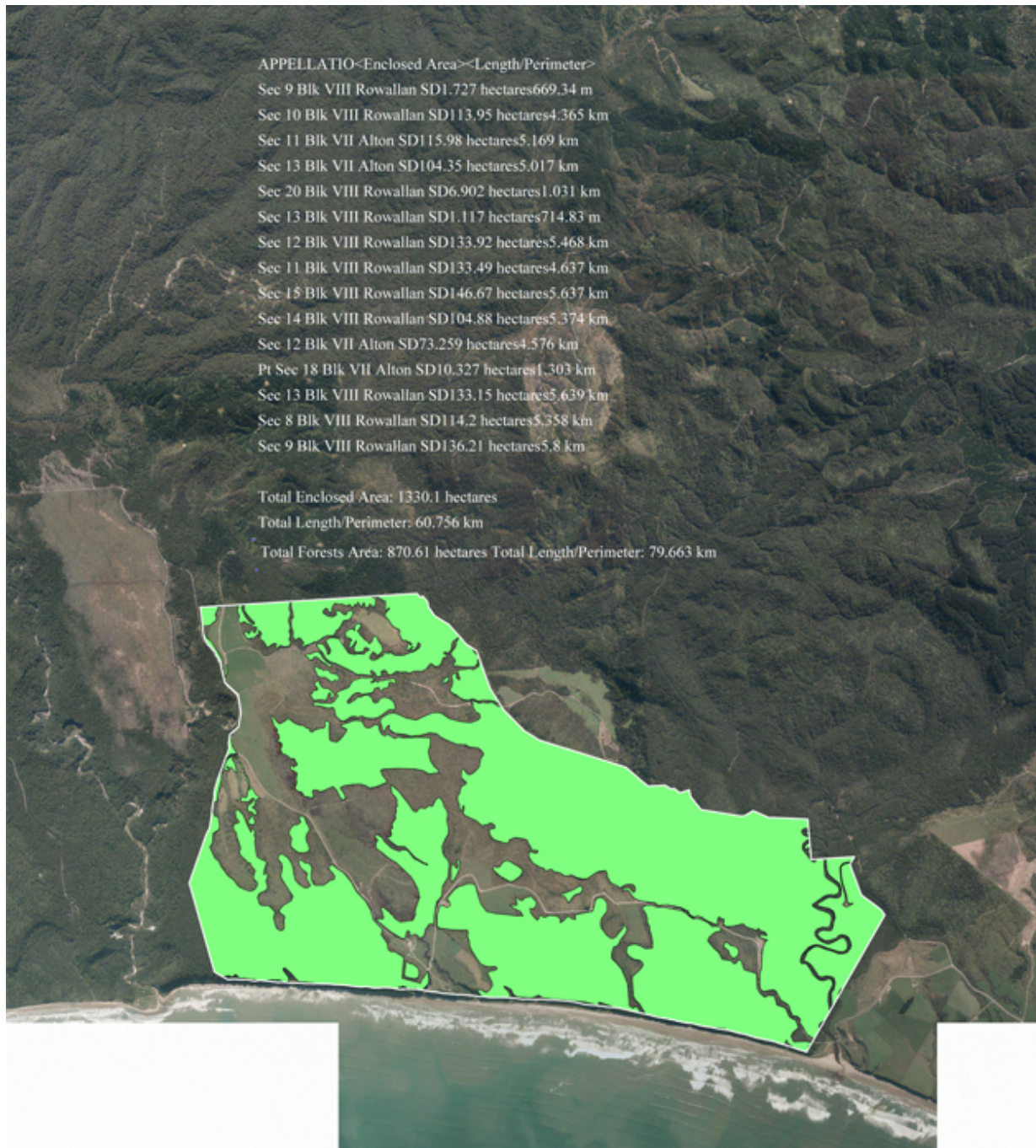
Figure 1.7c. Project Location Map 3. Maori Land Blocks in the Rowallan Alton Survey Region (white lines). Image date: 2010.



Figure 1.7d. Project Area Map 1. This depicts the boundary of the Project Area. White lines depict the aggregate of land parcels (Sections) that make up the Rowallan Alton Incorporation estate. Resolution: 0.4m. Image date: March 2011.



Figure 1.7e. Project Area Map 3. 2011 Eligible Forest Area. Green polygons demarcate the Eligible Forest Area. Image date: March 2011.



1.8 Title and Reference of Methodology

Rarakau Programme Methodology D2.1 v1.0, 15 May 2012 (hereafter called “the Methodology”).

2 IMPLEMENTATION STATUS

2.1 Implementation Status of the Project Activity

2.1.1 Implementation Status

The Rarakau Forest Carbon Project was implemented on 1 January 2009, during the period of project development as a forest carbon project. The project is completing its validation process and this Monitoring Report marks the project’s first verification.

2.1.2 Operation of Project Activity

The operation of the project activity during the first crediting period has focused on terminating baseline activities, and planning and implementing management practices consistent with the project activity of forest protection. This has included the development of the legal covenant to protect the project forests for the project period. The project development phase of this project included the development of the Methodology, the Rarakau Forest Carbon Project PDD D3.P1.1 V1.0, 15 May 2012 (hereafter called “the PDD”), the Project Management Plan and Project Monitoring Plan.

2.1.2.1 Project Consultations

Consultations for the Rarakau Forest Carbon Project followed the requirements of the Methodology specified for the Inception Project for this grouped project. The project consultations required by projects prior to validation include the necessary content and associated decisions for the Project Scoping Meeting, Project Inception Workshop, and Project Description Workshop. The following consultation events were undertaken for this Inception Project to fulfil the requirements of Section 9.1.5 of the Methodology:

Table 2.1.2.1 Rarakau Forest Carbon Project Community Consultations			
Consultation Required	Consultation Completed	Date	Comment
Project Scoping Meeting	RAI Committee Meeting 2007	2007	Mandate to apply for Phase 1 funding
	TPK Project Report Back	25/07/2008	Report back Phase 1 results, Christchurch Office TPK
	RAI Committee Meeting	26/07/2008	Mandate to apply for Phase 2 funding
	RAI Committee & Membership Meeting	07/11/2009	Mandate to develop carbon project
Project Inception	TPK Project Report Back	18/06/2010	Project Reporting Christchurch Office TPK
	TPK Project Report Back	25/06/2010	Project Reporting Wellington Office TPK

Workshop	RAI Committee Meeting	25/06/2010	Mandate to apply for Phase 3 funding
	RAI Committee Meeting	30/05/2011	Mandate to proceed to implementation
Project Description Workshop A	RAI Committee Meeting	30/08/2011	Mandate to proceed to validation
Project Description Workshop B	RAI Committee Meeting and RAI Membership Meeting and AGM	05/11/2011	Mandate to proceed to validation and project update for landowner community

Evidence to support the occurrence of these meetings is supplied in Appendix 19 of the PDD.

2.1.2.2 Legal Protection

The forests subject to this project are protected by means of a Memorandum of Encumbrance (covenant on the land title). The enforceability of the Memorandum of Encumbrance is described in Section 2.14 of the PDD.

2.1.2.3 Project Risk

A fire event in January 2012 was relevant to the GHG emissions reductions associated with this project, but affected forest located outside the Eligible Forest Area boundary. This fire burned from peat spreading from a stump in grazing land adjacent to the Eligible Forest Area (to the west of Forest Management Area 2). This peat fire had been smoldering for potentially a number of years. The practice of using fire to burn farm debris such as stumps is now subject to a fire permit issued by the Rural Fire Authority as per the Rarakau Forest Carbon Project PDD. This fire event affected the Overall Risk Rating of the Rarakau Forest Carbon Project, which in turn influenced the buffer determination for this monitoring period.

2.1.2.4 Leakage

Activity Shifting leakage is not possible in this project because the Project Owner does not have any forest capable of supporting baseline activities. Fuelwood gathering in patches of forest outside the Eligible Forest Area boundary is insignificant. Fuelwood gathering inside the Eligible Forest Area is subject to the *de minimis* rule specified in the Rarakau Programme Methodology and Rarakau Forest Carbon Project PDD. *De minimis* fuelwood harvesting is restricted to $13.5\text{m}^3\text{yr}^{-1}$. The monitoring of *de minimis* fuelwood harvesting is not required for this Simplified Monitoring Report, but is required for all future Monitoring Reports for the Rarakau Forest Carbon Project and all subsequent projects added to the Rarakau Programme (as specified in the PDD).

Reversal risk factors are being managed by means of annual Eligible Forest Boundary Inspections and Eligible Forest Area Inspections as per the Project Management Plan. These inspections are not required for this Simplified Monitoring Report, but are required for all future Monitoring Reports for the Rarakau Forest Carbon Project and all subsequent projects added to the Rarakau Programme.

Internal risks are being managed by means of adhering to the Project Consultation Protocol, and the development of the Dispute Resolution Framework. The Dispute Resolution Framework is in development between the Project Developer and the Project Owner. The Inception Project of the Rarakau Programme

(the Rarakau Forest Carbon Project) is required to prepare the Project Dispute Resolution Framework for approval by the Steering Committee at the first Project Management Meeting following first verification.

2.2 Deviations from the Monitoring Plan

This first Monitoring Report comprises a Simplified Project Monitoring Report following the Simplified Project Monitoring Plan as required in the PDD and the Methodology for this, the Inception Project of the Rarakau Programme. The only deviation from the Simplified Project Monitoring Report Methodology is that a simplified Eligible Forest Boundary Inspection and simplified Eligible Forest Area inspection have been conducted. These simplified inspections have involved ground inspections of the Eligible Forest Boundary and ground inspections of the Eligible Forest Area to ensure that there is no deviation from the aerial images provided in figure 1.7e, which in turn is derived from aerial imagery from 2012 data provided by Aerial Surveys Ltd.

2.3 Grouped Project

The Rarakau Forest Carbon Project is the first activity instance in the grouped project called the Rarakau Programme. No other project activity instances have yet occurred in the Rarakau Programme.

3 DATA AND PARAMETERS

3.1 Data and Parameters Available at Validation

Monitored and non-monitored data parameters for the Rarakau Forest Carbon Project are defined in table 3.1 below. All data in Table 3.1 are available at validation.

Table 3.1 Monitored and Non-Monitored Parameters (monitored parameters in green)					
Notation	Parameter	Unit	Equation	Origin	Monitored / Not
EFA (OFA)	Eligible Forest Area (Operational Forest Area)	ha	-	PDD	Monitored
LF/ULF	Forest stratification (logged/unlogged forest)	ha	-	PDD	Area calculated in PDD
TSV	Total Standing Volume	m ³	-	Sustainable Forest Management Plan/PDD	Calculated in PDD
SHR	The Sustainable Harvest Rate	m ³ yr ⁻¹	7.1.1a 7.1.1b	Sustainable Forest Management Plan/PDD	Monitored Updated each Baseline Revision
TWH	Total Wood Harvested	m ³ yr ⁻¹	7.1.2a 7.1.2b	Sustainable Forest Management Plan	Not monitored Updated each Baseline Revision
CD	Collateral Damage	m ³ yr ⁻¹	7.1.3	Default value derived from a proportion of the TWH	Not monitored Updated each Baseline Revision
AGBE	Above Ground Biomass Emitted	m ³ yr ⁻¹	7.1.4	Sum of TWH and CD	Not monitored Updated each Baseline Revision

BGBE	Below Ground Biomass Emitted	m ³ yr ⁻¹	7.1.5	Root-shoot ratio (proportion of AGBE)	Not monitored Updated each Baseline Revision
TM3	Total Emissions in m ³	m ³ yr ⁻¹	7.1.6	Sum of AGBE and BGBE	Not monitored Updated each Baseline Revision
TCO2	Total Emissions in tCO ₂ e	tCO ₂ e yr ⁻¹	7.1.7a 7.1.7b 7.1.7c 7.1.7d	Conversion factors from wood volume to emissions	Not monitored Updated each Baseline Revision
NBE	Net Baseline Emissions	tCO ₂ e yr ⁻¹	7.1.8	TCO2 ÷ 2	Not monitored Updated each Baseline Revision
ER	Enhanced Removals	tCO ₂ e yr ⁻¹	7.2.1	Default values derived from mean sequestration rates for NZ forest types and subsequently derived from project-specific data	Not Monitored Updated each Monitoring Period
NPE	Net Project Emissions	tCO ₂ e yr ⁻¹	7.2.1	Equal to ER	Not Monitored Updated each Monitoring Period
TAL	Total Activity Shifting Leakage	tCO ₂ e yr ⁻¹	7.3.1	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
MLF	Market Leakage Factor	Dimensionless	Box in Section 7.3.2	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
TML	Total Market Leakage	tCO ₂ e yr ⁻¹	7.3.2	Derived from Market Leakage Analysis	Not monitored Updated each Baseline Revision
ORR	Overall Risk Rating	Dimensionless	8.3.1	Derived from project risk assessment	Monitored Updated each Monitoring Period

3.2 Data and Parameters Monitored

Data and parameters monitored subsequent to validation are summarized in the tables below.

Data Unit / Parameter:	Eligible Forest Area (Operational Forest Area)
Data unit:	ha
Description:	Forest area included in baseline and project scenario, and area upon which crediting is based.
Source of data:	Aerial imagery and Project Boundary Inspection
Description of measurement methods and procedures to be applied:	Aerial imagery (sub-meter accuracy) to define Eligible Forest Area boundary; boundary survey inspections (sub-meter accuracy) using GPS. Measure any reversals occurring in the Eligible Forest Area. Monitored by means of Eligible Forest Boundary Inspections that record any reversal incident occurring within the Eligible Forest Area. The area of

	<p>any reversal above and beyond the <i>de minimis</i> threshold is measured using GPS units set up for sub-meter accuracy and measuring tapes. Area subject to reversal is removed from the Eligible Forest Area until the reversal has recovered the carbon volume lost in the reversal. This is calculated by means of sequestration rates and the estimate of the forest age for the area subject to the reversal. Forest age of the area subject to the reversal is calculated by:</p> <ul style="list-style-type: none"> • Dendrochronology on stumps in the case of a timber harvest reversal • Dendrochronology on adjacent living trees of equivalent size of burnt stumps
Frequency of monitoring/recording:	Aerial imagery: 5-yearly Eligible Forest Boundary inspections: annually
Value monitored:	n/a
Monitoring equipment:	Aerial imagery/satellite data to sub-meter accuracy Hand held GPS unit, photography
QA/QC procedures to be applied:	5-yearly 2 nd party verification of Project Management Reports by the Programme Operator. 5-yearly verification 3 rd party verification of Project Management Reports by 3 rd party verifier. NB: 5-yearly 2 nd party verification timed to mark the half way mark of the 5-yearly 3 rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Subtract reversal area from the Eligible Forest Area and recalculate the Net Carbon Credits by means of the most recent version of the Rarakau Programme Methodology.
Responsibility:	Project Owner or delegated entity (e.g. Project Developer)

Data Unit / Parameter:	Sustainable Harvest Rate (SHR)
Data unit:	m ³ ha ⁻¹ yr ⁻¹
Description:	The rate of sequestration for the project forest
Source of data:	Project-specific, and reference area data on tree growth rates for the relevant forest types.
Description of measurement methods and procedures to be applied:	60% of the assessed annual increment into the harvestable boles (excluding branches and crown) for each timber species for which there is sufficient standing volume to justify commercial harvesting.
Frequency of monitoring/recording:	10-yearly
Value monitored:	m ³
Monitoring equipment:	GPS unit, diameter tape, hip chain, vertex clinometer, increment borer
QA/QC procedures to be applied:	Every second 5-yearly 2 nd party verification of Project Management Reports by the Programme Operator. Every second 5-yearly 3 rd party verification of Project Management Reports by 3 rd party verifier.
Calculation method:	Sustainable Harvest Rate method specified in Section 7.1.1 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.

Data Unit / Parameter:	Total Activity Shifting Leakage
Data unit:	tCO ₂ e/yr
Description:	Leakage caused by activity shifting
Source of data:	Project Area Inspection (outside Eligible Forest Area)
Description of measurement methods and procedures to be applied:	<p>Site visit of Kyoto Article 3.4 (or equivalent) indigenous forest lands owned and controlled by the Project Owner to assess commercial timber harvesting activity in comparison with the Baseline Activity and Project Activity as stated in the PDD.</p> <p>Where commercial indigenous timber harvesting is occurring on lands owned and controlled by the Project Owner but lying outside the Eligible Forest Area, and where such harvesting has been declared in the PDD, the following assessment will be undertaken:</p> <ul style="list-style-type: none"> • Records of timber harvesting activity are inspected and verified against the timber harvesting plan stated in the PDD. • Timber harvesting sites are inspected to verify that they are occurring in the areas specified in the PDD. <p>Where commercial indigenous timber harvesting is occurring on lands owned and controlled by the Project Owner but lying outside the Eligible Forest Area, and where such harvesting has not been declared in the PDD (i.e. and thereby constitutes Activity Shifting Leakage), the following assessment will be undertaken:</p> <ul style="list-style-type: none"> • Records of timber harvesting activity are inspected and annual timber harvesting volumes and species are recorded. • Timber harvesting sites are inspected to determine area of harvesting activity. • Calculations are made using the baseline GHG emissions measurement methodology in the Rarakau Programme Methodology D2.1 v1.0, 30 May 2012 to determine the volume of Activity Shifting Leakage. • Net Carbon Credits are recalculated to account for Total Activity Shifting Leakage (TAL) • The Project Owner is notified of the consequence of any continuation of Activity Shifting Leakage in terms of the reduction in Net Carbon Credits for the Project. <p>The Project Owner is instructed to terminate Activity Shifting timber harvesting or risk suspension or termination from the Rarakau Programme.</p>
Frequency of monitoring/recording:	Annual Leakage Inspection and results incorporated into the annual Project Management Report. 5-yearly 2 nd party verification of Project Management Reporting by the Programme Operator.
Value monitored:	n/a
Monitoring equipment:	Activity Shifting Leakage Template
QA/QC procedures to be applied:	5-yearly 2 nd party verification of Project Management Reports by the Programme Operator. 5-yearly verification 3 rd party verification of Project Management

	Reports by 3 rd party verifier. NB: 5-yearly 2 nd party verification timed to mark the half way mark of the 5-yearly 3 rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Activity Shifting Leakage method specified in Section 7.3.1 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.
Responsibility:	Project Owner or delegated entity (e.g. Project Developer)

Data Unit / Parameter:	Market Leakage Factor (MLF)
Data unit:	Dimensionless
Description:	Leakage caused by market effects. The proportion of domestic indigenous timber supply in comparison with equivalent imported timber volumes.
Source of data:	NZ government data on timber supply
Description of measurement methods and procedures to be applied:	Determined by considering where in the country logging will be increased as a result of the decreased timber supply caused by the project.
Frequency of monitoring/recording:	5-yearly
Value monitored:	Dimensionless
Monitoring equipment:	Desktop
QA/QC procedures to be applied:	5-yearly 2 nd party verification of Project Management Reports by the Programme Operator. 5-yearly verification 3 rd party verification of Project Management Reports by 3 rd party verifier. NB: 5-yearly 2 nd party verification timed to mark the half way mark of the 5-yearly 3 rd party verification. As such, the project is subject to a verification audit every 2.5 years.
Calculation method:	Market Leakage factor component of the GreenCollar IFM LtPF v1.0 VCS approved Methodology VM0010 (2011).

Data Unit / Parameter:	Overall Risk Rating
Data unit:	Dimensionless
Description:	Risk factor used in buffer determination.
Source of data:	Various sources
Description of measurement methods and procedures to be applied:	Following the most recent version of the Verified Carbon Standard AFOLU Non-Permanence Risk Tool and elaborated in Section 8.2 of this PDD. This involves assessing the following risk types: <ul style="list-style-type: none"> • Internal Risk • External Risk • Natural Risk The Overall Risk Rating is calculated as the aggregate risk rating for the three risk types.
Frequency of monitoring/recording:	5-yearly coinciding with each 3 rd party verification.
Value monitored:	n/a

Monitoring equipment:	Calculated
QA/QC procedures to be applied:	5-yearly verification 3 rd party verification of Project Management Reports by 3 rd party verifier.
Calculation method:	Following calculation method specified in Section 8.2 and 8.3.1 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.
Responsibility:	Project Owner or delegated entity (e.g. Project Developer)

3.3 Description of the Monitoring Plan

The Inception Project for the Rarakau Programme was still being developed as a carbon project between the Project Start Date and until the first verification. During this time Baseline Activities had been terminated and Project Activities had been implemented. The Project Management Plan and Project Monitoring Plan had only been finalised in May 2012. For this reason the Inception Project is required to prepare a Simplified Project Monitoring Report for its first verification, but thereafter is required to prepare a full Project Monitoring Report using the full project Monitoring Methodology specified in Section 11.4.2 of the PDD.

The Simplified Project Monitoring Report fulfils all components of the VCS Monitoring Report Template (VCS version 3) with the exception that Section 3.2 provides a list of the data and parameters monitored as part of PDD development, with the subsequent annual measurement of these monitored parameters occurring as part of the annual project management cycle following first verification.

3.3.1 Purpose of Monitoring

The purpose of monitoring the Rarakau Forest Carbon Project is to provide evidence demonstrate that project implementation adheres to the PDD and methodology, to ensure that project benefits are delivered, and to make GHG assertions for verification.

3.3.2 Project Implementation Plan

The Project Implementation Plan for the Rarakau Forest Carbon Projects follows the requirements of Section 11.2 of the Methodology.

3.3.3 Project Management Plan

The Project Management Plan for the Rarakau Forest Carbon Projects follows the requirements of Section 11.3 of the Methodology.

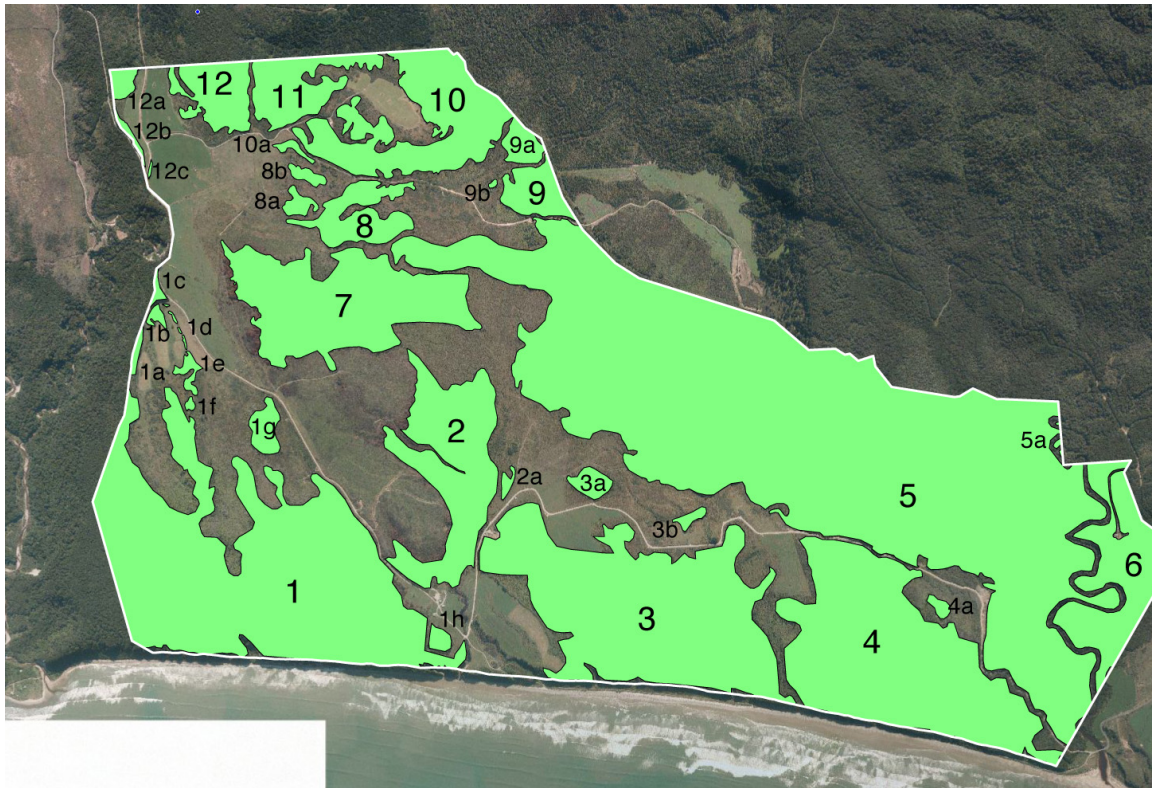
The Inception Project for the Rarakau Programme (the Rarakau Forest Carbon Project) will produce a Simplified Project Management Report for its first verification that summarizes project management undertaken between the Project Start Date and the end of the first Monitoring Period (1 January 2009 to 31 December 2011).

3.3.3.1 Forest Management Areas

Define and name forest management areas within Eligible Forest Area boundaries using the Eligible Forest Area map image. Identify each forest management area with a unique identifier (number). Forest management areas can be continuous with each other, or may be discrete forest patches.

The Forest Management Areas for the Rarakau Forest Carbon Project are shown in Figure 3.3.4.

Figure 3.3.4 Rarakau Forest Carbon Project Forest Management Areas



3.3.3.2 Eligible Forest Boundary Inspections

Eligible Forest Boundary Inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3 and 11.3.9 of the Methodology.

3.3.3.3 Eligible Forest Area Inspections

Eligible Forest Area Inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3, and 11.3.9 of the Methodology.

3.3.3.4 De Minimis Timber Harvest Inspection

De minimis timber harvesting inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3, and 11.3.9 of the Methodology.

The de minimis timber harvesting volume for the Rarakau Forest Carbon Project is 13.5m³ per year. This amounts to <5% of the Total Wood Harvested in the Baseline Scenario, and in turn amounts to 0.032% of the Total Standing Volume of wood in the Eligible Forest Area.

Actual records of the volume of fuelwood harvesting inside the eligible forest area will commence following first verification. The estimated volume of fuelwood timber harvesting inside the Eligible Forest Area for the period 1 January 2009 to 31 December 2011 is less than 20m³. In summary, fuelwood harvesting in the Project Area has historically been undertaken outside the Eligible Forest Area and has been minimal because it is used to provide firewood for the single permanent dwelling in the Project Area

(the home of the Farm Manager), and periodic use of the bunkroom lodge accommodation by hunters and trampers (trekkers).

3.3.3.5 Activity Shifting Leakage Inspection

Activity Shifting Leakage Inspections will be undertaken annually in the Rarakau Forest Carbon Project following first verification as specified in Section 11.3, and 11.3.9 of the Methodology. A statement on Activity Shifting Leakage will be included in the Simplified Project Management Report for first verification.

There has been no activity shifting leakage in the Project Area since the Project Start date.

3.3.3.6 Project Management Reports

The Rarakau Forest Carbon Project will prepare annual Project Management Reports following first verification, and pursuant to the requirements of Section 11.3 of the Methodology. The first verification for this project will be based on a Simplified Project Management Report as provided for in Section 11.3 and 11.3.9 of the Methodology.

3.3.3.7 Directors Certificate

The Management Committee of the Rowallan Alton Incorporation will include a signed Director's Certificate in all Project Management Reports, including the Simplified Project Management Report required for first verification.

3.3.3.8 Project Management Audit

The Programme Operator will undertake a Project Management Audit at 5-yearly intervals, timed to mark the approximate halfway point between each 5-yearly Project Monitoring Period. The Project Management Audit will involve a site visit inspection to verify the Project Management Reports submitted to the Programme Operator since the last verification. The first of these Project Management Audits will be undertaken following the submission of the first full Project Management Report to the Programme Operator.

3.3.4 Project Monitoring Plan

Credits are issued to each project in this Grouped Project on the 3rd party verification of each Project Monitoring Report, which contains data sufficient to provide evidence to support a GHG assertion for the Project Monitoring Period in question.

The Rarakau Forest Carbon Project will produce Monitoring Reports using the latest VCS Monitoring Report Template at a maximum of 5-yearly intervals covering each Project Monitoring Period. The Project Monitoring Report will be produced in the year following the final year of the Project Management Period.

The Inception Project of the Rarakau Programme (the Rarakau Forest Carbon Project) will produce a Simplified Project Monitoring Report for its first verification, covering the years between the Project Start Date and the end of the first Monitoring Period (1 January 2009 to 31 December 2011). This is pursuant to Section 11.4 of the Methodology. The Simplified Project Monitoring Report will follow the method specified in Section 11.4.6 of the Methodology.

The data to be included in the Project Monitoring Reports (including the Simplified Project Monitoring Report) include the data required at Validation and the Monitored Parameters (Sections 11.4.2 and 11.4.3 of the Methodology).

3.3.4.1 Monitored And Non-Monitored Parameters

The Monitoring Reports for the Rarakau Forest Carbon Project will include both monitored and non-monitored parameters as specified in Section 11.4.1 of the Methodology.

3.3.4.2 Data Required At Validation

The Monitoring Reports for the Rarakau Forest Carbon Project will include data required at validation as specified in Section 11.4.2 of the Methodology). This includes all the monitored and non-monitored parameters described in Table 11.4.1 of the Methodology, and presented in the same order as in that table. This ordering of the data required at validation follows the stepwise sequence for calculating GHG emissions reductions generated by the project.

3.3.4.3 Monitored Parameters

The monitored parameters to be included in the Project Monitoring Reports in the Rarakau Forest Carbon Project are summarised in Table 3.3.4.3 below, and using monitoring methods described in Section 11.4.2 of the Methodology).

Notation	Parameter	Unit	Equation	Origin	Monitored
EFA	Eligible Forest Area	ha	-	PDD	Monitored
SHR	Sustainable Harvest Rate	m ³ yr ⁻¹	7.1.1	Derived from Sustainable Forest Management Plan	Monitored Updated each Monitoring Period
TAL	Total Activity Shifting Leakage	tCO ₂ yr ⁻¹	7.3.1	Derived from Activity Shifting Leakage Analysis	Monitored Updated each Monitoring Period
MLF	Market Leakage Factor	Dimensionless	Box in Section 7.3.2	Derived from NZ government timber supply & import data	Monitored Updated each Monitoring Period
ORR	Overall Risk Rating	Dimensionless	8.3.1	Derived from project risk assessment	Monitored Updated each Monitoring Period

3.3.4.4 Monitoring Roles And Responsibilities

The Rarakau Forest Carbon Project will be managed and monitored by the Project Owner and the Project Developer according to the Project Agreement between these two parties. The role of the Project Developer is Project Co-Manager in collaboration with the Project Owner. The proportion of the co-management role played by the Project Developer will diminish through time as the Project Owner builds capacity and capability to undertake and coordinate project management and project monitoring without external assistance. The role of the Project Developer may eventually diminish to zero once the Project Owner is able to take responsibility for all project management and monitoring tasks.

Specific project monitoring roles in this project follow those specified in Table 3.3.4.4 below.

Table 3.3.4.4 Project Monitoring Roles & Responsibilities		
	Responsibilities	
Task	Responsibility	Competency
Project Management		
Project Owner	Implement project management activities relating to day-to-day risk management	The Project Owner employs a Farm Manager for the Rarakau dairy grazing farm located within the Project Area but outside the Eligible Forest Area. The Farm Manager lives on site, is present in the Project Area 24/7, manages the farmland on a daily basis within the Project Area and is in weekly contact with the Chair of the Project Steering Committee. The Chair of the Project Steering Committee visits the Project Area 6 times per year to check on farm management and forest carbon project management. The Project Manager visits the Project Area at least twice per year.
	Implement project management activities relating to project implementation activities	The Project Manager has competencies in project management and forest management.
Project Developer	Advice to Project Owner	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry. Mr Weaver has worked in forest conservation management and finance since 1987. Carbon Partnership has been involved in forest carbon policy, planning and project development since 2006.
Eligible Forest Boundary Inspections		
Project Owner	Undertake Boundary Inspections jointly with Project Developer. Increase role through time to undertaking Boundary Inspections with supervision/advice from Project Developer	RAI is an experienced farm manager, with staff competencies in the use of GPS units and protected area management.
Project Developer	Undertake Boundary Inspections jointly with Project Owner (initially). Reduce role through time to supervision and advice.	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry.
Eligible Forest Area Inspections		
Project Owner	Undertake Area Inspections jointly with Project Developer. Undertake Area Inspections with	RAI is an experienced farm manager, with staff competencies in the use of GPS units and protected area

	supervision/advice from Project Developer.	management.
Project Developer	Undertake Area Inspections jointly with Project Owner (initially). Reduce role through time to supervision and advice.	Sean Weaver of Carbon Partnership has a BSc Honours degree in botany specialising in forest ecology, and a PhD in Forestry.
Project Management Report drafting		
Project Owner	Providing information for Project Management Report Increase role through time to drafting with supervision/advice from Project Developer	RAI is an experienced farm and forest manager and familiar with information gathering requirements.
Project Developer	Drafting Project Management Report Reducing role through time to supervision and advice if needed	Carbon Partnership has staff competencies with experience in project reporting since 1987.
Project Monitoring		
Task	Responsibility	Competency
Aerial imagery/mapping		
Project Owner	Learn procedure for gaining aerial imagery and mapping from sub-contractor Increase role through time to coordinating with supervision/advice from Project Developer	RAI has staff competencies with extensive project management experience in protected natural areas management.
Project Developer	Coordinate & manage aerial imagery sub-contracting on behalf of the Project Owner Reduce role through time to supervision and advice	Carbon Partnership has staff competencies with extensive project management experience in sub-contracting technical components of forest carbon management activities.
Project Monitoring Data Management		
Project Owner	Learn procedure for Project Monitoring data management Increase role through time to data management with supervision/advice from Project Developer	RAI has staff competencies with extensive project management experience in protected natural areas management.
Project Developer	Coordinate & manage Project Monitoring data management Reduce role through time to supervision and advice	Carbon Partnership has staff competencies with extensive project data management experience and experience in sub-contracting technical components of forest carbon management activities.

3.3.4.5 GHG Information Management Systems

The monitoring of the Rarakau Forest Carbon Project will use the GHG information management system described in Section 10.1 through 10.3 of the Methodology.

3.3.4.6 Simplified Project Monitoring Report Methodology

The Inception Project for the Rarakau Programme was still being developed as a carbon project between the Project Start Date and the first verification. During this time Baseline Activities had been terminated and Project Activities had been implemented. The Project Management Plan and Project Monitoring Plan were finalised in May 2012. For this reason the Inception Project is required to prepare a Simplified Project Monitoring Report for its first verification, but thereafter is required to prepare a full Project Monitoring Report using the full project Monitoring Methodology specified in Sections 11.4.1 to 11.4.5 of the Methodology.

The Simplified Project Monitoring Report prepared for the Rarakau Forest Carbon Project for its first verification will follow the specifications of section 11.4.6 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012 and will cover the period of 1 January 2009 to 31 December 2011.

3.3.5 Organisational Structure

The Rarakau Forest Carbon Project is owned and is being implemented by the Rowallan Alton Incorporation. The Rowallan Alton Incorporation is a Maori Incorporation established under the Te Ture Whenua Maori Act 1993. The Rowallan Alton Incorporation is a vehicle developed for managing communally owned lands, as explained in Section 2.1.2 of the PDD.

This project was developed by Carbon Partnership Ltd. This project is being managed and monitored jointly between the Rowallan Alton Incorporation and Carbon Partnership Ltd. The model for project management and monitoring is for Rowallan Alton Incorporation (RAI) to undertake project management and project monitoring jointly with Carbon Partnership Ltd for the first few years until RAI are confident to take full responsibility for these tasks. This is expected to occur after the second verification.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

4.1 Baseline Emissions

Net baseline GHG emissions are determined from the equations presented in section 7.1 of the Methodology, and are calculated in Section 7.1 of the PDD. There are no factors occurring in the First Monitoring Period that require any change to the baseline emissions calculation presented in the PDD.

Net Baseline Emissions (NBE) is calculated by the following equation:

Equation 7.1.8: $NBE = TCO2 \div 2$	
	Parameters
NBE	Net baseline emissions within OFA ($tCO_2e\ yr^{-1}$) (+ve number)
TCO2	Total CO_2e emissions within OFA ($tCO_2e\ yr^{-1}$)

Net baseline emissions = 152 tCO_2e (for year 1 only).

4.2 Project Emissions

Net project GHG emissions are determined from the equations presented in section 7.2 of the Methodology, and are calculated in Section 7.2 of the PDD. There are no factors occurring in the First Monitoring Period that require any change to the baseline emissions calculation presented in the PDD.

Net Project Emissions is equal to Enhanced Removals in this methodology. Enhanced Removals is calculated using the following equation:

Net Project Emissions (NPE) is calculated by the following equation:

Equation 7.2.1:		$NPE_{BC} = OFA_{LF} \times ER_{BC}$ (beech-dominated)
		$NPE_{PC} = OFA_{LF} \times ER_{PC}$ (conifer-dominated)
		$NPE_{BL} = OFA_{LF} \times ER_{BL}$ (broadleaf-hardwood-dominated)
Parameters		
NPE	Net Project Emissions within OFA	(tCO ₂ e yr ⁻¹) –ve number to denote removal
OFA _{LF}	Area of Operational Forest Area that is Logged Forest	(ha)
ER _{BC}	Enhanced Removals beech forest	(3.7 tCO ₂ e ha ⁻¹ yr ⁻¹)
ER _{PC}	Enhanced Removals podocarp forest	(3.6 tCO ₂ e ha ⁻¹ yr ⁻¹)
ER _{BL}	Enhanced Removals broadleaf forest	(3.5 tCO ₂ e ha ⁻¹ yr ⁻¹)

Net project emissions = -2,730 tCO₂e

4.3 Leakage

Total leakage is determined from the method and accompanying equations presented in section 7.3 of the Methodology, and are calculated in Section 7.3 of the PDD. There are no factors occurring in the First Monitoring Period that require any change to the baseline emissions calculation presented in the PDD.

Leakage is calculated as

Equation 7.3:		$TLK = TAL + TML$
Parameters		
TKL	Total leakage	(tCO ₂ e yr ⁻¹)
TAL	Total activity shifting leakage	(tCO ₂ e yr ⁻¹)
TML	Total market leakage	(tCO ₂ e yr ⁻¹)

Total leakage = 0 tCO₂e

4.4 Summary of GHG Emission Reductions and Removals

Project GHG emission reductions and removal enhancements are determined from the equations presented in section 8.1 through 8.4 of the Methodology, and are calculated in Sections 8.1 through 8.4 of the PDD.

Net Project Benefits

Net Project Benefits (NPB) is calculated as:

Equation 8.1: $NPB = -NPE - TLK$

Parameters	
NPB	Net project benefits within OFA (tCO ₂ e yr ⁻¹) expressed as a +ve number
NPE	Net project emissions within OFA (tCO ₂ e yr ⁻¹) expressed as a -ve number to denote enhanced removals
TLK	Total leakage (tCO ₂ e yr ⁻¹) expressed as a +ve number

Therefore: $NPB = -2,730 - 0 = 2,730$ tCO₂e.

Net Project Benefits (NPB) is used to calculate Net Carbon Credits for the project period. But first the buffer must be calculated in Section 8.2. The Project Buffer Rating (PBR) for the Rarakau Forest Carbon Project is 0.11 as calculated in Section 8.3.1 of the PDD.

Buffer Credits

Buffer Credits are calculated as follows:

Annual Buffer Credits for Year 2 onwards to end of Project Period (BUFY2) is calculated as:

Equation 8.3.2a: $BUFY2 = NPB \times PBR$

Parameters	
BUFY2	Buffer Credits for Years 2-50 (tCO ₂ e yr ⁻¹)
NPB	Net Project Benefits within OFA (tCO ₂ e yr ⁻¹)
PBR	Project Buffer Rating (dimensionless)

Therefore: $BUFY2 = 2,730 \times 0.11 = 300$.

Accordingly, 300 buffer credits will be issued to the pooled buffer account annually (apart from Year 1 covered in BUFY1 below). The Rarakau Programme Operator will own these Buffer Credits.

Buffer Credits for Year 1 (BUFY1) for the Rarakau Forest Carbon Project is calculated as:

Equation 8.3.2b: $BUFY1 = (NBE \times PBR) + (NPB \times PBR)$

Parameters	
BUFY1	Buffer Credits for Year 1 (tCO ₂ e yr ⁻¹)
NBE	Net Baseline Emissions within OFA (tCO ₂ e yr ⁻¹)
PBR	Project Buffer Rating (dimensionless)
NPB	Net Project Benefits for the OFA (tCO ₂ e yr ⁻¹)

Therefore: $BUFY1 = (152 \times 0.11) + (2,730 \times 0.11) = 317$.

Accordingly, 317 credits will be issued to the Pooled Buffer Account for Year 1. The Rarakau Programme Operator will own these Buffer Credits. See spreadsheet in Appendix 6 for details.

Net Carbon Credits

Net Carbon Credits for Year 2 onwards to the end of the Project Period (NCCY2) is calculated for the Rarakau Forest Carbon Project using equation 8.4.1 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.

Net Carbon Credits Year 2 (NCCY2) for the Rarakau Forest carbon Project were calculated as:

Equation 8.4.1: $NCCY2 = NPB - BUFY2$

Parameters	
NCCY2	Net Carbon Credits for year 2 until the end of the project (tCO ₂ e yr ⁻¹)
NPB	Net Project Benefits within OFA (tCO ₂ e yr ⁻¹)
BUFY2	Buffer calculated for Year 2 onwards for the OFA (tCO ₂ e yr ⁻¹)

Therefore: $NCCY2 = 2,730 - 300 = 2,430$.

Accordingly, 2,430 VERs will be issued annually (but not in Year 1) to the Project Owner (Rowallan Alton Incorporation).

Net Carbon Credits for Year 1 (NCCY1) is calculated for the Rarakau Forest Carbon Project using equation 8.4.2 of the Rarakau Programme Methodology D2.1 v1.0, 15 May 2012.

Net Carbon Credits for Year 1 were calculated as:

Equation 8.4.2: $NCCY1 = (NBE - (NBE \times PBR)) + (NPB - (NPB \times PBR))$

Parameters	
NCCY1	Net Carbon Credits for Year 1 (tCO ₂ e yr ⁻¹)
NBE	Net Baseline Emissions within OFA (tCO ₂ e yr ⁻¹)
NPB	Net Project Benefits (tCO ₂ e yr ⁻¹)
PBR	Project Buffer Rating (dimensionless)

Therefore: $NCCY1 = (152 - 17) + (2,730 - 300) = 2,565$.

Accordingly, 2,565 VERs will be issued to the Project Owner (Rowallan Alton Incorporation) in Year 1.

Grand Summary

Carbon Partnership asserts that the aggregate carbon benefits from the implementation of the Rarakau Forest Carbon Project arise from the following activities in the following volumes:

Table 4.4. Rarakau Forest Carbon Project GHG Assertion			
Acronym	Activity	Description	tCO₂e
NBEA	Net Baseline Emissions Avoided	Avoided emissions from terminating and/or avoiding baseline timber harvesting, and allocated/issued for Year 1 only.	152
BUF _{NBEA}	Buffer for Net Baseline Emissions Avoided	Buffer for avoided emissions from terminating and/or avoiding baseline timber harvesting, and allocated/issued for Year 1 only.	17
CC _{NBEA}	Carbon Credits for Net Baseline Emissions Avoided	Carbon credits issued for avoided emissions from terminating and/or avoiding baseline timber harvesting, and allocated/issued for Year 1 only (NBEA - BUF _{NBEA} : 152 - 17 = 135).	135
NPB	Net Project Benefits	Removal enhancement from terminating activities that arrest natural succession of the forest, allocated/issued for Years 1-50.	2,730
BUF _{NPE} / BUFY2	Buffer for Net Project Emissions (i.e. Removals)	Buffer for removal enhancement from terminating activities that arrest natural succession of the forest, allocated/issued for Years 1-50.	300
CC _{NPB}	Carbon Credits for Net Project Benefits	Carbon credits issued for removal enhancement from terminating activities that arrest natural succession of the forest, allocated/issued for Years 1-50 (NPB - BUF _{NPB} : 2,730 - 300 = 2,430)	2,430
BUFY1	Buffer for NBEA & NPE for Year 1	Buffer for avoided emissions and removal enhancements allocated/issued for Year 1.	317
NCCY1	Net Carbon Credits Year 1	Net Baseline Emissions Avoided minus corresponding Buffer for Year 1, plus Net Project Benefits minus corresponding Buffer allocated/issued for Year 1. (CC _{NBEA} + CC _{NPB} : 135 + 2,430 = 2,565)	2,565
NCCY2	Net Carbon Credits Years 2-50	Net Project Benefits minus corresponding Buffer allocated/issued for Years 2-50 (= CC _{NPB} = 2,430)	2,430

This Project Monitoring Period = 1 January 2009 – 31 December 2011 (3 years).

VERs to be issued for this Monitoring Period:

	CC _{NBEA}	CC _{NPB}	TOTAL
2009	135	2,430	2,565
2010	0	2,430	2,430
2011	0	2,430	2,430
TOTAL	135	7,290	7,425

Buffer credits to be issued for this Monitoring Period:

	BUF _{NBEA}	BUF _{NPB}	TOTAL
2009	17	300	317
2010	0	300	300
2011	0	300	300
TOTAL	17	900	917

Total VERs for crediting period 1 January 2009-31 December 2011 = 7,425

Total buffer for crediting period 1 January 2009-31 December 2011 = 917

4 ADDITIONAL INFORMATION

The Director's Certificate supporting this monitoring report is supplied in Appendix 1.

The Rarakau Dispute Resolution Framework is supplied in Appendix 2.

A description of the Standard Operating Procedures (project management, project monitoring, data storage and security) for first verification is supplied in Appendix 3.