



**Verified Carbon
Standard**

DARKWOODS FOREST CARBON PROJECT BASELINE RE-VALIDATION REPORT



Document Prepared By Aster Global Environmental Solutions, Inc.

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Summary:

Aster Global Environmental Solutions, Inc., was contracted by Nature Conservancy of Canada (NCC) on 01 May 2019 to conduct the baseline re-validation of the Darkwoods Forest Carbon Project. The Darkwoods Forest Carbon Project is an Improved Forest Management (IFM) project implemented in British Columbia, Canada. The verification period is 01 January 2017 – 31 December 2019. This property totals 54,870 hectares.

Through payments for ecosystem services generated via the sale of Verified Carbon Units (VCUs), the project proponent (NCC) is able to achieve net GHG emissions reductions and removals through the avoidance of emissions due to commercial logging in the baseline scenario. The project activities are categorized as Agriculture, Forestry, and Other Land-Use (AFOLU). Improved Forest Management (IFM), Logged to Protected Forest (LtPF).

The revalidation of the baseline assessed compliance with the VCS Version 4 Program Guide, Standard, adherence to the approved VM0012 v1.2 Improved Forest Management in Temperate and Boreal Forests Methodology, all associated updates, and the likelihood that implementation of the planned GHG project will result in the GHG emission removal enhancements as stated by the Project Proponent (ISO 14064-3:2006). The scope of the baseline re-validation followed Section 4.3.4 of ISO 14064-3:2006, and methods included assessment of the GHG project implementation; physical infrastructure, activities, technologies and processes of the GHG project; GHG sources, sinks and/or reservoirs; types of GHGs; and time periods covered. The criteria followed the validation guidance documents provided by VCS located at <https://verra.org>. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document as of July 2020.

After review of all project information, procedures, calculations, supporting documentation and site visits, Aster Global confirms that the monitoring conducted by the Project Proponent, along with the supporting Monitoring Report, are accurate and consistent with all aforementioned VCS criteria, the validated PD, and the selected methodology (VM0012, v1.2). Aster Global confirms The Nature Conservancy of Canada Darkwoods Forest Carbon Project Monitoring Report (v1.6 dated 16 September 2020) has been implemented in accordance with the original validated PD and the limited PD updates following the baseline revalidation.

Aster Global herein confirms that the baseline re-validation activities adhere to the selected methodology (VM0003, v1.2) and VCS Version 4 (and all associated updates) and are complete, as documented in this report. Aster Global concludes without any qualifications or limiting conditions that the Darkwoods Forest Carbon Project meets the requirements of VCS Version 4 to a reasonable level of assurance for the reporting/monitoring period (01-January-2017 to 31-December-2019).

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1 INTRODUCTION

1.1 Objective

In line with section 3.2.7 of the VCS Standard v4.0, during this re-validation/verification event a reassessment of the baseline was conducted to ensure Project's compliance with the VCS Version 4 Program Guide, Standard, AFOLU Requirements, selected methodology (VM00012 v1.2), and all associated updates.

1.2 Scope and Criteria

The scope of the reassessment of the baseline is defined by the project boundary, the carbon reservoir types, management activities, growth and yield models, inventory program, and contract periods .:

Project Boundary	54,870 ha Project area near Creston, BC
Baseline Scenario	Market driven logging operation; 15-year depletion of mature timber stocks; 100-year uneven age harvest schedule with typical regional practice of clearcut logging.
Additionality	Additionality confirmed using Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, version 3.0.

1.3 Level of Assurance

The level of assurance is used to determine the depth of detail that the verifier places in the Re-validation/verification and Sampling Plan to determine if there are any errors, omissions, or misrepresentations (ISO 14064-3:2006). For this VCS reassessment of the baseline, Aster Global assessed the project (general principles, data, sampling descriptions, documentation, calculations, etc.) to provide reasonable assurance to meet the project level requirements of the VCS Program. Based on the baseline reassessment findings, a final evaluation statement reasonably assures that the project GHG representations are materially accurate. The evidence used to achieve a reasonable level of assurance is specified in subsequent sections of this report.

1.4 Summary Description of the Project

The project is an improved forest management project with managed logging within the project boundary to protect the forest. Through payments for ecosystem services generated via the sale of

Verified Carbon Units (VCUs), the project proponent (NCC) is able to achieve net GHG emissions reductions and removals through the avoidance of emissions due to commercial logging and forest removal for rural residential development expected in the baseline scenario. As stated in Section 3.4 of the PD, the baseline scenario is based on typical market practices in which an accelerated harvest schedule is implemented in which 300,000 m³ per year will be harvested.

The PD states “the project scenario is conservation management activities, wherein NCC undertakes the carbon project and ecosystem protection and enhancement activities. The project scenario periodically involves a low level of timber removal as part of conservation management activities for ecosystem/habitat enhancement, risk management, and other conservation objectives.” The Darkwoods property is managed for conservation and ecological objectives. The project start date is 01 April 2008, when NCC completed the acquisition of the Darkwoods property. As the start date of the project is 01 April 2008 the previous baseline was applied for emission reductions generated through 31 March 2018. The 10-year baseline was therefore re-validated following AFOLU Requirements Section 3.1.10 at this re-validation/verification period to quantify emission reductions generated from 01 April 2018- 31 March 2028.

2 VALIDATION PROCESS

2.1 Method and Criteria

The reassessment of the baseline assessed the Project’s compliance with VCS Standard Version 4, CCB Third Edition, all associated updates, the selected methodology (VM0012 v1.2), and the validated Project Description (PD) dated 2018 v2.1.

The criteria followed the validation guidance documents provided by VCS. Unless otherwise indicated, the assessment was performed against the most recent version of the relevant VCS guidance document. Please also see Section 1.2 of this report.

In the re-validation process, there is a risk that potential errors, omissions, and misrepresentations will be found; therefore, a risk-based approach was used to guide the collection of appropriate and sufficient evidence to support a reasonable level of assurance. A risk-based approach means the validation team focused on items that might result in a material misstatement of the reported GHG assertion.

A project specific Re-validation/verification and Sampling Plan was developed to guide the re-validation auditing process to ensure efficiency and effectiveness. The purpose of the Re-validation/verification and Sampling Plan was to present a risk assessment for determining the nature and extent of validation procedures necessary to ensure the risk of auditing error was reduced to a reasonable level. The Re-validation/verification and Sampling Plan methodology was derived from all items in our validation process stated above. Specifically, the sampling plan utilized the VCS guidance documents and ISO 14064-3. Any modifications applied to the Re-validation/verification and Sampling plan were made based upon the conditions observed for monitoring to detect the processes with highest risk of

material discrepancy. A detailed field plan was developed to guide the re-validation and verification site visit and is embedded within the Re-validation/verification and Sampling Plan.

For the field sampling effort, direct measurement, observation, interviews, and review of the monitoring period emission reductions were conducted in key areas determined to be the greatest risk, followed by ground-truthing and review of project activities. Field sampling and techniques were based on the project parameters/scope and best professional judgment of the validation Team to meet a reasonable level of assurance as directed by the professional judgment of the Lead validator.

In addition, a risk-based approach was used for the on-the-ground field sampling effort to select key areas for spot-checking stratification, meetings with RDCs, direct re-sampling of biomass plots, and observation of stated project activities. Please see Section 2.4 of this report for more details.

2.2 Document Review

A detailed review of all project documentation was conducted to ensure consistency with and identify any deviation from VCS program requirements and the applied methodology (VM0012 v1.2).

Initial review focused on the PD and the MR, and included an examination of the project details, implementation status, data and parameters, and quantification of GHG emission reductions and removals. Along with a review of the MR, selected documentation was requested, provided, and subsequently reviewed for consistency, accuracy, and appropriateness with regard to VCS program requirements, methodological requirements, and the validated PD. Documents reviewed include, but are not limited to, land ownership documentation, carbon rights contracts, property boundaries, financial analyses, Non-Permanence Risk Analysis (see Section 3.5 below), maps and aerial images, data from monitoring, biomass and carbon calculation spreadsheets, and responses to Clarifications (CLs). The process of re-validation/verification involved three formal rounds of assessment by the re-validation/verification team and resulted in a MR that was in conformance with VCS rules.

Please see Appendix A for a complete list of documents received and reviewed by Aster Global.

2.3 Interviews

Interview and informal discussions were conducted via telephone with project staff throughout the re-validation/verification. Information reported in the MR was supported through the comments from those interviewed. Meetings included discussions with:

Name	Title
Rob Wilson	Director, Conservation Finance
Adrian Leslie	Darkwoods Site Manager
Terry Droessler	Forest Analytics, LLC

Mike Vitt	Rain Cloud Forests Owner
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2.4 Site Inspections

The re-validation/verification site inspection occurred from 24-26 September 2019. The Project Proponent was interviewed, and the property was toured aerially by helicopter. Field work included direct measurement, observation, additional interviews, and review of stated sustainable development goals of the project. The objective of the field work was to determine key areas of greatest risk, followed by ground-truthing and review of project activities. Field sampling techniques were based on the project parameters/scope and best professional judgment of the Validation Team to meet a reasonable level of assurance as directed by the Lead Validator. Two plots were reproduced to confirm measurement approaches were consistent with project SOP's.

In addition, a risk-based approach was used for the on-the-ground field sampling effort to select key areas for spot-checking stratification, direct re-sampling of assertions, and observation of stated project activities.

2.5 Resolution of Findings

During the re-validation/verification process, there was a risk that potential errors, omissions, and misrepresentations would be found. The actions taken when errors, omissions, and misrepresentations were found included notifying the client of the issues identified and expanding our review/sample to the extent that satisfied the Lead Validator/Verifier's professional judgment.

This re-validation/verification involved three (3) formal rounds of assessment by the re-validation/verification team and resulted in both a PD and MR in conformance with VCS rules. Where findings were noted by the re-validation/verification team, the Project Proponent implemented corrective actions by amending the PD and MR and supporting documentation/calculations and providing written clarification responses. Types of findings were characterized in the following manner:

Non-Conformance Reports (NCRs) were, in general, issued as a response to material discrepancies when:

- PD, MR, calculations, or other supporting documents were out of conformance with documents listed in Section 2.1 above.
- Additional information was required by the re-validation/verification team in order to confirm reasonable assurance for compliance.

Clarifications (CLs) were, in general, issued when:

- Internal consistency among sections was lacking.
- Mathematical formulae in sections were presented incorrectly.
- Language within a section needed extra clarification to avoid ambiguity.

Opportunities for Improvement (OFIs) were issued when the MR, calculations, or other supporting documents needed enhanced to benefit the general reader or to aid in the review process of the re-validation/verification team.

During the course of the re-validation/verification 64 NCRs, CLs and OFIs were identified. All were satisfactorily addressed by the Project Proponent. These findings provided necessary clarity to ensure the project adhered to the requirements of the VCS for GHG projects. For a complete list of all findings and their resolutions, please refer to Appendix B.

2.5.1 Forward Action Requests

No forward action requests were raised as part of the validation.

3 VALIDATION FINDINGS

3.1 Project Details

As this is a baseline re-validation with a limited scope and is being attached as an appendix to the larger verification report, please see the verification report for these details.

3.2 Safeguards

This section is outside the scope of the baseline reassessment.

3.2.1 No Net Harm

This section is outside the scope of the baseline reassessment.

3.2.2 Local Stakeholder Consultation

This section is outside the scope of the baseline reassessment.

3.2.3 Environmental Impact

This section is outside the scope of the baseline reassessment.

3.2.4 Public Comments

This section is outside the scope of the baseline reassessment.

3.2.5 AFOLU-Specific Safeguards

This section is outside the scope of the baseline reassessment.

3.3 Application of Methodology

3.3.1 Title and Reference

This section is outside the scope of the baseline reassessment.

3.3.2 Applicability

This section is outside the scope of the baseline reassessment.

3.3.3 Project Boundary

The VCS Standard requires that projects describe the project boundary and identify and select appropriate carbon pools, i.e., sources, sinks, and reservoirs relevant to the baseline. Procedures to quantify emissions are included for each of these pools and sources by demonstrating significance in using the appropriate VCS modules and tools. The project addresses the establishment of spatial, temporal, and gaseous boundaries to meet VCS AFOLU Requirements for IFM-LtPF projects. The Validation Team found that mandatory and optional pools in this project are appropriate for Improved Forest Management in Temperate and Boreal Forests.

The spatial boundaries for the Project were assessed for conformance to VCS rules and found to be sufficiently detailed, appropriate, and adequate as well as in compliance with the IFM-LtPF methodology. The VVB notes that the project area (54,870 ha) has been updated since the initial validation where the project area was (54,792 ha). This change was the result of findings issued during the 2013-2016 monitoring period. Similarly, temporal boundaries were reviewed within the context of VCS rules and found to be detailed and correct.

Significant pools, sinks, and reservoirs accounted for are in compliance with the selected methodology and VCS Standard and are appropriately justified for the project. The VVB notes that these have not changed since the initial validation.

3.3.4 Baseline Scenario

As stated in the updated Project Description, the previously selected baseline scenario is still appropriate. The project proponent correctly applied the Procedure for Determining the Baseline Scenario (Section 6 of VM0012 v1.2). The project proponents initially identified five plausible alternative baseline scenarios, one of which was determined to violate the eligibility criteria and was subsequently excluded from the analysis. Step 2 in the Procedure for Determining the Baseline Scenario was applied to the remaining four plausible alternative baseline scenarios. The result and determination by the Project Proponent is that the most likely scenario in the absence of the project would be a market driven logging operation with a 15-year depletion of mature timber stocks followed by a 100-year uneven age harvest schedule. Intentions to deforest were demonstrated by the Project Proponent collectively through evidence supplied (property appraisal reports that identified potential management scenarios, applicable regional and national laws, media reports, and imagery).

Overall, the procedures for identifying the baseline scenario have been correctly followed and the identified without project scenario is reasonably expected to occur. The Validation Team concludes that

procedures for determining the baseline are appropriate, adequate, and in compliance with VCS rules for *IFM-LtPF* project activities applicable to this project.

3.3.5 Additionality

The Project Proponents correctly followed the VM0012 v1.2 methodology and applied the most recent version of the Tool for the Demonstration and Assessment of Additionality in VCS Agriculture, Forestry and Other Land Use (AFOLU) Project Activities, version 3.0. Project Proponents correctly establish the outcome of sub-step 1b, as all the land use scenarios are in compliance with applicable laws and regulatory requirements. The VVB reviewed the investment analysis provided by the Project Proponents and confirms that the project activity produces no financial benefits other than VCS related income. The VVB confirmed through evidence provided by the project proponent and an independent search of VCS projects in the region that no comparable activities exist that could be considered common practice.

After reviewing all project documentation, site visit observations, and completing interviews with project staff, the Validation Team is reasonably assured that a market driven logging scenario would most likely be established without the project. The Validation Team confirmed that the alternative scenarios identified by the Project Proponent represent realistic and credible land-use scenarios that could have occurred within the project area in the absence of the AFOLU project activity under VCS. The evidence provided by Project Proponents and accurate application of the CDM tool is deemed sufficient by the Validation Team for the project to be additional.

3.3.6 Quantification of GHG Emission Reductions and Removals

Procedures for quantifying the baseline emissions were conducted in accordance with Improved Forest Management in Temperate and Boreal Forests (v1.2) methodology and the VCS Standard (v4.0). Aster Global conducted an intensive review of all input data, parameters, formulae, calculations, conversions, statistics and resulting uncertainties and output data to ensure consistency with the VCS Standard, the Project Description, and VM0012. Data with associated conversion factors, formulas, and calculations were provided by the project proponent in spreadsheet format to ensure all formulae were accessible for review. The validation team recalculated subsets of the analyses to confirm correctness and assess if data transposition errors occurred to achieve a reasonable level of assurance and to meet the materiality requirements of the project, as required by the VCS Standard. The project proponent also provided answers to questions on calculations to ensure the validation team understood the approach and could confirm its consistency with VM0012 and the PD. Where applicable, references for analysis methods or default values were checked against relevant scientific literature for best practice and adherence to VCS program requirements. Additionally, the VVB conducted an intensive review of the FVS modeling parameters that were applied to check for consistency with VM0012, the PD, and the VCS Standard. FVS outputs were recreated by the audit team to ensure accurate results.

Estimated GHG emission reductions for the second 10-year baseline period for the Darkwoods Carbon Project are listed below.

Year	Estimated Annualized GHG Emission Reductions or Removals (tCO ₂ e)
2020	452,612
2021	413,921
2022	430,528
2023	440,911
2024	290,837
2025	131,601
2026	126,403
2027	243,925
2028	134,467
2029-2033	127,468

The project has appropriately included baseline emissions calculations in the PD section 4.1. The total annual carbon balance in year, t, for the baseline scenario was correctly calculated utilizing Equation 1 in section 8.1.2 of VM0012.

The project description contained sufficient information for the validation team to assess the accuracy of quantified baseline GHG emission reductions and removals. Relevant assumptions made by project proponents are listed and include the appropriate references and sources. The validation team deemed data and parameters applied to the baseline to be reasonable within the context of the project. As part of the validation process, the validation team was able to successfully reproduce GHG emission calculations and conclude that information supplied in the project description is sufficiently transparent. In summary, project proponents correctly calculated all GHG emissions reductions and removals for baseline emissions.

Quantification of leakage was updated to come into compliance with the latest version of the VM0012 methodology, v1.2. The Project opted to use Market Leakage Option 1 – VCS Default Market Leakage Discount Factors (section 8.3.3 of VM0012 v1.2). This method requires a comparison of the ratio of merchantable biomass to total tree biomass in the project area to leakage area. To quantify the ratio of merchantable biomass to total tree biomass in the leakage area the Project utilized the Canadian National Forest Inventory (NFI). The audit team reproduced both ratios (project area and leakage area) and confirms that this process was clearly described in the PD and correctly quantified. The Project correctly applied a 20% leakage discount which is associated with an IFM activity that substantially reduces harvest levels permanently but where the ratio of merchantable biomass to total biomass is higher within the area to which harvesting is displaced compared to the project area.

The project description contained sufficient information for the validation team to assess the accuracy of quantified GHG emission reductions and removals. Relevant assumptions made by project proponents are listed and include the appropriate references and sources. The validation team deemed data and parameters to be reasonable within the context of the project. As part of the validation process, the validation team was able to successfully reproduce all GHG emission calculations and conclude that information supplied in the project description is sufficiently transparent.

3.3.7 Methodology Deviations

This section is outside the scope of the baseline reassessment.

3.3.8 Monitoring Plan

This section is outside the scope of the baseline reassessment.

3.4 Non-Permanence Risk Analysis

This section is outside the scope of the baseline reassessment.

4 VALIDATION CONCLUSION

Clearly state whether the project complies with the validation criteria for projects set out in VCS Version 3, and include any qualifications or limitations. Conclude whether the project is likely to achieve estimated GHG emission reduction or removals.

Aster Global Environmental Solutions confirms all validation activities, including objectives, scope and criteria, level of assurance, and the PD's adherence to the selected methodology (*VM0012 v1.2*) and *VCS Version 4* (and updates) as documented in this report are complete. Aster Global concludes without any qualifications or limiting conditions that the *Darkwood Forest Carbon Project* meets the requirements of the VCS to a reasonable level of assurance. The project is likely to achieve the estimated GHG emission reduction or removals as described in the PD dated 16 September 2020, v2.3.