# VALIDATION/VERIFICATION REPORT

## ACR VALIDATION/VERIFICATION OF THE ANEW -COLUMBIA RIVER FORESTRY PROJECT (ACR616)

## REPORTING PERIOD 1

Date: 12/19/2024
Version 2.4

Lead Validator/Verifier: Bill Stack
Technical Reviewer: Kyle Silon

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| **Project Name** | Anew – Columbia River Forestry Project |
| **Project ID** | ACR616 |
| **Reporting Period 1** | 2/16/2021- 7/28/2021 |
| **Client** | Anew Carbon Development LLC |
| **Date of Issue** | 12/18/2024 |
| **Prepared By** | S&A Carbon, LLC |
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## Summary

The Anew – Columbia River Forestry Project is located on approximately 13,392.5 acres of conifer forests spread across primarily southwestern and south-central Washington within Columbia, Pacific, Klickitat, Skamania and Yakima Counties. There is also a small portion of the conifer forestlands within the project area (<5% of total project area) located in northwest Oregon in Columbia County. Much of the project land is within the Lower Columbia River Watershed. The property is owned by the Columbia Land Trust, a non-profit organization that conserves land in the lower 200 miles of the Columbia River region in both Washington and Oregon. Columbia Land Trust lands encompass such conservation values as habitat for threatened species, watershed protection lands, and opportunities for recreation/education.

The project activity is an improved forest management (IFM), with Columbia Land Trust's Forest management practices representing a significant improvement in the carbon storage and conservation value than the common practice of even-aged harvesting regimes of private landowners in the region that generally consists of clearcuts with rotation ages ranging from 40-60 years depending on the site location and productivity. Management decisions of the project's forestlands focus on sustainable, natural forest growth and maintenance harvests for essential activities, recreation, wildlife habitat, water quality, and forest health. The project ensures long-term sustainable management of the forests, which could otherwise undergo significant commercial timber harvesting.

This report presents the results of the project's validation and initial verification to the American Carbon Registry (ACR) Standards. Its purpose is to systematically assess and report the project's conformance with the ACR standard requirements corresponding to the first reporting period from 2/16/2021 - 7/28/2021. The audit involved document analysis, interviews with interested parties; relevant actors, as well as observations and measurements made directly in the project's forest, while considering a representative sample of the project activities and sites. Validation activities included forest inventory checks, interviews with project managers, contractors, and other relevant stakeholders. The context of the surrounding landscape conditions under the baseline and project scenarios was also assessed. The scope of the verification included the ACR verification of the project's initial monitoring period to determine the project's conformance with the ACR Standard (v7.0), the applied ACR IFM Methodology (v1.3), supporting ACR Program documents, and implementation of the validated GHG Plan.

The validation and verification were performed through a combination of document review, interviews and communications with relevant personnel, as well as on-site inspections. The site visit to the project was conducted from 10/25/2021 – 10/28/2021. The verification process included several official and documented exchanges between the verifier team and the project proponents in order to gather additional information for review and for examination of compliance with all applicable criteria. These exchanges included 4 rounds of an Issues Log produced by S&A for which the project proponents were required to respond. Findings included 21 Clarification requests, 11 Non-Conformances, and 11 New Information Requests. Verifiers confirmed in an email to the project proponents dated 7/25/2024 that all remaining issues were resolved in the Issues Log.

S&A Carbon prepared this final combined validation & verification report and deems, with a reasonable level of assurance, that the project is in conformance with all of the requirements in the ACR Standards, without qualifications or limitations. The project has been implemented in accordance



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with the validated GHG Plan over the initial monitoring period with no deviations from the described project activities in the GHG Plan or from the applied ACR methodology.

S&A Carbon is thus able to issue a positive validation opinion of the project's design as outlined in the GHG Plan dated 12/17/2024 (signed 12/18/2024) and the projected *ex-ante* GHG emission removals/reductions (before buffer contributions) of 710,368 tCO2e over the first 20-year crediting period. S&A Carbon is also able to issue a positive verification opinion for the 47,307 tCO2e of verified emission removals/reductions, as reported in the Monitoring Report dated 12/17/2024 (signed 12/18/2024). The verification assessment covered the monitoring period from 2/16/2021 – 7/28/2021 and verified that the calculated GHG removals and emission reductions were achieved during the monitoring period with a reasonable level of assurance. The overall permanence risk rating was 19.77%. Therefore, the total number of credits to be deposited in the buffer account for the initial monitoring period is 9,352 tCO2e and the total net ERRs to be issued are 37,955 tCO2e.



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## Abbreviations

| | |
|---|---|
| ACR | American Carbon Registry |
| ANAB | ANSI National Accreditation Board |
| BMP | Best Management Practices |
| $CO_2e$ | Carbon Dioxide Equivalent |
| CP | Common Practice |
| EPA | Environmental Protection Agency |
| ERRs | Emission Reductions/Removals |
| ERTs | Emission Reduction Tons |
| GHG | Greenhouse Gas |
| HWP | Harvested Wood Products |
| MR | Monitoring Report |
| MP | Monitoring Period |
| MSDD | Multi-Site-Design-Document |
| NRCS | USDA Natural Resource Conservation Service |
| PD | Project Developer |
| PP | Project Participants |
| PDA | Programmatic Development Approach |
| RP | Reporting Period |
| RPF | Registered Professional Forester |
| S&A | S&A Carbon |
| t | Metric Tonnes |
| U.S.A | United States of America |
| USDA | United States Department of Agriculture |
| VVB | Validation and Verification Body |



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# 1 Introduction

S&A Carbon (S&A) has been asked by Anew Carbon Development LLC to verify the greenhouse gas (GHG) removals and emission reductions generated by the Anew – Columbia River Forestry Project (the project) for Reporting Period 1. The validation/verification process is required by the American Carbon Registry's Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands (ACR IFM Methodology, v1.3). S&A validation/verification activities began on 10/4/2021. This report presents the findings from this validation/verification process.

| Date Description | Date |
|---|---|
| Project Start Date | 2/16/2021 |
| Crediting Period | 2/16/2021- 2/15/2041 |
| Reporting Period 1 | 2/16/2021- 7/28/2021 |
| Verification Start Date | 10/4/2021 |

## 1.1 Project Participants

| Role | Organization Name | Main Contact Person |
|---|---|---|
| Project Proponent & Landowner | Columbia Land Trust (CLT) | Meg Rutledge, Executive Director<br>850 Officers Row, Vancouver, WA 98661<br>(360) 608-8138<br>MRutledge@columbialandtrust.org |
| Offset Developer & Technical Consultant | Anew Carbon Development LLC (Anew) | Ian Hash, Director, Natural Climate Solutions<br>Anew Carbon Development LLC<br>2825 E. Cottonwood Parkway, Ste 400<br>Cottonwood Heights, UT 84121 253.432.1337;<br>ihash@bluesource.com |
| Contractor – Forest Inventory | Resilient Forestry | Miles LeFevre<br>3703 S Edmunds St, Seattle, WA 98118<br>206-730-6154; miles@resilientforestry.com |

Entities listed above are collectively referred to as project participants (PP) throughout this document.

## 1.2 Description of Project

The Anew – Columbia River Forestry Project is located on approximately 13,392.5 acres of conifer forests spread across primarily southwestern and south-central Washington within Columbia, Pacific, Klickitat, Skamania and Yakima Counties. There is also a small portion of the conifer forestlands within the project area (<5% of total project area) located in northwest Oregon in Columbia County. Much of the project land is within the Lower Columbia River Watershed. The property is owned by the Columbia Land Trust, a non-profit organization that conserves land in the lower 200 miles of the Columbia River region in both Washington and Oregon. Columbia Land Trust lands encompass such conservation values as habitat for threatened species, watershed protection lands, and opportunities for recreation/education.

The project activity is an improved forest management (IFM), with Columbia Land Trust's Forest management practices representing a significant improvement in the carbon storage and conservation value than the common practice of even-aged harvesting regimes of private landowners



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in the region that generally consists of clearcuts with rotation ages ranging from 40-60 years depending on the site location and productivity. Management decisions of the project's forestlands focus on sustainable, natural forest growth and maintenance harvests for essential activities, recreation, wildlife habitat, water quality, and forest health. The project ensures long-term sustainable management of the forests, which could otherwise undergo significant commercial timber harvesting.

## 1.3 Validation/Verification Objectives

This is the Project's ACR validation and initial verification. This will be a combined project validation and full initial verification, including a site visit to assess the Project's conformance with the ACR criteria outlined below, corresponding to the first reporting period from 2/16/2021 – 7/28/2021.

The objectives of validation are to evaluate:

- Conformance to the ACR Standard;
- GHG emissions reduction project planning information and documentation in accordance with the applicable ACR-approved methodology, including the project description, baseline, eligibility criteria, monitoring and reporting procedures, and quality assurance/quality control (QA/QC) procedures; and
- Reported GHG baseline, *ex-ante* estimated project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable).

The objectives of verification are to evaluate the following:

- Reported GHG baseline, project emissions and emission reductions/removal enhancements, leakage assessment, and impermanence risk assessment and mitigation (if applicable);
- Any significant changes to the project procedures or criteria since the last verification (N/A); and
- Any significant changes in the GHG project's baseline emissions and emission reductions/removal enhancements since the last verification (N/A).

Further, S&A will review the GHG Project Plan, GHG Assertion and any additional relevant documentation to determine:

- That the reported emissions reductions and/or removal enhancements are real;
- Degree of confidence in and completeness of the GHG assertion;
- That project implementation is consistent with the GHG Project Plan;
- Eligibility for registration on ACR; and
- Sources and magnitude of potential errors, omissions, and misrepresentations, including:
    - Inherent risk of material misstatement; and
    - Risk that the existing controls of the GHG project will not prevent or detect a material misstatement.

## 1.4 Validation/Verification Scope and Criteria

Validation shall include examination of all the following elements of a GHG Project Plan:

- Project boundary and procedures for establishing the project boundary;
- Physical infrastructure, activities, technologies, and processes of the project;
- GHGs, sources, and sinks within the project boundary;



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- Temporal boundary;
- Description of and justification for the baseline scenario;
- Demonstration of additionality;
- Methodologies, algorithms, and calculations that will be used to generate estimates of emissions and emission reductions/removal enhancements;
- Process information, source identification/counts, and operational details;
- Data management systems;
- QA/QC procedures;
- Processes for uncertainty assessments; and
- Project-specific conformance to ACR eligibility criteria.

Verification shall include examination of some or all of the following elements of a GHG Project Plan:

- Physical infrastructure, activities, technologies, and processes of the GHG project;
- GHG SSRs within the project boundary;
- Temporal boundary;
- Baseline scenarios;
- Methods and calculations used to generate estimates of emissions and emission reductions/removal enhancements;
- Original underlying data and documentation as relevant and required to evaluate the GHG assertion;
- Process information, source identification/counts, and operational details;
- Data management systems;
- Roles and responsibilities of project participants or project proponent staff;
- QA/QC procedures and results;
- Processes for and results from uncertainty assessments; and
- Project-specific conformance to ACR eligibility criteria.

The criteria for the offset verification services are:

- The American Carbon Registry Standard, v7.0, December 2020[1]
- The ACR Validation and Verification Standard, v1.1, May 2018
- The Improved Forest Management (IFM) Methodology for Non-Federal U.S. Forestlands, v1.3, April 2018
- Errata and Clarifications for ACR IFM Methodology v1.3, January 2024
- ACR Tool for Risk Analysis and Buffer Determination v1.0
- ISO Standards 14064-2 and 14064-3, 2006[2]

## 1.5 Materiality & Level of Assurance

The validation/verification team must state with reasonable assurance that discrepancies between the GHG emission reductions/removals claimed by the Project Proponent and that estimated by the VVB be immaterial (less than the materiality threshold of +/- 5%). The equation below is used to calculate the percent error (v7.0 Standard, Eq 1).

[1] Based on 10/19/2023 ACR Guidance ("*ACR Guidance: Templates, Reporting Periods & Terminology for Emission Reductions & Removal*"), ACR Standard v8.0 is not applicable for this project [verification contract signed before 7/1/2023 and ACR Listing form submitted before 7/1/2023].

[2] ISO Standard 14064-3:2019 is not applicable as the verification contract was signed prior to 5/1/2023.



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$$\% \text{ Error} = \frac{\text{Project Emission Reduction Assertion} - \text{Verifier Emission Reduction Recalculation}}{\text{Verifier Emission Reduction Recalculation}} \times 100$$

### 1.6 Audit Team

| Role | Name |
|---|---|
| Lead Validator/Verifier | Bill Stack |
| Technical Reviewer | Kyle Silon |
| Verification Support | Eduardo Paixão |
| Technical Experts | Caitlin Littlefield, Stacy Birch & Marty Duffany |
| Biometrician | Elizabeth McGarrigle |
| Site Visit Team | Bill Stack RPF, Dwight Chapman, Todd Truesdell RPF & Thomas Blair RPF |
| Project Manager/Approver | Alexa Kandaris |

## 2 Audit Process and Methodology

S&As audit included the following activities:

### 2.1 Desk Review

A kickoff meeting agenda was sent to the PP on 10/3/2021, with the video conference call held on 10/4/2021, signaling the start of the validation/verification services. The project team and verifiers discussed initial findings from a desk review of submitted documents, targeting aspects of the project and supporting information that might affect the evaluation.

The draft GHG Plan was provided 10/21/2021. The verifiers reviewed this document and assessed the eligibility criteria required to design, measure, and monitor the project to the requirements of the ACR Standards and IFM Methodology. Verifiers confirmed that the ACR eligibility requirements were met. The Validation-Verification Plan was completed and sent to the PP on 10/22/21.

A draft Sampling Plan was prepared based on information available from the PP. The Sampling Plan evaluates the credibility and rigor of the verification methodology items. A risk evaluation was conducted assessing the Inventory Methodology Verification Items of the ACR Standard. Finally, the plan outlined a sampling scheme, based on the risk assessment and document reviews, to evaluate the projects monitoring system's compliance with the ACR Standard. The final Sampling Plan summarizes the results of the sampling and the data checks performed on the sampled data.

The Sampling Plan will be retained by S&A for a period of not less than 15 years following the submission of the Project Verification Statement. All material received, reviewed, and generated by the provision of Offset Verification Services will be retained by S&A for the same period.

### 2.2 Site Visit

The site visit audit team included Bill Stack, Todd Truesdell, Dwight Chapman and Thomas Blair and was completed from 10/25/2021 through 10/28/2021. An opening meeting was conducted on 10/25/2021. Attendees of the site visit were as follows:



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| Attendees | Company | Role/Title | Attend Opening Meeting | Attend Field Sampling | Attend Closing Meeting |
|---|---|---|---|---|---|
| Ian Hash | Anew | Project Developer | X | X | X |
| Tim Hipp | Anew | Project Developer | X | X | X |
| Miles LeFevre | Resilient Forestry | Principal Ecologist /Inventory Contractor | | X | X |
| Sam Tharpgeorge | Resilient Forestry | Field Ecologist/Inventory Contractor | | X | X |
| Thomas Blair | S&A Carbon | Site Visit -RPF | X | X | X |
| Dwight Chapman | S&A Carbon | Site Visit | X | X | X |
| Todd Truesdell | S&A Carbon | Site Visit -RPF | X | X | X |
| Bill Stack | S&A Carbon | Lead Validator/Verifier | X | X | X |
| Lawson Henderson | S&A Carbon | Lead Validator/Verifier | X | | X |

*Note: Lawson Henderson attended opening and closing meetings remotely via conference call.

During the opening meeting, the objectives of the site visit and overall validation/verification process were presented by the verification team including an overview of the statistical t-test required for verification of the forest inventory; the qualifications of the PP were confirmed; inventory procedures and QA/QC were discussed and clarified; and site visit logistics & safety, personnel and vehicles/transport, and schedules were discussed and planned.

During the site visit, verification team activities included the measurement of 13 randomly selected forest inventory plots across the project area. Following plot data collection, the verifiers ran their verification data through the paired t-test (two-tailed). The analysis showed that the project's inventory was verifiable at a confidence interval of 90% (i.e., the means were the same, p=0.52). Site visit activities also included collecting GPS data (plot center, project boundaries); observing and documenting the forested conditions within the project area (e.g., species composition, age class, canopy cover); assessing the stratification process; and discussing the QA/QC inventory data collection process, baseline model inputs such as regulatory constraints, and regional forest management practices for the forest types within the project area with the project developer and inventory contractor.

A closing meeting for the site visit was held on 10/28/2021 at the hotel in Goldendale, Washington. Attendees are listed in the table above. Other topics also discussed included preparation of the Issue Log, harvesting and inventory database record keeping, scheduling of the baseline model review call, next steps in validation/verification schedule, and reflections and learnings from the site visit.

## 2.3 Quantitative Review (only required for verification)

The data and information supporting the PP's GHG assertion for this Project is based on historical records (forest inventory data) and future projections (modeled tree growth). To verify this assertion, S&A conducted various quantitative analyses of the project and baseline carbon stocks, covering the relevant carbon pools quantified by the PP, and the inputs used in the calculation of the projected *ex-*



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*ante* emission removals and reductions over the first 20-year crediting period as well as the actual *ex-post* emission removals and reductions for this initial reporting period (2/16/2021 – 7/28/2021). The audit team implemented a detailed review of all aspects of the carbon stock modeling, including the stratification process, forest inventory design and specifications, plot allocations, measurement techniques used by the PP's inventory crew, review of the species in the inventory and the correct assignment of volume and biomass equations, and checks to confirm that modeled growth used to project carbon stocks forward and back have been calculated and applied correctly. The modeling methods were assessed to ensure an approved model was used, that it was appropriately calibrated for the region, and inventory data flow through the modeling system was reviewed.

The reported *ex-post* emission removals and reductions were confirmed by tracking all components of the PP's emission reduction calculation workbooks. This included checks that the entries for initial carbon stocks, confidence deduction, baseline stocks, baseline harvested wood products, and the reversal risk determinations, leakage and uncertainty are all entered and calculated correctly from their computed sources, as well as confirming the accuracy of their sources. The entire inventory treelist was independently recalculated by the verifiers to estimate the project's carbon stocks and the results were compared to the PP's reported values. This recalculation process includes a complete quantitative check of the PP's inventory data on a plot-by-plot level to verify PP's project stock calculations were done accurately and completely to comply with the ACR Standard. Uncertainty and associated deductions were also independently calculated by the verifier.

For projects where plot sampling is required during a verification, ACR provided guidance stating VVBs shall resample a minimum of 5% of the project's plots. For sampling to pass verification, all strata need to be represented in the sample selection and statistical agreement must be attained between the verifier's and project's plot carbon values using a t-test at 90% confidence interval. This minimum sampling intensity was considered in the selection of sample plots to be measured by the verifiers along with allocation of sample plots among individual project strata based on risk. The minimum number of plots required to be measured by verifiers is 13.

All trees within the selected sample plots were re-measured by the verifiers including tree diameters (DBH) & limiting distances (i.e., trees in/out of the plot), species identifications, missing volume, and tree status assessments (live/dead) were independently measured using tools identical or comparable to those used by the PP. No tree height measurements were sampled during the site visit as this field parameter was not needed in calculating project stocks as specified in the IFM Methodology. Verifiers did, however, take at least one tree height measurement on selected the sample plots to check inputs used in baseline modeling.

Inventory re-measurement was confirmed to meet the ACR recommendations and all measurement methods were confirmed to be consistent with the PP's inventory specification. Carbon per plot and across the project area was calculated from the sampled plots and compared to the PP's inventory for the same plots. The verifier calculations and the PP's calculations were entered into a t-test worksheet, using the paired plot method (two-tailed t-test, at the 90% confidence interval), and confirmed to meet the statistical standards expected by ACR for projects that require independent re-measurement for verification.



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## 2.4 Interviews

The following is a list of the people interviewed as part of the validation/verification. The interviewees included those people directly, and in some cases indirectly, involved and/or affected by the project activities. The training and qualifications of the PP team was confirmed by referencing bios for the team on the PP's websites on 10/20/2021 (https://bluesource.com/ and https://www.resilientforestry.com/) and during interviews with Project Participants throughout the validation/verification process.

| Date | Name | Title |
|---|---|---|
| Throughout Verification | Ian Hash | Anew (Director of Natural Climate Solutions) |
| Throughout Verification | Josh Clark | Anew (Vice President NCS Technical) |
| Throughout Verification | Liz Lott | Anew (Vice President Implementation & Operations) |
| 10/25-10/28/2021 | Tim Hipp | Anew (Director of Natural Climate Solutions) |
| 10/26-10/28/2021 | Miles LeFevre & Sam Tharpgeorge | Resilient Forestry (Principal Ecologist & Field Ecologist, respectively) |
| 2/10/2022 | Cherie Kearney | Columbia Land Trust (Forest Conservation Director) |
| 2/14/2022 | Gary Bell | Washington Dept of Fish & Wildlife (Wildlife Biologist) |
| 2/16/2022 | Kurt Krapfl | ACR (Director of Forestry) |
| 6/4 -6/11/2024 | Alex Lilla | Washington Dept of Natural Resources (Forest Practice Forester) |
| 6/11/2024 | Kevin Smith | Washington Dept of Natural Resources (GIS specialist) |

## 2.5 Findings

Throughout the validation/verification, findings were recorded by the audit team as per guidance outlined in the criteria and supporting documents cited above. Any discrepancies identified by the validation/verification team were documented in the Issues Log. The Issues Log was submitted to the client. Prior to completion of the validation/verification, all identified non-conformances were required to be addressed, and correctable errors were required to be fixed. The client submitted additional evidence for S&A's evaluation for conformance. The client addressed and resolved all issues.

## 2.6 Audit Schedule

The following table summarizes the key audit milestones:

| Verification/Validation Activities | Proposed Date | Actual Date |
|---|---|---|
| Kick-off meeting | 10/4/2021 | 10/4/2021 |
| S&A Carbon submits pre-SV Issues Log v1.0 | 10/11/2021 | 10/6/2021 |
| PP responses to Issues Log | 10/18/2021 | 10/11/2021 |
| Site visit | 10/25/2021 – 10/28/2021 | 10/25/2021 – 10/28/2021 |



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| | | |
|---|---|---|
| S&A submits full initial Issues Log v1.0 | 12/1/2021 | 1/12/2022 |
| PP submits response to Issues Log v1.0 | 12/12/2021 | 8/19/2022 |
| S&A submits Issues Log v2.0 | 12/22/2021 | 2/8/2023 |
| PP responses Issues Log v2.0 | 1/12/2022 | 3/8/2023 |
| S&A Carbon submits Issues Log v3.0 | ------- | 1/22/2024 |
| PP submits response to Issues Log v3.0 | ------- | 3/7/2024 |
| S&A Carbon submits Issues Log v4.0 | ------- | 4/12/2024 |
| PP submits response to Issues Log v4.0 | ------- | 7/19/2024 |
| S&A Carbon closes out issues log | 1/22/2022 | 7/25/2024 |
| S&A Carbon completes draft validation/verification reports | 2/1/2022 | 8/10/2024 |
| S&A completes independent review | 2/8/2022 | 8/15/2024 |
| S&A submits draft validation/verification reports to PP for review/approval | 2/15/2022 | 8/15/2024 |
| S&A conducts closing call with PP | ------- | 8/19/2024 |
| S&A Carbon submits final validation/verification documents to ACR | 2/20/2022 | 8/22/2024 |

## 2.7 Validation Activities

The validation and concurrent verification were performed through a combination of document review, interviews and communications with relevant personnel, as well as on-site inspections. The site visit to the project was conducted from 10/25 through 10/28/2021 within CLT project parcels in western and eastern Washington and northcentral Oregon (see the Sampling Plan for specific locations). The validation/verification process included several official and documented exchanges between the verification/validation team and the project proponents to gather additional information for review and for examination of compliance with all applicable criteria. These exchanges included 4 rounds of an Issues Log produced by S&A for which the project proponents were required to respond. These included 21 Clarification requests, 11 Non-Conformances findings, and 11 New Information requests. Verifiers confirmed in an email to the project proponents dated 7/25/2024 that all remaining issues were resolved in the Issues Log.

## 2.8 Eligibility Requirements

The verifiers assessed the project against the eligibility criteria of the ACR Standard as well as the applicability conditions required by the ACR IFM Methodology and determined the project to be ACR eligible and applicable to the ACR IFM Methodology. The project applied an ACR approved methodology, Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, v1.3. The project was found to meet the eligibility requirements of the ACR Standards in terms of its start date, minimum project term, crediting period length, land eligibility & title/ownership, adherence to natural forest management requirements and the permanence of the generated GHG emission removals and reductions. It was also found to meet the applicability conditions of this methodology in terms of land ownership type, legality of harvesting activities, types of project activities and natural forest management criteria.



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The reporting period length for RP1 (2/16/2021-7/28/2021) is less than two years and meets the eligibility requirement. The project start date (2/16/2021) is after 11/1/1997 and is therefore considered an eligible project. The project start date was determined by the date the PP acquired the last project parcel and began to apply the land management activities to increase carbon stocks and/or reduce emissions relative to the baseline. Verifiers confirmed this is an acceptable and appropriate demarcation of the project start based on the start date criteria listed in the ACR IFM Methodology (Section B3). The start date is also the same date as the beginning of the first crediting period. The minimum project term stated in the GHG Plan is 40 years as required by the methodology. The Crediting period is 20 years, consistent with the applied methodology.

Please note, the PP obtained two extension approvals from ACR to comply with the required ACR Standard timeframe (A.3.3) in having the project validated within 3 years of the project start date (2/16/2024). The second extension was approved by ACR on 7/2/2024 (extended to August 2024). For further details, please see the following project document: *Columbia_ACR Methodology Deviation Request V2-0_ValidationDeadline_v3_APPROVED.*

The project is an IFM project type. The PP asserts the project area is greater than 10% forest cover (live trees) for this initial reporting period to comply with the ACR Standard eligibility requirement (A.3). Based on reviewing recent aerial imagery (NAIP WA & OR 2020) and the October 2021 site visit observations, verifiers are reasonably assured the project area is covered by greater than 10% forestland. The verifiers are also reasonably assured that the project area is located on private owned lands within Oregon and Washington based on reviewing aerial imagery, deeds, and tax maps. The current project activities do involve commercial harvesting.

The project's forestlands are composed of 100% native species. The project area contains approximately 13,392.5 acres of forestlands spread across primarily southwestern and south-central Washington and a small portion of forestlands within northwest Oregon. The forestlands contain primarily conifers including Douglas fir, ponderosa pine, and grand fir with small percentages of deciduous tree species (big leaf maple, Oregon white oak, and red alder). The project activity doesn't involve any use of non-native species. Topography is variable from gently sloped forested to very steep terrain (slopes exceeding 40%).

In accordance with the ACR IFM Methodology, the PP's risk assessment for Reporting Period 1 uses the *ACR Tool for Risk Analysis and Buffer Determination* (v1.0), which was determined to have a risk rating of 19.77%. Verifiers completed a review of the percent contributions for each risk category and found the individual risk ratings reasonable, appropriate, accurate and well supported with documentation to justify the associated risk ratings and conforms with the ACR descriptions for each risk type. In total, 19.77% of the gross emission reductions will be deposited into the ACR buffer account. This deduction is made to the gross ERT calculations produced by the PP's to determine the total tradeable balance of ERTs generated by the project during this initial reporting period. The table below presents the verifiers' findings pertaining to the Project's Permanence Risk Rating, following the guidance in the *ACR Tool for Risk and Analysis and Buffer Determination*.

| Risk Type | Conform? | Finding | GHG Plan | VVB Check |
|---|---|---|---|---|
| Financial | Y | Default | 4% | 4% |
| Project Management | Y | Default | 4% | 4% |



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| Risk Type | Conform? | Finding | GHG Plan | VVB Check |
|---|---|---|---|---|
| Social/Policy | Y | Default | 2% | 2% |
| Conservation Easement Deduction* | Y | Proportioned | -1.14% | -1.14% |
| Fire* | Y | Weighted Avg | 4.91% | 4.91% |
| Diseases and Pests | Y | Default | 4% | 4% |
| Levee Failure & Water Table Changes | Y | Default | 0% | 0% |
| Other Natural Disaster Events | Y | Default | 2% | 2% |
| **Total Risk** | | | **19.77%** | **19.77%** |

*The Conservation Easement deduction is based on the portion of the project area subject to a conservation easement. Fire risk is based on an area-weighted value associated with the areal extent of fire risk ratings within the project area ((i.e., 2% - low, 4%-high and 8% -recent large fire within 30 miles of the project area). Please see the GHG Plan (Section B8) and verifiers' Data Check Log for additional details.

## 2.9 Additionality

To demonstrate the GHG emission removals and reductions from the project are additional and considered to be above and beyond the "business as usual" scenario, it must pass the ACR three-prong additionality test to prove (1) that the existing laws, regulations, statutes, legal rulings, or other regulatory frameworks do not directly mandate the project action, and which require specific technical, performance, or management actions; (2) the project exceeds common practice in the relevant industry sector and geographic region; and (3) the project faces at least one of the three implementation barriers (financial, technological, or institutional). The project action was found to meet these three-prong additionally test for privately owned industrial timberlands.

The PP lists the laws and regulations in Section C1 of the GHG plan that could affect the project. Based on the verifiers' review of these laws and regulations, discussions with the noted stakeholders, project document data checks, and the team's past experiences working in this region, found this list to comprehensively identify the applicable laws and regulations affecting the project area. Verifiers also confirmed that these laws do not require the PP to implement the project activities.

The description of applicable National, State, and local laws and regulations in the GHG Plan was found to consider all applicable laws and regulations for both the project and baseline activities. Applicable legal constraints were found to be adequately and accurately incorporated into the modeled baseline harvest scenario (e.g., Washington and Oregon Forest Practices Acts). Verifiers are reasonably assured all applicable laws and regulations have been considered in addressing and demonstrating regulatory surplus as specified in Section 4.A.1 of the ACR Standard. See the Issues Log and verifiers data check log for additional information.

As described in the GHG Plan (Sections C.3 & C.4), common silvicultural practices of the project's forested parcels depend primarily on the legal encumbrances (e.g., conservation easement management or deed restrictions), forest types (ponderosa pine vs Douglas-fir), and ownership class (e.g., non-government organizations or industrial forestlands). Thus, common practices vary by these management limitations and objectives from even-aged management with 40-60 year clearcut rotations (no restrictions, industrial forestlands) to uneven-aged management with variable retention harvests (private non-industrial lands with conservation easements). Verifiers confirmed these common forest management practices through discussions with the PP; through the verification team's professional work experiences in the region; internet searches pertaining to common silvicultural practices in the region; and site visit observations.



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Columbia Land Trusts' project implementation will include little to no harvesting in the project area and will exceed all common practice harvest levels from similar landowner types in Washington and Oregon. GHG Plan Sections A3.3 and A4.2 describe the project scenario which includes some limited commercial harvesting that will promote primarily uneven-aged silviculture practices in managing the project area for conservation objectives that include improving forest health, and restoring water quality and wildlife habitat. These project activities will increase the average stand ages and the associated carbon stocks compared to the common practice for these forestlands, which will result in increasing GHG emissions reductions/removals over the project period. The verifiers are reasonably assured that the project and its associated project activities exceed the common practice for the same types of forestlands in the region.

Section B.5 and E.1 of the GHG Plan describes the baseline harvest scenario, which is based on regional industrial and non-industrial private forest management practices as noted previously and incorporates the legal constraints such as those associated with Oregon and Washington Forest Practice Rules (stream and wetland management zones) and conservation easement/deed restrictions (limits on even-aged silvicultural practices). Specific baseline silvicultural harvest prescriptions are described more fully in Section E.1 of the GHG Plan and the baseline modeling workbooks. Verifiers have confirmed these legal constraints have been accurately and consistently applied within the baseline model (see the verifiers' Issues Log and Data Check Log for further details).

The PP has elected to demonstrate there are financial barriers to implementation of the project activities and adherence to the ACR Implementation Barrier Test for additionality. Specifically, the PP asserts the landowners face limited access to financial capital, in the absence of carbon project income, that would prevent them from implementing the project activities. The PP states in the GHG Plan (C.3) carbon project income is expected to incentivize the project's implementation due to the lost revenue associated with the potential timber harvesting that could legally and feasibly occur within the project area.

The verifiers were provided with a Net Present Value (NPV) financial analysis for both the baseline and project scenarios that accounts for all costs and revenues from these scenarios (see *Columbia_100Yr_calcs_07_19_2024_final*). In this analysis, the PP used an area-weighted discount rate of 4.8%, which was based on the acreage of the projects' private industrial and non-governmental organizations ownerships and their associated discount rates (6.0% and 4.0%, respectively). Verifiers concur with this weighted discount and confirmed the calculation process complies with the specifications in the IFM Methodology v1.3 (C.1, Table 1). Required inputs for the project NPV calculation were based on the 2021 timber inventory, growth and yield under a range of silvicultural treatments, recent stumpage prices for wood products, and management costs. Verifiers found these inputs to be reasonable, appropriate, accurate and well supported.

The project activity without carbon revenue is expected to generate an NPV that is substantially lower than the NPV maximization scenario of the baseline model, thus demonstrating the financial barrier of the implementation of the project. Based on this NPV analysis and stakeholder interviews, verifiers are reasonably assured the project has met the financial barrier test.



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## 2.10 Permanence and Risk Mitigation

The project's GHG Plan outlines a risk assessment conducted in accordance with the ACR Tool for Risk Analysis and Buffer Determination (v1.0). Percent contributions for each risk category have been applied based on guidance in the tool. All the categorical risk ratings were applied consistent with the Tool's method. All risk ratings were based on the default values except for fire and conservation easement categories. Verifiers confirmed the PP's calculation for the total risk rating of 19.77%.

The PP estimated a 4.91% fire risk rating and provided supporting information and data source used to justify this rating (USFS Wildfire Hazard Potential, https://www.firelab.org/project/wildfire-hazard-potential). Fire risk rating is based on an area-weighted value associated with the areal extent of USFS fire risk ratings within the project area (i.e., 2% -low, 4%-high and 8% -recent large fire within 30 miles of the project area). Verifiers found the USFS data source to be the most accurate public data source available for potential wildfire hazards and concurred with the PP's area-weighted calculation of the fire risk rating (see Issues Log item 21-14). Verifiers concur with the PP's estimate of a -1.14% conservation easement deduction, which was based on the portion of the project area subject to conservation easements. Please see the GHG Plan (Section B8) and verifiers' Data Check Log for additional details.

In total, 19.77% (9,352 *t*CO2e) of the gross emission reductions will be deposited into the ACR polled buffer account. This deduction is made to the calculated gross ERT calculations generated by the project to determine the total tradeable balance of ERTs generated by the project over the initial reporting period.

Section 5.B of the ACR Standard requires that "Project Proponents of AFOLU projects with risk of reversal shall enter into a legally binding Reversal Risk Mitigation Agreement with ACR/Winrock that allows them to select a reversal risk mitigation mechanism and details the requirements for reporting and compensating reversals." This Risk Mitigation Agreement must be executed upon completion of the final GHG Plan, which the verifiers understand to be the point in time when ACR approves the final GHG plan and is ready to register the validated project. Therefore, the verifiers determined that checking this executed agreement between the PP and ACR doesn't explicitly need to take place before their final submission to ACR, however, verifiers did confirm it has been executed (10/23/2024).

## 2.11 Baseline

Verifiers confirmed the baseline scenario represents a combination of intensive conservation management, intensively managed non-profit forest ownerships, and semi-industrial harvest regimes designed to maximize the annual cashflows from a 100-year NPV at a 4.8% discount rate in the project region of western & eastern Washington and western Oregon. As mentioned previously in section 2.9, the PP asserts that this scenario reflects the common silvicultural practices in the region for the project's area easement/deed restrictions, forest types and various ownership classes. Verifiers confirmed this practice through discussions with the PP, regional consulting foresters; through the verification team's professional work experiences in the region; internet searches pertaining to common silvicultural practices in the project area; and site visit observations (please see Issues Log for further discussions).

The baseline (and project) on-site carbon stocks were determined through a forest inventory implemented on the project area between February - June 2021. The inventory design employed a sample of 254 nested fixed-radius plots installed on a systematic grid across the project area, which is



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more fully described in the PP's inventory document (i.e., Carbon Plot Methodology). As described in the GHG Plan (E1), the project area was assigned to three sampling strata based on the US Forest Service Forest Vegetation Simulator (FVS) variant associated with the project parcels that was utilized for the FVS growth and yield modeling. The three strata included the Pacific coast range (PN), western Cascades (WC), and eastern Cascades (EC), with model equations for each plot regionally calibrated for the Columbia project. The verifiers found the project's stratification methods to be reasonable and the inventory methodology to follow standard industry practices.

As mentioned, growth and yield projections were determined using the appropriate FVS variant. FVS is identified as an appropriate model in the ACR IFM methodology applied by the project. FVS variants were calibrated to the conditions of the project area using site index values. Site Index was calculated from tree cores taken during the forest inventory and then processed by Rocky Mountain Tree Ring Research. Verifiers found the site index values used for the species within the project area to be well supported, and reasonable and appropriate in projecting tree growth.

Initial carbon stock estimates for the project start date were back-modeled via FVS-PN, FVS-WC, and FVS-EC by the following steps: (1) the inventory data was entered into the appropriate FVS variant and grown for 10 years; (2) for each live tree annual diameter growth was estimated assuming linear growth over the 10 year period (10-yr growth/10 years); (3) using this annual growth the inventory data was degrown to the beginning of the reporting period; and (4) this treelist was then used to estimate the initial carbon stocks. The diameter of standing dead trees were assumed to be constant throughout the period.

The baseline scenarios were subsequently modeled entering the degrown inventory data into FVS-PN, FVS-WC, and FVS-EC, as regionally appropriate. The area (acres) to be cut in each prescription applied in the baseline model was determined using a linear programming model (*lpSolve* package), which found the combination of the three harvest prescriptions that maximizes NPV over a 100-year period. The specific baseline harvest treatments were derived by applying the common practice silvicultural prescriptions that are currently being implemented on the forest types and private land ownerships as outlined in the GHG Plan (see Section E and Table E1.7). Verifiers confirmed the appropriate and correct model inputs (including the regulatory constraints) and outputs were incorporated in the baseline modeling process (see the verifiers Data Check Log for further details).

Baseline carbon in long-term storage in wood products was calculated based on projected harvest volume removals from the FVS variant model runs. Harvest volumes were broken out into the categories of softwood sawlog, softwood pulp, hardwood pulp and hardwood sawlog by referencing the merchantability standards in FVS. Harvest volumes were converted to biomass by applying species-specific specific gravity values references in the USFS Handbook and Miles and Smith 2009. Biomass values were then converted to units of tCO2e using appropriate conversion factors. Carbon transferred into wood products was estimated by applying mill efficiency values sourced from the *2015 California ARB Compliance Offset Protocol- US Forests*, for corresponding project area.

Carbon in wood products was then summed across the established wood categories and distributed to various end-wood product classes referenced from the *2015 California ARB Compliance Offset Protocol*, for the associated project areas. Carbon in long-term storage was then summed for in-use wood products and wood products in landfills to produce annual total carbon (tCO2e) stored in in-use and landfill by applying the appropriate 100-year storage factors taken from the ACR IFM



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Methodology. Emissions due to burning logging slash are conservatively assumed in the baseline to be zero. Verifier checks of the baseline carbon storage in harvested wood confirmed the accuracy of the PP's calculations in accordance with the ACR IFM Methodology.

## 2.12 Leakage

According to the ACR IFM Methodology, there may be no leakage beyond *de minimis* levels through activity shifting to other lands owned, or under management control, by the timber rights owner. If the project decreases wood product production by greater than 5% relative to the baseline then the Project Proponent and all associated landowners must demonstrate there is no leakage within their operations – i.e., on other lands they manage/operate outside the bounds of the ACR carbon project.

As described in the GHG Plan, quantification of leakage is limited to market leakage. The PP therefore asserts there is no activity shifting leakage. The Columbia Land Trust (CLT) does own other forestlands outside of the project area, which CLT asserts that these lands have not had any active harvesting during the reporting period (no harvest assertation letter). The review of the project area over recent aerial imagery in GIS also confirms the PP's assertions of no harvest activity. The verifiers are reasonably assured there has not been any recent harvesting on the PP's ownership on the CLT lands outside the project area and that no activity shifting leakage has occurred during this reporting period.

Quantification of leakage of the project is therefore limited to market leakage. Market leakage was determined by quantifying the merchantable carbon removal in both the baseline and with-project scenarios. Carbon in long-term storage in in-use wood products and landfills was used to assess relative amounts of total wood products produced in the baseline and project. The decrease in wood production relative to the baseline was calculated to determine the applicable market leakage discount factor in accordance with the methodology. Since the project activities decrease total HWP produced by the project relative to the baseline by 25% or more over the crediting period, the leakage deduction is 40%. This leakage deduction was found to be correctly determined and correctly applied in the supporting ERT calculation workbook.

## 2.13 Monitoring Requirements

Section D of the GHG Plan outlines the project's monitoring plan. All appropriate data and parameters to be monitored over the life of the project are outlined including details on the unit of measurement for the data/parameter, a description of the parameter, the data source used, the measurement methodology, monitoring frequency, values applied, procedural and QA/QC references, the purpose of the data and the calculation method. The monitoring plan also indicates that each reporting period the PP will sign and submit to ACR the required attestations confirming: the continuation of the project activities; that ownership of the project area remains clear and uncontested; and a disclosure of any negative environmental or social impacts and plans to mitigate, if applicable (ACR Validation & Verification Standard, 6E). These attestations have been included in the signed Monitoring Report for this initial reporting period.

Project monitoring is generally focused on the project's on-site carbon stocks through updates to the projects forest inventory data. A full re-inventory of the project area is to take place every 5 years or less following validation & initial verification to allow for calibration of the growth model and improve the project's carbon sequestration estimates. In additional, affected portions of the project area will be updated periodically in response to natural disturbance events of significant forest management activities. If impacts from such events are significant, the affected areas will be re-inventoried and



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adjusted to reflect current on-site carbon stocks following the re-inventory procedures described in Section D of the GHG Plan. For those years in-between when an updated inventory is carried out, on-site carbon stocks will be monitored through forest growth and yield modeling. Beyond forest inventory updates, the PP will continually monitor the general health and condition of the forest through the course of regular forest management activities including road maintenance, ecological studies, timber trespass and boundary maintenance.

QA/QC procedures have been established as part of the monitoring plan and are outlined in section D2 of the GHG Plan. Both forest and desk-based QA/QC procedures are established. At least 10% of the forest inventory plots will be checked by a different cruiser than the individual who measured the plot. The plot check cruise will involve a full plot measurement to identify any issues or significant discrepancies. Any consistent error will be resolved through discussion with the cruisers who carried out the original measurements or removal of the individual if deemed necessary. The desk QA/QC procedures involve a three staged review process with the intent of ensuring that all collected data is appropriately managed and maintained, and that all subsequent calculations of the data that are incorporated into the ERT issuance are correct. This three-staged review process involves independent forester review, technical review, and senior management review.

The verifiers were provided with the Check Cruise reports and summary document detailing the number of plots and trees checked, the number of errors identified by category (e.g., DBH, Height, Status, In/Out), and the percent error by error category. The workbook also includes all of the original plot/tree data for the check cruised plots, as well as the check cruise data. In total 11% of the forest inventory plots were check cruised (29 plots). Incorrect diameter measurements and missed trees were the most common error identified during the check cruising. Where errors were found they were updated in the final inventory data. Based on site visit discussions with the PP, review of the check cruise reports (no systematic bias or errors), and assessments of the inventory data and methodology, verifiers found no reason to further question the implementation or effectiveness of the established QA/QC mechanisms.

## 2.14 Environmental and Social Impacts

As part of the GHG Plan, ACR requires all projects to prepare and disclose an environmental and social impact assessment. Section F1 of the project's GHG Plan outlines the Environmental and Social Impact Assessment addressing the requirements of the ACR Standard.

The project activity is improved forest management. The landowners forest management practices represent a significant improvement in carbon storage and conservation value when compared to industrial and non-industrial private forestlands in the region that emphasize higher financial return and management regimes characterized by shorter, even-aged rotations. By committing to maintain forest carbon stocks above the regional baseline level, the project will provide significant climate benefits through carbon sequestration.

Section C.3 of the GHG Plan covers the Regulatory Surplus Test and outlines the applicable laws and regulations. The laws and regulations outlined in Section C1 of the GHG plan were found to comprehensively identify the applicable laws that could affect the project. The verifiers assessment of these laws determined that none of them impact the project activities, and require the PP to implement the project activities, thereby demonstrating regulatory surplus. The description of



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applicable laws and regulations in the GHG Plan was found to consider all of applicable laws and regulations in both the project and baseline activities.

As mentioned, the landowner, the Columbia Land Trust, owns various forestland parcels within eastern and western Washington and northwestern Oregon. Each parcel is independently managed with different management plans, but overall are focused to achieve common conservation goals including promoting uneven-aged silviculture practices, improving forest health, and restoring water quality and wildlife habitat.

As noted previously, CLT is a private landowner (non-governmental organization). No formal stakeholder consultation was conducted in advance of the project, nor was any required because the properties are privately held. The GHG Plan (Section F) states "*if Project Proponents are contacted by any persons regarding the project, the Project Proponents will provide references to the publicly available documentation for the project."* As a result of the project area being privately owned, there is not a detailed community consultation and communications plan. The GHG Plan indicates that the project is not a community-based project. The verifiers agree with this determination given the project ownerships and associated management systems.

The GHG Plan gives a general assessment of the project's environmental risks and impacts, covering the relevant factors outlined in the standard. Impacts have all been categorized as positive; verifiers agree with these determinations. As such, there is no need to describe how negative impacts were avoided or minimized.

Monitoring of the risks and impacts is covered in Sections F.1 & D.1 of the GHG Plan which gives an outline of monitoring activities including inventories (forest measurements), calibrations of forest growth and yield modeling, and management activities and plans. Annual forest management monitoring is completed by the PP and hired contractors, which includes monitoring forest health road maintenance, recreation, wildlife, timber harvesting, and wildfire. Verifiers find these monitoring methods are deemed sufficient to meet the requirements of the ACR Standard (Chap 3). The GHG Plan (F.1) also includes a description on how the positive impacts contribute to the SDGs as required.

## 2.15 Stakeholder Comments

The Project Proponent is a private forestland owner and adheres to their respective internally agreed upon practices of project consultation and notification on associated decision making affected by the project activity. Columbia Land Trust has an internal Board of Directors that guides the direction of the organization, policies, and management decisions. The GHG Plan asserts that stakeholder comments are non-applicable as the project is not a community-based project. Verifiers agree with this determination considering the project ownership and decision-making management system.

## 2.16 Programmatic Development Approach

As for the project Start Date there is only one site/cohort with one landowner in the project. GIS shapefile of the initial site's project area was provided for validation. This shapefile gives unique identification and delineation of the specific extent of the project. This cohort is included in this combined validation/verification. Verifiers reviewed the GHG plan which covers all the requirements for this cohort. No additional sites are planned at this time, but future sites are anticipated to be in the same programmatic boundaries (geographic, temporal, and GHG assessment boundary), to be of similar forest types, and subject to similar management/silviculture.



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The baseline scenarios are anticipated to apply similar silvicultural assumptions, and the monitoring plan will remain consistent for the entire PDA. Columbia Land Trust will be the Project Proponent involved in the process of inclusion of new sites. Anew Carbon Development, LLC may be the Offset Developer involved in coordination of project implementation, modeling, etc., although the Project Proponent may opt to utilize an alternate Offset Developer.

Any additional sites will go through a rigorous internal review process to ensure that no site has been or will be registered on ACR as part of another project. All sites will also be assessed in verification to confirm that no site has been or will be registered on ACR as part of another project. All records and documentation for additional sites and cohorts will be made available to the VVB at the time of validation. The site-specific implementation dates will be updated at the entrance of each new cohort in future reporting periods.

The verifiers were provided with a single consolidate ACR-Multi-Site-Design-Document (MSDD) which is an addendum to the GHG plan. The MSDD outlines the unique attributes of the site enrolled at project listing. The verifiers concluded with a reasonable level of assurance that the project is in conformance with the applicable criteria and requirements of the ACR Standards and associated guidance (*ACR Aggregation and Programmatic Development Approach Guidance for Improved Forest Management, January 2021)*.

### 2.17 Validation Conclusion

During the validation assessment the verifiers findings included 21 Clarification requests, 11 Non-Conformances, and 11 New Information requests. All audit findings were responded to and addressed to the satisfaction of the verifiers. Once all identified issues were adequately resolved, S&A Carbon drafted this final combined validation & verification report. After reviewing the final GHG Plan (12/17/2024, signed 12/18/2024) and all supporting documentation, the verifiers concluded with a reasonable level of assurance that the project is in conformance with the applicable criteria and requirements of the ACR Standards listed in Section 1.4. The findings in this report represent the final determinations of the project's conformance with the standard criteria included in the scope of this validation audit. S&A Carbon is thus able to issue a positive validation opinion of the project's design as outlined in the final GHG Plan and the projected ex-ante GHG emission removals/reductions (before buffer contributions) of 710,368 tCO2e over the first 20-year crediting period.

## 3 Verification Activities

### 3.1 Project Implementation Status

As previously described in this report, the project's initial verification took place concurrently with the project's validation. The verifiers determined the project activities were implemented over the initial reporting period corresponding to the dates 2/16/2021 - 7/28/2021 in accordance with the project design established in the GHG Plan. The PP submitted a completed copy of the Monitoring Report (MR) that provides the information required in the ACR monitoring report template. The verifiers are reasonably assured the estimates of the current on-site carbon stocks are based on the inventory data and there was no commercial harvesting over the initial reporting period. No project deviations occurred during the initial reporting period.



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Project level live carbon stocks were de-grown backwards from the original inventory data (February-June 2021) to the beginning of the reporting period. The projection was developed by deriving individual live tree annual diameter growth rates from one 10-year cycle model runs within the associated FVS variant (WC, EC, PN) with no management (reflecting the limited timber harvesting) along with an adjustment based on the percent of annual growth (i.e., one growing season) from when the plot measurements were recorded. Dates of measurement were recorded for each plot, therefore allowing each tree to have a specific degrow period. These projections follow the same basic processes used to grow the initial carbon live stocks to the end of the reporting period. No burning of any biomass occurred so emissions from the burning of logging slash is considered to be zero.

The MR outlines the data and parameters monitored over the reporting period, which are found to be consistent with the data and parameters included in the monitoring plan of the GHG Plan. The MR also includes the project's GHG emission removals and reductions including baseline emissions, project emissions, leakage emissions, contributions to the buffer pool, and a summary of the net GHG emission removals and reductions at the end of the reporting period. The verifiers performed checks on the ERT calculations for the initial reporting period to confirm the accuracy of the PP's calculations. Reporting period ERTs were also calculated using the verifier's internal calculations of end of reporting period on-site carbon stocks as the basis for the materiality checks as presented below.

## 3.2 Data-Checks & Materiality

A summary of selected data checks for the project is provided below. The assigned ranking reflects both the size and uncertainty associated with these SSRs. These and other data checks performed (along with narrative details of the check and results) are included in the verifiers data check log.

| SSR (rank) | Data reviewed / Checks performed | Reported (PP) $tCO_2e$ | Calculated (VB) $tCO_2e$ | Dis-crepancy $tCO_2e$ | Impact on misstatement/ conformance |
|---|---|---|---|---|---|
| **Rank 1** On-site Project stocks; end of RP (CP,TREE,t-EORP) | 2021 Inventory, volume and biomass estimates, grown modeling results, grown tree list. Model appropriateness and use. Data systems.<br>Checks of accumulations and correct transfer to Monitoring Report | 2,279,223 | 2,279,238 | -15 | **Impact on Materiality** |
| **Rank 2** On-site Project stocks; beginning of RP (CP,TREE,t-BORP) | 2021 Inventory, volume and biomass estimates, grown modeling results, grown tree list. Model appropriateness and use. Data systems. | 2,243,631 | 2,243,646 | -15 | **Impact on Materiality** |
| **Rank 3** 20-Yr Average Baseline stocks (live | Monitoring Report and supporting modeling documents. Model appropriateness and use. Data systems. | 1,794,988 | 1,794,988 | 0 | **No impact on Materiality** |



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| | | | | | |
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| and dead tree CO2e) CBSL,AVE (total) | Checks correct transfer to Monitoring Report. Calculation check uses PP values. | | | | |
| **Rank 4** Emissions Reduction at t (before buffer deduction) (CACR,t) | Monitoring Report<br>Checks that all PP entries are correct. Check sources. Checks that calculations within the worksheet are correct. | 47,307 | 47,316 | -9 | **Impact on Materiality** |
| **Rank 5** Market Leakage Discount Factor (LK) | Monitoring Report, supporting documents. | 31,538 (40%) | 31,538 (40%) | 0 | **No impact on Materiality** |
| **Rank 6** Buffer - Permanence Risk Rating (BUFrp,t) | Monitoring Report, calculation workbooks, supporting worksheets<br>Checks that all PP entries are correct. Check risk rating and calculations have been calculated correctly. | 9,352 (19.77%) | 9,352 (19.77%) | 0 | **No impact on Materiality** |
| **Rank 7** Baseline Harvested Wood Products (CBSL,HWP,t) | Monitoring Report, supporting worksheets<br>Model results, HWP worksheet. Confirm model projections and sums. Correct use of appropriate mill efficiencies, product classes and long-term storage factors. | 5,738 | 5,738 | 0 | **No impact on Materiality** |
| **Rank 8** HWP Project (CP,HWP,t) | Monitoring Report, supporting worksheets; On-site observations, GIS review, interviews with the PP.<br>Checks of mill receipts and HWP storage calculations. Correct use of appropriate mill efficiencies, product classes and long-term storage factors. | 0 | 0 | 0 | **No impact on Materiality** |
| Comment: No project harvesting during the RP | | | | | |
| **Rank 9** | Monitoring Report supporting worksheets | 0 (<10%) | 0 (<10%) | 0 | **No impact on Materiality** |



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| | | | | | |
|---|---|---|---|---|---|
| Total Uncertainty (UNCt) | Use PP data for 2021 inventory stocks; checks the calculation of total uncertainty was done correctly. | | | | |
| Comment: Below 10% threshold, so total uncertainty is zero. | | | | | |

The validation/verification team must state with reasonable assurance that discrepancies between emissions reductions/removal enhancements claimed by the Project Proponent and estimated by the VVB be immaterial (less than the materiality threshold of +/- 5%). The equation below is used to calculate the percent error in the GHG removals and emission reductions assertion. The analysis must consider all errors, omissions or misstatements, for the subset of data included in the data checks. Any errors, omissions or misstatements are identified separately in the table above.

$$\%\ \text{Error} = \frac{\text{Project Emission Reduction Assertion} - \text{Verifier Emission Reduction Recalculation}}{\text{Verifier Emission Reduction Recalculation}} \times 100$$

$$\text{Percent error} = \frac{[47{,}307 - 47{,}316]}{47{,}316} \text{ X } 100 = -0.019\%$$

| Project ERTs – Verifier ERTs (tCO2e) | Verifier ERTs (w/o buffer deductions) (tCO2e) | Calculated Materiality % |
|---|---|---|
| -9 | 47,316 | -0.019% |

The materiality check was carried out according to ACR guidance using the equation above. The verifiers independently calculated the reporting period ERTs utilizing Equation 20 (ACR IFM Methodology) and the verifiers estimate of the total project level stock, which resulted in ERTs of 47,316 *t*CO2e. The verifiers' ERTs were 9 *t*CO2e higher than the PP's ERTs. The Materiality Calculation shows the project was slightly underestimated (0.019%). Thus, the project is less than the 5.0% materiality threshold.

## 3.3 Verification Conclusion

During the verification process, the S&A verification team gathered evidence to evaluate the project design, the project implementation, and assess the accuracy of the GHG assertion associated with the reporting period.

After review of all project information, procedures, calculations, and supporting documentation, S&A confirms that Project reporting is accurate and consistent with all aforementioned criteria and requirements of the ACR Standards. S&A confirms all verification activities, including objectives, scope and criteria, level of assurance, and project documentation adhere to the ACR Standards. S&A concludes without any qualifications or limiting conditions that the Project meets the requirements of the ACR Standards.

S&A has verified the PP's GHG assertion of 47,307 tCO2e for the Reporting Period of 2/16/2021 to 7/28/2021. S&A has also verified removals and other ERRs, which is summarized in the table below for this reporting period.



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| ALL GHG PROJECTS | | AFOLU & GEOLOGIC SEQUESTRATION PROJECTS ONLY | | | |
|---|---|---|---|---|---|
| VINTAGE | TOTAL ERRS (VI.4) | BUFFER POOL / RESERVE ACCOUNT CONTRIBUTION (VI.5, IF APPLICABLE) | NET ERRS (VI.6, IF APPLICABLE) | REMOVALS SUBSET (IF APPLICABLE) | EMISSION REDUCTIONS SUBSET (IF APPLICABLE) |
| 2021 | 47,307 mt CO2e | 9,352 mt CO2e | 37,955 mt CO2e | 21,355 mt CO2e | 25,952 mt CO2e |
| **Totals** | **47,307 mt CO2e** | **9,352 mt CO2e** | **37,955 mt CO2e** | **21,355 mt CO2e** | **25,952 mt CO2e** |



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## Appendix A: Reference List

Project Proponent Documents & References

| Description | Filename |
|---|---|
| Listing | Columbia_ListingForm_Signed_12_23_20.pdf |
| GHG Plan | ColumbiaRiver_GHGPlan_12_17_24.pdf |
| | Appendix A: Inventory Methodology Summary (included in GHG Plan) |
| | Appendix B: Columbia_ACR-Multi-Site-Design-Document-v1.1_11_14_24.pdf |
| | Appendix C: Risk Analysis and Buffer Determination Analysis.pdf |
| | Appendix D: ACR616-ACR-Environmental-and-Social-Impact-Assessment-Report-v1.0.pdf |
| Monitoring Report | Columbia_RP1_MonitoringReport_12_17_24.pdf |
| | ACR616-ACR-Environmental-and-Social-Impact-Assessment-Report-v1.0.pdf |
| | Columbia_RP1_ERT_MR_SectionVI_Appendix.pdf |
| Property Deeds - Ownership | Deeds_Easements (21 folders, 46 files) |
| GIS Files - Spatial Data | CLT_NSO_MaMU_21.gdb |
| | Columbia_Boundary_6_6_22.shp |
| | Columbia_Boundary_Ownership_Names_4_13_21.shp |
| | Columbia_Constraints_Master_7_4_24.shp |
| | Columbia_Fully_Constrained_RMZ_Acres_2_28_24.shp |
| | Columbia_Original_Grid_460m.shp |
| | Columbia_Plots_2_28_24.shp |
| | Columbia_Slope_10_4_23.shp |
| | Columbia_SMZ_7_3_2024.shp |
| | Columbia_Strata_06_15_22.shp |
| | ColumbiaLandTrust_Fee_20230310.shp |
| | Constrained_Acres_Change_7_4_24.xlsx |
| | Constrained_Acres_Change_7_4_24.xlsx |
| | Hydrography_Statewide_Streams_Fp.gdb |
| | MAMU_Export_2015phs.shp |
| | Spotted_Owl_Special_-_Forest_Practices_Regulation.shp |
| | Spotted_Owl_Special_Emphasis_Areas_(SOSEA)_-_Forest_Practices_Regulation.shp |
| | Wetland_Typing_And_Buffer_7_4_24.xlsx |
| | Wetland_Typing_And_Buffer_7_4_24.xlsx |
| | Wetlands_-_Forests_Practices_Regulation.shp |
| Inventory | Columbia_Check_Cruise_04292021_Confirmation_46_60_135_55_21.pdf |
| | Columbia_CarbonPlot_Methodology_3_8_23.pdf |
| | Columbia_Inventory_Data_6_7_23.csv |
| | Columbia_PlotData_6_7_23.csv |
| | Columbia_PlotData_Notes_WkTh_10_7_21.xlsx |



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| | |
|---|---|
| | Plot Checks June 14 2021.docx |
| | Plot Checks June 2 2021.docx |
| | Plot Checks May 12 2021.docx |
| | Plot Checks May 24 2021.docx |
| | Skookumchuck Plot failures.docx |
| Calculation Workbooks | Columbia_100Yr_calcs_07_19_2024_final.xlsx |
| | Columbia_Regeneration_Calcs_02_28_2024.xlsx |
| | Columbia_RP_ERT_HWP_07_19_2024_final.xlsx |
| | Columbia_SiteIndex_Wcores_3_5_24.xlsx |
| | FireRiskAnalysis_02_28_23.xlsx |
| | Columbia_Conservation_Easement_Weighted_Acres.xlsx |
| | Columbia_SiteVisit_CO2_10_12_2021.xlsx |
| | Columbia_Start_RP_CO2_07_19_2024_final.xlsx |
| Modeling | Columbia_FVS_Plots_02_29_2024.csv |
| | FVS_Output (All FVS Project / Baseline Files) |
| | IndTreeGrow (FVS Grow Run All Files) |
| | processFVSoutput.R |
| Other Documents | CDMA/CDMA-Bluesource_CLT_07.29.20_executed_FullyRedacted_5_18_22.pdf |
| | Columbia_ACR-SDG-Cont-Report-AFOLU-Project-v1.0_11_1_2024.xlsx |
| | ACR AFOLU GHG Project RMA v8 2024 ACR616- Fully Executed.pdf |
| | ColumbiaRiver_ACR_PDA_PDD_10_14_22.pdf |
| | Columbia_ACR Methodology Deviation Request V2-0_ValidationDeadline_v3 _APPROVED.pdf |
| Data Sources | Columbia_TimberPrices_02_23_23.csv |
| | InstrSVtables2021_2ndHalf.pdf |
| | Oregon_Forest_Practices_2021.pdf |
| | Washington State Forest Practice Rules.pdf |
| Project Harvesting | Columbia_RP1_NoHarvestConfirmation_7_28_21.pdf |

**Verifier Documents**

| Document Description | Filename |
|---|---|
| Project Specific COI Form | ACR616-RP1_COI.docx |
| Validation/Verification Plan | ACR616-RP1_Columbia_Validation-Verification Plan.docx |
| Sampling Plan | ACR616-RP1_Columbia_Sampling Plan.docx |
| Data Check Log | ACR616_DataCheckLog_25July2024.xlsx |
| Issues Log | ACR616_IssuesLog_v4.2_24July2024_Closed.docx |
| Site Visit -Plot Sampling t-Test | ACR616_Columbia_T-Test_Worksheet_27Oct2021.xlsx |
| Validation/Verification Opinion | ACR616_RP1_Columbia-Verification_Opinion.docx |



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## Appendix B: Findings List

| Verifier Issue | Issue ID: | 21-1 | Status: Closed | Checked by: CL | Date Identified 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | New information request. *May impact materiality* | Verifiers request plot notes, if available, and a list of which plots were walk-throughs and no tally plots, if any. | | |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge receipt of plot notes. This issue is now considered closed. | | *Columbia_PlotData_Notes_WkTh_10_7_21* |
| ***OPO/APD Response*** | | | | | |
| ***Date*** | ***PP Comment*** | | | | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | *This has been provided in the shared folder.* | | | | *Columbia_PlotData_Notes_WkTh_10_7_21* |

| Verifier Issue | Issue ID: | 21-2 | Status: Closed | Checked by: CL | Date Identified 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | Clarification. *May impact materiality* | In the PP's Start RP CO2 calculation workbook, verifiers note the following and seek confirmation on our understanding:<br><br>(1) The workbook includes dead trees with heights < 15', though the inventory specs indicate only dead trees that are at least 15' be included. The verifiers are reasonably assured these trees are excluded from carbon calculations, but request confirmation that that is indeed the case.<br><br>(2) The workbook includes degrown and grown-ahead phantom heights. The verifiers are reasonably assured that these do not factor into carbon calculations, but seek confirmation that a) these values should not be different than the phantom heights determined in the field and b) these degrown/grown values did not factor into any calculations.<br><br>(3) The workbook contains 11 trees in the initial inventory data that are less than one inch; these are subsequently set to zero in the carbon calculations. The verifiers are reasonably assured that these are stand-ins for no-tally plots but seek confirmation that that is indeed the case. | | *Columbia_Start_RP_CO2_10_01_2021*<br><br>*Columbia_CarbonPlot_Methodology_4_2_21* |



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| | | | | |
|---|---|---|---|---|
| | | | **Findings Oct 9, 2021**<br>(1) The verifiers acknowledge that carbon values for those dead trees <15' are indeed set to zero.<br>(2) The verifiers acknowledge that phantom height values, although degrown/grown, do not factor into carbon values.<br>(3) The verifiers acknowledge confirmation that those <1" trees are stand-ins for no-tally plots.<br><br>This issue is now considered closed. | *Columbia_Start_RP_CO2_10_08_2021*<br>*Columbia_PlotData_Notes_WkTh_10_7_21* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | 1) Correct - dead trees that are measured as less than 15' (e.g., Plot 20 Tree 7 and Plot 52 Tree 10) are set to 0 CO2 in the CO2 calculation workbook<br>2) The live phantom height values are grown forward/backward in the CO2 calcs. The intent of this is to estimate what the trees grown unbroken height would have been. These values do not factor into CO2 calculations.<br>3) Correct – these are stand-ins for no-tally plots. | *Columbia_Start_RP_CO2_10_08_2021*<br>*Columbia_PlotData_Notes_WkTh_10_7_21* |

| **Verifier Issue** | **Issue ID:** | **21-3** | **Status:** Closed | **Checked by:** CL | **Date Identified** 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | New information request.<br>*May impact materiality* | In the PP's Start RP CO2 calculation workbook, there are live trees in both Start_TreeList and RP_TreeList that are not degrown or grown in dbh. Similarly, there are live trees with dbh > or = 5" without broken tops that do not have height degrown/grown (These trees are absent from the tab IndTreeGrow). The verifiers request an explanation for why some trees are not degrown/grown. | | *Columbia_Start_RP_CO2_10_01_2021* |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge this explanation and note that degrown/grown heights are now included for all trees >5" in Start_TreeList and RP_TreeList in the revised workbook *Columbia_Start_RP_CO2_10_08_2021.xlsx*. This issue is now considered closed. | | *Columbia_Start_RP_CO2_10_08_2021* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | This was an issue with FVS outputs. TreeId's were not properly lining up in FVS outputs, leading some trees to be misaligned, and other TreeIds to be missing in the IndTreeGrow tab (e.g., TreeId's 164,222,227). In order to address this issue, plots from each variant are run separately in FVS. Updated database files have been uploaded to the verification folder. Each variant now has its own .db output file. | *Columbia_Start_RP_CO2_10_08_2021* |



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| Verifier Issue | Issue ID: | 21-4 | Status: Closed | Checked by: | CL | Date Identified | 4-Oct-21 |
|---|---|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | **Comments** | |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | New information request. *May impact materiality* | In the PP's Start RP CO2 calculation workbook, total heights are missing (or set to #N/A) for some trees in Start_TreeList and RP_TreeList, even though those values are present for TreeData. The verifiers suspect this may be related to Issue 21-3 above and request explanation and remedied if necessary. (The verifiers acknowledge that heights are not used in the Jenkins equations.) | | | *Columbia_Start_RP_CO2_10_01_2021* | |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge this explanation and note that heights are now included for all trees >5" in Start_TreeList and RP_TreeList in the revised workbook *Columbia_Start_RP_CO2_10_08_2021*. This issue is now considered closed. | | | *Columbia_Start_RP_CO2_10_08_2021* | |
| ***OPO/APD Response*** | | | | | | | |
| ***Date*** | ***PP Comment*** | | | | | ***Additional evidence submitted for review by PP*** | |
| **6-Jun-22** | Correct – this issue was related to issue 21-3, and the fix for 21-3 and 21-4 is the same. | | | | | *Columbia_Start_RP_CO2_10_08_2021* | |

| Verifier Issue | Issue ID: | 21-5 | Status: Closed | Checked by: | CL | Date Identified | 4-Oct-21 |
|---|---|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | **Comments** | |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | Clarification. *May impact materiality* | In the PP's Start RP CO2 calculation workbook, Start_TreeList and RP_TreeList both have a column labeled "Growing seasons between start date and RP date (years)". Please confirm that this actually reflects growing seasons between inventory and *either* start date or RP date. | | | *Columbia_Start_RP_CO2_10_01_2021* | |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge this clarification and note the updated labels in the revised workbook *Columbia_Start_RP_CO2_10_08_2021.xlsx*. This issue is now considered closed. | | | *Columbia_Start_RP_CO2_10_08_2021* | |
| ***OPO/APD Response*** | | | | | | | |
| ***Date*** | ***PP Comment*** | | | | | ***Additional evidence submitted for review by PP*** | |
| **6-Jun-22** | Correct – this reflects growing seasons between inventory and either the start date or the RP date. The labels have been updated and a new CO2 calcs file dated has been added to the verification folder with this change. | | | | | *Columbia_Start_RP_CO2_10_08_2021* | |



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| Verifier Issue | Issue ID: | 21-6 | Status: Closed | Checked by: CL | Date Identified 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Start_RP CO2 calculation workbook | Clarification. *May impact materiality* | One plot (75) contains two pairs of trees with identical dbh and tht; tree notes are ambiguous as to whether this is a walk-through plot or not. Please confirm whether these two pairs are simply identical by coincidence or if these two pairs reflect trees "duplicated' by the walk-through method. | | *Columbia_Start_RP_CO2_10_01_2021* |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge this explanation that these two pairs of trees are indeed "duplicated' per the walk-through method. This issue is now considered closed. | | |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | Both duplicate pairs are walkthrough trees. The trees on plot are labeled tree 1 and tree 2 with measured DBHs of 11.1 and 13.9 respectively. In the CO2 calcs workbook the real trees are labeled tree 1 and tree 3, with their walkthrough duplicate labeled tree 2 and 4 respectively. | |

| Verifier Issue | Issue ID: | 21-7 | Status: Closed | Checked by: BS | Date Identified 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section C3.1.1** | Spatial data | New information request. *May impact materiality* | Verifiers request the spatial data for the entire plot grid used for plot allocation along with the distance & bearing used between plots. | | |
| | | | **Findings Oct 10, 2021**<br>The requested spatial data for the entire plot grid has been provided along with the bearing and distance between inventory plots. This issue is now closed. | | *Columbia_Original_Grid_460m.shp* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | The entire plot grid has been added to the shared folder. The plots are oriented on a N-S E-W grid (True North, plots in all cardinal directions 0,90,180,270 degrees), with the distance between plots in all directions being 460m. | *Columbia_Original_Grid_460m.shp* |

| Verifier Issue | Issue ID: | 21-8 | Status: Closed | Checked by: BS/CL | Date Identified 4-Oct-21 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |



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| | | | | |
|---|---|---|---|---|
| **ACR IFM Methodology, v1.3, section A (A.1)** | Start_RP CO2 calculation workbook | Possible non conformance. *May impact materiality and/or conformance* | In the PP's Start RP CO2 calculation workbook ("RP Tree CO2" tab), verifiers note there are 7 trees labeled as willow species that are included in estimating the RP's total project stocks. The DBHs of these willows range from approximately 1 inch to 11 inches. Verifiers acknowledge willows are challenging to identify to the species level and that there are both tree and shrub willow species present within the general project area vicinity. While the larger diameters (>5inches) appear to fit the ACR definition of a tree, verifiers question whether the smaller diameter willows are indeed "tree" species. Please explain the rationale and/or inventory data utilized to justify including these smaller diameter willow species in the carbon calculations. | *Columbia_Start_RP_CO2_10_01_2021* |
| | | | **Findings Oct 9, 2021**<br>The verifiers acknowledge receipt of the revised workbook *Columbia_Start_RP_CO2_10_08_2021.xls*. This revision reflects the removal of the 7 willow records (in plots 72, 90, 130) in both the PP's tree lists (inventory, start date, RP) and carbon calculations.<br><br>However, the verifiers note that carbon values for some trees both within those three plots that *had* willows as well as in other plots have slightly changed between the prior workbook and this revised one. The verifiers request an explanation and, if necessary, revised numbers. | *Columbia_Start_RP_CO2_10_08_2021* |
| | | | **Findings November 30, 2022**<br>Verifiers acknowledge the change in plot carbon values was due to the start date of the project being updated from 7/29/2021 to 2/16/2021 on the InvDate tab in *Columbia_Start_RP_CO2_06_16 _2022.* The start date cell is referenced in the plot carbon calculations (i.e., the Fraction of growth season elapsed for each plot is based on its inventory date), which resulted in the changes in the carbon values. Verifiers confirmed these plot carbon calculations are correct and the start date is in agreement with the GHG plan. This issue is considered closed. | *Columbia_Start_RP_CO2_06_16_2022* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
|---|---|---|
| **6-Jun-22** | We have removed all Salix Species (FIA 920) from the inventory due to the ambiguity in specific species identification within the Salix Genus. Please see the most updated version of the Inventory Methodology excluding all unidentifiable Salix species. | *Columbia_Start_RP_CO2_10_08_2021* |
| **15-Aug-22** | Between versions *Columbia_Start_RP_CO2_10_01_2021* and *Columbia_Start_RP_CO2_10_08_2021* the start date of the project was updated from 7/29/2020 to 2/16/2021, affecting the length of the growing season allocation applied to each tree. Please see the most updated version of the CO2 calcs in the shared folder. | *Columbia_Start_RP_CO2_06_16_2022* |



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| Verifier Issue | Issue ID: | 21-9 | Status: Closed | Checked by: BS | Date Identified 6-Jan-22 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Validation & Verification Standard, v1.1 (Chap 2); ACR Forest Carbon Project Standard, v2.1 (Chap 2, A)** | GHG Plan (B.3) | Clarification. *May impact materiality and/or conformance* | On page 2 of the Carbon Plot Methodology document, the description of the delineation of the project boundary notes: "*All roads, right-of-way's, major water bodies, and other non-forested areas are removed from the project area using the best available information and aerial imagery at the time of establishment*."<br><br>Verifiers request clarifications be added to this Methodology document and the GHG Plan (B.3) that fully describe the methods used to delineate the project boundaries. Specifically, these would include: (1) how the excluded roads and major water bodies were defined – were roads based on road surface, use, ownership/class type ( county, state, private)? how was major water body defined?; (2) how were the widths of the excluded roads were determined (there appears to be two widths used- 20 and 40 ft); (3) the types of right-of-ways that were assessed and removed (e.g., power lines, road maintenance widths, etc.); and (4) the source data utilized during this process (e.g., publicly available spatial data, aerial imagery dates/sources). | | *Columbia_CarbonPlot_Methodology_10_6_21*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |
| | | | **Findings November 30, 2022**<br>Verifiers acknowledge the requested clarifications were added to both the GHG Plan and the Carbon Plot Methodology regarding the delineation of the project boundary. We can confirm that permanent roads were removed from the project area based off publicly available road layers, aerial imagery and layers provided by the landowner. Verifiers understand road permanence and categorization (20 ft or 40 ft widths) were determined based off interpretation of current and historical aerial imagery. Buffers were applied by the respective width of the road and those areas removed from the project area.<br><br>Waterbody and Waterways were located using publicly available NHD data which was adjusted based off aerial imagery assessments. Shorelines of major rivers, lakes, and reservoirs were manually delineated before buffers were applied based on the category of the waterway.<br><br>Verifiers acknowledge that waterways with canopy cover were included in the project area and that no forested rights-of-way were removed from the project area. This issue is now closed. | | *Columbia_CarbonPlot_Methodology_6_17_22*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |

| *OPO/APD Response* | | |
|---|---|---|
| **Date** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | Clarifications to describe the methods used to delineate project boundaries have been added to the Methodology and GHG Plans. No forested right-of-ways were removed in this project. | *Columbia_CarbonPlot_Methodology_6_17_22*<br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |



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| Verifier Issue | Issue ID: | 21-10 | Status: Closed | Checked by: MD/BS | Date Identified 6-Jan-22 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Validation & Verification Standard, v1.1 (Chap 2); ACR Forest Carbon Project Standard, v2.1 (Chap 2, A)** | GHG Plan (B.3) | Possible non conformance. *May impact materiality and/or conformance* | Verifiers note some project boundary discrepancies, which are provided below:<br><br>(1) Non-Forest Areas (>2.5 acres). See areas northeast of Plot 264 – there is an open grassland and the Klickitat River that have been included in the project area.<br>  <br>(2) Roads. There are roads that have been excluded but other similar road types that have been included. See areas north of Plot 267 ("View Point Road"); southeast of Plot 119 (portion of road); south of Plot 120 ("BIA-244"); and southwest of Plot 241.<br><br>(3) Ownership boundaries. In reviewing the WA NAIP 2019 aerial imagery, the southeast side of a project parcel appears to be skewed when compared to the land use/vegetation line (age class changes) observed in the aerial imagery. See project boundary lines east of Plots 48, 62, and 75 & south of Plot 76.<br><br>There may be other discrepancies as well. Please review and clarify/revise as needed and appropriate. | *Columbia_Boundary_7_7_21.shp*<br>*Columbia_Strata_9_28_21.shp*<br>*Columbia_CarbonPlot_Methodology_10_6_21*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |
| | | | **Findings December 9, 2022**<br>Verifiers acknowledge the submittal of the revised GIS spatial data.<br><br>(1) Verifiers have confirmed that the non-forested areas northeast of Plot 264 and the Klickitat riverbed have been removed from the project area in the revised GIS spatial data. | | *Columbia_Boundary_6_6_22*<br>*Columbia_Plots_6_7_22*<br>*Columbia_RMZ_6_14_22*<br>*Columbia_Strata_06_15_22* |



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| | | | (2) Verifiers have also confirmed the roads near plots 267, 119, and 120 have been removed from the project area in the revised GIS spatial data. Based on aerial imagery review, verifiers concur with the PP that the road southwest of plot 241 appears to be an inactive, being recolonized with vegetation, and will remain in the project area. We understand the PP has reviewed the project area for other roads that need to be removed and made updates where applicable.<br><br>(3) Verifiers are satisfied with the PP's clarification and supporting information regarding these slight project area boundary differences that were noted in the vegetation changes in the aerial imagery along these lines. We concur the existing project boundaries in these locations align well with the PLSS section lines and accurately reflect the deed descriptions, which verifiers believe is the more appropriate supporting information to utilize rather than vegetation changes, which the PP notes may have been the result of past management when these areas (project and abutting lands) were under the same ownership.<br><br>Verifiers find the responses and the revised spatial data to be accurate, reasonable, and conservative and also well supported; this issue is closed. | |

| *OPO/APD Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | (1) Both non-forested areas have been removed from the project area. RMZ layer has been updated to reflect Klickitat River removal.<br>(2) Roads near plots 267, 119, and 120 were removed from the project area. The road southwest of plot 241 was left in the project because it appears to be decommissioned due to a nearby washout, unmaintained, and is being reforested over time as trees and other vegetation can be seen colonizing the old roadbed. The remaining project area was scanned for similar instances, and removed where applicable.<br>(3) All current boundaries represent the most accurate and conservative location we have. The N-S line near plots 48, 62, 75 and the E-W line south of plot 76 are accurate and match deed language well. Prior to acquisition, this parcel was managed as a part of the larger landscape, with stands/units crossing over between old ownership and new ownership. The line North of Plot 238 was conservatively matched to the PLSS layer because this unit is adjacent to USFS land, and the deed does not specify any ownership in section 32 (north of boundary line). Aerial Imagery/Mgmt change was not utilized to adjust this line outward because PLSS data was available.<br>(4) The line North of Plot 238 was conservatively matched to the PLSS layer because this unit is adjacent to USFS land, and the deed does not specify any ownership in section 32 (north of boundary line). Aerial Imagery/Mgmt change was not utilized to adjust this line outward because PLSS data was available. | Columbia_Boundary_6_6_22<br>Columbia_Plots_6_7_22<br>Columbia_RMZ_6_14_22<br>Columbia_Strata_06_15_22 |



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| Verifier Issue | Issue ID: | 21-11 | Status: Closed | Checked by: BS | Date Identified 11-Jan-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR IFM Methodology, v1.3, section A (A.2)- 3rd bullet** | GHG Plan (A&B) | Possible non conformance. *May impact conformance* | In Sections A3 and B2 (item 3), the Draft GHG Plan notes: "*The project proponent will have it's forest management plan approved by ACR."* Verifiers understand the project area undergoes some commercial timber harvesting. As such, to comply with the ACR IFM Methodology the forest management plan would need to be certified by FSC, SFI, or ATFS or become certified within one year of the project Start Date.<br><br>Verifiers are not clear about the intention of having ACR approve the management plan and how this complies with the noted IFM Methodology requirement for third party forest certification. Please explain. | | *ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |
| | | | **Findings December 9, 2022**<br>Verifiers acknowledge the e-mail from the landowner (no harvest confirmation) attesting that no harvests were conducted within the project area during this reporting period. Verifiers review of aerial imagery and site visit observations also found no evidence of recent harvesting. As specified in the IFM methodology (A.2): "*If there are no ongoing harvests at the project Start Date, but harvests occur later in the project life cycle, the project area must become certified before any commercial timber harvesting can occur.*"<br><br>Verifiers concur with the PP that a certified forest management plan is not required during this reporting period. Verifiers understand commercial timber harvesting is planned by the landowner in RP2; if this occurs the landowner plans to develop and pursue certification at that time. This issue is now closed. | | *Columbia_RP1_NoHarvestConfirmation_7_28_21* |
| ***OPO/APD Response*** | | | | | |
| ***Date*** | ***PP Comment*** | | | | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | The Project area did not undergo any commercial harvesting during RP1. The project proponent will seek management plan approval with ACR prior to undergoing commercial harvesting in subsequent RP's. A confirmation of no commercial harvesting has been added to the shared verification folder. | | | | *Columbia_RP1_NoHarvestConfirmation_7_28_21* |

| Verifier Issue | Issue ID: | 21-12 | Status: Closed | Checked by: BS | Date Identified 11-Jan-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard v7, Chap 8 (Section 8.A(4-item 4)** | GHG Plan (F1) | New information request. *May impact conformance* | Section F1 (item 4) of the draft GHG Plan notes the monitoring of the net positive impacts of the carbon project are described in the Forest Management Plans. Please provide these Management Plans for review. | | *ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |



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| | | | **Findings December 9, 2022**<br>The PP notes ACR approved management plans are not available for the specific landowner properties within the project area. As there was no commercial timber harvests conducted during the reporting period, verifiers agree they are not required for the verification/validation process. The PP has revised Section F1 of GHG Plan to remove the reference net positive impacts of the carbon project being described in the forest management plans. This issue is now closed. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br><br>*Columbia_RP1_NoHarvestConfirmation_7_28_21* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **6-Jun-22** | ACR approved management plans will be shared for review as they become available for specific properties, however, because the project proponent is not currently harvesting within the project area no finalized management plans are available. GHG plan section F1 has been updated to remove reference to management plans. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br>*Columbia_RP1_NoHarvestConfirmation_7_28_21* |

| **Verifier Issue** | **Issue ID:** | **21-13** | **Status:** Closed | **Checked by:** BS | **Date Identified** 11-Jan-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Forest Carbon Project Standard, v2.1 (Chap 3)** | GHG Plan (A3) | New information request.<br>*May impact conformance* | Verifiers understand the dates for this initial reporting period have been changed from the Listing document due to the delay of transfer of ownership of a recent purchased parcel by the landowner. The reporting period was from 7/29/20 to 7/28/21 and is now 2/16/21 to 7/28/21.<br><br>Section A3 of the draft GHG Plan (Table A3.1) notes the project start date of 7/29/20 coincides with the signing of the Carbon Marketing & Development Agreement (CMDA) between the landowner (Columbia Land Trust) and Bluesource. If this approach is still being used to determine the Project Start date, please provide the updated signed CMDA. | | *Columbia_ListingForm_Signed_12_23_20*<br>*ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |
| | | | **Findings December 10, 2022**<br>Verifiers have confirmed that the revised GHG Plan consistently indicates that the project start date is 2/16/2021. Verifiers understand this date corresponds with the signing of the Carbon Marketing & Development Agreement (CMDA) between the landowner (Columbia Land Trust) and Bluesource. If this approach is still being used to determine the Project Start date, please provide the updated signed CMDA. | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 9, 2023**<br>Verifiers have confirmed that the project start date of 2/16/2021 corresponds with the effective date of the Columbia Creek Cedar Creek acquisition by the landowner. Verifiers also confirmed that the GHG Plan was consistently updated to clarify the reason for this date - "Final parcel acquisition by CLT". This issue is considered closed. | | *Donation Agreement -- Columbia County -- fully-executed 4821-8563-9133.pdf*<br><br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| *OPO/APD Response* | | | | | |



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| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
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| **6-Jun-22** | Start date has been corrected to 2/16/2021 in the GHG plan. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| **8-Mar-23** | The start date, 2/16/20221, corresponds with the effective date of the last property acquired by the landowner that is included in the project. Please see in the shared Dropbox folder>PropertyDocs\Deeds_Easements\Columbia_County_Cedar_Creek> Donation Agreement -- Columbia County -- fully-executed 4821-8563-9133.pdf". The GHG Plan has been updated to clarify that the start date is not the CDMA signing, but in fact the acquisition date of this final parcel. | *Donation Agreement -- Columbia County -- fully-executed 4821-8563-9133.pdf*<br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| **Verifier Issue** | **Issue ID:** | **21-14** | **Status:** Closed | **Checked by:** BS | **Date Identified** 11-Jan-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard v7, Appendix B (b.4)** | GHG Plan (B8) | Possible non conformance. *May impact materiality and/or conformance* | In Section B8 of the draft GHG Plan, as the ACR Standard specifies the PP has utilized the *ACR Tool for Risk Analysis and Buffer Determination* to estimate the Total Risk Score (18%). For the Natural Disaster Risk rating for Fire (E), verifiers question the determination that the project area is in a Low Wildfire Risk region (fire risk of 2%).<br><br>As supporting evidence for this risk rating estimation, the PP has provided the 2020 Wildfire Hazard Potential Maps (Maps A1 to A5). While verifiers agree with the determination of the low risk rating for the western project parcels (Maps A1-portions of A4), there are areas within portions of Map A4 and most of Map A5, where the hazard potential is typically rated from moderate to very high. Verifiers estimated that these higher wildfire risk potentials contain approximately 55% of the project area.<br><br>Also, using the wildfire history spatial data of the National Interagency Fire Center ( https://data-nifc.opendata.arcgis.com/ ), verifiers noted the Big Hollow Fire (object ID 1501): it is larger than 1,000 acres; occurred within 1 year of this project's reporting period: and is within 30 miles of the portions of the project area. While this wildfire does not occur within 30 miles of all the project parcels it is within a major portion of the project area.<br><br>Given these two wildfire risk rating factors, please review and/or clarify and revise as appropriate. | | *ColumbiaRiver_GHGPlan_DRAFT_10_21_21* |
| | | | **Findings December 9, 2022**<br>Verifiers acknowledge that the PP is now using a weighted average to determine fire risk rating, we concur with this approach and the categorical fire risk ratings (i.e., 2%, 4% & 8%) except the 8% category acres. Verifiers agree that all of the parcels of the Western Cascades (WC) stratum have been included in the 8% fire risk category, | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br><br>*Columbia_Strata_06_15_22.shp* |



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| | | | based on our review of the spatial boundary from the National Interagency Fire Center associated with the Big Hollow wildfire, we believe the Eastern Cascade (EC) parcels near plots 22-24 is within 30 miles of this fire and should be included in the 8% fire risk rating. Please review, clarify and/or revise as needed.<br><br>Also, verifiers request the parcels/strata names be included in the notes for each of the categorical fire risk ratings within the table on page 27 of the GHG Plan (or another appropriate location) to help clarify and support the PP's selection for each of these fire risk ratings. | |
| | | | **Findings March 9, 2022**<br>Verifiers reviewed the Fire Risk Weighted Average table provided in the GHG Plan. The calculation for the Fire Risk Weighted Average was confirmed given the inclusion of 217 acres of the EC strata in the 8% fire risk category given its proximity to the Big Hollow Fire. It was found that the acres allocated to each Fire Risk % do not reconcile with the Grand Total which appears to be caused by a typo in the Fire Risk 8% acres. Please update as appropriate.<br><br>Verifiers acknowledge the addition of the "Final Fire Risk Rating, by Parcel" map in the GHG Plan as a final summary map to support the Fire Risk designations in each parcel. This part of the issue is considered closed. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23 .pdf* |
| | | | **Findings January 2, 2024**<br>Verifiers confirmed that the acres allocated to each parcel's Fire Risk percentage now reconcile with the Grand Total acreage in the GHG Plan. The typo for the acreage of the Fire Risk 8% area was corrected from 3993.33 to 3933.33 acres. As the requested discrepancies have been corrected, this issue is closed. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_ 23.pdf* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **6-Jun-22** | The Natural Disaster Risk Rating for Fire (E) has been updated to 4.81% in consideration of the Big Hollow Fire and higher fire risk areas in the eastern portion of the project area. Please see section B8 of the GHG plan for the weighted average risk rating for fire (weighted by acres in each fire risk category). | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| **3/8/2023** | The Eastern Cascades parcels have been adjusted to an 8% Natural Disaster Risk Rating. The weighted Natural Disaster risk rating across the property has been updated to 4.91%.<br><br>A map has been added to the GHG plan depicting the fire risk rating of the various parcels. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf*<br>*Columbia_RP_ERT_HWP_02_27_2023.xlsx* |
| **31-Oct-23** | We can confirm this was a typo in the 8% fire risk category. The acres within each fire risk category have been updated to sum to the project grand total. | *DRAFT_ColumbiaRiver_GHGPlan (most recent version)* |

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| **Verifier Issue** | **Issue ID:** | **21-15** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **28-Nov-22** |



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| ACR Standard ref | GHG Plan Section | Significance | Issue Description | Comments |
|---|---|---|---|---|
| **ACR Standard, v7.0, 6B; IFM Methodology v1.3, C2** | CarbonPlot Methodology | New information request. May impact conformance; no materiality | As described in the Stratification section of the Carbon Plot Methodology document (pg2): "*The stratification is based on the most recent geospatial file, aerial or lidar imagery, and inventory data*." In the GHG Plan section D1. Monitored Data and Parameters "Acres" Measurement Methodology indicates that "*Strata area figures adjusted based on stocking levels and species distribution projected in modeling and verified through inventory updates.*"<br><br>Verifiers understand the stratification process was based on the FVS variant applied to the project area. Please review and revise project documents to adequately describe the basis and process used to stratify the project area along with the associated results of this process (i.e., strata used for the project).<br><br>Also, within the Carbon Plot Methodology document (pgs 29-31), the PP provides schematics on the walk-through methodology (Examples 1-3). If these are figures were developed from sources other than the PP, please include the associated document references if applicable. | *Columbia_CarbonPlot_Methodology_6_17_22.*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 9, 2023**<br>Verifiers confirmed that Section D1 and E1 of the GHG Plan and the Carbon Plot Methodology now describe the basis, process, and results of stratification of the project area. The property was overlaid with the latest FVS variant map and stratified based on the overlap. The results of this effort were found summarized in Table E1-1 "Area by Strata".<br><br>The PP included the references used for the walk-thru schematics in the revised Carbon Plot Methodology document. This issue is closed. | *Columbia_CarbonPlot_Methodology_3_8_23.pdf*<br><br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **3/8/2023** | The Strata sections have been updated in the Methodology and in Section D of thew GHG plan.<br><br>Walkthrough method is described by Ducey et al., 2004. The schematics were based off an article by David Herries (2020) at Interpine Innovation, specifically: interpine.nz/28-forest-edges-walkthrough-solution-alternative-to-the-plot-mirage-method. These references have been added to the methodology. | *Columbia_CarbonPlot_Methodology_3_06_23.*<br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| **Verifier Issue** | **Issue ID:** | **21-16** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **28-Nov-22** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | | | **Comments** |



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| **IFM Methodology v1.3, 3.1.1** | GHG Plan, Sections D | New information request. May impact conformance; no materiality | In the Monitoring Plan (Section D) of the GHG Plan, for monitoring Forest Carbon (pg 25), the QA/QC section states "*The inventory will use a random sample design…*". Verifiers understand the plot allocation for the inventory is based on a systematic grid. Please clarify.<br><br>Also, Section D1 of the GHG Plan references an older version of the Carbon Plot inventory methodology (*Columbia_CarbonPlot_Methodology_4_2_21*) and verifiers believe the description for Forest Carbon should include dead trees as well. Please review and update as needed and appropriate. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22.pdf* |
| | | | **Findings March 9, 2023**<br>The PP has clarified the inventory plot allocation method was based on systematic random sampling (i.e., a systematic grid with a random start) in the revised carbon plot methodology document. This issue item is closed.<br><br>Verifiers acknowledge that Section D1 of the GHG Plan now references a genericized citation for the Carbon Plot Methodology which will not become outdated. However, verifiers still believe dead trees should be included in the description for Forest Carbon. Please review and update GHG Plan and Monitoring Report as appropriate. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22.pdf*<br><br>*DRAFT_Columbia_RP1_MonitoringReport_03_07_23.pdf* |
| | | | **Findings January 2, 2024**<br>Verifiers confirmed Section D1 of the GHG Plan Forest Carbon parameter definition has been updated to include both live and dead trees ("*Carbon stores in above and below ground live Trees, and above ground standing dead trees, at the beginning of the year t*"). Verifiers note that Monitoring Report Section V(1) Forest Carbon parameter definition does not include dead trees. Please update as appropriate.<br><br>Additionality, in Section D1 of the revised GHG Plan, the QA/QC procedure for a couple of parameters (Defect, Live/Dead Status) list: "*Equipment will be maintained in excellent condition"*. This statement does not appear applicable to these inventory measurements. Please review/clarity or revise as appropriate. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf*<br>*DRAFT_Columbia_RP1_MonitoringReportV5.0_12_22_2023.pdf* |
| | | | **March 22, 2024 Findings**<br>Verifiers find the latest Monitoring Report Section V(1) Forest Carbon parameter has not been updated to include dead trees. Please update as appropriate.<br><br>Verifiers find Section D1 of the revised GHG Plan was updated to remove the statement "*Equipment will be maintained in excellent condition"* for the Defect and Live/Dead Status parameters as it is not applicable to these inventory measurements. This issue item has been resolved.<br><br>This issue will remain open pending the needed revision of the Forest Carbon parameter noted above. | *ColumbiaRiver_GHGPlan_DRAFT_3_14_24.pdf*<br><br>*DRAFT_Columbia_RP1_MonitoringReportV5.0_3_25_24.pdf* |



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| | | | **July 8, 2024 Findings**<br>This issue will be assessed pending receipt of an updated Monitoring Report. | *DRAFT_Columbia_RP1_MonitoringReportV5.0_3_25_24* |
| | | | **July 22, 2024 Findings**<br>The PP has revised Section V of the Monitoring Report (Forest Carbon parameter) to include dead trees. This issue item and entire issue is now closed. | *DRAFT_Columbia_RP1_MonitoringReportV5.0_7_18_24* |

*OPO/APD Response*

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **3/8/2023** | The description has been updated in Section D of the GHG plan to clarify that a systematic inventory design was used.<br><br>The GHG plan has been updated to clarify that the most recent version of the Methodology should be referenced. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| **31-Oct-23** | Section D1 has been updated to include above ground standing dead trees in the description of Forest Carbon. | |
| **1/24/2024** | The monitoring report has been revised to include aboveground standing dead carbon, and references to field equipment in the decay class, defect, and live/status sections has been removed. | *DRAFT_Columbia_RP1_MonitoringReport_03_07_23.pdf* |
| **4/15/2024** | Section V(1) Forest Carbon parameter has been updated to include standing dead trees. | |
| **7/18/2024** | An updated Monitoring report is provided in the shared folder. | *DRAFT_Columbia_RP1_MonitoringReportV5.0_(Most recent version)* |

| **Verifier Issue** | **Issue ID:** | **21-17** | **Status:** Closed | **Checked by:** BS | **Date Identified** 28-Nov-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **IFM Methodology v1.3, (3.1.2.1)** | Carbon Plot Methodology (pg 17-18); | Clarification. *May impact materiality or conformance.* | ACR methodology for standing dead trees specifies 4 decay classes. The PP's Carbon Plot methodology (pg 17-18) and GHG Plan (Table E1-3 decay classes) outlines 5 decay classes (based on an ARB IFM protocol specification) and the verifiers note that only 4 decay classes are used in the inventory (TreeData tab). Please clarify decay classes used and update project documents as appropriate. | | *Columbia_Start_RP_CO2_06_16_2022*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf* |
| | | | **Findings March 9, 2023**<br>The PP has updated the GHG Plan (Section D1) as well as Section V of the Monitoring Report to acknowledge the reclassification of the measured decay class 5 to ACR decay class 4. The crosswalk applied to trees recorded as a decay class 5 to a decay class 4 of the ACR standard is considered acceptable. This issue is therefore considered closed. | | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf*<br><br>*DRAFT_Columbia_RP1_MonitoringReport_03_07_23.pdf.* |

*OPO/APD Response*

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **3/8/2023** | The ACR IFM methodology v1.3 does not specify a reclassification methodology between the 5 decay classes and 4 decay classes, however ACR has advised that reclassifying decay class 5 to 4, the next most conservative class, is acceptable. This has been updated in the next version of the ACR IFM Methodology in section 4.2.3.1 of IFM V2.0.<br><br>The GHG plan has been updated to acknowledge the reclassification of the measured decay class 5 to ACR decay class 4. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf*<br>*Columbia_CarbonPlot_Methodology_3_06_23* |

| **Verifier Issue** | **Issue ID:** | **21-18** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **28-Nov-22** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | | **Comments** | |
| **ACR Standard, v7.0, Section 2.B.6** | Section D.2 | Clarification. *May impact conformance; no materiality issue* | The QA/QC Procedures section of the Carbon Plot Methodology document notes at least 10% of plots were visited to conduct an audit of the inventory crews and a summary report of the check cruising was then provided to Anew (pg 11). Bluesource. The QA/QC Field Procedures section of the GHG Plan states the check cruising process completed an audit of at least 5% of the plots. Please review and revise the project documents as appropriate.<br><br>The PP has previously submitted 5 plot check documents (dated from May 12 to June 26, 2021), which provide the plots checked, observations and measurements, feedback to cruisers, and results. Verifiers have two questions regarding the check cruise process: (1) the June 2, 2021 plots checked document indicates 9 plots were checked but there is limited information on whether these plots passed; did all of these plots pass?; and (2) While the individual plot check reports are very helpful in understanding and assessing the check cruise process, verifiers find it challenging to ascertain whether the check cruising effort met the internal audit goals (>5 or 10% plots checked, not all plot check data appears to be provided); please clarify and/or provide the summary check cruise report (if completed). | | | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf*<br><br>*Columbia_Plots_6_7_22.shp*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22.pdf*<br><br>*Plot Checks June 2 2021* | |
| | | | **Findings March 9, 2023**<br>This issue remains open -pending APD response. | | | | | |
| | | | **Findings January 4, 2024**<br>The GHG Plan (Section D2, pg 45) has been revised to indicate the at least 10% of the plots were checked cruised, which is consistent with the Carbon Plot Methodology document.<br><br>Regarding question #1 above, the PP has provided an e-mail from the Inventory contractor (Reliance Forestry, dated 6/13/2023) that states all 9 plots during the June 2, 2021 check cruise passed (see *Columbia_Check_Cruise_04292021_Confirmation_46_60_135_ 55_21).* | | | | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23*<br><br>*Columbia_CarbonPlot_Methodology_3_8_23*<br><br>*Columbia_Check_Cruise_04292021_Confirmation_46_60_135_55_21* | |



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| | | | Regarding question #2 above, the provided e-mail also confirmed the April 22, 2021 check cruise was completed on 5 plots but no report was prepared. The Inventory contractor asserts that all 5 plots passed the check cruise process.<br><br>Verifiers are satisfied with the PP's response and supporting documentation. While there was one missing check cruise report (4/22/21), verifiers have no reason to doubt the Inventory contractor's results for this missing report, based on observations, document review and contractor interviews completed during the site visit; the inventory contractor appears to have completed a high quality and thorough inventory that followed the specifications in the CarbonPlot Methodology.<br><br>The PP has also provided a list of all the plots checked cruised. Verifiers confirmed the total number of plots check cruised and find the percentage of plots check cruised meets the stated Carbon Plot Methodology specification (>10%).<br><br>All issue items have been clarified and resolved, as a result this issue is considered closed. | *Plot Checks June 2 2021*<br>*Plot Checks June 14 2021*<br>*Plot Checks May 12 2021*<br>*Plot Checks May 24 2021*<br><br>*Skookumchuck Plot failures* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **31-Oct-23** | The GHG plan has been updated to state at least 10% of the plots were audited.<br><br>1) 25/27 check cruise plots passed their initial check cruise. Plots 253 and 247 failed their initial check cruise due inconsistent errors, however, because they were subsequent plot failures this triggered additional QA/QC that required the remeasurement of 5 additional plots as outlined in the "Skookumchuck Plot failures" document in the shared verification folder. Errors on both failed plots were corrected and recommendations were made to mitigate future errors.<br><br>2) The following plots were checked<br><br>4/22/2021 – 4/29/2021 46, 60, 135, 55, and 21 (5 Total)<br>5/12/2021 - 112, 116, 133, 137, 143, and 169 (6 Total)<br>5/24/2021 – 199, 205, 209, 21/6, and 218 (5 Total)<br>6/2/2021 - 39, 53, 58, 65, 103, 162, 167, 172, 198 (9 total)<br>6/14/2021 – 58, 103 (2 Total)<br>5/27/2021 - Skookumchuck Plot Failures - 253, 247 (2 Total)<br><br>Total Plots Checked: 27<br>Total Plots in Project: 254<br>Plot Check %: 10.63% | Columbia_Check_Cruise_04292021_Confirmation_46_60_135_55_21<br><br>Plot Checks June 2 2021<br><br>Plot Checks June 14 2021<br><br>Plot Checks May 12 2021<br><br>Plot Checks May 24 2021<br><br>Skookumchuck Plot failures |



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| **Verifier Issue** | **Issue ID:** | **21-19** | **Status:** Closed | **Checked by:** BS/SB | **Date Identified** 28-Nov-22 |
|---|---|---|---|---|---|
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **IFM Methodology v1.3, C1; ACR Standard, v7.0, Section 2.A (table 1)** | Carbon Plot Methodology, GHG Plan Sec D2 and E1 | Clarification. *May impact conformance; no materiality issue* | The Data Collection section of the *Carbon Plot Methodology* indicates the walk-through (WT) methodology would be used for those plots that are near "hard" edges such as the project boundary or excluded roads. Column L (walk through repetition) of the TreeData tab within the *RP_C02* workbook indicates that there were no inventory plots where the WT method was applied by the *PlotData Notes* WkTh workbook indicates there are 27 plots where the WT method was applied. Please clarify and update documents as appropriate. | | *Columbia_Plots_6_7_22.shp*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22.pdf*<br><br>*Columbia_Start_RP_CO2_06_16_2022*<br><br>*Columbia_PlotData_Notes_WkTh_10_7_21* |
| | | | **Findings March 9, 2023**<br>Verifiers were able to confirm the WlkThru column in the initial plot data provided (Columbia_Plots_7_20_21.shp). This attribute was removed in subsequent spatial files. Verifiers identified two potential duplicate walk through trees, both in Plot 75. In Columbia_PlotData_Notes_WkTh_10_7_21.xlsx the four rows shared the Notes "not walkthrough on map, see video". In the original plot data received Columbia Plots 7 20 21.shp, Plot 75 was not indicated to be a walk through plot. Verifiers are seeking clarification regarding what plots were finalized as walk through plots upon field checking and whether or not those duplicate trees for plot 75 were walk through trees. Please clarify. | | *Columbia_Plots_6_7_22.shp*<br><br>*Columbia_Plots_7_20_21.shp*<br><br>*Columbia_PlotData_Notes_WkTh_10_7_21.xlsx*<br><br>*Columbia_Start_RP_CO2_02_27_2023.xlsx* |
| | | | **Findings January 2, 2024**<br>Verifiers confirmed the Columbia_Inventory_Data_6_7-23.xlsx workbook now includes only 9 trees for Plot 75 and duplicates were removed. Verifiers are still finding 11 trees with carbon calculated in the Start RP CO2 workbook (all tree list sheets) for the plot. The two erroneous walkthrough trees appear to still be in the estimate for the project stocks. Please update this workbook and any subsequent workbooks / documents using derived project carbon values to be consistent with the inventory update.<br><br>While neither of the trees removed will contribute to the Regeneration Calcs, please update that workbook to remain consistent with the inventory update. | | *Columbia_Inventory_Data_6_7_23.xlsx*<br><br>*Columbia_Regeneration_Calcs_12_15_2023.xlsx.*<br><br>*Columbia_Start_RP_CO2_12_15_2023.xlsx*<br><br>*Columbia_RP_ERT_HWP_12_15_2023.xlsx.*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf*<br><br>*DRAFT_Columbia_RP1_MonitoringReportV5.0_12_22_2023.pdf* |



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| | | | **March 22, 2024 Findings**<br>Verifiers acknowledge the two erroneous walkthrough trees (Plot 75) have been removed from the revised CO2 workbook but have not been removed from the Regeneration Calcs workbook. This issue remains open until this workbook is updated to be consistent with the other project documents. | *Columbia_Regeneration_Calcs_12_15_2023.xlsx*<br><br>*Columbia_Start_RP_CO2_02_28_2024* |
| | | | **July 10, 2024 Findings**<br>Verifiers reviewed the new Regeneration Calcs workbook and noted the removal of Tree_ID 755 and 757 from Plot 75 in the Start_Inventory. This is consistent with other inventory tree lists where the erroneous walkthrough trees were previously removed. This issue is closed. | *Columbia_Regeneration_Calcs_02_28_2024.xlsx* |

*OPO/APD Response*

| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
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| **3/8/2023** | The "PlotData" walkthrough column was populated "yes" if our spatial analysis indicated the plot might be close enough to an edge to require the walkthrough methodology. Some of these plots were not walkthroughs when field-checked, or they didn't have any trees that fit the criteria.<br><br>Walkthrough trees were indicated as such in the field data so that only a single record needed to be created. These tree records were then doubled in the cleaned data (TreeData tab of the RP_CO2 sheet). Column L is therefore "1" for all trees, as doubled trees have been accounted for by doubling the walkthrough records. | |
| **31-Oct-23** | Correct, Plot 75 is not a walkthrough, and should not have been treated as a walkthrough in the field. The two duplicate records for plot 75 have been removed from the treelist. | *Columbia_Inventory_Data_6_7_23*<br>*Columbia_PlotData_6_7_23* |
| **1/24/2024** | The two duplicate tree records from plot 75 (previously Tree Numbers 2 and 4) have been removed from all calculations. | *Most updated version of Columbia_Start_RP_CO2* |
| **5/1/2024** | The previous regeneration calcs file was outdated. An updated file as been provided in the shared folder. Trees 2 and 4 from Plot 75 have been removed from the updated file. | |

| **Verifier Issue** | **Issue ID:** | **21-20** | **Status:** Closed | **Checked by:** BS | **Date Identified** 28-Nov-22 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0, Section 4.A.1** | Section C.1 | Clarification. May impact conformance; no materiality issue | Verifiers note some minor typos and/or areas where further clarifications may be needed in the GHG Plan.<br><br>Specific items include:<br><br>1. Section B3: Project area 13,420 acres, in Sections A5 & B5: 13,392 acres | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf* |



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| | | | 2. "and Douglas-Fir Pole Beetle and silver fir beetle" (pg 20)<br>3. "However, none of these pests have been observed on in" (pg 20)<br>4. Typo in the word "Regulatory" in the section heading (pg 30)<br>5. Paris agreements (2016) is not listed on Binding International Agreements.<br>6. FVS-NE is referenced in GHG Plan. Was this variant actually used? (pg 43, 45).<br>7. "*Annual attestations confirming this assessment will be provided separately for verification purposes*", pg 56. This attestation is now part of the Monitoring Report.<br>8. Consistency in units used for reporting tCO2e.<br><br>Please review and revise as needed and appropriate. | |
| | | | **Findings March 9, 2023**<br>1. Verifiers confirmed acres were consistent in Section B3, A5, and B5 of the GHG Plan. Section D1 (not initially reported) still lists the project as 13,420 acres. Please update as appropriate.<br>2. Issue Parts 2-7 were confirmed to be updated as expected and are considered closed.<br>8. Please update GHG Plan to consistently and correctly reference tCO2e and tCO2e/ac. There remain inconsistencies throughout text and table headers. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| | | | **Findings January 2, 2024**<br>1. Verifiers find that section D1 of the GHG Plan now lists project acreage as 13,392 acres which is consistent with most other references in the document. Verifiers did note that Table E1-11 indicated the total acreage was 13,393. Verifiers acknowledge rounding likely contributed to this discrepancy but please update all acreage references to round consistently.<br>8. Verifiers are still finding issues with units and tCO2e references in the GHG Plan. The following are several instances. Please review the document and update as appropriate.<br>a.) Table E1-5 Total Dead tCO2e/acre should be tCO2e<br>b.) Table E1-6 Total tCO2e/acre should be tCO2e<br>c.) Table E1-12 Harvested Wood Products CO2e (t/ac) should be tCO2e/ac<br>d.) Figure E1-1 title, description, and axis label are different.<br>e.) There are references to "tCO2e equivalent". The word equivalent is redundant. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| | | | **March 27, 2024 Findings**<br>1. Verifiers find that all references to project acres in the GHG Plan show 13,392.54 or 13,393 to clearly distinguish when the acres have been rounded or not. This issue item is closed. | *ColumbiaRiver_GHGPlan_DRAFT_3_14_24.pdf* |



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| | | | **8.** Verifies confirmed Tables E1-(5,6,12) and Figure E1-1 have all been updated to reference the current units and/or titles as appropriate for what is being quantified in the revised GHG Plan. These issue items are closed.<br><br>All issue items have been resolved, thus this issue is closed. | |

| *OPO/APD Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **3/8/2023** | These and other errors/typos have been addressed in the GHG plan. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| **31-Oct-23** | 1. Section D1 has been updated.<br>8. GHG plan has been corrected to consistently use tCO2e/acre | *DRAFT_ColumbiaRiver_GHGPlan (most recent version)* |
| **5-Mar-2024** | 1. Total Project acreage is 13,392.54, so the rounded value would round up. All rounded acres have been updated to 13,393 in the GHG Plan.<br>8. Suggested changes have been made to the GHG plan.<br>(a, b, c) Table E1-5, E1-6, and E1-12 headers have been adjusted.<br>(d) For Figure E1-1, the description has been clarified to add metric tons/acre and remove t from tCO2e so that it is consistent throughout the figure. The y-axis clearly states the units as metric tons CO2e / acre. The title does not need to specify units.<br>(e) The word "equivalent" has been dropped. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| **Verifier Issue** | **Issue ID:** | **21-21** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **28-Nov-22** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | | **Comments** | |
| **ACR Standard, v7.0, Section 8, 8.A** | GHG Plan, Sections C.1, F | Non conformance. *May impact materiality or conformance.* | Section C.1 of the GHG Plan covers the Regulatory Surplus Test and provides a comprehensive list of the applicable laws and regulations. The ACR Standard, Chapter 8 (8.A, item 2) specifies: "*Applicable laws, regulations, rules, and procedures and the associated oversight institutions*." Verifiers have the following questions to verify & validate compliance with the ACR Standard for the Environmental and Community Impact assessments:<br><br>(1) Did the PP consider the applicable laws, regulations, etc. in completing these assessments? Currently not clear in GHG Plan (Section F).<br><br>(2) Are there any oversight institutions that review compliance or monitoring of the environmental and community impacts within the project area? For example, are there other entities that the Columbia Land Trust partners with on conservation actions within the project area that require annual monitoring or compliance | | | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf* | |



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| | | | reporting or oversight by the Land Trust Alliance. Please add the needed descriptions to the GHG Plan (Section F) to clarify. | |
| | | | **Findings March 9, 2023**<br>This issue remains open -pending APD response. | |
| | | | **Findings January 5, 2024**<br>The PP has clarified in item 2 of Section F of the revised GHG Plan that the *"Applicable laws, regulations, rules, and procedures and the associated oversight institutions*" are included in Section C1 of GHG Plan (Regulatory Surplus Test). While this is mostly correct, Section C1, however, does not include information on the associated oversight institutions. The description of this information appears to be included in item 3 of Section F (last three sentences). Shouldn't that information on associated oversight institutions be included in item 2 of Section F?<br><br>Please review and revise/clarify as appropriate. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23* |
| | | | **Findings March 27, 2024**<br>The associated oversight institutions noted in item 2 of Section F have been referenced and included in Section C1 of the revised GHG Plan. This issue item has been resolved and the issue can now be closed. | *ColumbiaRiver_GHGPlan_DRAFT_3_14_24.pdf* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
|---|---|---|
| **31-Oct-23** | 1. Section F of the GHG has been updated to clarify the PP considered all applicable laws, regulations, etc., in completing the assessment.<br><br>2. There are other entities that the Columbia Land Trust partners with that require annual monitoring as it relates to their conservation easements, and grant agreements, and accreditations. These institutions have been added to section F. | *ColumbiaRiver_GHGPlan_DRAFT (most recent version)* |
| **3/7/2024** | Oversight institutions were added into section C1. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| **Verifier Issue** | **Issue ID:** | **21-22** | **Status:** | **Closed** | **Checked by:** | **MD** | **Date Identified** | **23-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | Clarification. *May impact materiality or conformance.* | In the baseline wood products tab, the harvest acres table, are these acres per year or total for the period? If they are Harvest/year, the values are not realistic. For example, is it realistic to harvest 5,876 acres per year, this being the Harvest/year value in period 0. Please review, clarify, and make corrections as needed. | *Columbia_100Yr_calcs_06_16_2022.xlsx* |



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| | | | Also, verifiers find formula errors in the PP's calcs workbook in the Baseline_ WoodProducts and Project_WoodProducts tabs. These being in the summaries at the top of the Harvested acres spreadsheet columns AN, AT and AW. Please review and correct as appropriate. | |
| | | | **Findings March 14, 2023**<br>Verifiers acknowledge that the Harvest Acres table in the Baseline_wood products and Project_WoodProducts tabs row headings were updated to Harvest / period and Harvest acres / year in the revised 100-yr calc workbook. These more clearly and accurately describe the values in the noted rows.<br><br>Verifiers confirmed the formula errors in the Baseline_ WoodProducts and Project_WoodProducts tabs of the revised 100-calcs workbook (columns AN, AT and AW) have been corrected. This issue are now closed. | *Columbia_100Yr_calcs_02_27_2023.xlsx* |
| | | | **Findings January 11, 2024**<br>This issue has been reopened because the Baseline and Project Wood Products Harvest Acres tables row label corrections made in the *Columbia_100Yr_calcs_ 02_27_2023* workbook have not been incorporated in the revised 12_15_2023 workbook.<br><br>Also, in the "Project_WoodProducts" tab, Harvest Acres table starting at column AN, there are no harvest acres but the tables proceeding that show harvest volume.<br><br>Please review and either justify the changes or make necessary revisions. | *Columbia_100Yr_calcs_12_15_2023.xlsx* |
| | | | **Findings March 18, 2024**<br>The Baseline_Wood_Products tab and the Project_Wood_Products tab labels do not appear to have been re-added to cells AM4 and AM5 within the revised 100 yr calcs workbook. This item remains open.<br><br>In the "Project_WoodProducts" tab, Harvest Acres table starting at column AN, some periods now have harvest acres. However, in periods 1, 3 and 9 there are 0 harvest acres even though there are harvest volumes in those periods in the proceeding tables. It appears the formula referenced in the verifiers' previous finding has not been updated. This item remains open.<br><br>Please review and either justify the changes or update as requested. | *Columbia_100Yr_calcs_02_29_2024.xlsx* |
| | | | **Findings July 10, 2024**<br>The labels for AM4 "Harvest/period" and AM5 "Harvest acres / year" in the Baseline_WoodProducts and Project_WoodProducts tabs have been re-added. This issue item is closed. | *Columbia_100Yr_calcs_05_02_2024.xlsx* |



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| | | | The "Project_WoodProducts" tab Harvest Acres have been updated to include harvest acres in all periods. This is consistent with the harvest volumes in each of the periods in the proceeding tables. This issue item is closed.<br><br>This issue is now closed. | |

*OPO/APD Response*

| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
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| **3/8/2023** | These reported acres are not annual harvest acres, they are periodic harvest acres. Labels have been added to Baseline_WoodProducts and Project_WoodProducts tabs to clarify.<br>The summary formulas have been updated as well to eliminate the formula errors. | *Columbia_100Yr_calcs_ 2_27_23 .xlsx* |
| **5-Mar-2024** | In the Baseline_Wood_Products tab and the Project_Wood_Products tab, labels have been readded to cells AM4 and AM5 to clarify the values in Rows 4/5 in Columns AN-AX.<br><br>In the Project_Wood_Products tab, Harvest Acres table starting at column AN, there was an incorrect VLookup that was incorrectly attempted to match Baseline Harvest values with Project Harvest values. The formula has been updated, and estimated Project scenario harvest acres are now correctly calculated. | *Columbia_100Yr_calcs_02_29_2024.xlsx* |
| **2-May-2024** | In the Baseline_Wood_Products tab and the Project_Wood_Products tab, labels have been readded to cells AM4 and AM5 to clarify the values in Rows 4/5 in Columns AN-AX.<br><br>In the Project_Wood_Products tab, Harvest Acres table starting at column AN, there was an incorrect VLookup that was incorrectly attempted to match Baseline Harvest values with Project Harvest values. The formula has been updated, and estimated Project scenario harvest acres are now correctly calculated. | *Columbia_100Yr_calcs.xlsx* |

| **Verifier Issue** | **Issue ID:** | **21-23** | **Status:** Closed | **Checked by:** MD | **Date Identified** 23-Jan-23 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | Clarification. *May impact materiality or conformance.* | Verifiers confirmed the stumpage rates, referenced in the cost assumptions in the PP GHG plan document and provided in the Stumpage Prices tab in the 100yr_calcs workbook, for all species but lodgepole pine, western white pine and bigleaf maple sawtimber. The PP has chosen higher rates than what is in the DNR publication for these species. Please explain the reason for the variation and give a source for the different rates. | | *Columbia_100Yr_calcs_06_16_2022.xlsx* |
| | | | **Findings March 9, 2023**<br>Verifiers confirmed the Stumpage Prices tab for lodgepole pine, western white pine and bigleaf maple align with the DNR publication stumpage prices in the revised 100-yr calcs workbook (to $163, $163 and $123 /Mbf respectively). This issue is closed. | | *Columbia_100Yr_calcs_02_27_2023.xlsx* |

*OPO/APD Response*



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| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
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| | Stumpages for lodgepole pine, western white pine, and bigleaf sawtimber were incorrectly using a DNR source from a prior year. The stumpages for these species have been updated to all come from the same source. | *Columbia_100Yr_calcs_02_27_2023.xlsx* |

| **Verifier Issue** | **Issue ID:** | **21-24** | **Status:** | **Closed** | **Checked by:** | **MD** | **Date Identified** | **23-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | | **Comments** | |
| **ACR Standard, v7.0, Section 6B** | GHG Plan Section E.1 | Clarification. *May impact materiality or conformance.* | Verifiers note potential discrepancies, typos and/or needed clarifications within the GHG plan and calcs workbook, which are listed below. Please review, clarify and/or revise as appropriate.<br><br>1. In the GHG plan section B5-Baseline there are typos and confusion in the first sentence. Please also define what is an "ecologically minded harvest regime".<br>2. In the GHG plan Figure E1-1, is it correct that both baseline and project scenarios (as the graph is captioned) are included in the graph?<br>3. In the 100 Yr calcs workbook, financials tab, shouldn't cell A20 be labeled Net Revenue (not Revenue)? It appears to be the same value as in row 14, correctly labeled as Net Annual Revenue. | | | | *Columbia_100Yr_calcs_06_16_2022.xlsx*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* | |
| | | | **Findings March 9, 2023**<br>1.) Verifiers reviewed the description in Section B5 of the revised GHG Plan. The first sentence describes the three baseline harvest regimes and defines "ecologically minded harvest regime". Verifiers are satisfied with this respond and associated revisions to the GHG Plan.<br><br>Verifiers did find a typo in the newly updated section (i.e.,"harvest harvest"). Please update as appropriate.<br><br>2.) Verifiers confirmed that Figure E1-1 caption was updated to accurately describe the graph showing only the baseline scenario. This issue item is closed.<br><br>3.) Verifiers confirmed that label for Net Revenue in cell A20 was updated and consistent with row 14. This issue item is closed. | | | | *DRAFT_ColumbiaRiver_GHGPlan_3_8_2.pdf*<br><br>*Columbia_100Yr_calcs_02_27_2023.xlsx* | |
| | | | **Findings January 10, 2024**<br>1.) Verifiers find the typo in Section B5 of the revised GHG Plan has been resolved. This issue item is closed.<br><br>3.) Item 3 is reopened. Verifiers find the correction of cell A20 made in the 02_27_2023 version of the 100 Yr workbook was not incorporated in the | | | | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf*<br><br>*Columbia_100Yr_calcs_12_15_2023.xlsx*<br><br>*Columbia_RP_ERT_HWP_12_15_2023.xlsx* | |



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| | | | revised workbook (12_15_2023). Please review and update and as appropriate.<br><br><u>New items</u>:<br>4.) Related to item 3, in the *Columbia_RP_ERT_HWP_12_15_2023.xlsx* workbook, Financial_Barriers_Test tab, Row 10, labeled "Timber Revenue (discounted)" contains the same values as in Row 20 of the *100 Yr calcs* workbook (Financials tab). Verifiers request that the Row 10 label should also be "Net Revenue (discounted)" for clarity and consistency, and minimizing confusion. This may also help eliminate the need for the confusing note in the Financial Barriers Test tab table "Timber Revenue includes fixed costs".<br><br>5.) In the *Columbia_RP_ERT_HWP_12_15_2023.xlsx* workbook, "Financial_ Barriers_Test" tab, Cells A16 and A33 are labeled "Average Annual Nominal Net Revenue". Since these are averages of the NPV cells directly above them, aren't they "Discounted" values rather than "Nominal"? Please review and explain the reasoning for the current labels or make corrections as needed. | |
| | | | **<u>Findings March 19, 2024</u>**<br>3.) Verifiers confirmed that the label for Net Revenue in cell A20 of the version 02-29-2024 of the 100 yr calc workbook has been updated and is now consistent with row 14. This issue item is closed.<br><br>4.) Verifiers confirmed in the label in the revised *Columbia_RP_ERT_HWP_02_29_2024.xlsx* workbook (Financial_Barriers_Test tab, Row 10) has been changed to "Net Revenue (discounted)" for clarity and consistency, and to minimize confusion. This item is now closed.<br><br>5.) Verifiers confirmed In the labels in the revised *Columbia_RP_ERT_HWP_02_29_2024.xlsx* workbook ("Financial_ Barriers_Test" tab, Cells A16 and A33) have been changed to read "Discounted" values rather than "Nominal" Net Revenue. This item is now closed.<br><br>All issue items have been addressed and this entire issue is now closed. | *Columbia_100Yr_calcs_02_29_2024.xlsx*<br>*Columbia_RP_ERT_HWP_03_25_2024* |

| ***OPO/APD Response*** | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| | 1. The GHG plan and 100-yr Calcs workbook have been updated to address these findings.<br>2. Only the baseline scenario is depicted in the figure. The caption has been updated to reflect this. | *Columbia_100Yr_calcs_02_27_2023*<br><br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| **31-Oct-23** | 1. The GHG plan has been updated to address the identified typo. | *DRAFT_ColumbiaRiver_GHGPlan (most recent version)* |



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| **5-Mar-24** | 1 – Closed<br><br>3 – Cell A20 in the Financials tab of the 100 year calcs has been updated to "Net Revenue (discounted, annual average)", to match cell A14 of the Financials tab.<br><br>4 – cell A10 of the Financial_Barriers_Test tab in the ERT calcs has been updated to "Net Revenue (discounted)".<br><br>5 – cells A16 and A33 of the Financial_Barriers_Test tab have been updated to "Average Annual Discounted Net Revenue". | *Columbia_100Yr_calcs_02_29_2024.xlsx*<br>*Columbia_RP_ERT_HWP_02_29_2024.xlsx* |

| **Verifier Issue** | **Issue ID:** | **21-25** | **Status:** Closed | **Checked by:** MD | **Date Identified** 23-Jan-23 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0, Section 4.A.3** | GHG Plan Section E.1 | Clarification. *May impact materiality or conformance.* | Regarding the Implementation Barriers Test, the PP notes in the GHG plan (pg 33) that "*a financial feasibility assessment is provided separately…*". Are we correct in assuming this reference is to the Financial Barriers Test tab in the *Columbia_RP_ERT_HWP_06_16_2022*.xlsx workbook? We also see the same tab and associated results in the *Columbia_100Yr_calcs_06_16_2022.xlsx* workbook.<br><br>Please make a specific reference to the location of this assessment and include a summary of the assessment results of the financial barriers test in the GHG plan. | | *Columbia_RP_ERT_HWP_06_16_2022.xlsx*<br><br>*Columbia_100Yr_calcs_06_16_2022.xlsx*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 9, 2023**<br>Verifiers acknowledge the difference between the Financials tab of the 100yr_Calcs and the Financial Barriers Test tab of the ERT workbook. Verifiers reviewed the updates made to Section C3 of the GHG Plan. This section now indicates that a financial barrier test was conducted and results are found in the ERT Workbook, Financial Barriers Test tab. Before this issue can be closed, verifiers request a brief summary of the results of the Financial Barriers Test be added to the GHG Plan. | | *Columbia_RP_ERT_HWP_02_27_2023.xlsx*<br><br>*Columbia_100Yr_calcs_02_27_2023.xlsx*<br><br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| | | | **Findings January 2, 2024**<br>Verifiers acknowledge Section C3 of the revised GHG Plan now includes the requested information regarding the outcome of the financial barriers cash flow analysis. The analysis "*yielded a positive NPV (20-year period) with a positive Average Annual Nominal Net Revenue over the 20-year period. The total and average annual values are balanced against the costs of two inventory expenses (in 2021 and in 2031), four verifications (2021, 2026, 2031, and 2036), an annual 15% registration fee (20 total), and annual credit accrual buffer deduction of 21% per crediting period (20 total). Total net revenue after deductions for the 20-year period remains positive*".<br>This issue is now considered closed. | | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |



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| *OPO/APD Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| | The Financial Barriers tab in the ERT workbook is the financial feasibility comparison. There is no such tab in the 100 year calcs. There Is a tab "Financials" that calculates 100 year NPV for the Baseline Scenario, and a lot of the same cashflows for the baseline scenario are used in both the 100 year calcs Financials tab, and the ERT Financial Barriers Test tab. The ERT workbook is now referenced in Section C3 of the GHG plan. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf*<br>*Columbia_100Yr_calcs_02_27_2023.xlsx* |
| | Section C3 of the GHG plan has been updated with a summary of the Financial Barriers Test results. | *DRAFT_ColumbiaRiver_GHGPlan (most recent version)* |

| **Verifier Issue** | **Issue ID:** | **21-26** | **Status:** Closed | **Checked by:** | **MD/BS** | **Date Identified** | **23-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | **Comments** | |
| **ACR Standard, v7.0, Section 4A.3** | GHG Plan Section E.1 | Clarification. *May impact materiality or conformance.* | Verifiers have reviewed the summary in Section C3 of the GHG Plan (Implementation Barriers Test: Financial). The ACR Standard (Sec 4A.3) indicates that the PP should include solid quantifiable evidence to satisfy this test such as the NPV assessment noted in the GHG Plan.<br><br>Please provide references to supporting project documents and summarize values used to clarify how "*The implementation of the carbon project represents an opportunity cost to lost revenue associated with the potential timber harvesting that could legally and feasibly occur on the property in the lifetime of the carbon project*."<br><br>For example, verifiers note that pre-commercial thinning (PCT) is a treatment in the baseline harvest schedule's silvicultural prescriptions VTV and VTC as described in the GHG plan (table E1-7). However, in the 100Yr calcs workbook verifiers do not see an expense for PCT treatment in the Financial Barriers Test tab nor PCT acres in the baseline outputs or summaries.<br><br>Verifiers are requesting the needed descriptions, assumptions, supporting references (if applicable) and cost basis for the items utilized in the NPV assessment be included within the GHG Plan and/or the associated workbook so that we can understand and verify the NPV assessment. | | *Columbia_100Yr_calcs_06_16_2022.xlsx*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22* | |
| | | | **Findings March 16, 2023**<br>Verifiers have reviewed the revised GHG Plan and 100Yr calcs workbook and have the following findings: | | | *Columbia_100Yr_calcs_02_27_2023.xlsx*<br><br>*Link to Silvics_Cost_Survey_2016.pdf* | |



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| | | | 1. The PP's response states: "*A reference to this workbook (the 100yr calcs workbook) has been added to the GHG plan*". Verifiers did not find such reference in the GHG plan. Please review and either point out this change or update the GHG plan as needed.<br><br>2. Verifiers note the added cell comments in the revised 100Yr_calcs workbook (i.e., financials tab, cells B2 and B3). Cell B3's comment provides a link to the referenced Silvics_Cost_Survey_2016.pdf and the source for the PCT cost. This reference suffices but could be easily overlooked. Verifiers request a note be added to the appropriate section of the GHG Plan or within the workbook that is not hidden within the cell.<br><br>3. The PCT cost and inflation to $200 per acre is reasonable. Verifier confirms that the PCT costs have been correctly integrated into the NPV calculations in the calcs workbook, Financials tab. However, the source of the PCT cost is not included in the Cost Assumptions section on page 48 of the GHG plan. Please make this addition to the GHG plan.<br><br>4. In the referenced silvics cost survey, the administration/operating costs are based on an average value ($33 per acre per year). The PP on this project is using $6.64 per acre (in the calcs workbook, financials tab, cell B2), about 20% of the survey average. In light of the large difference in costs, please provide additional justification for the cost used on the project. If necessary, be sure to document the source(s) in the GHG plan and update the calcs workbook.<br><br>5. As Issue 21-25 addresses the need to include a project specific summary or synopsis of the financial barriers test results in the GHG plan, no additional follow up is needed within this issue item and is closed.<br><br>6. Please review the following potential typos and make revisions as needed in the GHG plan:<br>○ On page 48, table E1-7 under the GROW prescription. "This is the only option available to the CSM strata", there is no CSM strata on this project.<br>○ On page 45, the last paragraph, sentence 5, …"the default cycle length for the NE FVS variant." We understand the NE FVS variant is not used on this project.<br><br>This issue remains open until these issue items have been addressed. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| | | | **<u>Findings January 2, 2024</u>** | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |



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| | | | 1.) Verifiers confirmed the revised GHG Plan now references the 100-year calcs workbook in Section E1 Baseline Harvest Schedule Scenario Overview. This issue item is closed.<br><br>2.) Verifiers find the revised GHG Plan Section E1 Baseline Harvest Schedule Scenario Overview Cost Assumptions section now references the *Silvics_Cost_Survey_2016.pdf* in footnote 6 which included fixed cost estimates for the property. This issue item is closed.<br><br>3.) Verifiers find in the 12-15-2023 version of the 100 Yr calc workbook that PCT costs have been removed from the calculations. Please explain why this step of the VTV prescription was dropped and, if this change was intentional, does dropping it reduce the modeled grow (less growing space) for the stands that utilize the VTV Rxs?). Also see issue 21-30, January 6, 2024 findings, item 3b.<br><br>4.) Verifiers find the administrative cost / fixed management costs in cell B2 of the revised 100 Yr workbook v12-15-2023 are $10/ac and not $33/ac. Please explain the reason for this difference and make revisions if needed.<br><br>6.) Verifiers confirmed that the correct FVS variant references are now referenced in the revised GHG plan, so this item is now closed. However, Table E1-7 (Grow Prescription) still references the CSM strata which is not part of this project. Please update as appropriate. | *Columbia_100Yr_calcs_12_15_2023.xlsx* |
| | | | **<u>Findings March 19, 2024</u>**<br>3.) Verifiers note the PP's response to this item has not provided an explanation why the PCT was dropped from the prescriptions. Please clarify the change in the proposed baseline model's silvicultural scenario.<br><br>4.) Verifiers find the Fixed Management Costs amount has not been updated to $33/acre from $10/acre in the Financials tab (cell B2) in the 02-29-2024 version of the calcs workbook. This change wasn't made in the last version of the workbook either (version 12-15-2023) even though the PP's October 31, 2023 response noted that it was completed. Please explain the reason for not using the $33/ac cost or update as intended. This item remains open.<br><br>6.) Verifiers reviewed the revised GHG plan and find the Table E1-7, Grow strata explanation has been revised; it no longer references the CSM strata. This part of the issue item is closed. | *Columbia_100Yr_calcs_02_29_2024.xlsx*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_3_25_24* |



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| | | | This issue remains open pending PP responses to issue items 3 & 4. | |
| | | | **<u>July 10, 2024 Findings</u>**<br>**3.)** The PP has provided the requested clarifications regarding the removal of the PCT treatments in the baseline model silvicultural prescription. Verifiers agree with PP's understanding of implementing and assessing potential PCT treatments. We also recognize that PCT treatments are not regulatory requirement and such decisions to implement these stand improvement activities depend on numerous factors such as current stand size and conditions, and economic constraints. This issue item closed.<br><br>**4.)** The Fixed Management Cost amount has been updated to $33/acre in the Financials tab (cell B2). This value aligns with expectations given the referenced silvics cost survey. This issue item is closed.<br><br>All issues have been resolved and this issue is closed. | *Columbia_100Yr_calcs_05_02_2024.xlsx* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **3/8/2023** | The assumptions are outlined and referenced in the first table of the 100yr Calcs workbook/Financials tab. A reference to this workbook has been added to the GHG plan.PCT costs have been integrated into the NPV calculations. A conservative estimate of $200/acre for PCT was assumed (and included in cell B3 of the Financials tab of the 100 year calcs). A reference from a regional survey has been attached, which estimates 2016 PCT costs at ~$170/acre.<br><br>The first entry in VTV is a PCT. As seen in the Harvest_Schedule tab of the 100 year calcs, a total of 949 VTV acres were chosen in the optimization for the 2020 (5 year) period, 160 acres for the 2025 (5 year) period, and 53 acres for the 2030 (5 year) period. The total discounted PCT costs are then integrated into row 22 of the Financials tab.<br><br>Detailed NPV calculations can be seen in the Financials tab, and is calculated a different way in the NPV_Check of the 100 year calcs. The comparison cell in cell E27 of the Financials tab show that separate calculations of NPV result in the same output for NPV. | *ColumbiaRiver_GHGPlan_DRAFT_3_8_23*<br>*Columbia_100Yr_calcs_02_27_2023.xlsx*<br>*Silvics_Cost_Survey_2016.pdf* |
| **31-Oct-23** | 1. Reference to 100 year calc workbook has been added to section E1 Baseline Harvest Schedule Scenario Overview.<br><br>2. Notes for PCT estimated costs are unhidden from the 100yr_calcs workbook.<br>3. A reference to this economic survey has been added to the cost assumption section of the GHG plan.<br>4. The administrative costs have been updated to $33/acre based on the silvics report.<br>5. Addressed in 21-25. | *ColumbiaRiver_GHGPlan_DRAFT (most recent version)* |



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| | 6. The following typos have been revised: CMS strata has been removed. NE FVS variant has been changed to WC FVS variant. | |
| **5-Mar-2024** | Precommercial Thinning's (PCT's) have been dropped from all prescriptions at this point (including variable retention thinning), so no PCT costs need to be included. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| **4/15/2024** | 3) prescriptions, in order to remove unrealistic implementation of PCT harvests within stand treatment regimes. PCT costs, especially in the regions where the project resides, can be highly variable and are often assessed on a stand by stand basis at the time they would be needed based on the stand establishment criteria. PCT's are not required, and landowners often choose to skip them if pricing is too high, and the stand is in good enough condition. In our modeling efforts on this project, we have noticed it is very difficult, if not impossible, to tell if PCTs are actually a NPV increasing intervention.<br>4) Fixed management costs have been updated to $33/acre.<br><br>6) Closed | |

| **Verifier Issue** | **Issue ID:** | **21-27** | **Status:** | **Closed** | **Checked by:** | **MD** | **Date Identified** | **28-Nov-22** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | Clarification. *May impact materiality or conformance.* | In the Baseline & Project Revenue tabs within the *100Yr calcs* workbook, please indicate whether the values are net present values or nominal. Please clarify. | *Columbia_100Yr_calcs_06_16_2022.xlsx* |
| | | | **Findings March 20, 2023**<br>The Verifier has reviewed the PP's updated calcs workbook, Baseline Revenue and Project Revenue tabs and confirms the values there are labeled as "discounted $". This issue is now closed. | *Columbia_100Yr_calcs_02_27_2023.xlsx* |
| | | | **Findings January 12, 2024**<br>This issue has been reopened because the previous revisions made in the 2-27-2023 100 Yr calcs workbook of the labels in the baseline and project revenue tabs have not been incorporated to the same tabs/tables in the revised 12-15-2023 workbook.<br><br>New issue item:<br>Are the revenue values in the table in the "HarvestRevenue" tab of the revised 12-15-2023 100 Yr calcs workbook nominal or discounted? Please review and make necessary label changes as appropriate. | *Columbia_100Yr_calcs_12_15_2023.xlsx* |



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| | | | **Findings March 22, 2024**<br>The PP replied: "*Clarification (i.e., "discounted $") has been added back to the Baseline Revenue and Project Revenue tabs in the 100 year calcs workbook to clarify that the values are all discounted values*." Verifiers find the label was added back to the Baseline Revenue tab but not to the Project Revenue tab. Please review and revise as appropriate. This issue item remains open.<br><br>Regarding the new issue item from January 12, Verifiers find the label was not added to the HarvestRevenue tab. This item remains open. | *Columbia_100Yr_calcs_02_29_2024.xlsx* |
| | | | **Findings July 11, 2024**<br>Verifiers acknowledge the "(discounted $)" label has been added to the Project_Revenue tab in the revised 100 yr calcs workbook. This issue item is closed.<br><br>Verifiers understand the note in cell A29 of the "HarvestRevenue" tab does clarify that all values are from the Baseline_Revenue tab and are all discounted. This issue item is closed.<br><br>All issues have been resolved and this issue is closed. | *Columbia_100Yr_calcs_05_02_2024* |

| *PP Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **3/8/2023** | They are discounted cash flows in the Baseline_Revenue and Project_Revenue tabs of the 100Year Calcs workbook. The 100 year calcs workbook has been updated. | *Columbia_100Yr_calcs_02_27_2023.xlsx* |
| **5-Mar-2024** | Clarification (i.e., "discounted $") has been added back to the Baseline Revenue and Project Revenue tabs in the 100 year calcs workbook to clarify that the values are all discounted values.<br><br>The revenue values in the table in the "HarvestRevenue" tab of the most updated "*Columbia_100Yr_calcs"* discounted. All values in the table on the Harvest Revenue tab are derived from the "Baseline_Revenue" tab which are labeled as discounted. A note has been added to the "HarvestRevenue" tab to make this more clear. | *Columbia_100Yr_calcs_02_29_2024.xlsx* |
| **2-May-2024** | The "(discounted $)" label has been added to the Project_Revenue tab.<br>See the note on cell A29 of HarvestRevenue tab – all values are from the Baseline_Revenue tab, and are all discounted. | *Columbia_100Yr_calcs_05_02_2024* |

| **Verifier Issue** | **Issue ID:** | **21-28** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **24-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **IFM Methodology v1.3** | GHG Plan- various sections | Non conformance. *No materiality impact* | The equation references in column A of the "ACR IFM ERT Calcs" tab within the CO2 workbook show inconsistent references when compared to the ACR equations referenced in the GHG Plan and the IFM ACR standard (v1.3) - they appear to be outdated (e.g., see (cell A27)). Please review and revise as appropriate. | *Columbia_Start_RP_CO2_06_16_2022*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf* |
| | | | **Findings March 20, 2023**<br>The PP notes the equation references in the ERT calculator/ERT workbook (column A, tab "ACR IFM ERT Calcs") do not align with the equations listed in the IFM Methodology v1.3. Verifiers agree, the equation references in the ERT calculator are based on IFM Methodology v2.0. To resolve this issue, the PP has removed column A equation references but has retained column B the equation names in the revised ERT workbook. Verifiers find this reasonable and verifiable; this issue is considered closed. | *Columbia_RP_ERT_HWP_02_27_2023.xlsx* |

| *PP Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **3/8/2023** | It appears the equations in the ACR provided online ERT calculator do not match the ACR IFM v1.3 protocol. Several rows don't line up exactly with a formula, and are intermediate calculations. To reduce confusion, column A equation references were removed from the ERT workbook. Please reference column B for equation names. | *Columbia_RP_ERT_HWP_02_27_2023.xlsx* |

| **Verifier Issue** | **Issue ID:** | **21-29** | **Status:** | **Closed** | **Checked by:** | **BS/SB** | **Date Identified** | **25-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard, v7.0, Sections 2.B.3 & 4.A.3; IFM Methodology v1.3, C.5** | GHG Plan Section E | Non conformance. *No materiality impact* | Verifiers find the GHG Plan lacks clarity and supporting descriptive details on the methods, calculations and/or results to comply with the noted sections of the ACR Standards and ACR's GHG Plan template's specifications.<br><br>Please address the following items:<br><br>1. In Section E1, verifiers request additional descriptive details on the baseline constraints that were incorporated into the baseline model. While Section C1 provides the relevant laws, regulations, statues, legal rulings, and other regulatory frameworks that affect the project activity, verifiers are trying to ascertain which law/regulation/statues were utilized to determine the constraints that were used within the modeling process. If publicly available spatial data was utilized, please reference these sources within the GHG plan. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br><br>*Columbia_RP_ERT_HWP_06_16_2022*<br><br>*ACR Template for GHG Project Plans.docx* |



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| | | | 2. While there is a supporting description in Section E1 on how the 20-yr baseline value was determined, the actual value being utilized for the project does not appear to be presented in the Plan. The ACR template for GHG Project Plans (Section E.1) states: "*Detail the GHG quantification methodology for the baseline scenario including all relevant emissions or removals. Provide sample calculations wherever possible.*" As this is the initial reporting period and the GHG Plan will likely be referenced in subsequent reporting periods over the crediting period, verifiers believe the 20-yr average baseline value is an important source for understanding and determining GHG emissions/removals and that its documentation and associated supporting calculations are justified. Please include the sample calculations for Equation 5 (IFM v1.3) and the associated resulting 20-year average baseline value within the GHG Plan.<br><br>3. At the end of Section E1, the GHG Plan notes: *"The figure below depicts the projected baseline stocks, average baseline stock for the first crediting period, and projected with-project stocks (see below for derivation of with-project stock projections)".* Figure E1-1 does not appear to depict the baseline, the average baseline and the project stocks within this figure. Also, the Y-axis in this graph appears to provide total tCO2e values rather than tCO2e/ac.<br><br>4. In Section E3, Leakage, while the table denotes the values utilized in the leakage calculation, verifiers request additional descriptive details on the ACR equations that were utilized in the calculation for leakage. The text should also note the leakage value that was calculated.<br><br>5. In Section E4, Uncertainty, while the text includes the ACR equations used in calculating the uncertainty values, there are no sample calculations, and in some cases, no values provided for baseline, project and total project uncertainties. Verifiers acknowledge these are formulas are provided in the ERT workbook, but they also need to be included in the GHG Plan for long term monitoring. | |
| | | | **Findings March 20, 2023**<br>This issue remains open -pending APD response. | |
| | | | **Findings January 5, 2024**<br>1.) Verifiers acknowledge that a new section was added to the Section E1 of the GHG Plan "Baseline Constraints" providing the requested clarifications on regulatory constraints and methods for determining constrained acres. This issue item is closed. Please note, based on the baseline constraint descriptions provided and verifier spatial data checks, additional findings | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |



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| | | | were noted for RMZ and T&E species constraints. These are described separately in Issues Log items #33 and #38, respectively.<br><br>2.) Verifiers note the addition of Long-Term Average Baseline Stocking Level Sample Calculation equation. Please update this to include the value for the variables outlined in the protocol (i.e., CBSL,TREE,t , CBSL,DEAD,t , CBSL,HWP) rather than combining them into one value so calculations can be verified and tracked to their source.<br><br>3.) Verifiers confirmed Figure E1-1 now correctly describes the figure as "Total standing (Live+Dead) tCO2e under baseline scenario no longer" including project. This issue item is closed.<br><br>4.) Verifiers confirmed the addition of a new paragraph in section E3 of the revised GHG Plan outlining the leakage considerations and the methodology for calculating. Verifiers understand the leakage was determined to be 0.4 (40%). This issue item is closed.<br><br>5.) Verifiers find that Section E4 of the revised GHG Plan now includes the Baseline, Project, and Total Uncertainty values and associated calculations. This issue item is closed. | |
| | | | **March 25, 2024 Findings**<br>2.) Verifiers were unable to confirm the Long-Term Average Baseline Stocking Level Sample Calculation containing the variables outlined in the protocol (i.e., CBSL,TREE,t , CBSL,DEAD,t , CBSL,HWP). Please update as appropriate so that the calculation can be tracked and verified to their source. This issue remains open. | *ColumbiaRiver_GHGPlan_DRAFT_3_25_24.pdf* |
| | | | **July 10, 2024 Findings**<br>2.) In the March 25, 2024 documents verifiers noted the values provided in the GHG plan did not aligned with the variables in the ERT workbook. Specifically, 27,449,441 mtCO2e was not equivalent to the sum of $C_{BSL,TREE,t}$ + $C_{BSL,DEAD,t}$ for the twenty reporting periods (35,641,175 in the ERT workbook). Verifiers understand the new GHG Plan template no longer states sample calculations are necessary but where provided these should trace back to the ERT workbook. Verifiers find the value provided in the latest GHG Plan aligns with the ERT workbook (1,794,988 mtCO2e).<br><br>Before this issue can be closed, please update the calculation steps provided to include $C_{BSL,HWP}$ as referenced in equation 5 of the ACR IFM 1.3 the protocol. | *ColumbiaRiver_GHGPlan_DRAFT_5_2_24.pdf*<br><br>*Columbia_RP_ERT_HWP_05_02_2024.xlsx* |
| | | | **July 22, 2024 Findings**<br>The requested the 20-yr avg annual carbon stored long term in the baseline's harvested wood products has now been included in the calculation step in estimating | *ColumbiaRiver_GHGPlan_DRAFT_7_18_24* |



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| | | | the 20-year average baseline in the revised GHG Plan, which complies with Equation 5 of the IFM Methodology v1.3.<br><br>As all requested revisions/clarifications have been completed, this issue is closed. | |

| *PP Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | 1. Additional descriptive details on the baseline constraints that have been incorporated into the baseline model in Section E1:Baseline Constraints<br>2. Sample equation has been added to section E1 of the GHG plan.<br>3. The description of figure E1-1 has been updated to accurately reflect the figure.<br>4. Sample calculation has been added section E3 of the GHG plan.<br>5. Uncertainty sample calculations have been added to section E4 of the GHG plan | *ColumbiaRiver_GHGPlan (most recent version)* |
| **3/6/2024** | 1) Closed. Please see additional responses to 21-33 and 21-38.<br>2) The V3.0 GHG template no longer states it is necessary to provide sample calculations, rather it states "Provide calculation steps where relevant". The ERT workbook can be reviewed to verify values of (i.e., CBSL,TREE,t , CBSL,DEAD,t , CBSL,HWP).<br>3) Closed<br>4) Closed<br>5) Closed | *Columbia_RP_ERT_HWP (most recent version)* |
| **4/15/2024** | The V3.0 GHG template no longer states it is necessary to provide sample calculations, rather it states "Provide calculation steps where relevant". Calculation steps have been added to the GHG plan. The ERT workbook can be reviewed to verify values of (i.e., CBSL,TREE,t , CBSL,DEAD,t , CBSL,HWP). | *ColumbiaRiver_GHGPlan_DRAFT_(Most recent version)* |
| **7/12/2024** | The Sample Calculation has been updated to include the Twenty-year average value of annual carbon remaining stored in wood products 100 years after harvest (in metric tons of CO2) | *ColumbiaRiver_GHGPlan_DRAFT_(Most recent version)* |

| **Verifier Issue** | **Issue ID:** | **21-30** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **1-Feb-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard, v7.0, Section 4.A.2; IFM Methodology v1.3, B4** | Sections A5,B5, | Non conformance. *May impact conformance; no materiality* | Verifiers have the following questions/comments on the common practice and baseline forest management practices provided in the GHG Plan:<br><br>(1) Verifiers find the description of the Common Practice Test in Section C2 of the GHG Plan provides very general details of the common forest management practices for the region (i.e., "intensive management"). General common practice terms are also noted in Section A.5 (i.e., " *…higher return, more aggressive management* | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |



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| | | | *regimes of private landowners in the region characterized by shorter, even-aged rotations")*.<br><br>While verifiers understand the basic theme of the common practice provided by the PP, the Plan does lack adequate details on the specific common practices for the project parcels in western OR/WA and eastern WA. Thus, verifiers are requesting additional description and specificity on the common forest management practices in the region be incorporated into the GHG Plan (e.g., specifics on rotational ages for even-aged harvest practices, prescriptions utilized, replanting, etc.).<br><br>The defined common practice should address and/or consider the following: Are there any current examples of what is common practice management in the region that can be provided specific to the forest size & types found on the project area? What information and data are being used as the basis to determine the common practice management in the region? It is not clear if the PP has evaluated the predominate practices in the region/sector to determine the degree in which the practices have penetrated the market to demonstrate the project activities aren't common practice. Can it be shown that implementation of the project activities and related forest management is not common practice in the region?<br><br>(2) Verifiers understand the baseline scenario reflects the common practice, which is defined and discussed in Sections B5, C2 and E1 of the GHG plan. In Section B5, the PP describes this scenario as follows:<br><br>"*The baseline scenario represents an ecologically minded harvest regime on and properties that are constrained by easements, more intensive conservation harvest regimes on properties that are not constrained but under long term ownership, and industrial level harvest regimes on properties that were recently acquired and eased (less than 1 year from start date)."*<br><br>Verifiers request additional baseline descriptions be incorporated in the GHG Plan that provides the specificity of the general terms being utilized (e.g., "*more intensive conservation harvest regimes*"). This sentence is also awkward and unclear; please review and revise for clarity.<br><br>Verifiers also request a summary be added to Section C2 describing the process the PP utilized in determining the proposed project activity exceeds the common practice of similar landowners managing similar forests in the region. If there are associated supporting documentations used for this process, please reference and/or provide.<br><br>(3) Regarding the silvicultural prescriptions provided in Section E1 (pg 46): | |



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| | | | (a) For the CC (clearcut scenario), the PP notes that at least 3 MBF/ac is needed to implement a treatment. Is this 3 MBF/ac of sawlogs? What is the basis of this value and how was it determined? Please provide supporting evidence to justify this minimum harvest volume per acre.<br><br>(b) Please add the VTC and VTV scenarios the PP notes the following treatment schedule: "…(1) a precommercial thin, (2) a thin from below, (3) A variable density thin down to 120 ft2/ac, and (4) perpetual variable density thins down to 80 ft2/ac at 20 year intervals." Verifiers assume step 2 is a commercial thin. Is this correct? If so, what criteria (BA, volume/ac, etc.) are being used to initiate this treatment? If applicable, please include these specifications and/or criteria.<br><br>(c) If VTC and VTV are the same treatment scenario, what is the purpose for having them both? | |
| | | | **Findings March 20, 2023**<br>This issue remains open -pending APD response. | |
| | | | **Findings January 9, 2024**<br>(1) The PP has updated the GHG Plan, which now includes the requested common practice descriptions and details for the different properties within the project area (Sections A5.2, C2, E1). Verifiers understand there are three different ownership types with various associated management/legal constraints including: (a) recently acquired properties (no forest management restrictions); (b) properties with limited legal constraints (e.g., easement restrictions); and (c) properties with significant legal constraints (e.g., harvesting restrictions).<br><br>The revised GHG Plan (Section C2) describes the basis for determining common practice in the region for these various project ownership types including discussions with consulting foresters in Oregon and Washington, historical aerial imagery assessments, and reviews of past Timber Harvest Plans in the region. This section along with the updated information in Sections B2 & E, now provides the requested clarifications on rotational ages for even-aged harvest practices, prescriptions utilized, replanting, etc., associated with the common practice used in the baseline model.<br><br>As the requested clarity has been incorporated into the revised GHG Plan, this issue item is now closed.<br><br>(2) Verifiers acknowledge Sections B5 and C2 of the revised GHG Plan have been updated to improve clarity and to incorporate the requested baseline descriptions. Section C2 also now describes the process the PP utilized in determining the proposed project activity exceeds the common practice of similar landowners managing similar forests in the region. This issue item is considered closed. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23* |



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| | | | (3)<br>(a) Verifiers understand the minimum threshold level for implementing CC and VTV prescriptions are 3 Mbf/acre and 1.2 Mbf/acre, respectively, and these entry requirements include both merchantable timber classes (sawlogs and pulp). We also understand anytime these entry requirements are applied the harvest would still result in a positive NPV for the baseline model regardless of the product class. The PP also notes the entry level requirements were based on discussions with regional foresters to create more realistic forest management decisions within the modeling effort.<br><br>Verifiers are, however, trying to reconcile how such a low entry requirement for thinnings in the VTV prescription (1.2 MBF/ac) is feasible from a financial perspective. This seems like a very low threshold. We understand the NPV may show a positive result for such a thinning in the VTC prescription and that an entry for a thinning operation would likely need to occur at a lower volume/acre to meet the variable density objectives (removing volume in smaller time sequences at different stocking levels – smaller diameters and higher TPA). However, we would expect there would be more intensive layout/harvesting logistics with completing such thinning operations (and likely a cost- loss). Perhaps the NPV result the PP is referencing is for the overall Rx for the VTV treated stands. Please explain/justify the VTV thinning entry requirement by providing additional supporting evidence. In addition, please provide a summary of the FVS keywords used to model retention and the minimum harvest levels.<br><br>(b) Additional clarity and details have been added to Table E1-7 of the revised GHG Plan (Section E, pg. 51). There appears, however, to be a missing VTV prescription step? Previously, this was a precommercial treatment. If that is still the prescription step, what entry level requirement is used to initiate this step in the baseline model. Please review, clarify, and/or revise as appropriate.<br><br>(c) The PP has removed the VTC prescription from the baseline model prescription in Section E of the revised GHG Plan. This issue item is closed. | |
| | | | **<u>Findings March 30, 2024</u>**<br>(3a) Verifiers acknowledge the VTC silvicultural prescription is no longer being included in the baseline model scenario and was removed in an earlier GHG Plan (12/2023 version).<br><br>Verifiers understand the intermediate stand entry (min harvest level of 1.2 MBF/ac) within the VTV silvicultural prescription has been removed; this is now reflected in the revised GHG Plan (Section E1). The PP also has provided additional clarifications | ColumbiaRiver_GHGPlan_DRAFT_3_25_24<br><br>FVS_Output folder |



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| | | | and details on the modeling process for the VTV harvest removals to reflect a more realistic and economically feasible baseline harvest scenario (e.g., stumpage adjustments when the minimum harvest threshold is not obtained for the VTV prescription (as noted in Issue item 21-39)).<br><br>The PP's response has provided the requested clarifications regarding the FVS keywords. We also acknowledge they are provided in the FVS output folder.<br><br>All requested clarifications have been provided and this issue item is closed.<br><br>(3b) Based on the changes noted above for the VTV silvicultural prescription, the PP has updated Table E1-7 in the revised GHG Plan. This issue item is now closed.<br><br>All issue items have been clarified and addressed; this issue is now closed. | |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| **31-Oct-23** | 1. Section C2 has been updated to add clarity to the description of the common practice in the region relative to each property groups most relevant common practice group. This includes the harvest prescriptions utilized, rotation ages (section E), what information and processes were used to identify common practice, and that the project activity – limited to no harvesting, exceeds this common practice. Section A.5 has been updated to reference section C2 for detailed descriptions of common practice.<br>2. Section B5 and C2 have been updated to incorporate additional baseline descriptions and remove awkward language.<br>3.<br>a. The 3 Mbf/acre and 1.2 Mbf/acre entry requirements are for the CC and VTV prescriptions, respectively. Both entry requirements are specific to merchantable timber size classes, but not specific to sawlogs or pulp. Keep in mind, any time this constraint comes into effect, the result of the harvest is NPV positive regardless of product class (i.e., if a pulp stand met the requirement of 3 Mbf, it would still need to be NPV positive). These entry requirements are the minimum requirements for entry into a stand and were informed by regional foresters during our regional forester interviews as the lowest merchantable Mbf they would consider before entering a stand. These entry constraints were included in prescriptions to create more realistic management decision on behalf of the NPV maximizing optimization model, and to prevent the model from harvesting marginal stands. Prior to including these constraints, the model chose to harvest some stands in years beyond the initial 20-year crediting period that were NPV positive, however, unlikely to be implemented in real life due to their low merchantable Mbf volume at entry, and marginal NPV. The intention of the Mbf/acre entry constraints are to constrain the model to make more realistic choices. | *ColumbiaRiver_GHGPlan (most recent version)* |



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| | b. Additional clarification has been added to the prescription tables to clarify entry requirements of each step/treatment.<br>c. VTC has been removed. | |
| **3/5/2024** | 1) Closed<br>2) Closed<br><br>3.a. The VTC prescription was removed from the baseline silvicultural prescriptions during the previous iteration of the model. This is noted in our previous response to this finding.<br><br>The entry requirement for the VTV prescription has been changed to 3Mbf. Intermediate entries have been eliminated from the prescription. In addition, a volume per acre stumpage adjustment based on Table 2 of the stumpage document provided in 21-39 has been incorporated, such that the prescribed stumpage adjustments are applied when the harvest volume of any given entry is less than the prescribed thresholds. The VTV prescription thins evenly throughout diameter classes, which will still meet the goals of the structure-based management regime through fewer entries, and while modeling a more realistic and economically feasible baseline harvest scenario.<br><br>For minimum harvest levels the "MINHARV" keyword is used. MINHARV can specify a minimum harvest in MCUFT, BDFT, BBA, or TCUFT. We used a minimum harvest of 3000 bd ft per acre (3 Mbf/ac).<br>To specify retention, the FVS keyword varied by prescription. The retention keywords listed here can also be viewed in the .key and .out files in the FVS_Output folder.<br>• THINBBA (thin from below by basal area) was used for CC1_E, VTV_E, CC1_W, VTV2_W. A residual basal area retains the largest trees by basal area.<br>• THINBTA (thin from below by trees per acre) was used for VTV1_E, VTV1_W. Since a residual TPA is specified, this keyword is the most effective.<br>• THINDBH (thin across all specified diameter classes) was used for CC2_E, VTV3_E, CC2_W, VTV3_W.<br><br>3.b. Table E1-7 has been updated to reflect the adjusted VTV silvicultural prescription as described in 21-30-3.a. above.<br><br>3.c. Closed | Tax Reporting Instructions and Stumpage Value Determination Tables Jul 1 through Dec 31, 2021 (wa.gov) |

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| **Verifier Issue** | **Issue ID:** | **21-31** | **Status:** | **Closed** | **Checked by:** | **EM** | **Date Identified** | **4-Jan-23** | |



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| ACR Standard ref | GHG Plan Section | Significance | Issue Description | Comments |
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| **ACR Standard, v7.0 2.B.3; 4.A.3; IFM Methodology v1.3,C.5** | GHG Plan, Section E.1 | Clarification. *May impact materiality or conformance.* | Verifiers compared the Site Index calculations with the description provided in the GHG Plan. There appears to be a disconnect. Please clarify what site index value was used when plot values were missing or too high / low and update the GHG plan to reflect the appropriate references used to calculate site index. | *Columbia_SiteIndex_Wcores_8_3_21.xlsx*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_6_17_22.pdf* |
| | | | **Findings March 20, 2023**<br>Verifiers acknowledge that the site index calculations include soils information given the SiteIndex_Wcores spreadsheet provided. However, it does not appear that the GHG Plan was updated as such in Section E1-Growth and Yield Simulation. Please update as appropriate. | *Columbia_SiteIndex_Wcores_8_3_21.xlsx*<br><br>*DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| | | | **Findings January 2, 2024**<br>Verifiers confirmed Section E1 of the GHG Plan Growth and Yield Simulation section was updated to include a reference to soils in the calculation of site index where cores were not taken or used. Verifiers were able to confirm the soil site index calculated for the plots using this information.<br><br>While reviewing the *Columbia_SiteIndex_Wcores* verifiers noticed that Species_Averages tab includes species from the northeast. Please remove or update as appropriate. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf*<br><br>*Columbia_SiteIndex_Wcores_8_3_21.xlsx*<br><br>*NRCS Soils Data for Project-wss_aoi_2024-01-04_14-00-40 -* |
| | | | **Findings March 25, 2024**<br>Verifiers found the Species Averages tab with the erroneous tree species was removed from the latest *Columbia_SiteIndex_Wcores* workbook. Verifiers acknowledge species ranking can be determined from the BArankByPlot and recognize the Species Averages tab is not used in site index calculations. This issue is closed. | *Columbia_SiteIndex_Wcores_3_5_24.xlsx* |

*OPO/APD Response*

| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
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| **3/8/2023** | The GHG plan has been updated to reflect that soil data was used to determine site index, if a core wasn't available for a plot. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| **31-Oct-23** | Section E1-Growth and Yield Simulation is updated with soil site index methodology. | *ColumbiaRiver_GHGPlan (most recent version)* |
| **5-Mar-24** | The Species Averages tab was deleted to eliminate confusion. The updated file is saved as Columbia_SiteIndex_Wcores_3_5_24.xlsx. | *Columbia_SiteIndex_Wcores_3_5_24.xlsx* |



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| Verifier Issue | Issue ID: | 21-32 | Status: Closed | Checked by: BS | Date Identified 4-Jan-23 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0 2.B.3; 4.A.3; IFM Methodology v1.3,B.5** | GHG Plan, Section D.2 | Clarification. *May impact materiality or conformance.* | Verifiers acknowledge the PPs inclusion in Section D2 of the GHG Plan the PPs monitoring methods "*inventories of select portions of the Project Area will be updated periodically in response to natural disturbance*" (pg 39). The methodology (section B5) indicates that PPs must have risk mitigation measures in place to account for such a disturbance. Please clarify in the monitoring methods, how the project area will be assessed to determine when a natural disturbance justifies a re-inventory (types of events, threshold acreage, plot allocation, timing, etc.). | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 20, 2023**<br>Verifiers acknowledge the PP has added a more concise definition of disturbance in Section D2 Monitoring Plan General Monitoring Method. Based on this additional description, verifiers understand a significant natural disturbance may include an insect infestation, fire, or destructive windstorm that impacts 52 acres or more of the project area. (One plot represents 52 acres). A disturbance is deemed significant if there is a removal of >= 50% of the standing stocks.<br><br>A significant disturbance would result in remeasurement or addition of plots. In the event of a natural disturbance that does not impact any project plots, the PP outlines the plan for installing additional plots to assure that the inventory reflects the impact of the disturbance. Verifiers find this description to be a clear and reasonable process in addressing and monitoring the impacts of significant disturbances in estimating project stocks. As a result, this issue is closed. | | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |
| ***OPO/APD Response*** | | | | | |
| ***Date*** | ***PP Comment*** | | | ***Additional evidence submitted for review by PP*** | |
| **3/8/2023** | Additional information has been added to section D2 of the GHG plan to clarify how the project will be assessed to determine when a natural disturbance is considered significant and justifies a re-inventory. Please see the most updated version of the GHG plan. | | | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* | |

| Verifier Issue | Issue ID: | 21-33 | Status: Closed | Checked by: BS/SB | Date Identified 4-Jan-23 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0 2.B.3; 4.A.3;** | GHG Plan, Section E.1 | Clarification. | In reviewing the project's stratification and baseline constraints (Section E1) of the GHG Plan, verifiers reconciled the Constrained Area (acres) in Table E1-1 with the RMZ acres associated with Columbia_RMZ_6_14_22.shp. Verifiers understand that | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |



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| **IFM Methodology v1.3** | | *May impact materiality or conformance.* | the baseline model incorporates these as a legal constraint due to Washington State Forest Practice Rules and Oregon Forest Practices state laws. Verifiers are seeking clarification on the PP's process and data attributes used so we are able to verify and validate how the RMZ/Constrained Acres were delineated. Please review and revise the project documents as appropriate to address and clarify this. | *Columbia_RMZ_6_14_22.shp*<br><br>*Columbia_CarbonPlot_Methodology_6_17_22* |
| | | | **Findings March 20, 2023**<br>This issue remains open -pending APD response. | |
| | | | **Findings January 5, 2024**<br>Verifiers acknowledge the revised GHG Plan Baseline Constraint section (Section E) includes the requested clarifications on the method used to delineate and model within the RMZ/Constrained Acres. Verifiers request the following information be further clarified, updated, and/or added to the description in this section of the GHG Plan to aid in the verification of the RMZ acres:<br><br>1.) Please provide the specific GIS spatial data sets used (along with the source date) to identify and delineate the watercourses and waterbodies in the project area. Verifiers downloaded the Hydrography Flow Line layer from the Oregon Department of Forestry and this does not appear to align with the project's RMZ spatial data set. Is the WA DNR Hydrography – Waterbodies / Watercourses more appropriate and accurate for the project areas in Washington?<br><br>2.) Please outline the specific steps (RMZ widths) and the GIS data attributes used in delineating the core, inner, and outer RMZ buffers widths and their harvest constraints.<br><br>3.) Please include a description in the baseline constraint section in how the project's RMZ spatial data defined and incorporated the starting point of the RMZ to meet the Forest Practice Rules for each State (i.e., bankfull channel width for each watercourse).<br><br>4.) Please clarify why RMZ widths differ on different sides of the same stream (see RMZ east of Plot 245).<br><br>5.) How are headwater springs and sensitive sites (such as intersections of two or more Type Np streams) considered in the determination of RMZ acres?<br><br>6.) Verifiers note there are 20+ acres in the project without a Site Class according to *Site_Class-Forest_Practices_Regulation.shp*. These areas appear to be related to delineation issues around hydrology in the state data. Did the PP encounter these areas when determining RMA widths? If so, how were they dealt with? | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf*<br><br>*WA DNR GIS: DNR_Hydrography_-_Water_Bodies_-_Forest_Practices_Regulation.shp*<br><br>*DNR_Hydrography_-_Watercourses_-_Forest_Practices_Regulation.shp*<br><br>*Site_Class-Forest_Practices_Regulation.shp*<br><br>*OR DOF GIS: Hydrography_Statewide_Flow_Line.shp*<br><br>*Columbia_RMZ_6_14_22.shp*<br><br>*Columbia_Boundary_6_6_22.shp* |



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| | | | 7.) Verifiers understand the PP classified each stream based on its type and site class using the highest site class (most restrictive) that results in the most conservative buffer. The WA FPA indicates that the lowest site class has the largest RMZ width not the maximum. Please update the assigned stream RMZs and GHG Plan to remain conservative as intended.<br><br>8.) It's unclear to verifiers how the RMZs were determined in areas along watercourses with a Channel Migration Zone (CMZ) as defined by FPB Board Manual Section 2 "*Standard Methods for Identifying Bankfull Channel Features and Channel Migration Zones"*. The RMZ around the Klickitat does not appear to follow the DNR hydrology waterbody or watercourse line. Conversely, the Pine Creek RMZ south of Plot 199 consists of an incomplete RMZ that appears to be based on the DNR Hydrography – Water Bodies data. Please clarify or update the RMZ designations so verifiers can understand and verify the RMZ spatial data for the various water resources. Please provide any internally generated hydrology data based on manual delineation of CMZs if available and update the Baseline Constraint GHG Plan description to include information regarding water courses with a CMZ.<br><br>9.) It appears that RMZs do not extend into the project area from streams outside the project area. See area northwest of Plot 137 as an example. Verifiers would have expected the RMZ to extend westward along the project boundary. Eventhough the stream is outside the project area, its associated RMZ appears to be in the project area. Please review for other occurrence and update as appropriate. | |
| | | | **April 8, 2024 Findings**<br>1.) The PP has provided the requested source data for the stream spatial data and added this information along with a detailed description of the RMZ delineation process within the revised GHG Plan (Section E1). Verifiers agree that these public data sources for the stream locations and classification provide the most up to date information available.<br><br>Verifiers have confirmed the project's spatial data for the WA RMZ areas align with the WA DNR stream spatial data provided. However, verifiers have been unable to align the spatial data for the OR RMZ areas with the flow line hydrology data downloaded from the OR FPA site: https://oregon-department-of-forestry-geo.hub.arcgis.com/search?collection=Dataset | *Columbia_Strata_06_15_22.shp*<br><br>*Columbia_Fully_Constrained_RMZ_Acres_2_28_24.shp*<br><br>*Columbia_Constraints_Master_2_28_24_2.shp*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_3_25_24.pdf*<br><br>*OR_shapefile_wetlands.gdb – NWI Data* |



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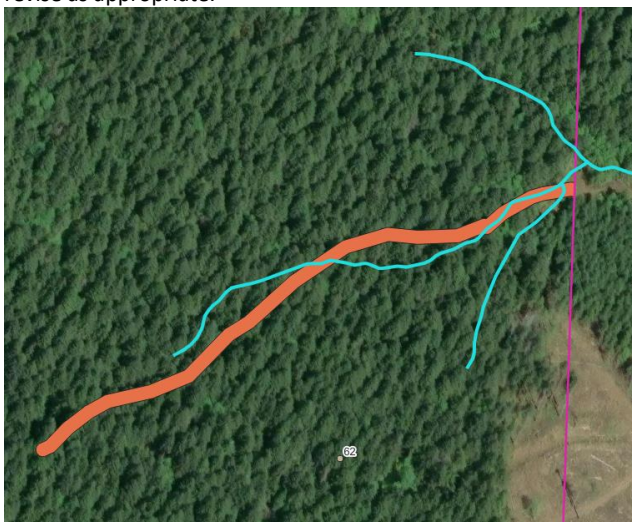
| | | | | An example of the misalignment is shown below north of Plot 62 (orange line is PP's RMZ for stream and blue lines are VB's "small" type streams (spatial data: Oregon Dept of Forestry, 2023). Please provide the Oregon State hydrology shapefiles and projection information utilized so we can verify the RMZ constraints (perhaps it is an older data set?), or, if needed, revise as appropriate.<br>  <br><br><br>2.) The PP has provided the requested clarifications on the RMZ delineation process and associated details of their GIS data attributes for the streams' baseline constraints within the project area. Verifiers acknowledge a summary of this process has also been incorporated in the revised GHG Plan (Section E1) and understand that some of these steps are considered intellectual property (e.g., FVS coding). As the project area encompasses three regions (WA West & East sides and OR West side), all of which have numerous FPA rules for the different stream types, verifiers are requesting that the public information for the specific buffer widths be tabulated/summarized in the GHG Plan to clearly document the RMZ widths that were utilized in developing the project's spatial data and applied within the baseline model.<br><br>Upon review of the revised RMZ spatial data, verifiers were able to confirm the PP has accurately delineated for the Washington streams to comply with the buffer requirements for WA Forest Practices Act (WAC 222-16- | *Hydrography_Statewide_Flow_Line.shp – OR Hydrology*<br><br>*DNR_Hydrography_-_Watercourses_-_Forest_Practices_Regulation-WA Hydrology* |



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035). Verifiers also confirmed the associated RMZ baseline constraint acres and methods described in the revised GHG Plan (Section E1).

As shown in the table below, verifiers found the project's constraint designations, applied to Washington streams, aligned with the BMP guidelines for Site Class 1 areas and were conservatively applied.

| Stream Type | BFW | Core | Inner | Outer |
|---|---|---|---|---|
| Western WA: FP_WTRTY_CD = F/S | 15' | 50' | 100' | 50' |
| Western WA: FP_WTRTY_CD = N | 15' | 50' | | |
| Western WA: FP_WTRTY_CD = U | 15' | | | |
| Western WA: FP_WTRTY_CD = N Headwater /Intersection | 15' | 56' | | |
| Eastern WA: FP_WTRTY_CD = F/S | 15' | 30' | 70' | 30' |
| Eastern WA: FP_WTRTY_CD = N | 15' | 50' | | |
| Eastern WA: FP_WTRTY_CD = N Headwater /Intersection | 15' | 50' | | |
| Eastern WA: FP_WTRTY_CD = F/S Intersection | 15' | 30' | ±450' radius | |

* Note: widths provided are for one side of channel.

As noted in item 1 above, there is a potential discrepancy with the spatial data for the Oregon streams, thus this issue remains open until that issue is closed and a summary of the RMZ widths for the associated WA and OR stream classes have been incorporated into the GHG Plan.

3.) Section E1 Riparian Management Zones of the revised GHG Plan now provides a summary of which data sources and steps were taken to meet the Washington and Oregon Forest Practices Acts. The hydrology data sources utilized (Washington State DNR Hydrography and Oregon Department of Forestry) were cited as well as how CMZ were delineated based on aerial imagery and topography (where significant).



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| | | | Verifiers understand where CMZs were not visible, a bankfull width of 30 feet in Washington and 30 feet in Oregon (10' BFW, 20' Vegetation Retention) were assumed, which verifiers find is a reasonable assumption based on site visit observations of bankfull channel widths within the project area. As some of the remaining water resource constraint specifications and descriptions (wetlands, OR stream source data) are being requested elsewhere in this issue, verifiers consider this issue item closed.<br><br>4.) The PP has updated the RMZ and provided revised constraint spatial data. Verifiers confirmed the noted inconsistencies in the stream buffer widths has now been corrected. This issue item is closed.<br><br>5.) Verifiers confirmed the required RMZ presence of the intersections and headwaters buffers (56' in Western Washington and 50' in Eastern Washington) has now been incorporated in the updated constraint spatial data sets (i.e., *Columbia _RMZ, Columbia_Fully_Constrained_Acres, and Columbia_Constraints_ Master*). This issue item is closed.<br><br>6.) Verifiers understand the spatial data for the *Site_Class-Forest_Practices _Regulation* was not utilized to define the RMZ widths in cases where site class was required in setting these widths. Rather, the most conservative RMZ widths, corresponding with Site Class 1, were applied in all cases. Verifiers agree with the PP that this approach is conservative and confirmed the noted RMZ widths were applied as described. This issue item is closed.<br><br>7.) Verifiers note Section E1 Riparian Management Zones of the revised GHG Plan now states "*In cases where the buffer distances were dependent on-site class, site class I was used resulting in the largest and most conservative buffer distance and allowable treatment types. Site Class ranges from one to five, with Site Class I being the best most productive sites and yielding the largest SMZ buffers via the Washington Forest Practice Rules."* This update clearly defines how site class was used to determine RMZ width. This issue item is closed.<br><br>8.) Verifiers understand the project boundary near watercourses with a visible channel migration zone (CMZ) was used to delineate the starting point in applying the RMZ buffers. This process has now been described in the revised GHG Plan. Verifiers acknowledge the PP has also updated the RMZ spatial data to reflect these buffer changes. | |



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| | | | Given the review of the recent aerial imagery and topography, verifiers are reasonably assured the larger streams that have a clearly defined CMZ were appropriately and accurately delineated. The total RMZ areas, for these larger streams, are likely to be more conservative.<br><br>Where CMZs were not visible, the PP has utilized a bankfull width of 30 feet in Washington and 30 feet (10' channel width + 20' vegetation retention) in Oregon were assumed. Verifiers find the treatment of these areas to be reasonable and conservative. This issue item is closed.<br><br>9.) Verifiers are reasonably assured the RMZs for streams outside the project area extending into the project area are being applied. However, this issue item will remain open pending resolution of the OR hydrology source data discrepancy identified in issue item 1.<br><br><u>New Finding</u><br>10.) In reviewing the WA Dept of Natural Resources GIS spatial data for wetlands (https://www.dnr.wa.gov/GIS Wetlands Forests Practices Regulation shape files), verifiers find there are some Type A Wetlands (WAC 222-16-035) present in within some of the WA project parcels. For example, see areas near Plots 261-262, 243, 244, 30, and 67.<br><br>As specified in the WA Forest Practices Act (WAC 222-30-020 (8)), Type A Wetlands require a Wetland Management Zone (WMZ) that have various harvest limitations that need to be specified and considered in the baseline modeling (legal constraint). Please review the public data sets for regulated wetlands (Types A & B) within both Oregon and Washington project parcels; revise the spatial data for the baseline constraints as needed and appropriate; and include a description in Section E1 of the GHG Plan of how these legal constraints were delineated (source data used) and addressed within the baseline model (WMZ specifications, assumptions).<br><br>Also, the project parcels also contain Forested Wetlands, which have suggested harvest specifications (WAC 222-30-020 (7a)). Please also include the same information for these wetlands as requested above for the Type A and B wetlands.<br><br>Issue items still open include 1, 2, 9 and 10. | |
| | | | **<u>July 10, 2024 Findings</u>**<br>1.) *Oregon_HydrogeographyStatewideStreamsFp* spatial data was provided by the PP, which was utilized in delineating the associated RMZs for the Oregon streams within the project area. The GHG Plan (Sections C1 & E1) | *ColumbiaRiver_GHGPlan_DRAFT_5_2_24 .pdf* |



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| | | | notes stream spatial data was sourced from Oregon Department of Forestry. The flows lines for the provided Oregon Statewide Streams data set do not align with the noted GHG Plan's source data (ODF). Please review and clarify as needed. Verifiers also request the dates that the data sources were accessed be specified in the GHG Plan.<br><br>2.) Section E1 Baseline – Riparian Management Zones of the GHG Plan now includes a table listing the RMZ zones and widths for Western and Eastern Washington and Oregon. These values were found to align with the RMZ baseline constraints applied in the Constraints_Master_5_1_24 file. Please add a table number and caption to this table to align with others in the document and provide a reference to the table in the text.<br><br>9.) With the receipt of the Hydrography Statewide Stream data for Oregon, verifiers were able to confirm the RMZ areas for streams outside the project area that are extending into the project area. This issue item is closed.<br><br>10.) Verifiers understand the PP utilized the WA DNR Wetlands Forest Practices Regulation spatial data to identify and delineate the various wetland types within the project area. By using recent aerial imagery the PP reviewed the wetland types within the project area and re-typed some of the Type A wetlands to forested wetlands based on the WA Forest Practices Rules' definition for forested wetland (canopy closure > 30%), the results of which are summarized in the Wetland Typing And Buffer workbook.<br><br>Verifiers reviewed the re-typed wetlands and concur with the PP's assessment; based on aerial imagery review and limited updating of the WA DNR spatial data (stakeholder interview 611/2024 with DNR GIS staff, Kevin Smith), the PP's approach in reclassifying the Type A wetlands was reasonably and accurately delineated. Verifiers do request a summary description of this process along with references to the spatial data sources utilized be included in the GHG Plan in specifying the required regulatory constraints incorporated in the baseline model.<br><br>Verifiers confirmed the PP assertion that 6.8+ acres were added to fully constrained layer (FVS Group = 0). Verifiers were also able to confirm there were no changes between silvicultural groups for project plots. As part of this review, verifiers intersected the July 2024 constraint file with the May 2024 file and summarized the acres changed in the table. Noted were an additional 5.7 acres (3.8 + 1.7 + 0.2 below) where the new silvicultural group was presumably more conservative than the previous group | *Hydrography_Statewide_Streams_Fp.gdb – Oregon Hydrology*<br><br>*Columbia_Constraints_Master_7_4_24.shp*<br><br>*Columbia_Constraints_Master_5_1_24.shp*<br><br>*Wetland_Typing_And_Buffer_7_4_24.xlsx*<br><br>*Constrained_Acres_Change_7_4_24.xlsx*<br><br>*VB*<br>*https://oregon-department-of-forestry-geo.hub.arcgis.com/search?tags=hydrography*<br><br>https://www.dnr.wa.gov/GIS Wetlands Forests Practices Regulation shape files |



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designation. For example, verifiers understand EC2 and EC3 allow for a broader range of silvicultural activities than EC1 as articulated in the GHG Plan.

| Old | New | Sum of VB_Acres |
|---|---|---|
| EC_1 | EC_0 | 2.772 |
| EC_2 | EC_0 | 0.272 |
| EC_3 | EC_0 | 0.035 |
| PN_1 | PN_0 | 3.701 |
| WC_1 | WC_0 | 0.015 |
| EC_2 | EC_1 | 3.784 |
| EC_3 | EC_1 | 1.723 |
| PN_2 | PN_1 | 0.209 |

We agree with the PP's response that the addition of 6.8 acres of fully constrained areas are not likely to change the baseline modeling result over the project period given the limited harvestable acreage and no significant changes to plot FVS groups. Nonetheless, verifiers did want to note this additional change of 5.7 acres where harvesting constraints would be become more restrictive and request the PP to review and confirm the addition of these 5.7 acres and assess any potential change to the baseline model.

**July 22, 2024 Findings**

(1) Verifiers understand the PP utilized the most up-to-date public spatial data set for Oregon stream classes from the Oregon Department of Forestry (ODF) in March 2020 near the initial start of the project development. This spatial data was provided to the verifiers. Upon review, verifiers found the stream classes (FPA size) and associated RMZs were accurately delineated and conformed to the baseline constraints' spatial data that was incorporated into the baseline model scenario.

While the stream spatial data used by the PP near the project start does not completely align with the spatial data set obtained by the verifiers (Jan 2024), we acknowledge the stream spatial data set utilized to assess the baseline constraints was the most appropriate ODF public data to be used at the time of the PP's assessment (2020). Verifiers also note the difference in RMZ buffer area between the 2020 and 2024 stream delineation results in an increase in a small stream length of approximately 1,000 ft or about an additional 0.6 acres of potentially constrained area, which we deemed had very low risk of changing the baseline model results.

*Hydrography_Statewide_Streams_Fp.gdb – Oregon Hydrology*

*Columbia_Constraints_Master_7_4_24.shp*

*ColumbiaRiver_GHGPlan_DRAFT_7_18_24*

*Columbia_100Yr_calcs_07_19_2024_final*

*Columbia_RP_ERT_HWP_07_19_2024_final*

*Columbia_Start_RP_CO2_07_19_2024_final*



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| | | | The PP has added the requested specifications and clarifications about the Oregon stream data source in the revised GHG Plan. Thus, this issue item is considered closed.<br><br>(2) The requested table number, title, and reference in the text has been added to the RMZ bank and buffer width table within the revised GHG Plan (pg. 58). This issue item is closed.<br><br>(10) Verifiers acknowledge the requested summary of the wetland delineation and classification process along with references to the spatial data utilized and regulatory constraints considered has been added to the revised GHG plan (pg 58-59).<br><br>Verifiers confirmed the PP has accurately incorporated the updated wetland constraint acres noted by verifiers for the WA type A wetlands into the revised baseline model scenario and associated workbooks. Verifiers understand the PP has re-run the baseline model, which did not result in any changes to the baseline output nor to project crediting.<br><br>Verifiers are satisfied with the wetland constraint assessments and descriptions that were added to the revised GHG Plan and concur with the PP that these minor constraint wetland areas did not change the baseline nor project crediting. This issue item is closed.<br><br>As all issue items have been resolved, this issue is now closed. | *VB*<br>*https://oregon-department-of-forestry-geo.hub.arcgis.com/search?tags=hydrography* |

| ***OPO/APD Response*** | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | Section E1 Baseline Constraints has been revised to add clarification on the process and data attributes used to delineate and model harvesting within the RMZ/Constrained acres, as well as add clarification as to how silvicultural treatments were applied across the property. Please see the most updated version of the GHG plan. | *ColumbiaRiver_GHGPlan (most recent version)* |
| **3/5/2024** | 1) The Washington State DNR Hydrography layers were utilized for the RMZ generation. WA DNR Hydrography is the most up to date hydrography data we are aware of. The hydrography data utilized in Oregon was obtained from the Oregon Department of Forestry, and is the most up to date and accurate hydrography data we are aware of for implementing forest practices. Additional detail has been added to the GHG Plan Baseline Constraints Section.<br><br>WA DNR Data Source: Oregon Stream Data: https://oregon-department-of-forestrygeo.hub.arcgis.com/datasets/geo::hydrography-flow-line/about<br><br>Oregon Department of Forestry Data Source: https://geo.wa.gov/datasets/816586b10c6c4954883b236f9fff208f/about | *ColumbiaRiver_GHGPlan (most recent version)*<br>*Columbia_Fully_Constrained_RMZ_Acres (most recent version)*<br>*Columbia_Constraints_Master(most recent version)* |



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The data used to delineate the RMZ zones and constraints area has been added to the shared folder. Please note the layer formerly referred to as "Columbia_RMZ" has been updated to be named "Columbia_Fully_Constrained_RMZ_Acres" for clarity, which only contain the areas of the RMZ, and other areas within the project that are fully constrained. The RMZ layer provided includes all delineated RMZ zones. Both the RMZ layer and Fully Constrained layers have been provided in the shared folder. An additional layer "Columbia_Constraints_Master" has been generated and added to the shared folder to add clarity to all constraints and their respective areas within the project.

2) Steps used to determine SMZ widths, and harvest constraints.
    1. Gather Most up to date hydrology data from public agencies (see data links in response to item 1 above).
    2. Identify appropriate buffer widths based on stream classification data and respective state forest practice rules (Attribute " FP_WTRTY_N" in Washington data and "Fishpres" and "Fpasize" in Oregon Data)
    3. Apply buffers such that there is no overlap between zones
    4. Categorize buffers into FVS groups based on their allowable silviculture. Buffer zones were categorized into the FVS group based on the states respective harvest rulesets, ensuring that treatments allowed within each respective FVS group do not exceed the most conservative harvest scenario within each zone.

       For example, Eastern Washington's inner zone harvest constraints are based on forest type. Excluding high elevation forest, as this project does not have forest that falls within that category, the most conservative harvest treatment is for mixed conifer stands on high site indexes. Treatments within Eastside Inner zones on F/S type RMZs do not exceed constraints for high site index mixed conifer stands.

    5. Once complete, the RMZ layer was combined with the master constraints layer. Plots were spatially joined to the master constraints and assigned their respective Strata-FVS Group combinations such that their treatments are restricted by the area they fall within.

       A less detailed version of this process is described in the GHG plan. This process is considered intellectual property and as such will not be described in detail in public facing documents.

3) Channel width was addressed using the following criteria:
    1. Publicly available data does not include channel width information. Publicly available data does not include Channel Migration Zones (CMZs)



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| | 2. Streams or rivers with significant CMZs were delineated based on aerial imagery and topography, and then buffered according to the steps below.<br>3. In the absence of visible CMZs, Type S, F, Np, and Ns streams are conservatively assumed to have a bank full width of 30 feet (15 feet on each side of stream center line).<br>4. The only stream classification types present in the Oregon portion of the project area are Type N. These streams assume a channel width of 10 feet (5 feet on each side of stream center line), plus the required vegetation retention zone of 10 feet from the channel edge.<br><br>4) RMZ zones have been updated. This inconsistency is no longer present.<br><br>5) Headwaters and intersections have been clearly delineated in the updated version of the "Columbia_RMZ", "Columbia_Fully_Constrained_Acres", and "Columbia_Constraints_Master" layers.<br><br>6) The "Site_Class-Forest_Practices_Regulation.shp" was not utilized. Instead, the most conservative RMZ widths, corresponding with Site Class 1, were applied in all cases.<br><br>7) The most conservative RMZ widths, corresponding with Site Class 1, were applied in all cases. In forestry literature Site Class 1 is often referred to as the 'Highest' site class because it is the best site. This can be confusing, thus the language in the GHG plan has been corrected to be clearer.<br><br>8) Please see response above to item 3 that describes how we addressed channel width on smaller streams. Water channels that were identified to have significant CMZs were delineated appropriately., noting the inconsistencies with that data for applying the CMZ, we have updated the CMZ edge to coincide with the PAB edge on Pine Creek and Wind River, and have conservatively buffered the RMZ from that point inward to the project area.<br><br>9) The PAB has been reviewed for outside SMZs, and the Constraints and SMZ layers have been updated appropriately. | |
| **15-Apr-24** | 10) The "Hydrography_Statewide_Streams_Fp.gdb" geodatabase used to delineate streams and generate the RMZ layer in Oregon has been added to the shared folder.<br>11) A table has been added to section E to clarify buffer widths.<br>12) Closed<br>13) Closed<br>14) Closed<br>15) Closed | *Hydrography_Statewide_Streams_Fp.gdb*<br><br>*Wetlands_-_Forests_Practices_Regulation.shp*<br><br>*Columbia_Constraints_Master_7_4_24.shp*<br><br>*Columbia_SMZ_7_3_2024.shp* |



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| | 16) Closed<br>17) Closed<br>18) Open until 1 is closed<br>19) Thank you for pointing this out. We have reviewed the Wetland Forest Practice Layer from Washington DNR and determined it is a more appropriate layer than the DNR watercourse layer we were previously utilizing. We have incorporated the wetlands and their respective buffers into our constraints layer. While reviewing each respective wetland not all wetlands coded as 'Type A' met the definition of Type A wetlands as defined in WAC 222-16-035. As such, we have re-typed those to be Forested Wetlands. We only applied this to wetlands that were clearly forested and well above the threshold of "crown closure of 30 percent or more". Wetlands designations that were updated are noted in the "*Wetland_Typing_And_Buffer_7_4_24.xlsx" workbook.*<br><br>Adjustments to the RMZ and constraints layer resulted in a net positive change of 6.8 acres to fully constrained layer, and a net negative change of -0.8, -4.3, and -1.8 acres in constraint groups (FVS Groups) 1, 2, and 3 respectively.<br><br>Due pre-existing constraints already placed on the project area from RMZ's, Forest Practice Rule constraints, and pre-exisitng property specific harvesting constraints, no change in plot specific FVS group assignments occurred.<br><br>Due to the model being aspatial, the baseline model has not been affected by this update. The relatively small net acreage change between constraint groups (FVS groups) has no material effect on the already limiting harvestable acreage constraint for each 5-year period of 2,785. There already are thousands of acres of excess harvestable acres that are not being harvested due to the pre-existing harvest acreage constraint. In addition, no plots were significantly affected as their constraint groupings (FVS groups) remain unchanged, and the allowable treatments on those plots remain unchanged.<br><br>Section E1 of the GHG plan has been updated accordingly. | *Wetland_Typing_And_Buffer_7_4_24.xlsx*<br><br>*Constrained_Acres_Change_7_4_24.xlsx* |
| **18-Jul-24** | 1) The original dataset downloaded from the Oregon Department of Forestry was Hydrography_Statewide_Streams_Fp.gdb, which was downloaded on March 16th, 2020. This data is no longer available through the web, as the ODF has updated their GIS resources pages and datasets. This has been clarified in the GHG plan. The structure of ODF's website, where and how they store their data, and how it is accessed by users has changed significantly and we cannot access the original data through ODF, and as such, we cannot provide a reference that goes directly to the original source. The data was originally sourced from the Oregon Department of Forestry and cannot be specified any further as the specific web pages no longer exits.<br><br>If needed, you can look back at ODF's previous website structure using the link below and get fairly close to where the dataset was originally stored, however, it appears the exact | *ColumbiaRiver_GHGPlan_DRAFT_(Most recent version)*<br><br>*DRAFT_Columbia_RP1_MonitoringReport_(Most recent version)*<br><br>*Columbia_100Yr_calcs_(Most recent version)*<br><br>*Columbia_RP_ERT_HWP_(Most recent version)*<br><br>*Columbia_Start_RP_CO2_07_19_2024_final_(Most recent version)* |



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| | page for this dataset was never archived.<br><br>https://web.archive.org/web/20210601084520/https://spatialdata.oregonexplorer.info/geoportal/<br><br>Additionally, here is another web source referring to the same dataset when it was available:<br><br>https://www.skillscommons.org/bitstream/handle/taaccct/17396/GEOG%20265%20Assign%20%231%20Lab%205Timber_Harvesting_Exercise.pdf?sequence=1&isAllowed=y<br><br>2) A table number, caption, and reference in the text has been added to the RMZ bank and buffer width table.<br><br>10) A summary of the wetland delineation and classification process has been added to the GHG plan with references to the spatial data utilized and regulatory constraints considered has been added to the GHG plan.<br>We have updated our baseline model, workbooks, and documents to be sure the changes in harvest constrained acres are considered in our baseline scenario. Due to the relatively small change in acreage of constrained acres, this has had no effect on projected crediting. | |

| **Verifier Issue** | **Issue ID:** | **21-34** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **4-Jan-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
|---|---|---|---|---|
| **ACR Standard, v7.0, Section 6.E** | Monitoring Report | Non conformance. *May impact conformance; no materiality* | Verifiers note the Monitoring Report has not yet been submitted. Please provide. | |
| | | | **Findings March 20, 2023**<br>Verifiers acknowledge receipt of the Monitoring Report and request the following:<br><br>1. Please update the Monitoring Report to the most current ACR template (v4).<br><br>2. As specified in the ACR MR form, please include additional details in Section IV(3) for the inventory description (e.g., dates of inventory, plots, and methods to estimate end of reporting period stocks). | *DRAFT_Columbia_RP1_MonitoringReport_03_07_23.pdf* |



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| | | | 3. Section VI(2) carbon pools table should be updated with final total GHG,P tCO2e as it's currently zero.<br><br>4. To comply with Section 6.E of the Standard please add notes in the appropriate section of the Monitoring Report on (1) the PP's continuation of the project activities and (2) ownership remains clear and uncontested. The other required attestations (e.g., regulatory compliance) are already included in the Monitoring Report (Section IX). | |
| | | | **Findings January 5, 2024**<br>1.) Verifiers confirmed that latest version of the Monitoring Report (v5.0) was used. This issue item is closed.<br><br>2.) Verifiers find the verbiage included in Section IV(3) of the ACR MR aligns with the template instructions. This issue item is closed.<br><br>3.) Verifiers find that section IV(2) of the Monitoring Report now contains a table of the live, dead, soils and harvested wood products tCO2e for the start and end of the reporting period. This issue item is closed.<br><br>4.) This issue item remains open as there are not confirmations in the revised MR on (1) the PP's continuation of the project activities and (2) ownership remains clear and uncontested. | *DRAFT_Columbia_RP1_MonitoringReport V5.0_12_22_2023.pdf*<br><br>*ACR-Monitoring-Report-v5.0.docx.* |
| | | | **Findings March 25, 2024**<br>4.) Verifiers find that Section III of the monitoring report now includes confirmation of project activity continuation and that ownership is clear and uncontested. "*The Columbia Land Trust confirms the continuation of all project activities, and that ownership remains clear and uncontested. The Columbia Land Trust holds, free of any lien, charge, security interest or other encumbrance, legal title to and all ownership rights to any removal, limitation, reduction, avoidance, sequestration, or mitigation of any greenhouse gas associated with the project*." This issue is closed. | *DRAFT_Columbia_RP1_MonitoringReport V5.0_3_25_24.pdf* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
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| | The Monitoring Report has been submitted. | *DRAFT_Columbia_RP1_MonitoringReport_03_07_23* |
| **31-Oct-23** | An updated Monitoring Report has been added to the shared folder. | *DRAFT_Columbia_RP1_MonitoringReportV5.0_12_22_2023* |
| **8-Feb-24** | Section III.1 of the most up to date monitoring report has been updated to incorporate confirmations of the continuation of project activities and that ownership remains clear and uncontested. | *DRAFT_Columbia_RP1_MonitoringReportV5.0 – most up to date version* |



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| **Verifier Issue** | **Issue ID:** | **21-35** | **Status:** | **Closed** | **Checked by:** **BS** | **Date Identified** **4-Feb-23** |
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | **Comments** |
| **ACR IFM Methodology, v6.0, Section D.7** | Section E3 | New information request. *Conformance Issue* | In regard to quantifying leakage, Section E.3 of the GHG Plan states; "*Quantification of leakage is limited to market leakage, as no activity-shifting leakage is allowed by the methodology beyond de minimis levels*." The Columbia Land Trust web site currently lists ownership of greater than 20,000 acres, implying there is the potential for an additional acres of land outside of the project area.<br><br>The verifiers seek additional supporting evidence on the PP's lands outside of the project area boundary to demonstrate there is no activity shifting leakage. The verifiers request spatial data for the overall CLT ownership that encompasses both the project area and non-project lands to further assess the potential for timber harvesting outside of the project area boundaries and within the PP's ownership.<br><br>Additionally, Figure A-6 within the GHG Plan suggests that all area owned by CLT is included in the proposed IFM project. Please review, clarify and/or revise as needed. | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br><br>*CLT website* https://www.columbialandtrust.org/our-work/ |
| | | | **Findings March 20, 2023**<br>This issue remains open -pending APD response. | | | |
| | | | **Findings January 5, 2024**<br>The PP has provided the requested supporting documents: (1) CLT ownership records outside the project area and (2) documentation attesting to no commercial timber harvesting on any of CLT's lands during this first reporting period. Verifiers are satisfied with the information provided and have closed this issue. | | | *ColumbiaLandTrust_Fee_20230310.shp*<br><br>*Columbia_RP1_NoHarvestConfirmation_7_28_21* |
| ***PP Response*** | | | | | | |
| ***Date*** | ***PP Comment*** | | | | | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | All CLT ownership including inside and outside of the Carbon Project Area has been added to the shared verification folder. CLT did not conduct any commercial timber harvesting on any of their land during the first reporting period. | | | | | |

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| **Verifier Issue** | **Issue ID:** | **21-36** | **Status:** | **Closed** | **Checked by:** **BS** | **Date Identified** **7-Feb-23** |
| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | | **Comments** |



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| **ACR IFM Methodology v1.3, section A2** | Section B2 | Possible non conformance. *May impact conformance; no materiality issue* | Verifiers understand the PP has not completed any commercial harvesting during the reporting period (PP's e-mail attestation of no harvest confirmation -7/28/21) and plans to have ACR approve a forest management plan when commercial harvesting occurs in a subsequent reporting period. We request the PP include a note in Section B2 of the GHG Plan (item 3) that clarifies no harvesting has been conducted during this reporting period. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22*<br><br>Columbia_RP1_NoHarvestConfirmation_7_28_21 |
| | | | **Findings March 10, 2023**<br>Verifiers acknowledge that Section B2 of the GHG Plan (item 3) was updated to indicate that "no commercial harvesting was conducted during this Reporting Period." This issue is closed. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| *PP Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **8-Feb-23** | Section B2 has been updated. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |

| **Verifier Issue** | **Issue ID:** | **21-37** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **7-Feb-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard 7.0, 8.A (items 1-5)** | GHG Plan, Section F1 | Clarification. *May impact conformance; no materiality* | In Section F1 of the GHG Plan, verifiers assume the information being provided in items 1-5 is for complying with ACR Standard (8.A, items 1-5). Verifiers request clarification be added to describe the information that is being provided to meet this section of the Standard. For example, item 4 is providing a series of tables without a description of what these tables are referring to. Please review and update as appropriate to clarify these items. | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 9, 2023**<br>This issue remains open -pending APD response. | |
| | | | **Findings January 6, 2024**<br>The revised GHG Plan has been updated to clarify the headings of the various tables provided in Section F1 (environmental impact categories added). This issue is now closed. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |

| *OPO/APD Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | Section F1 has been updated. | *ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |



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| Verifier Issue | Issue ID: | 21-38 | Status: Closed | Checked by: BS/SB | Date Identified 7-Feb-23 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0, Chap 3 & 4** | GHG Plan, Section C.1 | New information request. *May impact materiality or conformance.* | Did the PP review for any Federal and State listed threatened or endangered species that may be found within the project area such as the Northern Spotted Owl, Marbled Murrelet, and salmon species? Does Columbia Land Trust records show any evidence of such species within the project area parcels?<br><br>The GHG Plan indicates the Endangered Species Act was considered in assessing regulatory surplus test in Section C1. If any species were found within the project area, were there baseline constraints incorporated into the baseline model. Verifiers are seeking the data sources the PP used to assess such listed species; a summary of the assessment; and associated baseline constraints applied to the modeling efforts (if any). | | *ColumbiaRiver_GHGPlan_DRAFT_6_17_22* |
| | | | **Findings March 20, 2023**<br>Verifiers understand the PP has reviewed for the presence of State and Federal listed threatened or endangered species within the project area. The PP is only aware of the presence of Marbled Murrelet occupied sites within the project area, which is limited to the Skookumchuck properties. For baseline modeling, verifiers understand where these sites exist there is no harvesting permitted within these sites. The PP notes that no NSO site centers have been observed within the project area.<br><br>Verifiers request further clarifications and/or requests, specifically:<br><br>(1) Within the GHG Plan, please incorporate a description of the results of the regulatory assessment completed including the process, supporting documents/data sources (e.g., GIS spatial data sources), specifications of required regulatory buffers (e.g., needed buffer size) and how the baseline model meets these regulatory requirements (corresponding constraint modeled). Verifiers are seeking what regulatory assessments were completed. This is difficult to ascertain based on the description provided in the GHG Plan, Section C.1.<br><br>(2) Verifiers could not locate the noted GIS supporting spatial data regarding MAMU and NSO within the shared dropbox folder. Please specify the file locations and/or upload as appropriate.<br><br>(3) The last sentence on page 34 is not clear: "*None of the above or any other existing law, regulation, statute, legal ruling, or other regulatory framework in effect as of the Start Date, February 16, 2021 , effectively requires the forest carbon project activity* | | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |



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| | | | *and its associated GHG emissions reductions/removal enhancements*." Please review and revise as needed for clarity. We are not sure what this statement means.<br><br>(4) Upon an USF&W service review of the State and Federal listed threatened and endangered species, verifiers note there are other species besides MAMU that are present within the project area. These include steelhead trout, bull trout, and salmon species (e.g., chinook), which are all federally listed and within the project area. For example, see the following spatial data for bull trout: https://hub.arcgis.com/datasets/PSMFC::bull-trout/explore?location=45.483188%2C-122.967500%2C9.10<br><br>Please review, clarify, and revise as appropriate. | |
| | | | **Findings January 2, 2024**<br>1.) Verifiers note that Section C1 of the GHG Plan now includes references to the legal requirements and constraints generated by the consideration of the Washington State Forest Practice Rules, the Oregon Forest Practices Act, and the Federal and State Endangered Species Act in the Regulatory Surplus Test. Verifiers seek further clarification regarding the RMZ delineation and buffer sizing in Issue 21-33. This issue item will remain open pending receipt of clarification regarding RMZ creation.<br><br>2.) Verifiers were able to locate the GIS supporting spatial data regarding MAMU and NSO. This issue item is closed.<br><br>3.) Verifiers appreciate the clarification regarding regulatory surplus as it relates to the listed regulations. Verifiers understand that the project forest management and modelled activity are not required or mandated under those listed laws, regulations, statutes, legal rulings etc and agree the project passes the Regulatory Surplus Test. However, the wording in the paragraph *"None of the above regulatory requirements or any other existing law,"* does not accurately describe the project constraints as the later parts of this section go on to describe the laws that did impact project forest management activities. (Washington State Forest Practice Rules, the Oregon Forest Practices Act, and the Federal and State Endangered Species Act). Please update asc.<br><br>4.) GHG Plan Section E1 Baseline Constraints summary addresses the Salmon, Bull and Steelhead Trout in the watercourses that flow through the project area. The PP asserts the state BMPs were followed conservatively during RMZ acre delineation. Verifiers agree that the establishment of RMZs will protect streams and rivers with Threatened and Endangered Species however, verifiers request more information in Issue 21-33 to verify that | *Spotted_Owl_Special_Emphasis_Areas_(SOSEA).shp*<br><br>*MAMU_Export_2015phs.shp*<br><br>*Columbia_RMZ_6_14_22.shp*<br><br>*Columbia_Plots_10_4_23.shp*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_12_22_23.pdf* |



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| | | | the BMPs were followed. This issue will remain open pending receipt of that clarification.<br><br>5.) When reviewing the MAMU (MAMU_Export_2015phs.shp) and NSO areas for project overlap verifiers acknowledge that all areas of project overlap with the MAMU layer were in the RMZ layer. Verifier's noted much of the overlap with the White Salmon NSO centers were in the RMZ but its not clear why the area south of Plot 28 was not included. Please provide the spatial data that indicates which area of NSO overlap in the Wind River property were VTV acres.<br><br>6.) Please clarify in the GHG Plan how the FVS Groups correlate to the harvest prescriptions and what attributes were considered as each of the plots were allocated. | |
| | | | **<u>April 1, 2024 Findings</u>**<br>1.) This issue item is dependent on the resolution of the open issue items in 21-33 (1,2,9 and 10). As it is being reviewed and will be adequately addressed in that issue, verifiers are closing this issue item.<br><br>*3.)* Verifiers find that Section C1 of the revised GHG Plan now indicates that "*None of the above regulatory requirements or any other existing law, regulation, statute, legal ruling, or other regulatory framework in effect as of the Start Date, February 16, 2021, requires or mandates the implementation of the carbon project."* This accurately describes the scenario necessary for the project to pass the Regulatory Surplus Test. This issue item is closed.<br><br>4.) Similar to issue item 1 above, this issue item is dependent on the resolution of the open issue items in 21-33 (1,2,9 and 10). As it is being reviewed and will be adequately addressed in that issue, verifiers are closing this issue item.<br><br>5.) Verifiers were able to confirm the area south of Plots 28 and 29 in the inner circle of the NSO layer are now in FVS_Group2 = 0 indicating that they are full constrained. This issue item is closed.<br><br>6.) Verifiers appreciate the addition of detail to Table E1-7 in the revised GHG Plan outlining the Silvicultural Prescriptions and their interaction with the constraints in the *Columbia_Constraints_Master_2_28_24_2.shp file*. Verifiers will confirm the reasonableness, conservatism, and acreage allocations to the FVS Groups pending resolution of 21-33. | *ColumbiaRiver_GHGPlan_DRAFT_3_25_24.pdf*<br><br>*Columbia_Fully_Constrained_RMZ_Acres_2_28_24.shp*<br><br>*Columbia_Constraints_Master_2_28_24_2.shp* |



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| | | | **July 10, 2024 Findings**<br>**6.)** Verifiers will confirm the reasonableness, conservatism, and acreage allocations to the FVS Groups pending resolution of 21-33. This issue will remain open. | |
| | | | **July 22, 2024 Findings**<br>6) As issue 21-33 has been closed, verifiers have confirmed reasonableness, conservatism, and acreage allocations of the FVS Groups. This issue item and the entire issue is closed. | *Columbia_Constraints_Master_7_4_24.shp*<br><br>*ColumbiaRiver_GHGPlan_DRAFT_7_18_24*<br><br>*Columbia_100Yr_calcs_07_19_2024_final* |

***OPO/APD Response***

| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
|---|---|---|
| **8-Mar-23** | The PP reviewed the presence of Federal and State listed threatened or endangered species that may be found within the project area. The Columbia Land Trust is aware of endangered species within the project area but this is limited to the Marbled Murrelet. The PP is also aware of the Northern Spotted Owl management areas overlapping with the project area, however, no NSO site centers have been observed within the project area. The PP is not aware of any other endangered species within the project area.<br><br>**Marbled Murrelet - MAMU**<br>GIS data for MAMU occupied sites and observation instances were obtained from the landowner, through the Washington Department of Fish and Wildlife. This data has been added to the shared verification folder. The presence of MAMU within the project area is limited to the Skookumchuck properties and addresses the requirements of WAC 222-10-042 in the baseline model through the Columbia_RMZ spatial file and associated constraints. Both Skookumchuck properties where MAMU occupied sites were observed are fully constrained, and no harvesting is permitted in the baseline model within these acres.<br><br>**Northern Spotted Owl - NSO**<br>GIS data for NSO median home range circles were obtained from the landowner, through the Washington Department of Fish and Wildlife. This data has been added to the shared folder. No NSO site centers were found to be within the project area, however, some NSO median home range circles do overlap with the project area. These home range circles fall within two categories, those that are within SOSEAs (Spotted Owl Special Emphasis Areas), and those that are outside of SOSEAs.<br><br>There is one NSO home range circle that overlaps the project area and is located within a SOSEA. This overlap occurs on the Wind River Properties. Restrictions on these acres are addressed in the baseline model through the Columbia_RMZ layer, in which a portion of the Wind River property is fully constrained and no harvesting is permitted in the baseline model within these acres. The remaining overlapping acres meet the requirements of WAC 222-10-041 to maintain suitable spotted owl habitat by limiting harvesting to the VTV prescription which is comprised of thinning from below and variable | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |



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| | density thinning that promotes the large diameter trees and complex forest structure needed by the NSO.<br><br>All other NSO home range circle acres that overlap the project area are outside of SOSEAs, and are located in the Klickitat portion of the property. These overlapped areas also share their home range circles with adjacent USFS lands that contain more suitable NSO habitat. The requirements of WAC 222-10-041 for NSO outside of SOSEAs restrict when harvest activities can be conducted and that the 70 acres of highest quality suitable spotted owl habitat surrounding a northern spotted owl site center should be maintained. Both these requirements are met as the baseline modeling is not temporally specific to a period of months, so it is assumed that harvesting takes places outside of the restricted time, and because the land adjacent to the overlapped area is USFS land and more suitable NSO habitat that will make up the 70 acres. | |
| **31-Oct-23** | 1. Section C1 of the GHG plan has been updated to add detail on what regulatory assessments were completed.<br><br>2. GIS data for MAMU and Spotted Owls have been added to the shared folder. Section E: Baseline constraints, has been updated to add clarity on how the baseline scenario accounts for these species.<br><br>3. The Regulatory Surplus test requires that we demonstrate and explain how the project actions are in surplus to relevant requirements. This statement states that because neither the project activity or its associated GHG emission reductions/removal enhancements are required by any of the relevant requirements, we are in surplus of all regulatory requirements, thus passing the regulatory surplus test. Updated detail of what regulatory assessments were completed and their results were added below this statement for additional clarity.<br><br>4. Salmon Species, Bull Trout, and Steelhead Trout are currently present or have had historical presence throughout the portions of the project area. All legal management requirements for these species are met through the implementation of state specific RMZ requirements as described above in this section, and Best Management Practices (BMPs) within each respective state. As stated in the RMZ section, the largest and most conservative buffer distances were utilized in the RMZ creation process, resulting a conservative approach to endangered and threatened species management for Salmon Species, Bull Trout, and Steelhead Trout. Section E: Baseline constraints, has been updated to add clarity on how the baseline scenario accounts for these species. | *ColumbiaRiver_GHGPlan_DRAFT (Most recent version)* |



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| **3/5/2024** | 1) Please see response to 21-33.<br><br>2) Closed<br><br>3) This statement has been revised to state that the implementation of the carbon project is not required or mandated by any regulatory framework, thus passing the regulatory surplus test. Section B4 of the IFM Protocol v1.3 refers to the "Project", not individual components of the project. The three-pronged additionality test is assessed at the project level. We understand the project activity and associated management as a whole must meet or exceed all regulatory constraints when assessed at the project level, however, individual components of the project activity, such as an individual harvest, may only meet those requirements, not exceed them.<br><br>4) Please see response to 21-33.<br><br>5) The area south of Plot 28 has been corrected to be included all suitable spotted owl habitat within 0.7 mile of that northern spotted owl site center. Plot 28 and 29 are now fully constrained.<br><br>6) Each Plot was allocated an FVS group based on the "Columbia_Constraints_Master" shapefile. FVS Groups were allocated to each unique polygon within "Columbia_Constraints_Master" by considering the Washington Forest Practice Rules, the Oregon Forest Practices Act, and each properties property specific constraints related to deed and easement encumbrances. The GHG plan has been clarified in table E1-7 and the Baseline constraints section to show which FVS groups correlate to which harvest prescriptions. All legal constraints were taken into account when assigning FVS groups to plots, as described in section C1 of the GHG plan.<br><br>For example: The properties containing plots 105-198 are allocated to FVS Group 3 (save RMZ areas), the most aggressively harvested FVS group, because those properties and their conservation easements were effective within one year of the start date, and thus not modeled into the baseline scenario. Conversely, the property to the south containing plots 51-104 (and some others) is allocated to FVS Group 2 (save RMZ areas), and is more limited than group three because this property was acquired greater than 1 year prior to the start date, and thus we implemented all legal constraints associated with its Deed of Right to Use Land For Salmon Recovery Purposes, limiting the baseline scenario's ability to harvest on this property. | *DRAFT_ColumbiaRiver_GHGPlan_3_8_23.pdf* |



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| **4/15/2024** | 1) Closed – Pending 21-33<br>2) Closed<br>3) Closed<br>4) Closed – Pending 21-33<br>5) Closed<br>6) Pending 21-33 | |
| **7/18/2024** | Pending 21-33 | |

| **Verifier Issue** | **Issue ID:** | **21-39** | **Status:** Closed | **Checked by: MD/EM/BS** | **Date Identified** | **22-Mar-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** | |
| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | Clarification. *May impact materiality or conformance.* | Relative to issue 21-23 and to the stumpage prices used in the 100Yr_calcs workbook and obtained from the Washington Department of Revenue Report, verifiers sees in the State Revenue report that adjustments to the stumpage prices for varying harvest conditions may be needed (In the Revenue Report see page 4 instructions and Table 2 on page 10). Please review the adjustment instructions, determine whether adjustments to the project stumpage prices are needed, and if necessary, revise the calc workbook and document the adjustments in the GHG plan. | | *Columbia_100Yr_calcs_02_27_2023.xlsx*<br><br>Tax Reporting Instructions and Stumpage Value Determination Tables Jul 1 through Dec 31, 2021 (wa.gov) | |
| | | | **Findings January 2, 2024**<br>Verifiers understand that the PP has incorporated some stumpage price adjustments into the model, apparently for steep slopes (45 degrees or %? ) but what were the others, if any? The State adjustment table (given below) that accompanies the stumpage report includes adjustments for lower volume per acre harvests, remote islands, and thinnings. For transparency and future reference please document the details of the stumpage price adjustments made, in both the 100 Yr workbook and | | | |



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and GHG plan.

**TABLE 2 – Harvest Adjustment Table**
**Stumpage Value Areas 1, 2, 3, 4, 5 and 9 (Western Washington)**

| Type of Adjustment | Definition | Dollar Adjustment Per Thousand Board Feet Net Scribner Scale |
|---|---|---|
| I. Volume Per Acre Adjustment | | |
| Class 1 | Harvest of 30 thousand board feet or more per acre. | $0.00 |
| Class 2 | Harvest of 10 thousand board feet to but not including 30 thousand board feet per acre. | -$15.00 |
| Class 3 | Harvest of less than 10 thousand board feet per acre. | -$35.00 |
| II. Logging Condition Adjustment | | |
| Class 1 | Ground based logging a majority of the unit using tracked or wheeled equipment or draft animals. | $0.00 |
| Class 2 | Logging a majority of the unit using an overhead system of winch driven cables, and/or on slopes greater than 45% using tracked or wheeled equipment supported by winch driven cables | -$85.00 |
| Class 3 | Applies to logs yarded from stump to landing by helicopter. This does not apply to special forest products. | -$200.00 |
| III. Remote Island Adjustment | | |
| | For timber harvested from a remote island | -$50.00 |
| IV. Thinning Adjustment | | |
| Class 1 | A limited removal of timber described in WAC 458-40-610 | -$100.00 |

**Findings April 8, 2024**

The PP states all the adjustments listed in Table 2 (Harvest Adjustment Table Stumpage Value Areas) have been considered and/or integrated into the stumpage calculations. While we understand some adjustments have been made, verifiers find no documentation that describes these adjustments in the revised GHG plan or 100-yr calc workbook, which makes this challenging to verify.

Specifically, in the 100-yr calc workbook the Stumpage_Prices tab only provides the base / gross stumpage prices by species. In the revised GHG plan - Cost Assumptions, there is no mention that adjustments to the base stumpage rates were made or what they were. For clarity and transparency, verifiers do request, however, that a summary of these stumpage adjustments (and assumptions) be added to the appropriate project document(s) that describes what was considered and/or integrated into the calculations.

Verifiers have confirmed that the price adjustments noted in the response have been incorporated into the code used to calculate revenue in the modeling scenario. This

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*Columbia_100Yr_calcs_02_29_2024*

*processFVSoutput.R*



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| | | | issue will remain open until a summary description of the stumpage adjustments has been added to the project documents and the revenues are verified and issue 21-40 is closed. | |
| | | | **July 12, 2024 Findings**<br>The PP has added the requested description on stumpage prices to the stumpage table to the 100 year calc workbook tab 'Stumpage_Prices'. This description has also been included to the *Baseline Harvest Schedule Scenario Overview* in section E1 within the revised GHG plan. Issue item 21-40 has also been closed. As all issue items have been addressed and resolved, this issue is now closed. | *ColumbiaRiver_GHGPlan_DRAFT_5_2_24*<br>*Columbia_100Yr_calcs_05_02_2024* |

*OPO/APD Response*

| *Date* | *PP Comment* | *Additional evidence submitted for review by PP* |
|---|---|---|
| **31-Oct-23** | Adjustments noted in the Washington Department of Revenue Stumpage Reports have been incorporated into the model. This includes 28 plots that have received the steep slope deduction for cable logging, these plots were identified as slopes greater than 45 degrees. A shapefile of steep sloped areas can be found in the shared verification folder. | *Columbia_Slope_10_4_23.shp* |
| **5-Mar-24** | All of the adjustments listed in Table 2 have been considered and/or integrated into the stumpage calculations.<br>• Volume per Acre Adjustment: If timber harvest in an entry is 10-30 Mbf/ac, a $15/Mbf deduction is taken. If timber harvest in an entry is <10 Mbf/ac, a $35/Mbf deduction is taken.<br>• Logging Condition adjustment: If slope is steeper than 45%, an $85/Mbf deduction is taken. It is assumed than no helicopter logging will be necessary.<br>• Remote Island Adjustment: No deductions assumed.<br>• Thinning adjustment: If < 40% of the volume (as measured in board feet) is removed, a $100/Mbf deduction is taken. | *processFVSoutput.R* |
| **5/2/2024** | The stumpage table and a brief explanation has been added to the 100 year calc workbook tab 'Stumpage_Prices' for additional clarity. This reference has also been added to section " Baseline Harvest Schedule Scenario Overview" of section E1 of the GHG plan. | *Columbia_100Yr_calcs_05_02_2024*<br>*ColumbiaRiver_GHGPlan_DRAFT_5_2_24* |

| **Verifier Issue** | **Issue ID:** | **21-40** | **Status:** | **Closed** | **Checked by:** | **EM** | **Date Identified** | **22-Mar-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
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| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | Clarification. *May impact materiality or conformance.* | Verifiers are requesting clarification to determine what version and/or delivery date of the FVS_Output databases was used to calculate the carbon values on the "FVSPivot" tabs of the 100 year calculation workbook. | *Columbia_100Yr_calcs_02_27_2023.xlsx* |



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| | | | **Findings January 2, 2024**<br>Verifiers note receipt of FVS_Output databases for each baseline scenario in the latest FVS folder. This issue is closed. | *20231228\FVS\FVS_Output/Columbia_Rx…..db. (201 files)* |

| *OPO/APD Response* | | |
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| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | Updated FVS_Output databases have been added to the shared folder which were used to calculate values in the updated version of the 100 year calculation workbook. | *Directory: Columbia_RP1_Verification\FVS* |

| **Verifier Issue** | **Issue ID:** | **21-41** | **Status:** Closed | **Checked by: EM/BS/SB** | **Date Identified** | **22-Mar-23** |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** | |
| **ACR Standard, v7.0, Section 4.A.3** | E1. Baseline | New information request. *May impact materiality or conformance.* | Verifiers are requesting the code used to process and calculate the carbon stocks presented on the "FVSPivot" tabs of the 100 year calculation workbook. | | *Columbia_100Yr_calcs_02_27_2023.xlsx* | |
| | | | **Findings January 20, 2024**<br>Verifiers have been unable to locate the code used to process the FVS Output. Verifiers are looking for the code used to take the FVS output and create the "FVSPIcot" tabs in the 100 year calculation workbook. While verifiers have confirmed many of the calculations, it is not possible to complete our data check without further examining how the treelists and cutlists are processed. Please provide this supporting document. | | | |
| | | | **Findings April 11, 2024**<br>Verifiers have confirmed that the code used to process the treelists and cutlists have been provided. While verifiers have reviewed the majority of the code and have been able to verify many of the variables, the following points of clarification are required:<br>1. Where is the file indicating whether a plot is considered steep located? In the additional code on line 544, an additional file containing a list of steep plots is called, please provide this file.<br>2. Verifiers are seeking to clarify what prices were used in lines 526-529 of the code. | | *processFVSoutput.R*<br>*InstrSVtables2021_2ndHalf* | |



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| | | | **July 16, 2024 Findings**<br>1. The PP has provided the clarification regarding the slope classification for each plot. Verifiers understand the slope classification is provided as an attribute in the plot spatial data and a stumpage deduction was applied for plots that had slope greater than 45% (i.e., reduction of $85/MBF). The PP noted the specification for this reductions is referenced in the *InstrSVtables2021_2ndHalf* document. This issue item is closed.<br><br>2. The PP has provided the requested clarification on the stumpage prices used in lines 526-529 of the Rcode. Verifiers understand the CSV file Columbia TimberPrices is utilized for the species stumpage prices which align with the values provided in *InstrSVtables2021_2ndHalf.* This issue item is closed.<br><br>As the requested clarifications have been provided, all issue items have been resolved and this issue is now closed. | *Columbia_Plots_2_28_24.shp*<br><br>*InstrSVtables2021_2ndHalf*<br><br>*Columbia_TimberPrices_02_23_23*<br><br>*processFVSoutput.R* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **31-Oct-23** | The code used to process and calculate the carbon stocks has been added to the shared folder. | *Directory: Columbia_RP1_Verification\FVS* |
| **5-Mar-24** | The script processFVSoutput.R, where treelists and cutlists are processed, has been added to the verification folder under Calcs/Rfiles. | *processFVSoutput.R*<br>*InstrSVtables2021_2ndHalf* |
| **4/15/2024** | 1) The Plots Shapefile contains the slope classification for each plot. Please see the "SlopePerc" attribute in the plots shapefile. Plots with slope >45% are given the stumpage deduction as described in "InstrSVtables2021_2ndHalf".<br>2) Lines 526-529 call in a CSV file that contains the pricing per species. This file has been added to the shared folder for clarity, but matches the values provided in the "InstrSVtables2021_2ndHalf" document. | *Columbia_Plots_2_28_24.shp*<br>*InstrSVtables2021_2ndHalf*<br><br>*Columbia_TimberPrices_02_23_23*<br>*InstrSVtables2021_2ndHalf* |

| **Verifier Issue** | **Issue ID:** | **21-42** | **Status:** Closed | **Checked by:** SB | **Date Identified** 3-Jan-24 |
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| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | | **Comments** |
| **ACR Standard, v7.0, Section 4.A.3** | All | Observation. *No impact on materiality or conformance* | While reviewing the latest version of the GHG Plan verifiers noted the following typos or points of clarification.<br>1.) Pg 47 – add space between tableE1-3.<br>2.) Footnote 5 (pg 48) is after footnotes 6 and 7 (pg 47) and no footnote is provided for 6 or 7. 7 has been double used as 7, 7a, 7b, 7c. Please review footnotes and document references throughout the GHG Plan to be sure | | |



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| | | | they are in order, provided and shown on the page on which they are referenced.<br>3.) Table E4-1 caption "line" vs "live" typo<br>4.) Pg 53 Marbled Murrelet – "no harvesting is permitted in within these acres" | |
| | | | **Findings March 25, 2024**<br>Verifiers confirmed all typos and clarifications in 1.) through 4.) have been corrected in the latest GHG Plan. This issue is closed. | *ColumbiaRiver_GHGPlan_DRAFT_3_25_24.pdf* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **1/24/2024** | These typos have been corrected. | *ColumbiaRiver_GHGPlan_DRAFT (Most recent version)* |

| **Verifier Issue** | **Issue ID:** | **21-43** | **Status:** | **Closed** | **Checked by:** | **BS** | **Date Identified** | **12-Feb-24** |
|---|---|---|---|---|---|---|---|---|

| **ACR Standard ref** | **GHG Plan Section** | **Significance** | **Issue Description** | **Comments** |
|---|---|---|---|---|
| **ACR Standard v8.0, Chap 3 (start date)** | | Non conformance. *May impact conformance; no materiality* | The ACR Standard's 3-year eligibility criteria (Chap 3, start date) for having projects validated is upcoming (2/16/2024 is 3 years from start date). If not completed already, verifiers assume the PP plans to contact ACR to start the process for requesting a deviation. Please provide an update once completed. | |
| | | | **April 2, 2024 Findings**<br>Pending PP response. | |
| | | | **July 12, 2024 Findings**<br>Verifiers understand the first deviation requested was approved by ACR, which provided an extension deadline of June 30, 2024. As the Issues Log was not closed by this date, Anew requested a second extension, which ACR approved on July 2, 2024. The revised deadline for project and verification document submittal is August 2024. | *Columbia_ACR Methodology Deviation Request V2-0_ValidationDeadline_v3_APPROVED* |

| *OPO/APD Response* | | |
|---|---|---|
| ***Date*** | ***PP Comment*** | ***Additional evidence submitted for review by PP*** |
| **12-Feb-24** | A deviation request was submitted to ACR on 2/16/2024. We are awaiting response from ACR. We will notify the verifier of ACR's response as soon as it is received. | |
| **7/2/2024** | E-mail for Anew (Liz Lott) from ACR (Umesh Chaudhari):<br><br>*"I looked into Anew's deviation request for the Columbia River Forestry Project (ACR616). ACR determined that this extension should be approved. An approved copy is uploaded to the project's account page in the ACR Registry. An approved copy is also attached to this email."* | *Columbia_ACR Methodology Deviation Request V2-0_ValidationDeadline_v3_APPROVED* |



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## Appendix C: Project Team

| Verification Team | Qualifications |
|---|---|
| Bill Stack | Bill Stack is a forester, natural resource manager, and ecosystem restoration specialist with 35 years' experience working on forest and aquatic ecosystems in the northeast and northwest US. He holds a master's degree in Forest Engineering from Oregon State University. He is an ARB accredited lead verifier and forest project specialist. Bill has participated on the verification of forest offset projects throughout the US including Alaska. Verification responsibilities included pre-site visit prep, forest inventory, data processing and analysis, developing findings, and report writing. Bill also provides a broad range of forest management consultation services to private landowners owners in preparing and implementing ecologically-based forest stewardship plans. He holds professional forester licenses in New Hampshire and Vermont. Previously, Bill has worked as a Senior Project Scientist with Stantec consulting on ecosystem restoration projects and as a Forest Hydrologist on interdisciplinary project teams for the USDA Forest Service, Wallowa-Whitman National Forest. |
| Kyle Silon | Kyle Silon holds an M.S. in Energy and Environmental Economics. He has ten years' experience in climate change mitigation strategies and carbon reduction projects. Prior to founding S&A, he worked for a leading international certification company, specializing in validation and verification of small-scale household energy demand projects (such as cook stove and water filter projects), primarily located in South America, Asia, and Africa. He has participated in numerous verifications of forestry, landfill, and livestock projects, and has worked across all major GHG programs, including the Air Resources Board, Verified Carbon Standard, Climate Action Reserve, American Carbon Registry, Gold Standard, and Clean Development Mechanism (CDM). |
| Alexa Kandaris | Alexa Kandaris has been with S&A since 2016 and brings experience in carbon auditing and climate change mitigation policy. She is accredited by ARB as a lead verifier under their US Forests protocol and the Ozone Depleting Substances protocol, and by the Climate Action Reserve (CAR) as a lead verifier. Alexa has participated in verifications of carbon offset projects and corporate inventories under a variety of GHG programs, including the Air Resources Board, Climate Action Reserve, American Carbon Registry, Verified Carbon Standard/Climate Community & Biodiversity Standard/Sustainable Development Verified Impact Standard, and Carbon Disclosure Project. In addition to validation/verification, she developed tracking systems for a program registered under the Clean Development Mechanism and registered with the Gold Standard. Alexa is currently responsible for implementation of S&A's corporate management system to ensure ongoing improvement and compliance with ISO requirements. Alexa has field experience with |



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| Verification Team | Qualifications |
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| | Forestry (AFOLU), Ozone Depleting Substances, and Livestock project types. She holds a Bachelor of Arts in Economics with a focus on natural resource and environmental Economics. |
| Elizabeth McGarrigle | Elizabeth McGarrigle holds three forestry degrees (BScF, MScF, PhD). Her work has focused on forest inventory, growth and yield, and forest management planning. Her research focused on examining the impact of uncertainties in the inputs to long term forest management plans when optimization models are employed during the Master's program. While completing her PhD, she was part of the team developing a regional growth and yield model for the Acadian forest in the Northeastern United States and Canada. She developed a stand level model that is used to predict survivor growth, ingrowth, and mortality in the region. As part of her dissertation, she focused on several variants of the Forest Vegetation Simulator and several regional growth and yield models from across Canada and the United States. Dr. McGarrigle is currently working with the provincial government in Nova Scotia Canada as a Forest Inventory Data Analyst where she is responsible for the design and analyses of permanent sample plots. In addition to her work as a biometrician on several ARB forest projects, she has also been involved in research at Natural Resources Canada using a fine scale forestry model to assess the impact of climate change on species composition in forest types across Canada. |
| Marty Duffany | Martin Duffany holds a BS in Forestry from SUNY College of Environmental Science and Forestry. He brings over 35 years of experience in forest management working for forest industry and Timberland Investment Organizations (TIMOs) primarily in the northeastern and Appalachian regions of the US and eastern Canada. This experience focuses mainly on managing all aspects of forest inventory and mapping projects but includes extensive work in forest management planning, modeling and analysis. He has years of experience working in compliance with FSC and SFI certification standards and protocols. Martin joined S&A Carbon in February 2019 as a contractor providing support on desk and field verification projects. He is an SAF Certified Forester and holds forester licenses in Maine, New Hampshire and Vermont. |
| Carlos Eduardo Paixão | Eduardo joined S&A Carbon as a subcontractor in 2021 and expanded the existing capacity of the forest carbon offset verification team. Eduardo currently supports the S&A team as a lead verifier with reviews of verification documents and field verification of forest carbon offset projects. Eduardo holds a bachelor's degree in forestry and in wood engineering, and a master's in forestry. He has 8 years of experience in natural resources management. He has conducted assessments of deforestation in supply chains in South America, Africa, and in Indonesia. |



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| Verification Team | Qualifications |
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| | Previously, he participated in the development of technical and economic studies for two European forestry investment funds in Latin America. Eduardo is a sustainable forestry and agriculture standard auditor and has conducted audits worldwide (FSC, PEFC, RSPO sustainable palm oil, sustainable farm assessment, Rainforest Alliance, UTZ coffee and cocoa, and the international sustainability carbon certification). Eduardo is also involved in academic research and has been a lecturer at the University of Quebec in Canada since 2018. Native Portuguese speaker, he also speaks French and English. |
| Caitlin Littlefield | Caitlin Littlefield is a broadly trained forest ecologist and holds a PhD at the School of Environmental and Forest Sciences at the University of Washington. Her research focuses on climate adaptations in fire-prone forests and modeling connectivity across western forested landscapes. Prior research and consulting work entailed assessing bioenergy harvesting impacts in northern New England, modelling carbon storage under various management scenarios on former industrial timberlands in Vermont (using FVS), and developing relational databases and tools for state natural resource agencies. She has extensive field experience throughout New England and the Pacific Northwest and has participated in four field verifications of forest carbon projects. |
| Stacy Birch | Stacy Birch holds a B.S. in Ecology from Susquehanna University in Pennsylvania and a M.S. in Forest Resources from the University of Maine, Orono. Her master's thesis entitled "Stand dynamics and the Spatio-temporal patterns of natural disturbances in an Acadian Old-Growth Reserve" focused on dendroecological and geographic information systems processing. Stacy joins S&A with over a decade of experience in data manipulation and analytics on various platforms giving her diverse expertise using multiple coding languages including SQL, R, Visual Basic, and Python. Her primary responsibilities include maintaining S&A's carbon calculation tool; verifying forest inventory carbon calculations and statistics; and completing GIS analyses and aerial imagery assessments. Stacy also provides supporting data checks on harvested wood products, legal regulatory compliance, baseline constraint acres, and forest growth and yield modeling components. She has supported numerous American Carbon Registry and California Air Resources Board Improved Forest Management carbon offset validation/verification projects as a Technical Expert. |
| Thomas Blair | Thomas Blair holds a BS from Humboldt State University, graduating in 1993. He worked with Western Timber Services from 1994 – 1999, which preceded his foundation of Blair Forestry Consulting in 2000. Blair Forestry Consulting is primarily focused on timber cruising and timber harvest plan layout. Thomas has been involved in many carbon projects |



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| Verification Team | Qualifications |
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| | both as a California RPF (#2607) as well as has worked on carbon projects outside of the state of California |
| Todd Truesdell | Todd Truesdell has a BS degree from Humboldt State University, 2004, majoring in Forestry. He has been employed in the forestry business since that time, and has worked with Blair Forestry Consulting since 2005. He is a Registered Professional Forester in California, RPF #2969. He has timber cruised his entire forestry career, turning in reliable and accurate work. He has done fixed and variable plots, permanent plots, and 100% cruises. He is experienced with all equipment necessary for cruising (releskop, impulse laser for heights and distances, spencer tape, Biltmore stick, etc.) as well as species identification, and keeps his field notes and data organized. He has collected data on field sheets and handheld devices, and has organized and interpreted data in the office. Additional experience is described below as follows: Timber Harvest Plan/Non-Industrial Timber Management Plan preparation, filing and implementation (field work and written document, Pre-harvest Inspections, LTO interactions); Interpretation and implementation of the Forest Practice Rules; Watercourse classification; Identification of fish bearing streams; Identification and protection of habitat for rare species and species of concern; Road and crossing assessment and improvement recommendations and sediment reduction strategies; Preparation of Lake or Streambed Alteration agreements and 1600s; Identification and assessment of cumulative impacts; Overstory and understory species identification; Preparation and implementation of timber inventory designs; Data management, organization and interpretation; Work in rugged terrain and inclement weather, individually or in small crews, navigation of remote forest roads and use of ATV; Use of GIS and GPS for both in office assessment and in field data collection and navigation; Extensive use of computers (Microsoft Excel, Word, Access) and internet research. |
| Dwight Chapman | Mr. Chapman is a Forester and Project Manager with experience running a private consulting company conducting forest inventory and natural resource surveys for government agencies and the private sector. As a sole proprietor, he has extensive experience taking ownership of and building project strategies from the ground up for projects outside of his formal educational training. With over 25 years of consulting experience, he brings strong leadership and management skills to the carbon verification industry. While running the forestry consulting business, he was responsible for client management, facilitating meetings between the public and private sector, and hiring and managing forestry field staff. He has completed thousands of field-based forest inventory plots in all western states from the Rocky Mountains to the coast of California. He has also managed and performed private industrial forest volume cruises throughout the pacific northwest. Additionally, he brings 10 years of |



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| Verification Team | Qualifications |
|---|---|
| | professional and technical writing experience including proposal preparation, progress and final reports, and GIS analysis including spatial analysis. |



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## Appendix D: Version Tracking

| Version | Date | Developed By | Version Notes |
|---|---|---|---|
| 1.0 | 8/10/2024 | Bill Stack | Draft Document |
| 1.1 | 8/15/2024 | Kyle Silon | Technical Reviewer comments |
| 1.2 | 8/15/2024 | Bill Stack | Updated document based on Technical Review comments |
| 1.3 | 8/22/2024 | Alexa Kandaris | Final Approval |
| 2.0 | 10/2/2024 | Bill Stack | Updated based on ACR Review Comments (changed Standard to v7.0) |
| 2.1 | 11/25/2024 | Bill Stack | Updated based on ACR review comments & verifier review of recent inclusion of a Programmatic Development Approach by the PP |
| 2.2 | 11/26/2024 | Alexa Kandaris | Internal Approval |
| 2.3 | 12/13/2024 | Bill Stack | Updated based on ACR operations review comments |
| 2.4 | 12/19/2024 | Bill Stack | Updated based on ACR operations review comments |



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**Signature Page**

| | |
|---|---|
| S&A Carbon Lead Validator & Verifier<br><br>Name and Signature: | Bill Stack<br>  |
| S&A Carbon Technical Reviewer<br><br>Name and Signature: | Kyle Silon<br>  |
| Date: | 12/19/2024 |



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# Audit trail

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| **File name** | ACR616-RP1_Columb...v2.4-20241219.pdf |
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## Document History

| | | |
|---|---|---|
| SENT | **12 / 19 / 2024**<br>17:01:55 UTC | Sent for signature to Bill Stack (bill.stack@saacarbon.com) and Kyle Silon (kyle.silon@saacarbon.com) from alexa.kandaris@saacarbon.com<br>IP: 47.208.18.115 |
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| VIEWED | **12 / 19 / 2024**<br>18:09:18 UTC | Viewed by Kyle Silon (kyle.silon@saacarbon.com)<br>IP: 73.240.70.80 |
| SIGNED | **12 / 19 / 2024**<br>18:09:39 UTC | Signed by Kyle Silon (kyle.silon@saacarbon.com)<br>IP: 73.240.70.80 |
| COMPLETED | **12 / 19 / 2024**<br>18:09:39 UTC | The document has been completed. |