Bluesource – Hudson Farm

Improved Forest Management Project

[April 3, 2019]

ACR 386

Hudson Farm Club

Prepared by: Bluesource LLC

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A. PROJECT OVERVIEW

A1. PROJECT TITLE

The project title is "Bluesource - Hudson Farm Improved Forest Management Project".

A2. PROJECT TYPE

This project is to be registered under the American Carbon Registry Standard[1] (ACR, 2018) as an Improved Forest Management (IFM) project and an approved ACR Improved Forest Management Methodology.[2]

A3. PROOF OF PROJECT ELIGIBILITY

Eligibility for this Improved Forest Management project has been determined with reference to the ACR Standard Version 5.1 and the Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal Forestlands, Version 1.3.

Hudson Farm's forest carbon project meets all relevant eligibility requirements as described in Table A3.1 below.

Table A3.1. Project Eligibility Requirements

Eligibility Requirements	Proof of Eligibility	Reference
Ownership Type	The project ownership is private non-federal U.S. forestland.	See section G1. PROOF OF TITLE
Project proponent has third-party certification or no commercial timber harvesting	Hudson Farm is divided into 7 parcels aggregated under IAT Reinsurance Syndicate, Inc (IAT Reinsurance). The parcels with any active harvesting are certified under the New Jersey Tree Farm system. Certification is provided separately for verification purposes.	See also section A5.1. Background Information
Project area meets the definition of Forestland condition as per USFS FIA program definition	Per the ACR Forest Carbon Project Standard, the project meets the definition of forestland through a minimum of 10% forest cover (or equivalent stocking) by live trees of any size.	See also section A4. LOCATION
Project start date	The project start date of June 30, 2017 complies with the ACR Standard Version	See also section H1. START DATE.

[1] ACR. 2018. American Carbon Registry Standard, Version 5.1. American Carbon Registry, Arlington, VA, USA.

[2] ACR. 2018. *Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal Forestlands*, Version 1.3, April 2018, American Carbon Registry, Arlington, VA, USA.

	5.1. The start date coincides with the signing of the Carbon Marketing & Development Agreement between IAT Reinsurance and Bluesource, provided separately for verification purposes. The evidence referenced above further complies with the methodology (Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non‐Federal U.S. Forestlands) requirement that: *"If the project Start Date is more than one year before submission of the GHG plan, the Project Proponent shall provide evidence that GHG mitigation was seriously considered in the decision to proceed with the project activity. Evidence shall be based on official and/or legal documentation. Early actors undertaking voluntary activities to increase forest carbon sequestration prior to the release of this requirement may submit as evidence recorded conservation easements or other deed restrictions that affect onsite carbon stocks."*	
Project term	The project proponent commits to maintain the carbon project scenario stocking levels on the project area at least for the required Project Term of 40 years.	See also section H2. PROJECT TIMELINE.
Crediting Period	In compliance with the and ACR Standard Version 5.1 (July 2018) and the Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal Forestlands, Version 1.3 (April 2018), the crediting period for the project is 20 years.	See also section H2. PROJECT TIMELINE.
Real	GHG removals are quantified based on inventory of the standing stock in the project area at the time of verification.	See also sections D. MONITORING PLAN and E. QUANITIFCATION

Land Title	For all areas included in the project, long term land titles have been issued and ownership is thus clear, unique, and uncontested.	See also appendix A. Land Owner and Contracts.
Direct Emissions/ Offset Title	GHG emission reductions generated by the project activity are generated from forest carbon sources and sinks over which IAT Reinsurance has all management and ownership rights (see Appendix A with deeds provided separately for verification). IAT Reinsurance holds offset title to all lands in the project area (see Section G below) and all rights to carbon credits/offsets produced through management of forests in the project area.	See also section G2. CHAIN OF CUSTODY
Additionality	Additionality for the project has been shown through a regulatory surplus test, a common practice test, and an implementation barrier test.	See also section C. ADDITIONALITY
Permanent	The long-term setup, risk analysis, and buffer establishment assure permanence of the project benefits.	See also section B8. PERMANENCE.
Net of Leakage	Possible leakage effects due to activity shifts are quantified and deducted from the GHG benefits.	See also section E3. LEAKAGE.
Independently Validated and Verified	In accordance with ACR methodology, the project benefits will be verified by SCS Global Services.	
Community and Environmental Impacts	Impacts on community and environment were analyzed in accordance with the ACR Standard 5.1, net positive impacts were confirmed.	See also section F. COMMUNITY & ENVIRONMENTAL IMPACTS

A4. LOCATION

A GIS shapefile of the project area, "HudsonFarm_Boundary_7_20_18.shp" was provided separately for verification. This shapefile gives unique identification and delineation of the specific extent of the project. Vicinity map (Figure A-1.) gives project location, nearby urban areas, and latitude/longitude coordinates. The project location is Sussex County at 270 Stanhope Sparta Road, Andover, NJ 07821.

Figure A-2. shows the local hydrology within the Hudson Farm IFM project. The canopy cover map (Figure A-3.) clearly shows that the project meets the US Forest Service definition of forestland (at least 10% tree cover) as forest covers the majority of the project area. Non-forested acres were removed from the project to a minimum mapping unit of 2.5 acres. A topographic map (Figure A-4.) is also provided as a reference. The roads map (Figure A-5.) shows the public and private roads near and on the property, additional foot trails exist that are not mapped. The ownership map (Figure A-6.) shows the parcels owned by IAT Reinsurance in Sussex County.

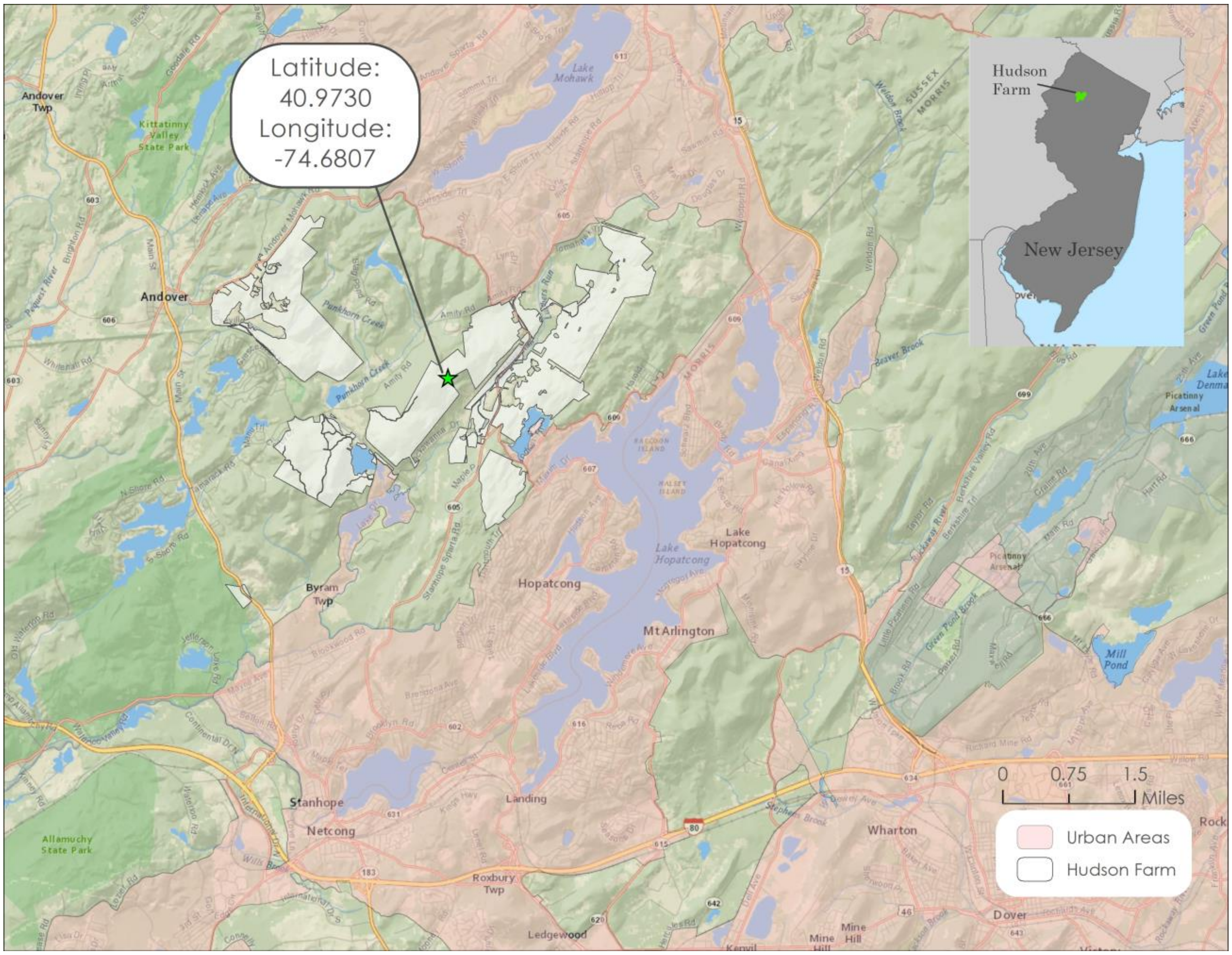


Figure A-1. Vicinity Map with Latitude and Longitude

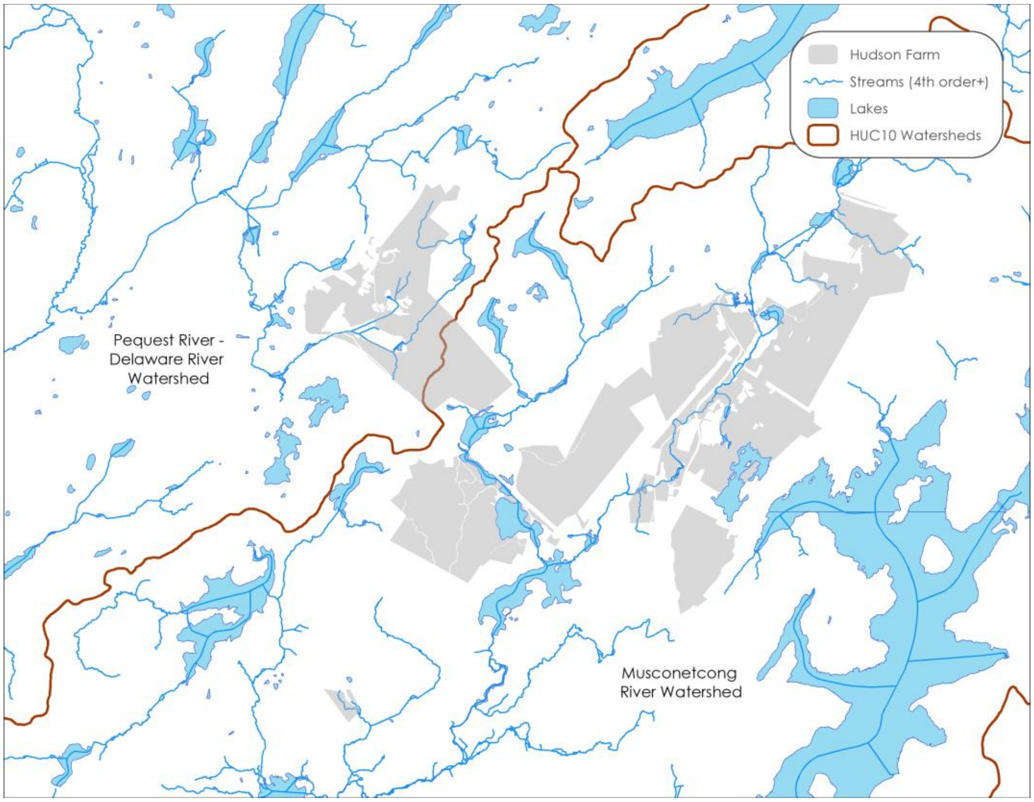


Figure A-2. Regional Hydrology Map

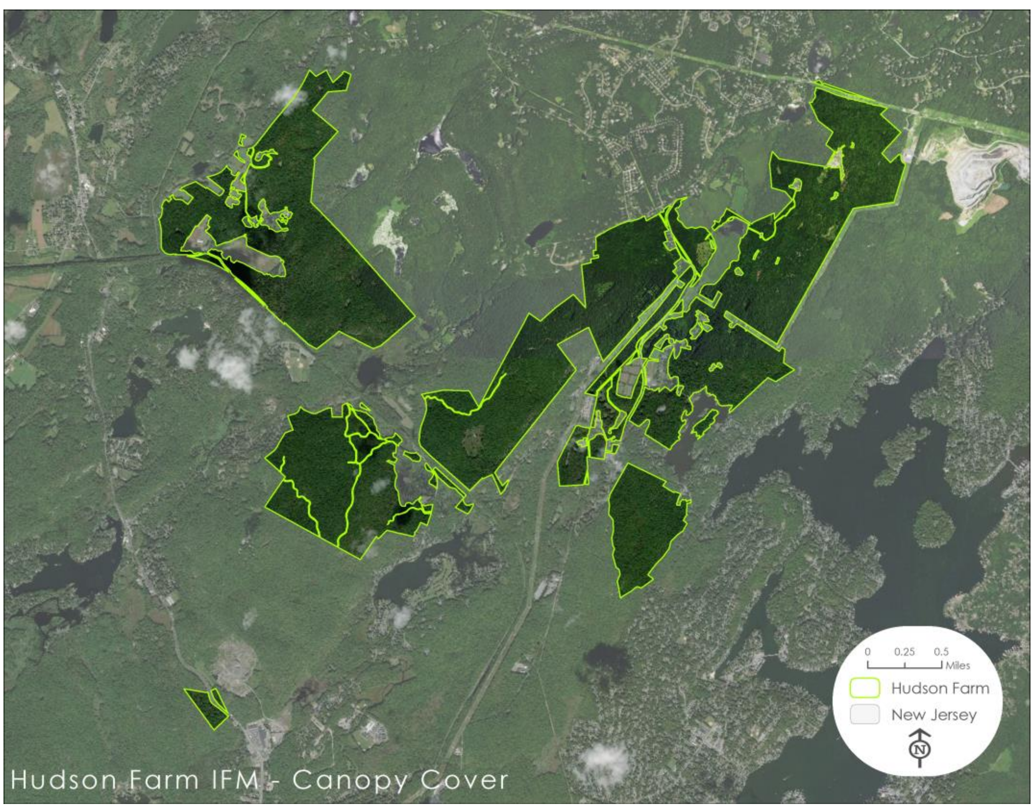


Figure A-3. Canopy Cover Map depicting greater than 10% canopy cover.

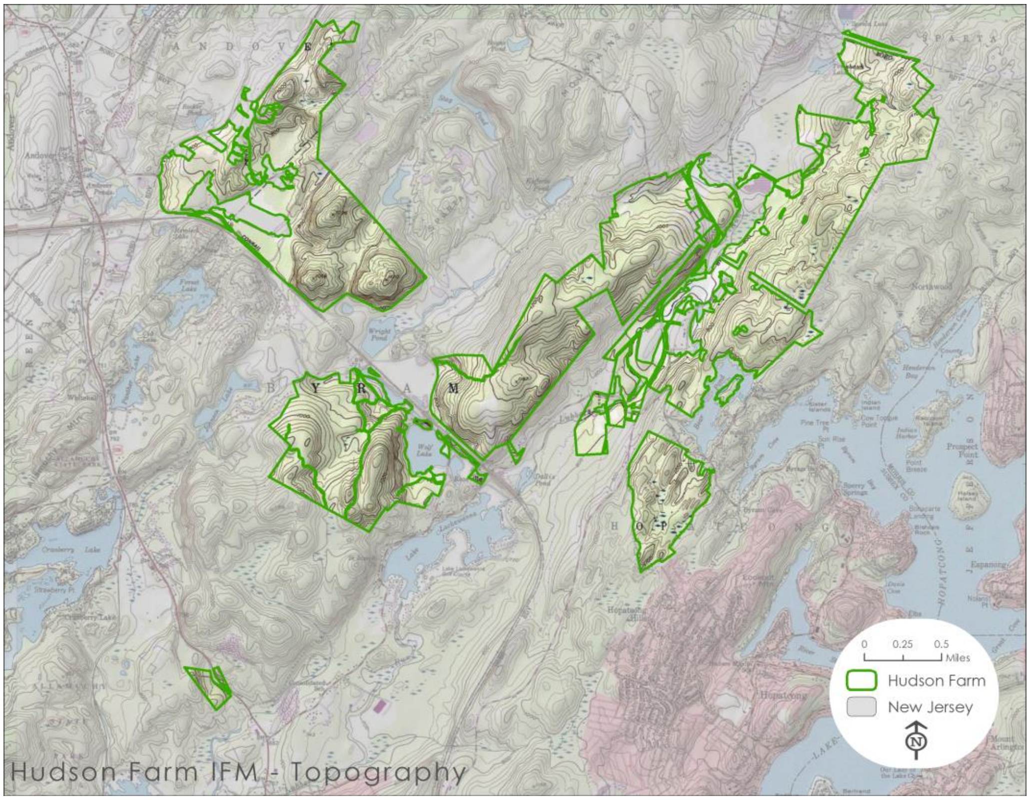


Figure A-4. Topography Map

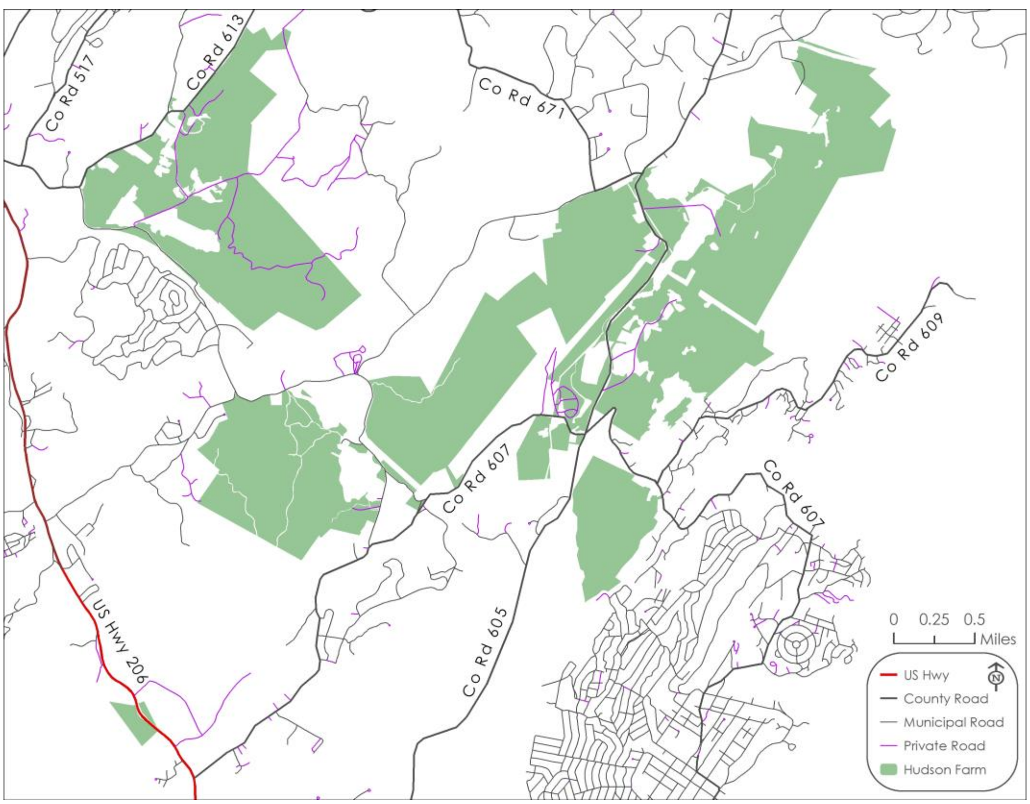


Figure A-5. Roads Map

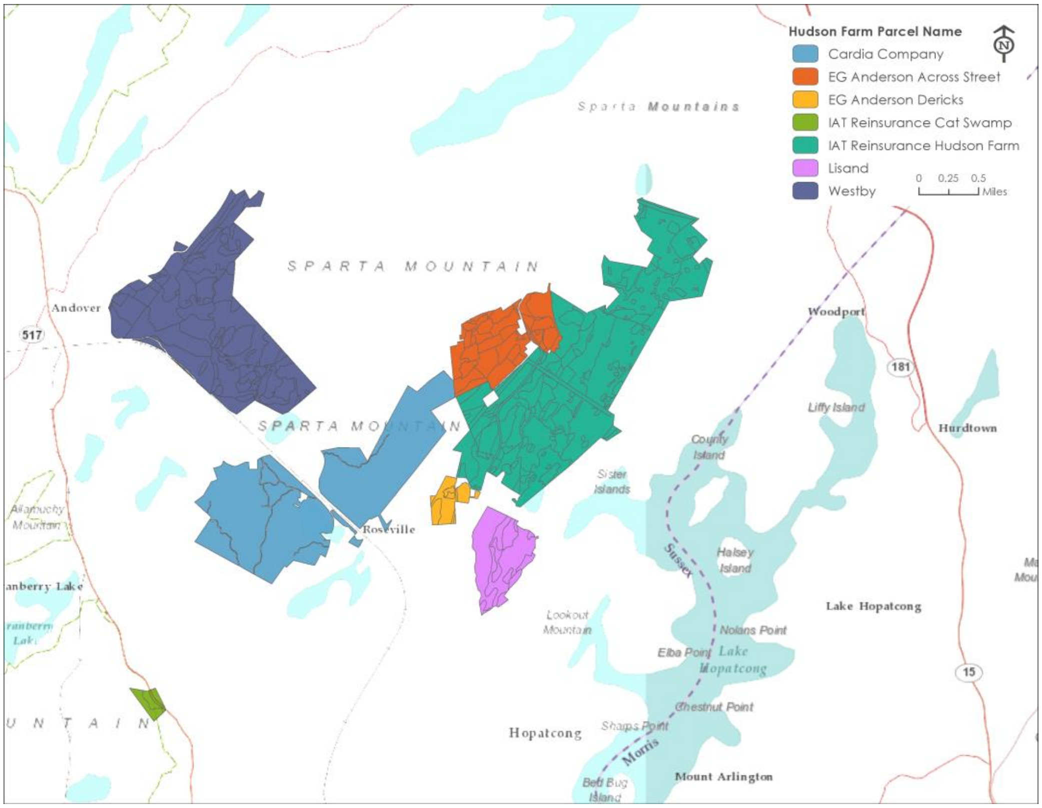


Figure A-6. Ownership Map

A5. BRIEF SUMMARY OF PROJECT

A5.1 Background Information

The Bluesource – Hudson Farm Improved Forest Management Project is located on 3,174.04 acres of mixed hardwoods, oak-hickory, northern conifer, and northern hardwoods forest in northwest New Jersey. Hudson Farm is a conglomerate of several adjacent or nearby parcels, joining together as a conservation and recreation-based property.

It currently is among the largest privately-owned forestlands in the state and local region. Development and parcelization threatens much of this region and has for a long time. Few recreation and wildlife conservation opportunities to this scale remain in private ownership within proximity to major cities such as New York and Philadelphia. Hudson Farm ownership seeks to earn profit through recreation opportunities (primarily hunting) and conservation activities (primarily carbon offsets) on the property. Without funding from the carbon project, alternative scenarios include intensive silvicultural practices or parcelization and sale of the forestland to owners for intensive management or development.

A5.2 Description of Project Activity

The project activity is improved forest management, with Hudson Farm's forest management practices representing a significant improvement in the carbon storage and conservation value than higher return, more aggressive management regimes of industrial private lands in the region, which are characterized by shorter, even-aged rotations. Management decisions of the forest focus on sustainable, natural forest growth and maintenance harvests for essential activities and forest health. The project ensures long-term sustainable management of the forests, which could otherwise undergo significant commercial timber harvesting.

A5.3 Project Purpose and Objectives

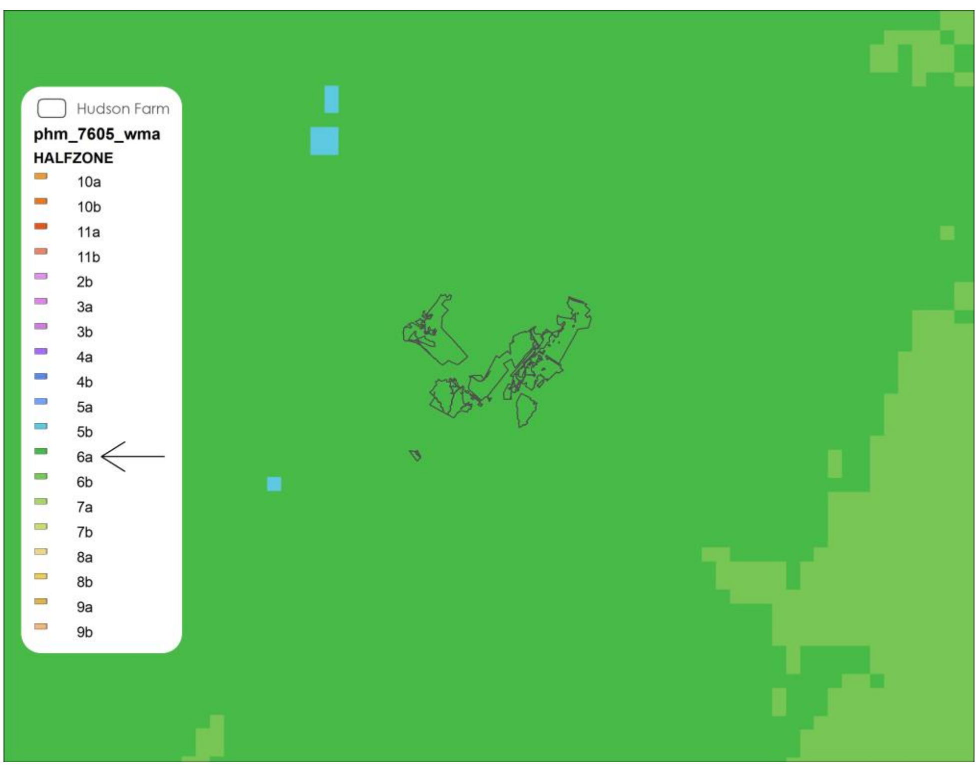
By committing to maintain forest CO2 stocks above the regional baseline level, the project will provide significant climate benefits through carbon sequestration. The aim of this project is also to ensure long-term continuance of all environmental benefits provided by the conservation of this forestland.

A6. PROJECT ACTION

A6.1 Prior Physical Conditions

Climactic Zone

The project falls in zone 6a on the USDA plant hardiness zone map. Average annual extreme minimum temperatures for 6a are -10 to -5 degrees Fahrenheit.



Ecosystem/Vegetation

Forest types throughout the property include mixed hardwoods, oak-hickory, northern conifer, and northern hardwoods forest. Other community types present on the property include lowland woodland-wetlands, semi-open woodland brush, rocky outcrops, swampland, and early successional forests. Predominant species include red maple, chestnut oak, northern red oak, sweet birch, and sugar maple as well as a diversity of hickories, oaks, conifers, and many mid-story species.

According to the forest management plans, "Wildlife benefits from an actively managed forest, with different age classes, in different areas. A variety of habitat and food are the key to abundance and diversity. Young stands of trees and shrubs provide cover, nesting areas and browse. Mature forests provide roosting and denning sites. The hard mast (nut) crops from oak, beech, hickory and walnut are a valuable food source for deer, bear, turkeys, and squirrels. Soft mast, such as fruit and berries from cherry, serviceberry, dogwood, black gum, cedar, sassafras, brambles, multiflora rose, fox grape, poison ivy and Virginia creeper, are eaten by a wide variety of songbirds, game birds and animals. Dead trees are favored by woodpeckers and flickers. Hollow trees are used by raccoons, squirrels, owls, wood ducks, and other wildlife for nesting."

Land Use

The history of the entire property is not extremely well detailed, but it has been used in the past for forestry and prior to that, agriculture. Many of the mixed hardwoods and northern hardwoods throughout the property fall in areas that were formerly tilled for agriculture as evidence by piled rock walls and historic land formation.

According to the forest management plans, "This forested property has a high recreational use value. The property is leased by the Hudson Farm Club, which is a premium recreation, sport-shooting, and hunting club. The intricate trail system is maintained for these activities. The forester and the club manager will work together on identifying areas for tree marking in order to ensure that recreation and aesthetics are taken into account during habitat/forestry activities. Forest management will enhance both recreational and aesthetic values of this property with the improvement in forest diversity, including forest structure and species composition, the reduction of non-native and invasive plant species, the improvement of wildlife habitat and diversity, and the enhancement of watershed value."

A6.2 Description of Project Technologies, Products, Services, and Expected Level of Activity

As stated in the goals and objective section of the forest management plans, project activity is expected to meet the following:

- To satisfy the planning requirements of this property to be actively devoted to agriculture, and to qualify for farmland assessment under the Farm Tax Law and regulations of 1964 as amended by Chapter 201, Laws of 1986 and regulations implemented in conjunction therewith, and to recognize and be responsive to associated case law.
    - Conduct forestry or other ag. activities on at least 5 acres during the next 10 years
- To improve the quality, health and vigor of the woodland.

- o Reduce stocking in overstocked or highly-stocked stands, where appropriate
    - o Attempt to reduce or control populations of competing understory and midstory vegetation, especially exotic invasive plants
  - To prevent excessive and unnecessary cutting of trees.
    - In intermediate treatments, do not thin stands to below the “B” line shown on the appropriate stocking guide
  - To generate periodic income from the harvest and sale of wood products to meet the minimum income requirements for Farmland Assessment, possibly in conjunction with other sources of agricultural income.
    - Generate total agricultural income of at least $500 for the first five acres, plus $5 for each additional acre of field and pasture, plus $0.50 for each additional acre of woodland/wetland, per year, on average
- To meet all requirements for the forestry exemption or permit-by-rule under the Freshwater Wetlands Protection Act, Flood Hazard Area Control Act, and other environmental laws, regulations, ordinances, etc.
    - Follow forestry and wetlands BMP’s within 150 or 300 feet of wetlands and open water
- To set forth the methodology, consistent with all of the above, for protecting and enhancing the environment including soil, water, wildlife, aesthetic and land values.
- To provide a basis for the manipulation of woody vegetation present in such a way that in meeting the above objectives adverse environmental impacts and impacts adverse to public health, safety and welfare are avoided.

A6.3 Project Action

By committing to maintain forest CO2 stocks above the baseline level, the project will provide significant climate benefits through carbon sequestration. The project action will allow the forest to progress naturally with no commercial harvesting. Bluesource – Hudson Farm Improved Forest Management Project will achieve GHG removals by sequestering more atmospheric CO_2 than a baseline scenario in live aboveground biomass, belowground biomass, dead wood, and soil.

A7. *EX ANTE* OFFSET PROJECTION

Total projected GHG removal is 259,443 mtCO2e (without risk buffer deduction) over the first crediting period of 20 years (including GHG removal from long-term wood products). Table A7.1 lists the estimates of GHG emissions reductions per year:

Table A7.1. Estimate of Net ERTs by Year.

Project Year	*Year*	*Estimates of GHG emission reductions ($mtCO_2e$)*
0	*2017*	Start Date
1	*2018*	48,096

2	*2019*	49,620
3	*2020*	49,620
4	*2021*	49,620
5	*2022*	3,730
6	*2023*	4,096
7	*2024*	4,096
8	*2025*	4,096
9	*2026*	4,096
10	*2027*	4,096
11	*2028*	4,015
12	*2029*	4,015
13	*2030*	4,015
14	*2031*	4,015
15	*2032*	4,015
16	*2033*	3,641
17	*2034*	3,641
18	*2035*	3,641
19	*2036*	3,641
20	*2037*	3,641

A8. PARTIES

The project was implemented by Hudson Farm Club, LLC, the land owner, and Bluesource, LLC, a carbon offsets project developer. Project verification was completed by SCS Global Services and the forest carbon inventory was conducted Gracie & Harrigan Consultants. Technical modeling was conducted by Bluesource, LLC.

Table A-3. Project Partners & Responsibilities

Project Parties	**Personnel/Point of Contact**	**Roles and Responsibilities**	**Contact Information**
Hudson Farm Club	John Ursin, Legal Council, Hudson Farm Club, LLC	Project Proponent – financing and implementation of long-term project management	John Ursin 270 Stanhope Sparta Rd Andover, NJ 973-398-4330
Bluesource, LLC	Josh Strauss, Vice President	Offset Developer – coordination of project implementation, modeling,	Bluesource LLC 1935 E. Vine Street Murray, UT 84121 Phone: 949-233-1501
SCS Global Services	Christie Pollet-Young, Director, GHG Verification	Verifier	SCS Global Services 2000 Powell Street Emeryville, CA 94608 Phone: 510-452-8000

Gracie & Harrigan Consultants	Steve Kallesser, Lead Foresters, Gracie & Harrigan Consultants	Contractor- Forest Inventory	Steve Kallesser 23 Dumont Hills Rd Far Hills, NJ 908-781-6711

B. METHODOLOGY

B1. APPROVED METHODOLOGY

The methodology used for the Bluesource – Hudson Farm Improved Forest Management Project is the American Carbon Registry Improved Forest Management Methodology for Quantifying GHG Removals and Emission Reductions through Increased Forest Carbon Sequestration on Non-Federal U.S. Forestlands, Version 1.3. (April 2018)

(Hereinafter called the “methodology”)

B2. METHODOLOGY JUSTIFICATION

All applicability criteria of the selected methodology are fulfilled by the Bluesource – Hudson Farm Improved Forest Management Project:

1. *This methodology is applicable only on non-federally owned forestland within the United States*

   Hudson Farm Club, LLC is non-federally owned forestland.

2. *The methodology applies to lands that can be legally harvested by entities owning or controlling timber rights on forestland*

   Hudson Farm Club, LLC controls the timber rights on the forestland and can legally harvest (appendix I2. Land Owner and Contracts).

3. *Private or non-governmental organization ownerships subject to commercial timber harvesting at the project Start Date in the with-project scenario must be certified by FSC, SFI, or ATFS or become certified within one year of the project Start Date. 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*

   New Jersey Tree Farm issues Tree Farm certification on a parcel-by-parcel basis. IAT Reinsurance maintains tree farm certification on each of the parcels that have or plan to have active harvesting, valid as of October 2014, which is in compliance with the protocol that states the Landowner much be certified within one year of the project Start Date. Six of the seven parcels have active tree farm certification: Cardia Co, E.G. Anderson (across street), E.G. Anderson (Lisand), IAT Reinsurance (Hudson Farm), IAT Reinsurance (Westby). The parcel IAT Reinsurance (Cat Swamp) does not maintain Tree Farm certification as no harvesting will take place on that portion of the property throughout the project.

4. *All Tribal lands in the United States, except those lands that are managed or administered by the Bureau of Indian Affairs, are eligible under this methodology, provided that they meet ACR requirements for Tribal lands*

   N/A. Bluesource – Hudson Farm Improved Forest Management Project is not on tribal lands.

5. *Public non-federal ownerships currently subject to commercial timber harvesting in the with-project scenario must:*
   - *be certified by FSC, SFI, or ATFS or become certified within one year of the project Start*
     - *Date; or*
   - *have its forest management plan sanctioned by a unit of elected government officials*
     - *within a state, or a state agency, or a federal agency*
     - *Please note that any such forest management plans must be updated at*
     - *minimum every 10 years*
   - *If there are no ongoing harvests on a public non-federal ownership at the project Start*
     - *Date, but harvests occur later in the project life cycle, the project area must become*
     - *certified by FSC, SFI, or ATFS, or develop a sanctioned management plan before any*
     - *commercial timber harvesting can occur*

   N/A. Bluesource – Hudson Farm Improved Forest Management Project is not on public non-federal lands.

6. *Use of non-native species is prohibited where adequately stocked native stands were converted for forestry or other land uses after 1997*

   There is no use of non-native species where adequately stocked native stands were converted for forestry or other land uses after 1997.

7. *Draining or flooding of wetlands is prohibited*

   There is no draining or flooding of wetlands on or after the project Start Date.

8. *Project proponent must demonstrate its ownership or control of timber rights at the project start date*

   See attached Deeds (appendix I2. Land Owner and Contracts).

9. *The project must demonstrate an increase in on-site stocking levels above the baseline condition by the end of the Crediting Period*

   Stocking levels increase well above the baseline conditions for the duration of the project and by the end of the Crediting Period (see section E1. Baseline).

B3. PROJECT BOUNDARIES

The physical project boundaries include 3,174.04 acres of forestland, shown in the maps in section A4. Location and in the shapefile “HudsonFarm_Boundary_7_20_18”.

See H2. Project Timeline for the temporal boundaries of the project.

B4. IDENTIFICATION OF GHG SOURCES AND SINKS

Carbon pools	Included / Optional / Excluded	Justification / Explanation of Choice
Above-ground biomass carbon	Included	Major carbon pool subjected to the project activity.
Below-ground biomass carbon	Included	Major carbon pool subjected to the project activity.
Standing dead wood	Included/Optional	Major carbon pool in unmanaged stands subjected to the project activity. Project Proponents may also elect to include the pool in managed stands. Where included, the pool must be estimated in both the baseline and with project cases. *For Bluesource – Hudson Farm Improved Forest Management Project, standing dead wood will be included in all stands.*
Lying dead wood	Optional	Project proponents may elect to include the pool. Where included, the pool must be estimate in both the baseline and with project cases. *For Bluesource – Hudson Farm Improved Forest Management Project, lying dead wood will **not** be included.*
Harvested wood products	Included	Major carbon pool subjected to the project activity,
Litter/Forest Floor	Excluded	Changes in the litter pool are considered *de minimis* as a result of project implementation.
Soil organic carbon	Excluded	Changes in the litter pool are considered *de minimis* as a result of project implementation.

Gas	Source	Included / Excluded	Justification / Explanation of choice
CO_2	Burning of biomass	Excluded	However, carbon stock decreases due to burning are accounted as a carbon stock change.
CH_4	Burning of biomass	Excluded	Non-CO_2 gas emitted from biomass burning.
N_2O	Burning of biomass	Excluded	Potential emissions are negligible.

Leakage Source		Included / Optional / Excluded	Justification/ Explanation of Choice
Activity-Shifting	Timber Harvesting	Excluded	Project Proponent must demonstrate no activity-shifting leakage beyond the *de minimis* threshold will occur as a result of project implementation
	Crops	Excluded	Forestland eligible for this methodology fo not produce agricultural crops that could cause activity shifting

	Livestock	Excluded	Grazing activities, if occurring in the baseline scenario, are assumed to continue at the same levels under the project scenario and thus there are no leakage impacts
Market Effects	Timber	Included	Reductions in project outputs due to project activity may be compensated by other entities in the marketplace. Those emissions must be included in the quantification of project benefits.

B5. BASELINE

The baseline scenario represents an aggressive industrial harvest regime, targeted to maximize net present value at a 6% discount rate, typical of ca. 2017 practices in the project region on private lands. Baseline practices involve clearcuts and high grading throughout the extent of a given property. Derivation and justification for the baseline is detailed in Section E.

B6. PROJECT SCENARIO

The project scenario consists of growing the forestland with commercial harvesting maintaining carbon removals above the annual allowable cut as described in Section A5. Project Action.

B7. REDUCTIONS AND ENHANCED REMOVALS

The project will achieve greenhouse gas reductions through natural growth of forestland and improved silvicultural practices such as precommercial and commercial thinning, wildlife management cuts, and promotion of early successional forest, on lands that otherwise could be heavily cut in the baseline scenario. The existing carbon stocks will be preserved through maintaining growth above the annual allowable cut over a moving 10-year average as described in Section A5. Project Action.

B8. PERMANENCE

Project Proponents must conduct their risk assessment using the *ACR Tool for Risk Analysis and Buffer Determination*. All Project types must claim a value from risk categories A, B and C. Additional values that must be selected by project type include:

Forestry projects claim one value from each:

- D Conservation Easement (if applicable)
- E Fire
- F Disease/pest
- G Levee failure/water table changes (required only if forested wetlands comprise more than 60% of project area)
- H Other natural disaster risk scores.

1. Management and Governance Risks: All project types must select <u>one</u> value form each risk category that applies:

A	**Financial**	• 4% Default Value • 3% US Public and Tribal Lands
B	**Project Management**	• 4% Default Value • 3% US Public and Tribal Lands
C	**Social/Policy**	• 2% Default Value • 5% if project is located outside of the US • 3% if project is located outside of the US and demonstrates community engagements through ACR-approved mechanism
D	**Conservation Easement Deduction**	• -2% Default value • -3% if there is regular onsite monitoring of activities related to carbon-specific conservation activities

2. Natural Disaster Risks: Select one value from each risk category that applies:

E	**Fire**	• 8% if project is located in an area where fire greater than 1000 acres has occurred within 30 mile radius of project area in prior 12 months • 4% if project is located in high fire risk region • 2% if project is located in low fire risk region (verifiable evidence must be provided) • 1% for agriculture and grassland projects only
F	**Diseases and Pests**	• 8% if epidemic disease or infestation is present within project area, or within 30 mile radius of project area • 4% Default Value
G	**Levee Failure and Water Table Changes**	• 2% Default for all wetland projects (and for forest projects where more than 60% of the project area is a forested wetland)
H	**Other Natural Disaster Events**	• 2% Default Value for all sequestration projects

Calculated Risk Score

Section 1 (A + B + C + D*) + Section 2 (E + F + G + H) = Total Risk score %

Section 1 (4 + 4 + 2 + 0) + Section 2 (2 + 4 + 0 + 2) = 18%

NOTE: E. Project area is in a majority low fire risk region, especially compared to the lower half of the state. *According to the Wildfire Hazard Potential (WHP) map provided by the USFS.*

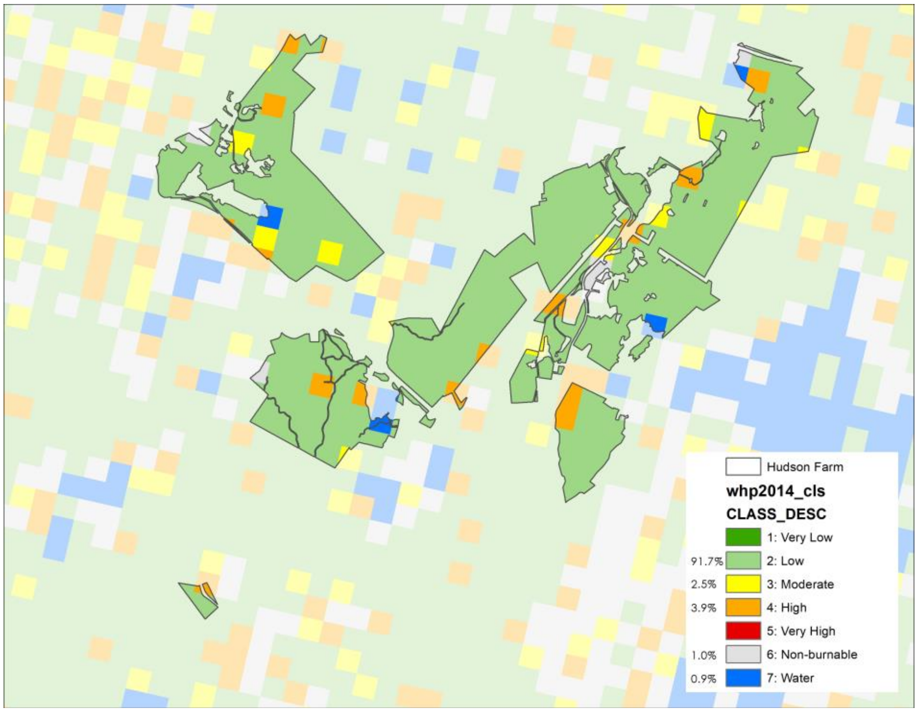


Figure B-1. Bluesource –Hudson Farm IFM Wildfire Hazard Potential Map.

Buffer Pool Contribution

*(Total Risk score %) * (Total ERTs generated for crediting period)*
= Buffer pool contribution in ERTs at time of issuance.

18% * 259,443 = 46,711 credits of buffer pool contribution (rounded up).

C. ADDITIONALITY

C1. REGULTORY SURPLUS TEST

Relevant laws, regulations, statues, legal rulings, and other regulatory frameworks that affect the project activity:

National laws, regulations and policies.

Clean Water Act
Endangered Species Act
Fair Labor Standards Act (1938) (amended)
Multiple-Use Sustained-Yield Act of 1960
National Environmental Policy Act (NEPA)
National Forest Management Act (NFMA)
Resources Planning Act (RPA)
Wilderness Act
The Logger's Guide to the New OSHA Logging Safety Standards, 1995

State & Local laws.

Flood Hazard Area Control Act Rules (NJAC 7:13)
New Jersey Freshwater Wetlands Protection Act
NJ Stormwater Best Management Practices

Binding International Agreements.

Paris Agreement, 2016
Kyoto Protocol, 1997 (signed, not ratified)
United Nations Framework Convention on Climate Change, 1992
United Nations Convention on Biological Diversity, 1992 (signed, not ratified)
Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), 1973
UNESCO World Heritage Convention, 1972

None of the above or any other existing law, regulation, statute, legal ruling, or other regulatory framework in effect as of the Start Date in 2017 effectively requires the forest carbon project activity and its associated GHG emissions reductions/removal enhancements. Consequently, the project passes the Regulatory Surplus test.

C2. COMMON PRACTICE TEST

The geographic region includes southern New York, New Jersey, Pennsylvania, and surrounding regions as far as Quebec. Wood products including sawtimber and pulpwood are distributed to mills throughout this region. The forest type for this project is most similar to either industrial forestland ownership due to the size of the property or small private forest ownership given its location. Throughout the geographic region, the industrial forestland and private forestland type is heavily cut and managed for maximizing

NPV of the forestland investment. If the Bluesource –Hudson Farm Improved Forest Management Project was not implemented, the forest management could feasibly resemble that of industrial forestland ownership in the region. Instead, the project will exceed the common practice as described in Section A6. Project Action.

C3. IMPLEMENTATION BARRIERS TEST

- ***Financial***
- *Technological*
- *Institutional*

Implementation Barriers	*Choose one of the following three:*
Financial	Does the project face capital constraints that carbon revenues can potentially address; *or* is carbon funding reasonably expected to incentivize the project's implementation; *or* are carbon revenues a key element to maintaining the project action's ongoing economic viability after its implementation? **Yes = Pass; No = Fail**
Technological	Does the project face significant technological barriers such as R&D deployment risk, uncorrected market failures, lack of trained personnel and supporting infrastructure for technology implementation, or lack of knowledge on practice/activity, and are carbon market incentives a key element in overcoming these barriers? **Yes = Pass; No = Fail**
Institutional	Does this project face significant organizational, cultural, or social barriers to implementation, and are carbon market incentives a key element in overcoming these barriers? **Yes = Pass; No = Fail**
If the project passes the Regulatory Surplus and Common Practice tests, and at least one Implementation Barrier test, ACR considers the project additional.	

Carbon funding is reasonably expected to incentivize the project's implementation. 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. A financial feasibility assessment is provided separately for verification demonstrating the financial barrier carbon funding overcomes in project implementation.

C4. PERFORMANCE STANDARD TEST

The Bluesource – Hudson Farm Improved Forest Management project uses the three-pronged approach; therefore, this step is not required.

D. MONITORING PLAN

D1. MONITORED DATA AND PARAMETERS

Data or Parameter Monitored	A_1
Unit of Measurement	Acres
Description	Area of IFM Project
Data Source	GIS shape file derived from GPS coordinates
Measurement Methodology	Strata area figures adjusted based on stocking levels and species distribution projected in modeling and verified through inventory updates
Monitoring Frequency	Every 5 years, following with inventory update
Value applied:	3,174.04
Reporting Procedure	Hand held GPS unit, GIS software
QA/QC Procedure	Meta data is kept current and uncorrupted
Purpose of Data	Calculation of project emissions
Calculation method:	Calculated in Arc GIS
Notes	

Data or Parameter Monitored	T
Unit of Measurement	yr
Description	Number of years between monitoring time t and t1 (T = t2 – t1)
Data Source	Monitoring reports
Measurement Methodology	
Monitoring Frequency	Yearly
Value applied:	Calendar
Reporting Procedure	
QA/QC Procedure	All calculations double checked for accuracy prior to submission for verification
Purpose of Data	Calculation of project emissions
Calculation method:	Subtraction
Notes	

Data or Parameter Monitored	Diameter at breast height of tree
Unit of Measurement	Inches (to 1/10th an inch)
Description	Tree diameter measure 4.5 feet above ground
Data Source	Field measurement
Measurement Methodology	Measured with Loggers Tape or calipers
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	

Reporting Procedure	Hand held GPS unit or cruise tally sheet
QA/QC Procedure	Equipment will be maintained in excellent condition. Breast height marked with permanent paint on all record trees >5in in diameter
Purpose of Data	Calculations of project emissions
Calculation method:	N/A
Notes	

Data or Parameter Monitored	H
Unit of Measurement	Feet
Description	Height of tree
Data Source	Field measurement
Measurement Methodology	Measured with clinometer or hypsometer
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	
Reporting Procedure	Hand held GPS unit or cruise tally sheet
QA/QC Procedure	Equipment will be maintained in excellent condition. All heights will be double checked for reasonableness prior to submission for verification
Purpose of Data	Calculations of project emissions
Calculation method:	N/A
Notes	

Data or Parameter Monitored	Decay Class
Unit of Measurement	
Description	Qualitative degree of decomposition
Data Source	Forest Inventory
Measurement Methodology	Qualitative assessment of dead tree into 1 of 4 decay classes based on class descriptions
Data Uncertainty	None
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	
Reporting Procedure	Hand held GPS unit or cruise tally sheet
QA/QC Procedure	Equipment will be maintained in excellent condition. All decay classes will be double checked for reasonableness prior to submission for verification
Purpose of Data	
Calculation method:	
Notes	

Data or Parameter Monitored	Tree Live/Dead Status
Unit of Measurement	
Description	Live or Dead

Data Source	Forest Inventory
Measurement Methodology	Measured per the Hudson Farm Carbon Plot Methodology
Data Uncertainty	None
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	
Reporting Procedure	Hand held GPS unit or cruise tally sheet
QA/QC Procedure	Equipment will be maintained in excellent condition. All tree statuses will be double checked for reasonableness prior to submission for verification
Purpose of Data	
Calculation method:	
Notes	

Data or Parameter Monitored	Defect
Unit of Measurement	%
Description	Qualitative percent of missing biomass
Data Source	Forest Inventory
Measurement Methodology	Qualitative assessment of tree assessed by thirds for the % missing biomass from each third. Post-inventory weighting conducted for each third of tree (Bottom 65%, Middle 25%, Top 10%)
Data Uncertainty	None
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	Tree-specific
Reporting Procedure	Hand held GPS unit or cruise tally sheet
QA/QC Procedure	Equipment will be maintained in excellent condition. All tree defects will be double checked for reasonableness prior to submission for verification.
Purpose of Data	
Calculation method:	
Notes	

Data or Parameter Monitored	Species Composition
Unit of Measurement	%
Description	Spp composition as a percentage of basal area
Data Source	Forest Inventory
Measurement Methodology	Derived from basal area calculations from inventory data.
Data Uncertainty	None
Monitoring Frequency	Every 5 years after the first inventory
Value applied:	
Reporting Procedure	

QA/QC Procedure	Species identification is confirmed at verification.
Purpose of Data	Calculation of project emissions
Calculation method:	Basal Area = 0.005454 * DBH^2
Notes	

Data or Parameter Monitored	Harvested Wood Products
Unit of Measurement	Metric tons CO_2
Description	Carbon remaining in stores wood products 40 years after harvest for the project in year t.
Data Source	Harvest slips and reports produced by Hudson Farm Club.
Measurement Methodology	Wood volumes harvested will be monitored using the whichever recordation system is appropriate for the harvest (lump sum v. pay as cut).
Data Uncertainty	None
Monitoring Frequency	Annual data summed for the monitoring period, applied as average annual for the monitoring period
Value applied:	
Reporting Procedure	
QA/QC Procedure	Harvest volumes cut and delivered to the mill will be either (1) weighed at the mill on scales tested annually by the state of New Jersey (or neighboring state) and converted to wood volume in an appropriate software, or (2) directly scaled to volume by log scalers certified by the state of New Jersey (or neighboring state).
Purpose of Data	
Calculation method:	
Notes	

Data or Parameter Monitored	Forest Carbon
Unit of Measurement	Metric tons of CO_2
Description	Carbon stores in above and below ground live trees at the beginning of the year t
Data Source	Forest Inventory
Measurement Methodology	Consistent with Hudson Farm Carbon Plot Methodology.docx
Data Uncertainty	To be calculated as the mean +/- 90% confidence interval
Monitoring Frequency	Every 5 years or less, or at request for ERT issuance
Value applied:	
Reporting Procedure	

QA/QC Procedure	Consistent with Hudson Farm Carbon Plot Methodology.docx. The inventory will use a random sample design and re-measure the same permanent plots established in 2018, which targeted a precision level of +/- 10% of the mean live tree biomass with 90% confidence.
Purpose of Data	
Calculation method:	
Notes	

D2. MONITORING PLAN

Each year, the Project Proponent shall submit a signed attestation that:

- Confirms the continuance of project activities;
- Confirms that ownership remains clear and uncontested;
- Discloses any negative environmental or community impacts or claims of negative environmental and community impacts, and documents plans to mitigate any reported negative environmental or community impacts;
- Addresses any significant change in external conditions that would affect the quality or environmental integrity of the project.

The following material outlines the monitoring plan to be followed during the decade following the initial project validation and verification.

The following material outlines the monitoring plan to be followed during the decade following the initial project validation and verification.

General Monitoring Method

In the year prior to validation/initial-verification, a representative sample of 137 fixed radius permanent inventory plots were established across the project area. The plot network provided enough data to keep total project uncertainty below 10% of the net anthropogenic greenhouse gas removals by sinks across the project, thereby avoiding any uncertainty deductions in the quantification process. All permanent plots will be re-inventoried at least twice over the following decade to calibrate forest growth models and improve carbon sequestration projections.

The heavily monumented and well-maintained plot design gives forest managers the opportunity to consistently track the growth and development of specific trees over an extended timeline and allows for improved ease of plot location during field work and site verifications. All plots will be re-measured in a manner consistent with the Inventory Methodology, provided separately for verification. [3]

3 The details of the carbon inventory methodology are considered commercially sensitive material as the methodology is the result of considerable investment of Blue Source resources.

In addition to the full inventory update of the entire property that will be conducted on all plots every 5 years, inventories of select portions of the Project Area will be updated periodically in response to natural disturbance or significant forest management activities. Following natural disturbance events, affected project stands will be assessed for damage. If damage is significant, the affected areas will be re-inventoried and project scenario models will be adjusted to reflect onsite carbon stocks.

In years in which forest plots are not re-inventoried carbon stocks will be monitored through forest growth and yield modeling.

In addition to inventory sampling, management staff will consistently monitor the general health and condition of the forest throughout the course of normal forest management activities (e.g. road maintenance, ecological studies, boundary marking, etc.), reducing the risk of reversal by disease, pest invasion, and unauthorized timber removal.

Bluesource LLC (Bluesource) will oversee the execution and reporting of all project reporting, modeling, and monitoring activities on behalf of the landowner. The landowner will be responsible for “on the ground” forest management activities on the project area, and Gracie & Harrigan Consultants will conduct inventory measurements and data collection. After forest inventory data collection, Gracie & Harrigan Consultants will report results to Bluesource for processing and updating of modeling projections. After processing is complete Bluesource will house all data and submit the necessary documentation for compliance with ACR standards. Bluesource will ultimately store project data for at least ten years after the conclusion of the project.

Data Processing and Storage

Manually and electronically filed data are stored and archived. Backup copies of all electronically stored data are maintained in a separate data center with scheduled archiving to assure data protection. Future revisions to project documents after initial verification and registration will be clearly identified by saving them as separate files and including the date of revision in any modified documents. All data will be stored on Dropbox or similar online cloud storage service as well as on an external hard drive and kept by Bluesource for a minimum of 15 years.

QA/QC Procedures

Field Procedures

At the end of each field day, individual foresters will email their plots from the data recorders (or paper) to the senior forester. The senior forester will then look for irregularities in the data and ask the field crew to confirm the data or remeasure any plots that cannot be reconciled. The senior forester will then add all the data to a master spread sheet.

At least 5% of the plots will be checked by a different forester than cruised the plot, preferably by someone senior to the field crew. This will involve full plot measurement to identify any problems with determining in/out trees, species calls, defect measurements, DBH measurements, and height measurements. Any errors noted during the check cruise will be used to update the master spread sheet file. Any consistent

height, species, DBH, or defect errors will be resolved by talking with the foresters and removing crew members if need be.

Desk Procedures

The following QA/QC approach is designed to ensure that field data, once input, is appropriately managed and maintained, and that subsequent calculations using that data to determine onsite carbon stocks and associated ARBOC issuance are correctly implemented.

A three-stage QA/QC process with a defined review group for the project will be established, engaging both personnel intimately familiar with all project files and documentation, as well as independent reviewers who are able to bring “fresh eyes” to key outputs.

Independent Forester Review: The project implementation team (Bluesource) has a team of foresters with intimate knowledge of the files, models and documents. The development of quantitative components, such as Access databases, FVS model runs and Excel workbooks, are led by one of these foresters. Prior to finalization, a second forester who did not lead development of that component is tasked with a QA/QC review including random examinations and data checks to identify and fix any errors.

Technical Review: Once quantitative outputs are finalized, exported from Access/FVS to Excel, and are ready to be transferred into the GHG Plan and other project documents, an independent manager reviews these outputs. This individual performs data checks by tracing key outputs back from final ARBOC calculations though the chain of Excel documents to the underlying Access/FVS database.

Senior Management Review: Once outputs have been transferred from Excel to the GHG Plan and other project documents, a senior manager reviews these documents and checks that all quantitative elements have been correctly exported from the underlying workbook. At this stage, the senior manager (or other individual not involved in document preparation) also reviews text, grammar and formatting for presentation and accuracy.

E. QUANTIFICATION

E1. BASELINE

Detail the GHG quantification methodology for the baseline, including all relevant emissions or removals. Provide sample calculations wherever possible.

The carbon inventory of the project area was conducted during March - May 2018. The inventory employed a systematic random sample of 137 nested, fixed-radius circular plots. Due to the similarity in forest type and structure across the property, the entire project area (3,174.04 acres) was assigned to a single sampling stratum. Inventory methods, including measurement of tree height and diameter and quantification of tree defect, are documented in 'HudsonFarm_Carbon_Plot_Methodology.pdf'.

We reviewed state law and best management practices (BMPs) to identify potential restrictions on timber harvest within the project area. New Jersey BMPs require variable buffer widths bordering stream management zones (SMZs) depending on slope. We conducted a slope analysis using the Slope tool in the Spatial Analyst toolbox on a NRCS publicly-available DEM. We used a 25ft buffer for slopes 0-10% and a 40ft buffer for slopes 11-20%. There were no slopes 21-45% on the property. These buffer zones encompass 45.05 acres. We refer to these as constrained acres.

Table E1.a Project acreage.

Strata	Number of plots	Unconstrained Acres	Constrained Acres
1	137	3,174.04	45.0548

The ACR requires Improved Forest Management (IFM) projects to establish a baseline harvest scenario against which to measure carbon accumulation attributable to the project. The ACR protocol defines this baseline as the mix of silvicultural practices that maximizes the net present value (NPV) of timber revenues over the 100-yr project lifespan. We used the Forest Vegetation Simulator (FVS), an empirical forest growth and yield model developed by the US Forest Service, to project carbon stocks and timber revenues under the range of harvest scenarios considered in the baseline. We selected the Northeastern (NE) variant of the FVS model, which encompasses New Jersey, with model equations calibrated to Monongahela National Forest (location code: 921), the US National Forest located nearest to the project.

We also used FVS to 'degrow' the inventory to the project start date (June 30, 2017), because the plots were inventoried 1 - 3 months after the project start date. We first initialized FVS with the original inventory and ran the model forward with no harvests in order to estimate tree-level annual growth rates. We ran a single 5-year FVS projection cycle, the default cycle length for the Northeastern FVS variant. We then computed height and diameter growth for each tree over this 5-interval and divided by 5 to estimate annual growth. Using a monthly growth schedule derived in consultation with a local forester, we determined the fraction of annual growth that had occurred between the project start date and the inventory date and multiplied annual growth for each tree by this fraction. Finally, we subtracted this estimated height and diameter growth for each tree from the observations recorded in

the original inventory. We used this growth-adjusted inventory to determine CO_2e stocks on the project start date (June 30, 2017). We, similarly, estimated CO_2e stocks on the project reporting date (June 29, 2018) by 'growing' the inventory forward in time. We added estimated height and diameter growth according to the months that had elapsed between the inventory and the project reporting date. These calculations are detailed in the 'InvDate', 'IndTreeGrow', and 'TreeList' tabs in HudsonFarm_Start_RP_CO2.xlsx.

The FVS model requires an individual species code and site index for each forest plot simulated. The site index is a location-specific measure of forest productivity estimated by the US Departent of Agriculture (USDA). These estimates are available from the Web Soil Survey (WSS) maintained by the USDA's Natural Resources Conservation Service (NRCS). Soil classes in the WSS database can encompass multiple sub-classes, each with an associated site index. The site index for each soil sub-class is reported for at least one tree species. We used the R package "soilDB" developed by the NRCS to spatially co-locate inventory plots within the WSS soil classes and extract the associated soil sub-classes along with their species-specific site indices. The result is a soil class assigned to each plot. Within each plot-specific soil class, we averaged site indices by tree species across soil sub-classes. We then merged the list of tree species associated with each plot-specific soil class with the list of species found in each plot. We assigned each plot the site index of the tree species with the highest basal area in the plot found in both lists. If a plot had no species in the soil class species list, we assigned the plot the site index of the tree species in the species list with the highest basal area in the entire project area. If no site index data were available for a soil class, we averaged site indices by tree species across all soil classes and assigned the average site index for the highest basal area tree species in the plot. We detail these steps in 'extractSiteIndex_README.R'. Furthermore, the "BAsummary" tab in HudsonFarm_Start_RP_CO2.xlsx summarizes basal area by plot, by species, and by species within each plot. Table E1.b shows the resulting species code and site index assigned to each plot.

Table E1.b Site indices.

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
1	White Ash	541	WA	65.00	1
2	Scarlet Oak	806	SO	70.00	1
3	White Oak	802	WO	70.00	1
4	Red Maple	316	RM	56.50	1
5	Red Maple	316	RM	56.50	1
6	Northern Red Oak	833	RO	62.33	1
7	Northern Red Oak	833	RO	62.33	1
8	White Ash	541	WA	70.00	1
9	Northern Red Oak	833	RO	62.33	1
10	White Oak	802	WO	70.00	1

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
11	Red Maple	316	RM	56.50	1
12	Northern Red Oak	833	RO	62.33	1
13	Northern Red Oak	833	RO	62.33	1
14	Sugar Maple	318	SM	60.50	1
15	Northern Red Oak	833	RO	62.33	1
16	Northern Red Oak	833	RO	62.33	1
17	Northern Red Oak	833	RO	62.33	1
18	Scarlet Oak	806	SO	70.00	1
19	White Oak	802	WO	70.00	1
20	Northern Red Oak	833	RO	62.33	1
21	Black Oak	837	BO	70.00	1
22	White Ash	541	WA	70.00	1
23	Red Maple	316	RM	50.00	1
24	Northern Red Oak	833	RO	62.33	1
25	Sugar Maple	318	SM	60.50	1
26	Scarlet Oak	806	SO	70.00	1
27	Black Oak	837	BO	70.00	1
28	Red Maple	316	RM	50.00	1
29	Black Oak	837	BO	70.00	1
30	Northern Red Oak	833	RO	70.00	1
31	Black Oak	837	BO	70.00	1
32	Northern Red Oak	833	RO	58.50	1
33	Northern Red Oak	833	RO	62.33	1
34	White Ash	541	WA	70.00	1
35	Scarlet Oak	806	SO	70.00	1
36	Northern Red Oak	833	RO	70.00	1
37	Black Oak	837	BO	70.00	1
38	Red Maple	316	RM	50.00	1
39	Red Maple	316	RM	50.00	1

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
40	Northern Red Oak	833	RO	49.00	1
41	White Ash	541	WA	70.00	1
42	White Oak	802	WO	70.00	1
43	Northern Red Oak	833	RO	62.33	1
44	Northern Red Oak	833	RO	62.33	1
46	Sugar Maple	318	SM	65.00	1
47	Sugar Maple	318	SM	60.50	1
48	Northern Red Oak	833	RO	62.33	1
49	Northern Red Oak	833	RO	62.33	1
50	Sugar Maple	318	SM	60.50	1
51	Red Maple	316	RM	80.00	1
52	Black Oak	837	BO	70.00	1
53	White Ash	541	WA	70.00	1
54	White Ash	541	WA	70.00	1
55	Northern Red Oak	833	RO	58.50	1
56	Sugar Maple	318	SM	60.50	1
57	Sugar Maple	318	SM	60.50	1
58	Sugar Maple	318	SM	60.50	1
59	Northern Red Oak	833	RO	58.50	1
60	Sugar Maple	318	SM	60.50	1
61	Northern Red Oak	833	RO	62.33	1
62	Sugar Maple	318	SM	60.50	1
63	Northern Red Oak	833	RO	62.33	1
64	Sugar Maple	318	SM	60.50	1
65	Northern Red Oak	833	RO	58.50	1
66	Northern Red Oak	833	RO	62.33	1
67	White Oak	802	WO	70.00	1
68	White Ash	541	WA	70.00	1
69	Red Maple	316	RM	56.50	1

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
70	Sugar Maple	318	SM	60.50	1
71	Sugar Maple	318	SM	60.50	1
72	Red Maple	316	RM	50.00	1
73	Red Maple	316	RM	50.00	1
74	Northern Red Oak	833	RO	62.33	1
75	Northern Red Oak	833	RO	62.33	1
76	Northern Red Oak	833	RO	62.33	1
77	Northern Red Oak	833	RO	62.33	1
78	White Oak	802	WO	70.00	1
79	White Ash	541	WA	70.00	1
80	White Oak	802	WO	70.00	1
81	Red Maple	316	RM	56.50	1
82	Sugar Maple	318	SM	60.50	1
83	Sugar Maple	318	SM	60.50	1
84	White Oak	802	WO	70.00	1
85	Red Maple	316	RM	50.00	1
86	White Ash	541	WA	70.00	1
87	White Ash	541	WA	70.00	1
88	White Ash	541	WA	70.00	1
89	Northern Red Oak	833	RO	62.33	1
90	White Ash	541	WA	68.33	1
91	Black Oak	837	BO	70.00	1
92	Sugar Maple	318	SM	65.00	1
93	Sugar Maple	318	SM	60.50	1
94	Sugar Maple	318	SM	60.50	1
95	Sugar Maple	318	SM	60.50	1
96	Northern Red Oak	833	RO	70.00	1
97	Red Maple	316	RM	56.50	1

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
98	Sugar Maple	318	SM	60.50	1
99	Scarlet Oak	806	SO	70.00	1
100	White Ash	541	WA	70.00	1
101	Scarlet Oak	806	SO	70.00	1
102	White Ash	541	WA	65.00	1
104	Red Maple	316	RM	50.00	1
105	Sugar Maple	318	SM	60.50	1
106	Sugar Maple	318	SM	60.50	1
107	White Ash	541	WA	70.00	1
108	Sugar Maple	318	SM	65.00	1
109	Scarlet Oak	806	SO	70.00	1
110	White Oak	802	WO	70.00	1
111	Black Oak	837	BO	70.00	1
112	Black Oak	837	BO	70.00	1
113	Red Maple	316	RM	56.50	1
114	Sugar Maple	318	SM	60.50	1
115	Sugar Maple	318	SM	60.50	1
116	White Ash	541	WA	68.33	1
117	Northern Red Oak	833	RO	70.00	1
118	Red Maple	316	RM	80.00	1
119	White Oak	802	WO	80.00	1
120	Northern Red Oak	833	RO	62.33	1
121	Red Maple	316	RM	50.00	1
122	Sugar Maple	318	SM	60.50	1
123	White Oak	802	WO	70.00	1
124	White Oak	802	WO	80.00	1
126	Eastern White Pine	129	WP	55.00	1
127	Sugar Maple	318	SM	59.00	1
128	Black Oak	837	BO	70.00	1

Plot	Species common name	Species FIA code	Species FVS code	Site Index	Strata
129	Northern Red Oak	833	RO	62.33	1
130	Northern Red Oak	833	RO	62.33	1
131	Northern Red Oak	833	RO	62.33	1
132	Northern Red Oak	833	RO	62.33	1
133	Sugar Maple	318	SM	60.50	1
134	Sugar Maple	318	SM	60.50	1
135	White Oak	802	WO	80.00	1
136	White Ash	541	WA	70.00	1
137	Northern Red Oak	833	RO	62.33	1
138	Red Maple	316	RM	50.00	1
139	Sugar Maple	318	SM	60.50	1
140	Northern Red Oak	833	RO	62.33	1

FVS also requires specifying post-harvest regeneration rates for species that do not sprout from residual stumps. These non-sprouting species are listed in the FVS-NE overview available at https://www.fs.fed.us/fmsc/ftp/fvs/docs/overviews/FVSne_Overview.pdf. We derived seedling regeneration rates for non-sprouting species based on field estimates from Nunery & Keeton (2010). They present estimates of post-harvest seedling density relative to pre-harvest density for a range of species across several harvest types (Nunery & Keeton (2010), Table 4). We computed the ratio of post to pre-harvest seedling density for each species and harvest type. We then scaled observed seedling density from the forest inventory (i.e., pre-harvest density) by these ratios to estimate post-harvest density for each harvest type. We used species-specific ratios when available. Otherwise, we used the average softwood or hardwood ratios reported in Nunery & Keeton (2010). These calculations are detailed in HudsonFarm_Regeneration_Calcs.xlsx. We assume no post-harvest investments in forest regeneration (e.g., no site preparation, herbicide, or pre-commercial thinning), which is common practice on private, industrial forest in New Jersey.

Estimation of $CO2_e$ stocks on start and reporting dates

As required by the ACR protocol, we used our inventory measurements to estimate CO_2e stocks in three pools: 1) aboveground live biomass, 2) belowground live biomass, and 3) aboveground standing dead biomass. The ACR conservatively omits belowground dead biomass and dead biomass lying on the forest floor. We estimated aboveground live and dead biomass using the species-specific allometric equations of Jenkins et al. (2003). For trees reported as damaged in the inventory, we applied a deduction to estimated aboveground biomass. The deduction is a weighted average of the fractional defect reported for the top, middle, and bottom thirds of the tree. For live trees, the top, middle, and bottom weights are, respectively, 0.1, 0.25, 0.65. The respective weights for dead trees are 0.1, 0.36, 0.54.

For trees with a broken top, we computed the difference between estimated phantom height and measured height. Phantom height is estimated tree height assuming the top were not missing. We computed the ratio of the missing top (phantom height - measured height) relative to the top third of the phantom height. This ratio is the top defect for the tree based on its phantom height ($top_{phantom}$, Eq.1). If the missing top accounts for less than the top third of the phantom height (i.e., $top_{phantom} < 1$), we use $top_{phantom}$ in place of the observed top defect when computing the total weighted defect.

If the missing top accounts for more than the top third of the phantom height, but less than the top two-thirds ($1 < top_{phantom} < 2$), then $top_{phantom}$ equals 1 and the middle defect is renormalized relative to the phantom height ($middle_{phantom}$, Eq.2). If the missing top accounts for more than two-thirds of the phantom height ($top_{phantom} > 2$), then the top and middle defects equal 1 and the bottom defect is renormalized relative to the phantom height ($bottom_{phantom}$, Eq.3). For trees with broken tops, we conservatively reduced aboveground biomass by the larger of the defect estimates based on observed height versus phantom height.

$$(Eq.1)\ top_{phantom} = \frac{Height_{phantom} - Height_{measured}}{\frac{1}{3}Height_{phantom}}$$

$$(Eq.2)\ middle_{phantom} = \frac{\frac{2}{3}Height_{phantom} - Height_{measured}}{\frac{1}{3}Height_{phantom}}$$

$$(Eq.3)\ bottom_{phantom} = 1 - \frac{Height_{measured}}{\frac{1}{3}Height_{phantom}}$$

We also applied deductions to aboveground dead biomass based on tree decay class recorded in the inventory. Table E1.c shows the ACR-defined decay classes corresponding to the decay classes recorded in the inventory. When computing standing dead biomass in ACR decay class 4, we included only stem wood in our calculations, as required by the ACR protocol. Lastly, we estimated belowground live biomass using ratios of root biomass to aboveground biomass from Jenkins et al. (2003). We applied the root ratios to estimated aboveground biomass unadjusted for defect. We converted all biomass stocks to carbon by multiplying by 0.5, the fraction of carbon in tree biomass. We converted all carbon stocks to CO_2e by multiplying by 3.664, the molar ratio of CO_2 to carbon. All calculations of CO_2e stocks on the project start date and reporting date are detailed in the 'StartDate_Tree_CO2' and 'RP_Tree_CO2' tabs in HudsonFarm_Start_RP_CO2.xlsx.

Table E1.c Decay classes.

Decay class recorded in field	ACR IFM decay class	Biomass deduction	ACR IFM Description
Decay Class 1: Limbs and branches all present, top pointed, all bark remaining, sapwood intact, heartwood sound, hard, original color.	1	0.97	Tree with branches and twigs that resembles a live tree (except for leaves)
Decay Class 2: Few limbs and no fine branches present, top may be broken, bark variable, sapwood sloughing, heartwood sound at base incipient decay in outer edge of upper bole, hard, light to reddish brown.	2	0.95	Tree with no twigs but with persistent small and large branches
Decay Class 3: Branches absent with only limb stubs, top broken, bark variable, sapwood sloughing, heartwood with incipient decay at base, advanced decay throughout upper bole, fibrous to cubical, soft, dark, reddish brown.	3	0.90	Tree with large branches only
Decay Class 4: Branches absent with few or no stubs, top broken, bark variable, sapwood sloughing, heartwood with advanced decay at base, sloughing from upper bole, fibrous to cubical, soft, dark, reddish brown.	4	0.80	Bole only, no branches
Decay Class 5: No limbs or branches, top broken, bark less than 20 percent, sapwood gone, heartwood sloughing, cubical, soft, dark brown, or fibrous, very soft, dark reddish brown, encased in hardened shell.	4	0.80	Bole only, no branches

The estimated CO_2e stock in live and standing dead trees on the project start date (June 29, 2018) is 581,936 tons CO_2e (532,145 = 167.7 tons CO_2e per acre x 3,174.04 acres).

Table E1.d Total standing CO_2e stocks per acre on project start date.

Total standing stocks (tons CO_2e per acre)	Number of plots
167.7	137

Determining the baseline

The ACR protocol defines the baseline as the mix of harvest prescriptions that maximizes the net present value (NPV) of timber revenues over a 100-year period. We determined this mix by projecting 100-year timber revenues across a range of common harvest practices in the region (Table E1.e). We consulted with Steve Kallesser, a local forester, to identify these harvest practices.

Table E1.e Management prescriptions.

Management prescription	Abbreviation	Management actions	Minimum DBH harvested (inches)	Minimum saw timber DBH (inches)	Minimum pulpwood DBH (inches)	Harvest trigger
Grow	GROW	Allow existing stocks to grow 40 years				
Clearcut	CC	Cut throughout all species and diameter classes; Natural sprouting and regeneration	6	10	6	Stand basal area > 80 square feet per acre; Merchantable timber > 600 cubic feet per acre; Rotation period = 60 years
Diameter limit	DL	Cut throughout all species and diameter classes; Natural sprouting and regeneration	10	10	6	Constrained to occur at most every 10 years; Merchantable timber > 600 cubic feet per acre
Shelterwood	SHW	Residual basal area for shelterwood = 50 square feet; Overstory removal occurs 5 years after shelterwood cut; No residual overstory trees; Natural sprouting and regeneration	6	10	6	Stand basal area > 80 square feet per acre; Merchantable timber > 600 cubic feet per acre; Constrained to occur at most every 40 years
Single tree selection	STS	Harvest to basal area of 75 square feet; Q-factor = 1.4; Subsequent removal of all trees > 40 inches DBH; Natural sprouting and regeneration	6	10	6	Constrained to occur at most every 10 years; Merchantable timber > 600 cubic feet per acre

Harvest revenues

We used regional timber prices sourced from Winter 2018 New York Stumpage Price Report, prepared by the New York State Department of Environmental Conservation to estimate timber revenue under each harvest prescription. Modeled timber volumes in FVS are based on merchantability standards detailed in the FVS-NE overview. FVS outputs harvested saw timber and pulpwood in units of cubic feet. We, therefore, converted reported saw timber and pulpwood prices to $ per cubic foot. These price conversions can be found in HudsonFarm_TimberPrices.xlsx. When available, we applied species-specific prices to compute timber revenue. Otherwise, we applied genus-level prices (e.g., oak, maple, etc.) or average hardwood and softwood prices for species without a reported price (Table E1.f). As the FVS model outputs harvest volumes at 5-year intervals, we determined annual revenues by evenly distributing revenues over each 5-year interval.

Table E1.f Timber prices.

Common name	FIA Code	FVS Code	Saw timber ($ per cubic foot)	Pulpwood ($ per cubic foot)
White Ash	541	WA	$ 1.71	$ 0.10
Black Cherry	762	BC	$ 3.19	$ 0.10
Red Maple	316	RM	$ 1.58	$ 0.10
Sugar Maple	318	SM	$ 2.85	$ 0.10
Red Oak	812	SK	$ 2.81	$ 0.10
White Pine	129	WP	$ 0.39	$ 0.07
Aspen	743	BT	$ 0.19	$ 0.07
Basswood	951	BW	$ 0.38	$ 0.10
Beech	531	AB	$ 0.20	$ 0.10
Yellow Birch	371	YB	$ 1.25	$ 0.10
White Birch			$ 0.53	$ 0.10
Black Birch			$ 0.49	$ 0.10
Hemlock	261	EH	$ 0.33	$ 0.09
Hickory (spp.)	400	HI	$ 0.46	$ 0.10
Larch	70		$ 0.10	$ 0.07
Chestnut Oak	825	SN	$ 1.51	$ 0.10
White Oak	802	WO	$ 1.80	$ 0.10
Red Pine	125	RN	$ 0.28	$ 0.07
Spruce (spp.)	90	PI	$ 0.47	$ 0.08
Tulip Poplar			$ 0.40	$ 0.10
Black Walnut	602	WN	$ 3.40	$ 0.10
Pine (spp.)	100	OP	$ 0.31	$ 0.07
Fir (spp.)	10	FR	$ 0.31	$ 0.08
Mixed Hardwoods			$ 1.42	$ 0.10
Mixed Softwoods			$ 0.31	$ 0.07

Harvest costs

Our consultations with local forester, Steve Kallesser, indicated that variable harvest costs of 18% of total revenue are typical for the region. We subtracted these costs from timber revenues prior to computing the net present value of 100-yr baseline cash flows. We computed NPV using a 6% discount rate, the rate specified for private, industrial in the ACR protocol.

Maximizing NPV of timber harvest in the baseline

We conducted FVS model runs for each inventory plot across the range of management prescriptions considered in the baseline (Table E1.e). Each plot represents 1/137th of the project area ($\frac{project\ area}{number\ of\ plots}$ = 23.17 acres). We used the Analytic Solver tool in Excel to find the allocation of project acreage across management prescriptions that maximizes the net present value of 100-year cash flows. All baseline calculations are detailed in the "Financials", "Harvest Revenues", and "Baseline" tabs in HudsonFarm_100Yr_Calcs.xlsx.

Projected CO_2e stocks under the baseline and project scenarios

We used the FVS Fire and Fuels Extension (FFE) to output carbon stocks from each FVS model run. FFE computes live above and belowground carbon stocks (metric tons) using the allometric equations of Jenkins et al. (2003). To account for damaged trees, we applied average plot-level defects observed in the inventory to the FFE aboveground live carbon stocks. The FFE snag report outputs the volumes of hard and soft dead wood (cubic feet) for each FVS model run. As described in the "FFE: Updated Model Documentation", the snag report only includes standing dead wood.

We converted dead wood volume as well as harvested wood volume to biomass using species-level specific gravities (US Forest Service Wood Handbook (Table 5-3a), Miles and Smith (2009)). We partitioned above and belowground portions of dead biomass using the root component ratios of Jenkins et al. (2003). We also applied deductions to dead biomass according the FFE-indicated decay class for each snag. Table E1.g shows the ACR-defined decay classes corresponding to the two FFE decay classes ("FFE: Updated Model Documentation", p.13). We converted dead biomass and harvested biomass to carbon by multiplying by 0.5, the fraction of carbon in tree biomass. We converted all carbon stocks to CO_2e by multiplying by 3.664, the molar ratio of CO_2 to carbon. All calculations are detailed in processFVSoutput.R and computeStandingDead.R.

Lastly, we note that FFE does not output initial carbon stocks, if a harvest occurs in year 1 of an FVS model run. FFE instead outputs *post-harvest* carbon stocks. We, therefore, set year 1 carbon stocks in all FVS model output to the start date values from the plot inventory.

Table E1.g Dead wood classes.

Fire Fuel Extension (FFE) snag class	Biomass deduction	FVS description
Soft	0.80	Per FVS FFE: "No branches remain." Corresponds to ACR IFM methodology decay class 4.
Hard	0.97	Per FVS FFE: "Soft snags are more decayed and are assumed to have 80% of the wood density of hard snags." Corresponds to ACR IFM methodology decay class 1.

Source: Rebain et al. (2012). *FVS Fire and Fuels Extension*.

Harvested wood products in the baseline

We disaggregated the FVS saw timber and pulpwood harvest into softwood and hardwood species. We then applied mill efficiency values for New Jersey to the four harvest categories - softwood saw timber, softwood pulp, hardwood saw timber, and hardwood pulp - in order to determine the quantity of harvested CO_2e retained in wood products. We sourced mill efficiency values from the Regional Mill Efficiency Database required by the ACR protocol.

Table E1.h Regional mill efficiency.

State	Hardwood saw log	Hardwood pulp	Softwood saw log	Softwood pulp
New Jersey	61.4%	65.0%	56.9%	51.3%

We further disaggregated the four harvest categories into specific wood product classes. We sourced the distribution of wood product classes from the California Air Resources Board (ARB) Assessment Area Data File available at https://www.arb.ca.gov/cc/capandtrade/protocols/usforest/usforest-aadf.htm. Table E1.i presents the distribution of product classes for the Lower New England - Northern Appalachia Assessment Area(s), in which the project is located. We re-normalized this distribution into separate distributions for saw timber and pulpwood, allocating harvested saw timber across lumber, plywood, and non-structural panels and harvested pulpwood across oriented strand board, paper, and miscellaneous products. However, the 100-yr wood product storage factors provided by the ACR protocol do not include hardwood plywood. Therefore, we allocated hardwood saw timber between lumber and non-structural panels only.

Table E1.i Wood product distribution.

Supersectio n	Softwood lumber	Hardwood lumber	Plywood	Oriented strand board	Non-structural panels	Miscellaneo us	Paper
Lower New England - Northern Appalachia	26.0%	28.0%	1.0%	0.0%	13.0%	1.0%	32.0%

We allocated CO_2e in wood products between storage in landfills and storage in the wood products themselves (i.e., in-use storage). We used the 100-year storage factors provided in the ACR methodology. We then summed landfill and in-use storage across product classes to determine total long-term CO_2e storage in harvested wood products. All wood product calculations are detailed in HudsonFarm_RP_ERT_HWP.xlsx.

Baseline harvest mix

Table E1.j presents the baseline mix of harvest practices that maximizes the net present value of 100-year cash flows. **Maximum NPV under the baseline is $6,891,670.**

Table E1.j Baseline and project scenarios.

Strata	Management prescription	Baseline (acres)	Project (acres)
1	CC	137.03	-
1	DL	2,923.39	-
1	GROW	1.32	3,047.08
1	SHW	45.68	63.48
1	STS	66.58	63.48

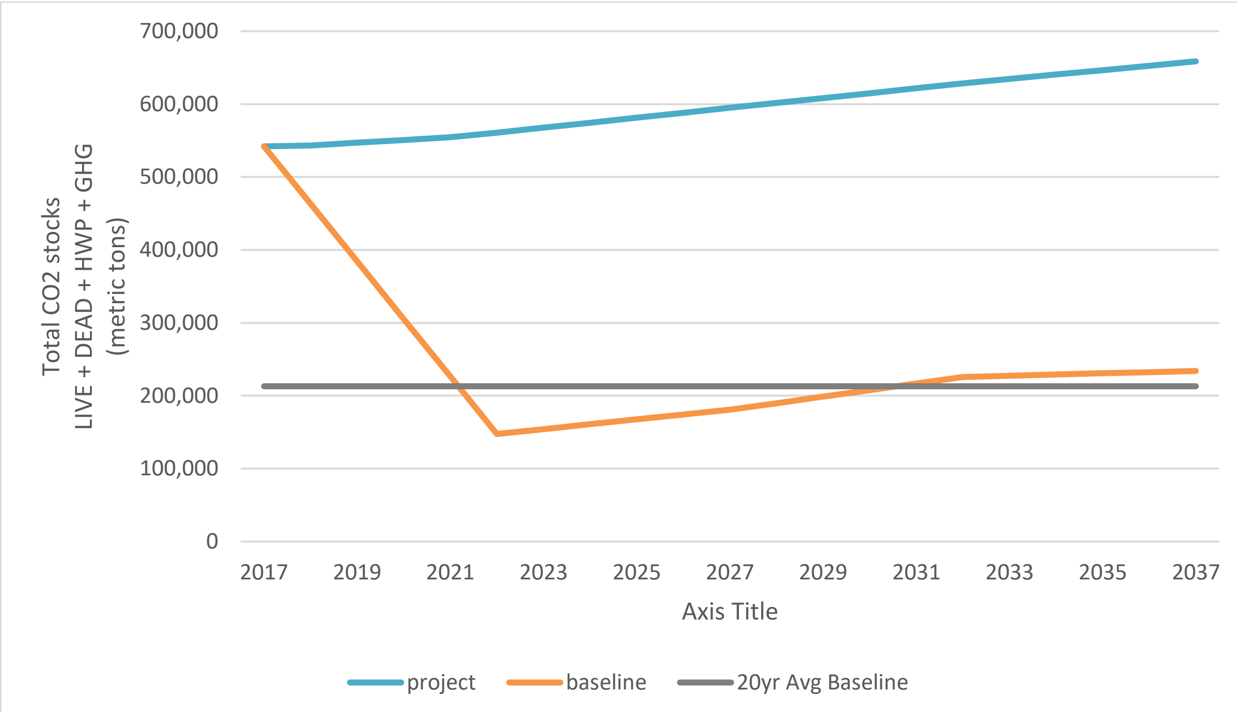
Table E1.k shows projected CO_2e stocks under the baseline scenario over the first 20-year crediting period (2017 to 2037). CO_2e stocks in live and standing dead trees represent stocks on June 30 of each year. CO_2e in harvested wood products represents cumulative in-use and landfill CO_2e storage averaged over the 20-year crediting period. **Baseline CO_2e averaged over the 20-year crediting period is 212,768 tons.**

Table E1.k Baseline CO_2e stocks.

Year	Live trees (tons CO_2e per acre)	Standing dead (tons CO_2e per acre)	Harvested wood products (tons CO_2e per acre)
2017	167.7	3.1	1.1
2018	142.0	2.8	1.1
2019	116.2	2.5	1.1
2020	90.5	2.3	1.1
2021	64.8	2.0	1.1
2022	39.1	1.7	1.1
2023	40.2	1.6	1.1
2024	41.3	1.5	1.1
2025	42.4	1.3	1.1
2026	43.5	1.2	1.1
2027	44.6	1.1	1.1
2028	46.3	1.0	1.1
2029	48.1	0.9	1.1
2030	49.9	0.9	1.1
2031	51.7	0.8	1.1
2032	53.5	0.7	1.1
2033	53.0	0.6	1.1
2034	52.5	0.6	1.1
2035	51.9	0.5	1.1
2036	51.4	0.4	1.1
2037	50.9	0.4	1.1

Figure E1.a plots CO_2e stocks under the baseline and project scenarios. The solid horizontal line indicates 20-year average baseline CO_2e.

Figure E1.a Total standing (Live + Dead) CO_2e under baseline and project scenarios.



E2. PROJECT SCENARIO

Detail the GHG quantification methodology for the project scenario, including all relevant emissions or removals. Provide sample calculations wherever possible.

Project scenario

The actual project scenario is measured through future inventories over the course of the project lifetime. However, we produce an ex-ante projection of the project scenario assuming the landowner will conduct the following harvest types: single tree selection on 2% and shelterwood on 2% of the project area. These calculations are detailed in the "Project" tab in HudsonFarm_100Yr_Calcs.xlsx. This ex-ante projection applies in years beyond 2018, as the landowner harvested no timber in the first reporting period.

E3. LEAKAGE

Describe how leakage is accounted for and quantified. Provide sample calculations wherever possible.

All actively harvesting forestlands in the project area have been certified by Tree Farm. To prevent activity-shifting leakage, IAT Reinsurance will not conduct harvests on other lands under its ownership that would offset the harvest reductions attributable to the project. Therefore, leakage is limited to market leakage. We conservatively assume market leakage of 40%.

Table E1.l Baseline leakage factors.

Period	Baseline wood products summed over 20-yr crediting period (tons CO_2)	Project wood products summed over 20-yr crediting period (tons CO_2)	Project decrease in wood products relative to baseline (%)	Applicable leakage factor (%)
2017-2037	71,207	1,827	97%	40%

E4. UNCERTAINTY

Describe how ex-post uncertainty is accounted for and quantified. Provide sample calculations wherever possible.

We computed uncertainty in project and baseline CO_2e according to equations 10 and 18 of the ACR protocol. Error terms for live and dead CO_2e are calculated using the inventory data in the "Stats_StartDate" tab of HudsonFarm_Start_RP_CO2.xlsx. As required by ACR equations 10 and 18, these error terms (e_{TREE} and e_{DEAD}), estimated from the most recent inventory data, are used for computing total CO_2e uncertainty in both the project and baseline scenarios. The ACR protocol also specifies that the error term for live CO_2e (e_{TREE}) be used as the uncertainty estimate for CO_2e stored in wood products. As Hudson Farm Club, LLC does not burn logging slash, expected greenhouse gas emissions (GHG) under both the project and baseline scenarios are zero. Total uncertainty encompassing both the baseline and project scenarios (ACR equation 19) over the 20-year crediting interval averages 6.6%. These calculations are all found in the "ACR_IFM_Calcs" tab of HudsonFarm_RP_ERT_HWP.xlsx.

Table E1.m Uncertainty in start date CO_2e stocks.

Summary Statistics	AG Live CO2e (metric tons per acre)	BG Live CO2e (metric tons per acre)	Live CO2e (metric tons per acre)	AG Dead CO2e (metric tons per acre)	BG Dead CO2e (metric tons per acre)	Dead CO2e (metric tons per acre)	Total Standing CO2e (Live + Dead) (metric tons per acre)
Average	140.57	27.09	167.66	3.11	0.00	3.11	170.76
Fraction of total CO2e (%)	82.3%	15.9%	98.2%	1.8%	0.0%	1.8%	100.0%
Standard deviation			78.39			7.34	
Standard error			6.70			0.63	
Error at 90% confidence			11.02			1.03	
Percentage uncertainty expressed as 90% confidence interval							
Live ($e_{TREE,t=1}$)	6.6%						
Dead ($e_{DEAD,t=1}$)	33.2%						

E5. REDUCTIONS AND REMOVAL ENHANCEMENTS

Show how net reductions and removals enhancements are quantified, taking into account leakage and uncertainty. Provide sample calculations wherever possible.

Table E1.n shows estimated net reductions and removal enhancements attributable to the Hudson Farm Club, LLc project over the first 20-year crediting period (2017 - 2037). As the annual project-level uncertainty remains below the 10% threshold required by the ACR protocol, no uncertainty deduction was applied to the annual Emission Reduction Tons (ERTs) generated by the project. ERTs presented in Table E1.n incorporate the assumed 40% market leakage. ERTs are dated beginning on June 30, 2017, the project start date. Therefore, annual values in Table E1.n correspond to the 1-year interval ending

on June 29 of each year. For example, ERTs in 2018 include GHG reductions and removals occurring between June 30, 2017 and June 29, 2018.

Table E1.n Estimate of net Emission Reduction Tons (ERTs) by year.

Project year	Year	Estimated GHG emission reductions (tons CO_2)
0	*2017*	Start Date
1	*2018*	48,096
2	*2019*	49,620
3	*2020*	49,620
4	*2021*	49,620
5	*2022*	3,730
6	*2023*	4,096
7	*2024*	4,096
8	*2025*	4,096
9	*2026*	4,096
10	*2027*	4,096
11	*2028*	4,015
12	*2029*	4,015
13	*2030*	4,015
14	*2031*	4,015
15	*2032*	4,015
16	*2033*	3,641
17	*2034*	3,641
18	*2035*	3,641
19	*2036*	3,641
20	*2037*	3,641

E6. EX-ANTE ESTIMATION METHODS

Describe the methods that are to be used to create the ex-ante projection of net GHG emission reductions and removals.

Table E1.o shows projected CO_2e stocks under the project scenario described in Section E2.

Table E1.o Project CO_2e stocks.

Year	Live trees (tons CO_2e per acre)	Standing dead (tons CO_2e per acre)	Harvested wood products (tons CO_2e per acre)
2017	167.7	3.1	0.00
2018	168.0	3.1	0.03
2019	169.2	3.1	0.03
2020	170.4	3.1	0.03
2021	171.5	3.1	0.03
2022	173.4	3.1	0.03
2023	175.6	3.1	0.03
2024	177.7	3.1	0.03
2025	179.8	3.1	0.03
2026	181.9	3.1	0.03
2027	184.0	3.1	0.03
2028	186.1	3.1	0.03
2029	188.2	3.1	0.03
2030	190.3	3.1	0.03
2031	192.4	3.1	0.03
2032	194.4	3.1	0.03
2033	196.3	3.1	0.03
2034	198.2	3.1	0.03
2035	200.1	3.1	0.03
2036	202.0	3.1	0.03
2037	203.8	3.1	0.03

F. COMMUNITY & ENVIRONMENTAL IMPACTS

F1. NET POSITIVE IMPACTS

Community and Environmental Assessment

1. *An overview of the Project Activity and geographic location.*

   See section A5. Brief Summary of Project Action and A4. Location.

2. *Applicable laws, regulations, rules, and procedures and the associated oversight institutions.*

   See section C1. Regulatory Surplus Test

3. *A description of the process to identify community(ies) and other stakeholders affected by the project and, as applicable, the community consultation and communications plan.*

   Hudson Farm is privately held property with no public access, access is restricted to Hudson Farm Club members and guests. IAT Reinsurance holds no obligation to inform private individuals who may visit the property about the Bluesource – Hudson Farm Improved Forest Management Project, nor were any stakeholder groups identified and included in the decision-making process except for the Hudson Farm Club. Adjacent landowners will be unaffected by project activity as this represents a conservation-based forest management scenario.

4. *An assessment of the project's environmental risks and impacts, including factors such as climate change mitigation and adaptation, biodiversity, air quality, water quality, soil quality, and ozone quality, as well as the protection, conservation, or restoration of natural habitats such as forests, grasslands, and wetlands. The assessment shall: 1) identify each risk/impact; 2) categorize the risk/impact as positive, negative, or neutral and substantiate the risk category; 3) describe how any negative impacts will be avoided, reduced, mitigated, or compensated; 4) detail how risks and impacts will be monitored, and how often and by whom; and 5) describe how positive impacts contribute to sustainable development goals (optional).*

Impact	Carbon sequestration
Risk Category	Positive
Monitoring Plan (how, how often, by whom)	Forest management activities described in the Forest Management Plans and monitoring for the carbon project is described in Section D2. Monitoring Plan

If negative, describe aversion, reduction, mitigation, or compensation strategy:	n/a

Impact	Habitat protection for wildlife (especially for game birds, deer, black bear, and migratory birds), plant species, and trees in the forested communities.
Risk Category	Positive
Monitoring Plan (how, how often, by whom)	Forest management activities described in the Forest Management Plans and monitoring for the carbon project is described in Section D2. Monitoring Plan.
If negative, describe aversion, reduction, mitigation, or compensation strategy:	n/a

Impact	Water quality protection
Risk Category	Positive
Monitoring Plan (how, how often, by whom)	Forest management activities described in the Forest Management Plans and monitoring for the carbon project is described in Section D2. Monitoring Plan.
If negative, describe aversion, reduction, mitigation, or compensation strategy:	n/a

Impact	Protection from soil erosion and degradation
Risk Category	Positive
Monitoring Plan (how, how often, by whom)	Forest management activities described in the Forest Management Plans and monitoring for the carbon project is described in Section D2. Monitoring Plan.
If negative, describe aversion, reduction, mitigation, or compensation strategy:	n/a

Bluesource – Hudson Farm Improved Forest Management Project has no anticipated negative community or environmental impacts. Annual attestations confirming this assessment will be provided separately for verification purposes.

5. *For community-based projects, an assessment of the project's community risks and impacts, including factors such as land and natural resource tenure, land use and access arrangements, natural resource access (e.g., water, fuelwood), food security, land conflicts, economic development and jobs, cultural heritage, and relocation.*

Bluesource – Hudson Farm Improved Forest Management Project is not a community-based project.

F2. STAKEHOLDER COMMENTS

Describe relevant outcomes from stakeholder consultations and mechanisms for ongoing communication, as applicable.

No formal stakeholder consultation was conducted in advance of the project, nor was any required because Hudson Farm is privately held. If Project Proponent is contacted by any persons regarding the project, Project Proponent will provide references to the publicly available documentation for the project.

G. OWNERSHIP AND TITLE

G1. PROOF OF TITLE

G1.1 Ownership of forestlands

Forestlands included in the project are owned directly by the project proponent, Landowner, which holds full legal titles and thus have long term control of the land. Titles and contracts are available for review by verifier in the “Project Supporting Documents.zip”.

G1.2 Emission reduction rights

Emissions reductions rights are owned by the Project Proponent.

G2. CHAIN OF CUSTODY

No sales or purchasing of offsets was conducted prior to project registration.

G3. PRIOR APPLICATION

The Bluesource – Hudson Farm Improved Forest Management Project has not previously applied or been registered under any GHG emission trading system or program.

H. PROJECT TIMELINE

H1. START DATE

The project "Bluesource – Hudson Farm Improved Forest Management Project" has a project start date of June 30, 2017, the date of the contractual signing agreement between the Project Proponent and the Offset Developer. This start date is appropriate and consistent with the ACR Standard v5.1.

H2. PROJECT TIMELINE

Below is a schedule of the project activities in chronological order for important aspects of the Bluesource – Hudson Farm Improved Forest Management Project.

Project Activity	**Date**	**Source/Notes**
Project Start Date (Initiation of project activities)	June 30, 2017	CDMA contract signing
Frequency of monitoring, reporting and verification		Every 5 years after the first verification
Length of First Crediting period	Through June 29, 2037	20 years
Expected project longevity	N/A	40 years