

Alligator River Avoided Conversion Forest Project
Project Design Document
For Verification under Climate Action Reserve Forest Project Protocol 3.1

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Introduction – Project Description and History

The Project Area (Alligator River) consists of two parcels (separated by a narrow margin of currently farmed land) totaling 2,372 acres, located in the tidewater region of northeastern North Carolina. The entire Project Area resides in the Northern Atlantic Coastal Plain - Swamp Hardwood and Cypress Assessment Area under the Forest Project Protocol 3.1¹ The land was originally ditched and drained for clearing over 40 years ago and was subsequently allowed to naturally regenerate as forest.

Stands consist of mixed-age, native species of pine and bottomland hardwoods. The species mix is not anticipated to change significantly over the course of the project, as no human influence will be permitted in perpetuity under the terms of a permanent conservation easement. Climatic conditions, natural growth and natural selection will also influence the future species mix towards natives.

The land includes a majority of high-carbon wetland soils that would contribute significantly to carbon emissions if cleared/draind. Because the land was previously ditched by former owners, and can now be drained simply by removing flashboard risers from ditches, no regulations would prevent, nor would permits be required, to drain and clear the land for conversion to agriculture.

Table 1 - Project Area Strata Breakdown

Strata	Acres	Percentage
Roads/canals	64	
10-19 yrs cutover	203	8.80%
20-29 AWC cutover	90	3.90%
30-39 cutover slough	35	1.52%
40-49 yrs	997	43.20%
50-69 yrs	<u>983</u>	<u>42.59%</u>
TOTAL	2,372	
TOTAL w/o road/canals	2,308	100.00%

¹Forest Project Protocol 3.1 is referred to as the 'FPP' hereafter.



The geographic location of the Project Area is:

- 35 38' 48.38"N 76 08'08.68"W; 35 37'40.15"N 76 09'29.90"W
- 35 39'04.83"N 76 07'38.59"W; 35 38'15.71"N 76 05'36.62"W

The Project Area is crossed by 64 acres of drainage canals and v-ditches that predominantly run parallel to access roads. In the absence of the Project, these canals would have been drained and the water table lowered for subsequent conversion to agriculture. However, under a permanent conservation easement conveyed to the USDA, no active management of the Project Area will occur, the natural water table will be restored, and the property will be permanently protected for conversion.

The project avoids the release of above-ground carbon, below ground carbon, as well as carbon from fossil fuel combustion due to the heavy equipment used in earth clearing and draining². It will also result in the ongoing sequestration of carbon in future biomass growth. The Project offers additional environmental benefits in the form of wetland conservation and protection of habitat bordering the Alligator River National Wildlife Refuge. Important local species include Pine and Bottom Land Hardwoods.

The Project Area is owned wholly and entirely by Mattamuskeet Ventures I, LLC, a limited liability corporation based in North Carolina engaged in agricultural and recreational land management, hereafter referred to as 'MV1'. MV1 retained Blue Source for all inventory and carbon credit development on the Alligator River Avoided Conversion Project.

Any reference in this PDD to the 'Project Owner' refers to 'Mattamuskeet Ventures I, LLC' (MV1).

Any reference in this PDD to 'Winrock' refers to Winrock International. Winrock is an independent non-profit forest carbon consultant that was engaged to conduct the forest inventory design, fieldwork and analysis, carbon inventory calculations, forest growth modeling, and mapping.

² Emission reductions from avoided fossil fuel usage are not quantified or claimed as CRTs under current CAR protocols.

1. Attestation Forms

A copy of the signed Regulatory Attestation Form, and Voluntary Attestation Form, will be supplied prior to the conclusion of verification and uploaded to the Climate Action Reserve.

2. Start Date Explanation

The project Start Date coincides with the transfer of a permanent conservation easement on May 14, 2010.

3. Project Implementation Agreement

A copy of the signed Project Implementation Agreement will be provided at the conclusion of verification.

4. Attestation of Title Form

A copy of the signed Attestation of Title Form will be supplied prior to the conclusion of verification and uploaded to the Climate Action Reserve.

5. Broadcast Fertilization Declaration

The project has not employed broadcast fertilization within the Project Area, and will not do so going forward.

6. Public Lands – Approvals Required

N/A - The project is not situated on public land.

7. Tribal Lands – Demonstration of Ownership

N/A - The forest project is not located in tribal areas.

8. Sustainable Harvest Plans

N/A - No timber harvesting is currently occurring, planned, or permitted by the terms of the conservation easement.

9. Natural Forest Management

The conservation easement requires natural growth of mixed age groups in the over-story and understory of the property and maintaining healthy soils. All carbon pools will continue to sequester carbon whilst avoiding carbon emissions from biomass clearing and soil degradation, which would have occurred if the Project Area was converted to agricultural use.

The Project Area initially meets the protocol's requirements for the maintenance of native trees species and natural forest management according to table 3.2 of the FPP, described in Table 2, below.³

The Project Area resides within the Super Section Northern Atlantic Coastal Plain, and within the Assessment Area Northern Atlantic Coastal Plain Swamp Hardwood and Cypress.

9.1 Native Species – Names and Distribution

Species names are presented in Table 2 below, along with the basal area, and the number of trees of each species (the total is the total number of measured trees and their basal area).⁴

Table 2 - Species Names

Species	Basal Area	Percent	# of Trees	Percent
red maple	132.4	19%	445.0	19%
Bay	180.5	26%	978.0	42%
Pine	79.3	11%	135.0	6%
Magnolia	12.3	2%	96.0	4%
Sweetgum	4.7	1%	16.0	1%
Blackgum	168.8	24%	504.0	22%
Baldcypress	83.3	12%	56.0	2%
Cedar	5.6	1%	79.0	3%
live oak	0.8	0%	1.0	0%

³ Criteria from Table 3.2 of the CAR protocol

⁴ The basal area is that of the trees measured, and is not calculated on a per unit area basis.

Total	699.9	100%	2310.0	100%
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All species are native to the Project Area and consistent with natural forest types indigenous to eastern Northern Carolina.

The entire project is in a single Assessment Area since its associated dominant species are found across the Project Area.

Table 3 - Natural Forest Land Management

Criteria (From FPP Table 3.1)	Project Characteristics
Native Species: at least 95% based on the sum of carbon in the standing live pool	Inventory data shows species of the Project Area are compatible with the natural forest of the region and are 100% native. Predominant species are Pine and Bottom Land Hardwoods. Bay is most prevalent at <30%.
Composition of Native Species: no single species exceeds 60% prevalence.	According to inventory data, no single species exceeds 30%.
Distribution of Age Classes: no more than 40% of forest aged <20 years.	At the time of the inventory the 10 -19 year age strata classes accounted for 203 acres, or approximately 9% of the total project acreage. Since no harvesting will occur under the easement, it is anticipated that this distribution will be maintained over time.
Structural elements: Standing dead wood must maintain an average of at least 1 tC/acre).	Standing dead represents 1.65 mtC/ac, or 3 % of total standing live carbon stocks. The natural forest land management requirements for structural elements are met, both for standing dead wood composition per acre and also as a percentage of total standing live carbon stock.

9.2 Management Activities

Under the terms of the conservation easement, the Owner must allow the area to continue regenerating without interference, which will promote and maintain a diversity of native species and forests comprised of multiple ages and mixed native species at multiple landscape scales.

Any further management of the Project Area will adhere to guidance of the easement, including ‘any

activities to restore, manage, maintain, protect, enhance, and monitor the wetland and other natural values of the easement area.'

Activities that are prohibited include (but are not limited to): 'hay, mowing, or seed harvesting, altering of grassland, woodland, wildlife habitat or other natural features by burning, digging, plowing, disking, cutting or otherwise destroying the vegetation cover; harvesting wood products; draining, dredging, channeling, filling, leveling, pumping, diking, impounding, or related activities, as well as altering or tampering with water control structures or devices; diverting or causing or permitting the diversion of surface or underground water into, within, or out of the easement area by any means; building or placing buildings or structures on the easement area; planting or harvesting any crop; grazing or allowing livestock on the easement area; and disturbing or interfering with the nesting or brood-rearing activities of migratory birds.'

10. Project Area Maps

The Project Area is 2,372 acres under a single easement covering two parcels of 2,100.18 acres, and 271.90 acres respectively.

10.1 Maps

10.1.1 Project Area Map

The Project Area Map (see Figure 1) displays:

- Easting's and Northing's of Easement Boundaries
- Easement Acreages
- Project Boundary (red)
- Canal and Road locations (green)
- Plot number of each biomass plots



Figure 1 - Project Area Map

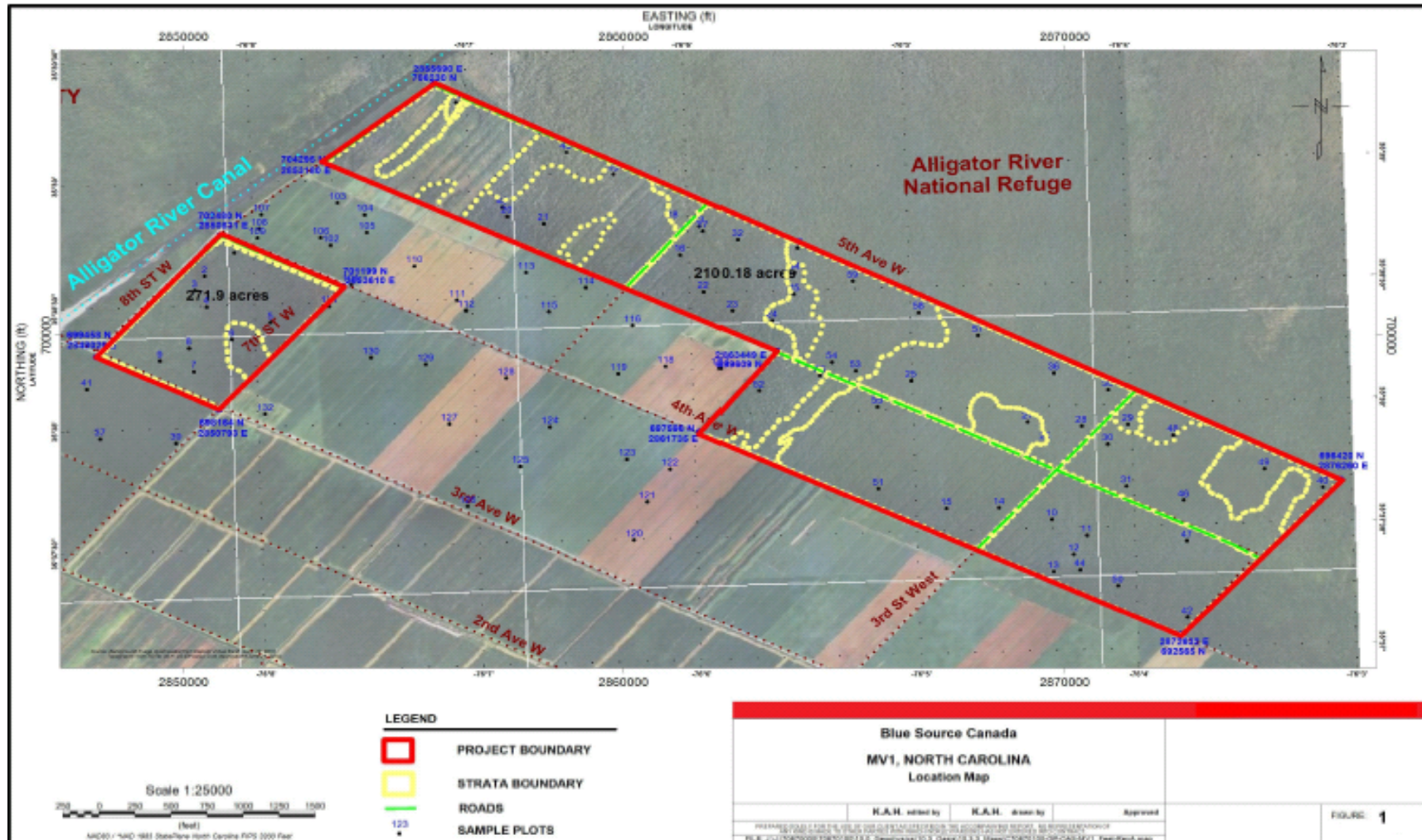


Figure 2 - Project Biomass Plot Locations



A map is not required for the following project area elements:

- a. Existing land cover and land use
The Project Area includes 2,372 acres (including roads and canals) that was originally ditched and drained for clearing. For the last ~40 years, the land was allowed to regenerate native forest stands consisting of mixed pine and bottomland hardwoods.
- b. Forest vegetation types
Bottomland hardwoods and pine
- c. Site classes
High - The site class is high based on CAR's appendix F, which indicates a basal area of 121 square feet per acre for high site Northern Atlantic Coastal Plain Swamp Hardwood and Cypress. The average basal area across all of the plots is 141 square feet per acre.
- d. Land pressures and climate zone/classification
The predominant land pressure is conversion to agriculture. The Project Area is surrounded by crop producing agricultural lands including soy, wheat and corn production. The Project Area is a bottomland hardwoods and pine forest, which lies

entirely in the Northern Atlantic Coastal Plain - Swamp Hardwood and Cypress land Assessment Area. The climate zone is Zone 7.

10.2 Shape files

Shape files have been provided covering the following features. The Project Area shape file overlays the strata shape files, and sample plots shape file to definitively 'map' which plots are eligible for future re-sampling efforts.

- o All plot locations – These have been provided as .shp file including all biomass plot locations
- o Project Area boundaries
- o Strata – include all strata described in Table 1.
- o Digital elevation model – there is no DEM for this site as it is within 30 m of sea level. See Project Area map in Figure 1 for topographical contours within the Project Area.

11. Inventory Methodology

During the weeks of May 11, and June 8, 2009, Winrock International sent a team of foresters to Hyde County, NC to conduct a baseline forest biomass/carbon inventory of the Project Area. Carbon pools measured for baseline and project calculations in the forest area included above ground biomass, standing dead wood, and lying dead wood. Winrock's objective was to deliver inventories of sufficient rigor to meet the requirements of the Climate Action Reserve (CAR), Appendix A, defining carbon pool measurement requirements.

The design of this inventory was to employ a sampling and plot design that: a) followed common carbon inventory plot measurement protocols; b) could easily be replicated by foresters and forest technicians in the future; c) captured the majority of the biomass or carbon without unnecessary cost; and d) provided a conservative estimate of the baseline carbon stocks and carbon stock change. Conservativeness was achieved by following CAR's inventory guidance, which we understand is intended to be a conservative approach in all cases. Moreover, the optional carbon pools 'litter and duff', 'shrubs and herbaceous understory', as well as trees with diameter at breast height ("DBH" measured at 1.3m) less than 5 cm, were conservatively excluded, further reducing the calculation of avoided carbon losses in the baseline scenario.

11.1 Stratification Rules and Processes

GIS mapping was conducted on the entire 2,372-acre (including 64 acres roads and canals) MV 1 Project Area, as defined by the area under conservation easement. This ensured full coverage of all 2,308 acre forested acres. The GIS mapping consisted of producing shape files of the polygons outlining the Project Area. These polygons were then further stratified into the different land uses or forest stands that lie within the Project Area polygons. The GIS effort required the acquisition and downloading of USGS topographic base mapping and National Agriculture Imagery Program (NAIP) aerial imagery and USDA

NRCS spatial and tabular soils datasets from the USDA Geospatial Data Gateway web site, <http://datagateway.nrcs.usda.gov/GatewayHome.html>.

Winrock's objective was to deliver inventories of sufficient rigor to meet the biomass inventory requirements of the Climate Action Reserve (CAR) FPP version 3.1 (specifically Appendix A), which requires a minimum estimate of the mean biomass at 20% at the 90% confidence interval.

Following the digitization (as described above) of the polygons for the strata targeted for measurement plot locations, random points were distributed geospatially through the use of Hawth's Tools random point generation extension for ArcGIS 9.3.1. For each selected sampling plot; the strata shape files, the random points shapefile (coordinates) created by Hawth's tools, and clips of the topo base map and NAIP aerial imagery were put into an ArcPad 7.0.1 project. The ArcPad project was downloaded to a Trimble GEO Explorer XM GPS unit and the plot was located by navigating with the Trimble GPS unit, or another similar hand held GPS receiver.

At the end of sampling, a total of 61 permanent biomass plots were established across the Project Area (see Figure 2 above for map of plot locations).

11.1.2 Sample plot distribution

Table 4 - Strata Information

Strata description	Acreage	Description	Number of samples	Percentage Error
10-19 years old forest	203 acres	Recently cutover forest, re-grown	3	48.31 % of mean at 90 % C.I.
20-29 years old forest	90 acres	Cutover and re-grown	3	25.62 % of mean at 90 % C.I.
30-39 years old forest	35 acres	Slough areas, and selectively harvested	3	56 % of mean at 90 % C.I.
40-49 year old forest	997 acres	Naturally regenerated forest	26	7.8 % of mean at 90 % C.I.
50-69 year old forest	983 acres	Naturally regenerated forest	26	9.17 % of mean at 90 % C.I.
Total forested acres in 2,372 acre Project Area ⁵	2,308 acres			

⁵ The 180 acres that was cleared in August 2008 referenced in Section 6 is not included in the Project Area.

The basis of the land use stratification was; 1) on site observations from the actual inventory, 2) increment cores taken in the forest stands during the inventory; 3) aerial imagery analysis; and 4) historical information provided by the Project Owner.

11.2 Sampling Process

The measurement protocols followed are outlined in “Terrestrial Carbon Measurement Standard Operating Procedures,” 2008 Version by Winrock International. A site-specific methodology document has also been created for future site visits and plot replication.

11.2.1 Plot Selection & Monumenting

The plot size was a 10 meter radius plot, which assured that at least 8-10 trees would be included in each plot (as per the Winrock Standard Operating Procedures Manual). Plot radius was controlled through the use of a Haglof Forester 201 Electronic Distance Measuring (DME) instrument to quickly and accurately define the plot radius boundary through thick undergrowth (Fig. 3).

The GPS location of the plot was recorded by the Trimble GPS unit and later uploaded to an ArcMap Project. The coordinates of the plot center were recorded for future use (on the plot sheet and in the biomass plot attribute database). A five-foot section of 1” white pvc pipe was placed in the ground at the plot center to permanently mark the plot location (Fig. 3).

Figure 3 - Recording plot coordinates/data; and DME instrument and pvc pipe at plot center



11.2.2 Frequency of sampling

The plot data used for deriving the estimates for verification were sampled within the 12 months prior to verification. The plots will be re-inventoried within 12 years.

11.2.3 Data Gathering Procedures and Parameters

The following describes the measurement protocols and procedures for data acquired from all carbon pools measured at the plot level (61 biomass plots), including live biomass, standing dead (Class I & II) and lying dead biomass.

The following data was collected at the plot level for each pool:

- Live Biomass (DBH>5cm): DBH
- Standing Dead Class I (DBH>5cm): DBH
- Standing Dead Class II (DBH>5cm): basal diameter, DBH, top diameter, height
- Lying dead (diameter at transect >10cm): diameter, density class.

11.2.3.1 Live Biomass - Measurement protocols

The data parameters for the living tree carbon pool are as follows:

- Diameter at breast height for all trees greater than 5 cm, at 1.3 meters above the base of the tree (as described below).

The above ground biomass was measured for all trees 5.0 centimeters DBH and larger by taking a measurement of the diameter at breast height (1.3 meters above the base of the tree) for each tree, and recording it on the tally sheet in the following manner (see Fig. 4):

- Measure DBH on the *upslope* side of the tree.
- Measure DBH parallel with the tree, *not* perpendicular to the ground; if the tree is leaning, measure 1.3 m from the upslope side of the lean, parallel with the angle of the tree.
- Trees are considered alive if there are *any* green leaves present.

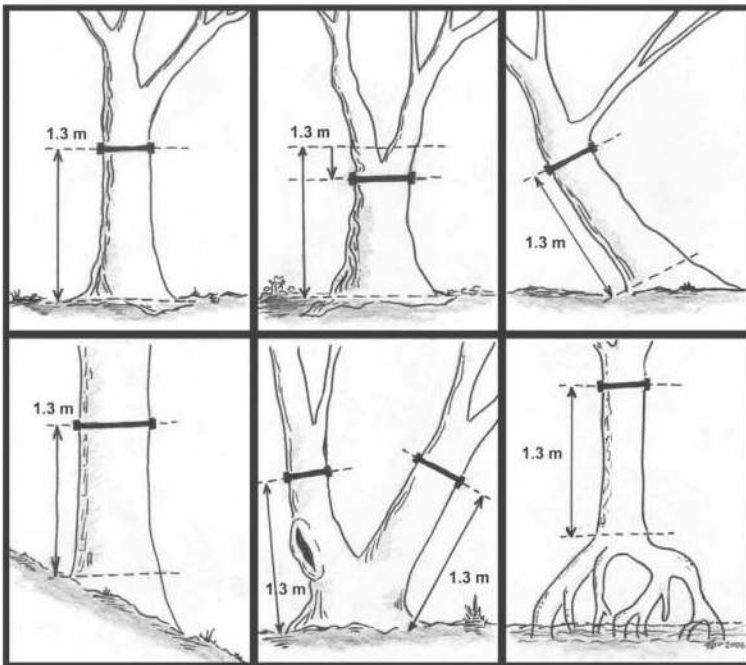
There are some special cases that require slight alterations to the standard methodology.

- If a tree has an exposed root ball, the base is at the top of the root ball, and diameter is measured at 1.3 meters above this point.
- If the tree has an irregularity at 1.3 meters above the base, diameter is measured above the irregularity.
- A buttress is considered an irregularity; therefore, a tree with a buttress is measured at DBH, 1.3 meters above the base, unless the buttress extends past 1.3 meters. If this is the case, diameter is measured above the buttress.

- If a tree splits at 1.3 meters above the base, diameter is measured below the split.
- Live fallen trees are measured 1.3 meters from the base of the tree. Branches growing vertically from the tree are only measured for species that root-sprout, in which case they are subject to the size definitions for the plot.
- If a tree is on the plot boundary, it is considered in the plot if its center is within the plot. In other words, if half of a tree is within the plot, it is an 'in' tree; if less than half of the tree is within the plot, it is an 'out' tree.

For all trees less than 5.0 cm DBH, no measurement was taken. All plots were taken in bottomland conditions where slope was not an issue so an adjustment for slope was not warranted.

Figure 4 - Live Standing Biomass Measurement Locations⁶



11.2.3.2 Standing Dead Biomass

Within all Project Area plots, standing dead trees were measured and classified as per Winrock's SOP cited above. For standing dead trees there are two classes: Class I: Tree with branches and twigs and resembles a live tree (except for leaves); and Class II: Trees ranging from those containing small and large branches to those with bole only. By classifying trees into these two simplified classes, a conservative estimate of biomass was taken.

⁶ Walker, SM, Pearson, TRH, Harris, N, Petrova, S., Grimland, S., and Brown, S. 2010. Terrestrial Carbon Measurement Standard Operating Procedures. Winrock International.

The data parameters for the standing dead tree carbon pool are as follows;

Class I: Tree with branches and twigs and resembles a live tree (except for leaves) (see Fig. 5).

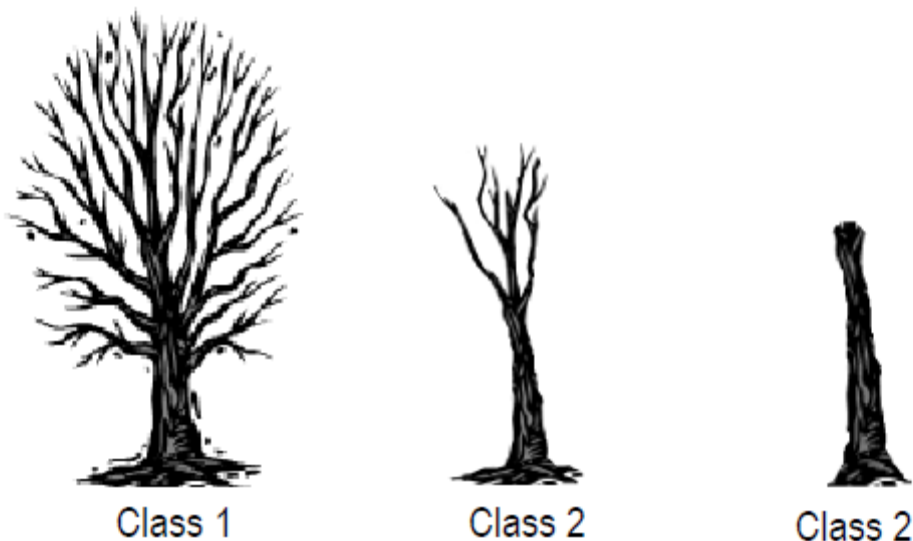
- diameter at breast height (of trees with a DBH over 5 cm (2")) at 1.3 meters above the base of the tree)
- species group

Class II: Trees ranging from those containing small and large branches to those with bole only (see Fig 5)

- diameter at base of the tree (recorded manually in cm)
- diameter at breast height (recorded manually, of trees with a DBH over 5 cm (2"))
- top diameter (ocularly estimated in cm)
- height (no minimum, recorded in meters)

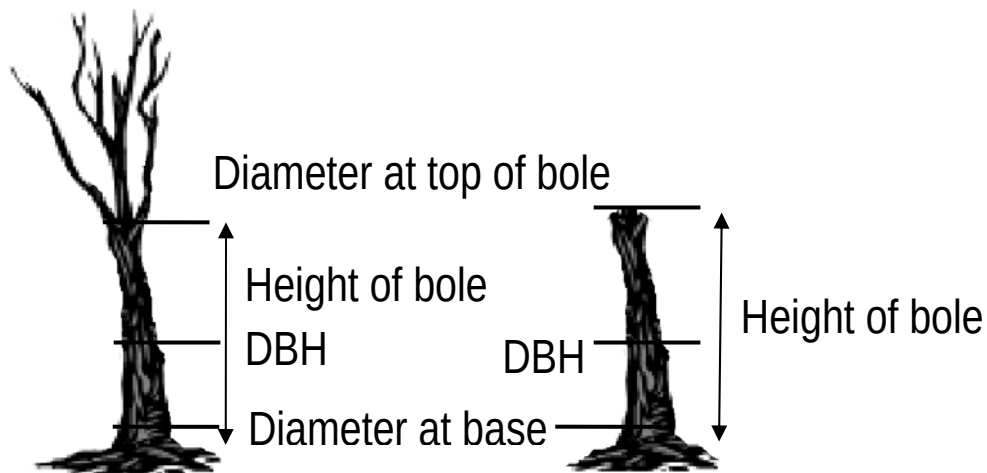
Only diameter at breast height (with a DBH over 5 cm) and species group was measured for Class I trees. For Class II trees; diameter at the base of the tree and at breast height was measured manually. The diameter at the top of the bole was measured in the manner described below; and the height of the bole was measured with a Laser Pro. Standing deadwood height was not collected for Class I trees. The average density for sound wood was used in the calculation of carbon stocks.

Figure 5 - Example of trees in Class I and Class II⁷



⁷ Walker, SM, Pearson, TRH, Harris, N, Petrova, S., Grimland, S. , and Brown, S. 2010. Terrestrial Carbon Measurement Standard Operating Procedures. Winrock International.

Figure 6 – Measurements Taken on Class II Standing Dead Trees⁸



For class II standing dead trees, top diameter (cm) was estimated ocularly with experienced members of the field crew estimating the top diameter visually.

Standing Deadwood Inventory Confirmation

The Standing Deadwood Inventory Confirmation activity was undertaken as a response to a discovered deviation to the Standard, which requires that "the minimum top height of standing dead trees is 15' " (Table A.2).

The following approach was taken to confirm that the minimum height requirement was met. It will not be required in future inventories as the height of all standing dead trees sampled will be measured directly.

1. Search for Class I standing deadwood trees with DBH over 5" and select first 11 identified.⁹
2. Determine height of top branch using a compass with protractor to measure apparent angle to top branch, and tape measure to determine distance to base of tree.
3. Determine percentage of standing deadwood with DBH >5" that has height >15'.

⁸ Walker, SM, Pearson, TRH, Harris, N, Petrova, S., Grimland, S. , and Brown, S. 2010. Terrestrial Carbon Measurement Standard Operating Procedures. Winrock International.

⁹ At the time of inventory confirmation, insufficient trees below 5" DBH could be located to confirm the minimum allowable height of 15'. Therefore to be conservative, the two tree measurements within the Class 1 standing dead inventory that fell below the 5" threshold were removed from the inventory.

4. Since all Class I standing deadwood with DBH >5" had height >15', no adjustments to the original standing deadwood inventory was required.

Going forward standing dead trees with a minimum height of 15', and minimum diameter of 5" (standing Class I trees) will be measured and their height, DBH and top diameter (Class II trees only) will be recorded, according to the requirements of the FPP 3.1.

11.2.3.3 Lying Dead Biomass

The data parameters for the original lying dead tree carbon pool inventory are as follows:

- diameter only (minimum diameter of 10 cm (4"))
- Deadwood Density Class: sound, intermediate or rotten

Lying dead wood was measured using the line-intersect method outlined in Harmon and Sexton (1996) and the Winrock SOP.

Measurement of lying coarse dead wood found along one 50 meter transect originating at plot center was conducted. Fifty meter lying deadwood transects are far greater than recommended by other common methodologies. The Forest Inventory Analysis Program recommends 3 transects of 24 feet for coarse woody debris, totaling 72 feet or 22 meters per plot (Woodall and Monleon, 2008)¹⁰. Brown (1974)¹¹ suggests transect lengths of 35 to 50 feet for down woody debris greater than 3 inches in diameter¹².

The transect bearing for measurement of lying deadwood is determined by walking in a pre-determined direction (north, unless there is an impassable obstacle (see definition below) to the north, in which case another cardinal direction should be chosen)¹³. Along the length of the line, the diameter of each intersecting piece of coarse dead wood was taken with a diameter tape. Each piece was assigned one of three density states: sound, intermediate, or rotten. As per the Winrock SOP, a machete was used to determine what density class should be assigned to each piece of dead wood measured. The volume of lying dead wood and then carbon stocks were then estimated using the diameters of each piece of wood and the length of the line transect.

¹⁰ Woodall, C.W. and V.J. Monleon. 2008. Sampling Protocol, Estimation, and Analysis Procedures for the Down Woody Materials Indicator of the FIA Program. Gen. Tech. Rep. NRS-22. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northern Research Station.

¹¹ Brown, J.K. 1974 Handbook for inventorying downed woody material. Gen. Tech. Rep. INT-16. Ogden, UT: U.S. Department of Agriculture, Forest Service, Intermountain Forest and Range Experiment Station.

¹² Shorter transects lead to increased variability between transects, and higher uncertainty. Any uncertainty that resulted from taking a 50-meter transect (as opposed to a longer transect) is accounted for in the calculation of sampling error for the project, and the appropriate deduction is taken from the project carbon stocks.

¹³ In the initial inventory, the actual transect direction was not recorded; this should be done in future inventories.

An impassable obstacle is defined as a severe hazard that would restrict or inhibit a northern direction of movement. If an impassable obstacle (for example a cliff) is met, then another cardinal direction should be chosen at random. This can be determined based on whichever cardinal direction is closest to the bearing found by;

- i. Select random number using second hand on watch
- ii. Multiple this number by six
- iii. Use this number as your compass point

If this bearing is equidistant from two cardinal directions, generate a new random bearing.

Lying coarse dead wood is defined in FPP 3.1 as all woody material on the ground with a minimum diameter of 5" and a minimum length of 8'. Length was not measured in the original Alligator River inventory and this is a deviation from the CAR FPP 3.1, as a result, guidance was sought both verbally and via email correspondence to CAR in September 2010. As a result of the following guidance from CAR, an inventory confirmation was carried out. See lying dead wood confirmation section below;

'FPPv3.1 is explicit in the definition of lying dead wood, Table A.2, Minimum required sampling criteria for estimated pools on page 82, states: "Lying dead wood is all dead tree material with a minimum average diameter of 5" and a minimum length of 8'. Anything not meeting the measurement criteria for lying dead wood will be considered litter."

Lying dead wood is an optional pool in FPPv3.1. If a Forest Owner opts to include the pool it must adhere to the definition in the protocol. Smaller dimensions are considered part of the litter pool.'¹⁴

Going forward all lying dead wood measurements will be taken according to CAR FPP 3.1, and any adjustment to the inventory methodology from the baseline measurements will require a detailed analysis of any change in estimates of this pool to adjust the baseline for any fluctuations associated with the change in methodology.

Lying Dead wood Confirmation

In the original field inventory, length was not measured, and this is a deviation from the CAR FPP 3.1 standard which requires that "Lying coarse dead wood is defined as all woody material on the ground with a minimum diameter of 5" and a minimum length of 8'". As a response to this discovered deviation Deadwood Inventory Confirmation activity was undertaken.

Subsequent to further verbal guidance received from CAR, delivered in conference call by Director of Forestry, John Nickerson, on or about the 8th of September 2010, the following approach (confirmation)

¹⁴ From PDF entitled '2010-13-Guidance-Letter-CAR479.pdf'; Date 13/9/2010; Author John Nickerson, Director of Forestry

was used to adjust the lying deadwood inventory by excluding lying deadwood less than 8' in length as required by FPP. It will not be necessary in future inventories, as the length of all lying deadwood sampled will be measured directly:

1. Select 6 random points (approximately 10% of total plots sampled in the Project Area) in the 40-49 and 50-59 year old strata.
2. Measure a 50' transect along a randomly generated bearing.
3. Measure the diameter at the point of transect with a DBH tape measure, and the continuous length with a standard tape measure of any lying deadwood with a diameter exceeding 5" that meets the criteria for lying deadwood (i.e. more than 50% of the log is aboveground and the sampling line crosses through at least 50% of the diameter of the piece).
4. Determine the percentage of lying deadwood with diameter >5" that has length >8'.
5. Discount the lying dead carbon inventory by this percentage [9.1%].

Lying dead wood will be considered as any piece(s) of dead woody material from a tree, e.g. dead boles, limbs, and large root masses, on the ground in forest stands. Lying dead wood is all dead tree material with a minimum average diameter of 5" and a minimum length of 8'. Anything not meeting the measurement criteria for lying dead wood will be considered litter. Stumps are not considered lying dead wood.

Volume of Lying Deadwood

Volume of Lying Dead Wood was calculated using EQUATION 4.3.2¹⁵

$$\text{Volume (m}^3/\text{ha)} = \pi^2 * ((d_1^2 + d_2^2 \dots d_n^2) / 8L$$

Where d_1, d_2 , etc = diameters of intersecting pieces of deadwood in cm¹⁶, and L = length of the line in m.

Note: The round equivalent of an elliptically shaped log is computed as the square root of ($D_{\text{minimum}} \cdot D_{\text{maximum}}$) for that log.

Determination of dead wood density

During the field sampling effort, multiple samples of lying dead wood were collected to be sent to the laboratory for determination of the dead wood density for each of the three density classes. Winrock's Standard Operating Procedures (SOPs) states: "Assign each piece to one of three density states: sound, intermediate, or rotten. To determine what density class a piece of dead wood fits into, each piece will

¹⁵ See http://www.ipcc-nggip.iges.or.jp/public/gpplulucf/gpplulucf_files/Chp4/Chp4_3_Projects.pdf, equation 4.3.2.

¹⁶ Units for diameter are incorrectly stated as meters in Harmon and Sexton (1996).

be struck with a machete. If the machete does not sink into the piece (bounces off), classify it as sound. If the machete sinks partly into the piece, and there has been some wood loss, classify it as intermediate. If the machete sticks into the piece, if there is more extensive wood loss, and the piece is crumbly, classify as rotten. Record on data sheet.”

The samples included multiple species and all three density classes. Disks were cut from the samples and sent to the lab to determine the ration between oven dry weight and green weight. The mean the densities for each density class to create an average density for sound, intermediate and rotten samples. The density is calculated using the following formula:

$$\text{Density} = \text{mass (g)} / \text{volume (cm}^3\text{)}$$

Where: mass = the weight of the oven dried sample and

$$\text{volume} = \pi * (\text{average diameter}/2)^2 * \text{average width of sample}$$

11.3 Data Management and Analytical Systems

Inventory data is managed and analyzed via spreadsheets and the FVS growth model.

11.4 Inventory Monitoring Plan

11.4.1 Annual Updates and Adjustments for Growth

Each year, the inventory will be updated via the following process:

1. Incorporating any new forest inventory data obtained during the previous year. New inventory data will be sampled every 12 years or as required by FPP 3.1.
2. Modeling growth since the last inventory to determine current inventory levels using FVS.
3. Updating the forest inventory data for disturbances that have occurred during the previous year.

The Project Owner will submit annual monitoring reports and 6-year site inventory audits and verification by a third-party verifier for 100 years following CRT issuance. Annual monitoring reports will contain an update of the inventory and any significant disturbances that occur.

11.4.2 Adjustments for Disturbances

Any disturbances that have impacted more that 1% of the project carbon that have occurred within the previous year that become known to the Project Owner will be reported to the verifier at the time of next verification and incorporated into monitoring reports.

See Section 9.2 for management practices.

11.5 Methods for Quality Control

Quality Control was maintained according to Winrock standard operating procedures for data input and manipulation and review process, these standard operating procedures are documented in detail in their Terrestrial Carbon Measurements Standard Operating Procedures document¹⁷. The following operating procedures were used in the Alligator River Project:

Collecting reliable field measurements is an important step in the quality assurance plan. Those responsible for the carbon measurement work should be fully trained in all aspects of the field data collection and data analyses to ensure accurate measurement and re-measurement. Field crews should receive extensive training and should be fully cognizant of all procedures and the importance of collecting data as accurately as possible.

In addition, an audit program for field measurements and sampling should be established. The lead investigator or lead field crew coordinator should observe field crew members during data collection of a field plot to verify measurement processes. This permits the correction of errors in techniques and any errors or misunderstandings to be explained and corrected. This quality assurance check is repeated throughout the field measurement campaign to make sure incorrect measurement techniques have not started to take place.

To produce reliable carbon estimates the proper entry of data into the data analyses spreadsheets is required. It is important that steps are taken to ensure that errors are minimized.

1. Common sense should be used when reviewing the results of the data analysis to make sure that they fit within the range of expected values.
2. All data sheets should include a 'Data recorded by' field. If any confusion exists, the transcribers will know which crew member to discuss things with.
3. Communication between all personnel involved in measuring and analyzing data should be used to resolve any apparent anomalies before final analysis of the monitoring data can be completed.
4. If there are any problems with the monitoring plot data (that cannot be resolved), the plot should not be used in the analysis.
5. Errors can be reduced if the entered data is reviewed using expert judgment and, if necessary, through comparison with independent data.

12. Subset of Plot Data and Carbon Stock Measurement

For verification purposes, Blue Source provides to the verifier subset of plot data and carbon stock measurements selected by the verifier including above ground biomass (standing living, standing dead,

¹⁷ Walker, SM, Pearson, TRH, Harris, N, Petrova, S., Grimland, S. , and Brown, S. 2010. Terrestrial Carbon Measurement Standard Operating Procedures. Winrock International.

lying dead), and below ground biomass (calculated).

13. Calculation Methodologies (For determining Tonnes/Ha for each pool)

Biomass and carbon calculations from initial inventory have been provided to the verifier.

13.1 Live Biomass Calculation Methodologies

Aboveground live biomass was calculated using Jenkins (2004), table 3¹⁸ equations, shown for each stratum separately in tabs “10-19abg,” “20-29abg,” “30-39abg,” “40-49abg,” and “50-69abg.” in the spreadsheet supplied separately to the PDD as a supporting document.

In the full database of equations gathered by Jenkins et al. we selected for all equations with Component ID 2. Component ID 2 is “Whole tree (aboveground)”

From the list of equations with component ID 2 we selected those covering the relevant species for the Project Area. This smaller list included:

- Eastern conifers
- Loblolly pine
- Red maple
- Sweet gum
- Blackgum
- Oaks
- Hardwood (general)

This is the list of equations provided to verifier.

The list was further refined by excluding certain equations based on specific equations listed and on the notes. The equations excluded are highlighted on the sheet “Relevant Equations”.

The list was further refined based on specific equations listed and on the notes. The equations excluded are highlighted on the sheet “Relevant Equations”.

Reasons for exclusion at this stage include:

- Equations developed for mountain sites (Project Area is low elevation) – 8 equations
- Equations developed from diameter at root collar (not measured in the field) – 1 equation
- Equation for oak-hickory forest (not relevant) – 1 equation

¹⁸ Jenkins, J.C.; D.C. Chojnacky; L.S. Heath; R.A. Birdsey. 2004. Comprehensive Database of Diameter-based Biomass Regressions for North American Tree Species. Gen. Tech. Rep. NE-319. Newtown Square, PA: U.S. Department of Agriculture, Forest Service, Northeastern Research Station.

- Not relevant oak species – 15 equations

General hardwood equations were selected for bay, oak, and sweetgum (2 equations). A species specific equation for black gum (1 equation), loblolly pine¹⁹ (2 equations), red maple (7 equations), and an eastern conifer equation was applied for bald cypress and cedar²⁰.

For each of the equations corrections were included to ensure input could be diameter in cm and output is kg.

These general equations were then reduced further to be relevant to the Project Area and are applied on tab “Final Biomass Calcs_Applied and Edited” of the supporting spreadsheet supplied separately to the PDD for verification purposes. Each equation was applied to diameters at 5 cm increments from 5 cm to 100 cm. Where nonsensical biomass values were returned the equations were excluded (excluded equations are highlighted in yellow). Final biomass equations remaining and applied include one equation for magnolia, bay, oak, and sweetgum²¹; one equation for black gum²²; one equation for pine²³; six equations for red maple²⁴ and the eastern conifer equation mentioned above for bald cypress and cedar.

¹⁹ The loblolly pine equation was used for both loblolly and pond pines, as there are no species specific equations for pond pine and the loblolly equation is more conservative than the general softwood equation.

²⁰ Equation Source ID; **140 (applied to Bald Cypress/Cedar)** – Equation reference; Schroeder, P.; Brown, S.; Mo, J.; Birdsey, R.; Cieszewski, C. 1997. Biomass estimation for temperate broadleaf forests of the United States using inventory data. Forest Science. 43: 424-434. See Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319.

²¹ Equation Source ID; **140 (Applied to Magnolia/Bay/Oak/Sweet gum)** - Equation reference; Schroeder, P.; Brown, S.; Mo, J.; Birdsey, R.; Cieszewski, C. 1997. Biomass estimation for temperate broadleaf forests of the United States using inventory data. Forest Science. 43: 424-434. See Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319.

²² Equation Source ID; **176 (Applied to Black Gum)**- Equation reference; Williams, R. A.; McClenahan, J. R. 1984. Biomass prediction equations for seedlings, sprouts, and saplings of ten central hardwood species. Forest Science. 30: 523-527. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319.

²³ Equation Source ID; **110 (Applied to Pine)** Equation reference; Naidu, S.; DeLucia, E.; Thomas, R. 1998. Contrasting patterns of biomass allocation in dominant and suppressed loblolly pine. Canadian Journal of Forest Research. 28: 1116-1124. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319.

²⁴ Equation Source ID; **41 (applied to red maple)** - Equation reference; Crow, T. 1976. Biomass and production regressions for trees and woody shrubs common to the Enterprise Forest. In: Zavitskovski, J. ed. The Enterprise radiation forest: Radioecological studies. Rep. TID-26113-P2. Washington, DC: U.S. Energy Research and Development Administration: 63-67. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319. Equation Source ID; **42 (applied to red Maple)** – Equation reference; Crow, T. 1983. Comparing biomass regressions by site and stand age for red maple. Canadian Journal of Forest Research. 13: 283-288. See- Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319. Equation Source ID; **52 (Applied to Red Maple)** – Equation reference; Freedman, B.; Duinker, P.; Barclay, H.; Morash, R.; Prager, U. 1982. Forest biomass and nutrient studies in central Nova Scotia. Inf. Rep. M-X-134. Fredericton, Nova

For the verification plot, the relevant equations were applied to each indicated species or group of species. The biomass value used in all cases was the average of the biomass returned from each of the applicable equations.

The Jenkins equations were approved for use on the Alligator River Project by CAR after guidance was sought both verbally and via email correspondence in September 2010, the following guidance was provided:²⁵

“The use of the Forest Vegetation Simulator and the Jenkins Biomass Equations are acceptable to the Reserve. The Forest Vegetation Simulator is an approved model for the purposes of projecting inventory data (see Appendix B of Forest Project Protocol Version 3.2 [FPPv3.2]). The intent of the protocol is that growth models project diameter and height data in such a way that the data can be input into approved biomass equations provided by the Reserve. It is acknowledged that current guidance is not clear regarding the use of approved biomass equations. The protocol infers both height and diameters are required and infers the equations are found in Appendix A. Examples of this includes Section A.3 of FPPv3.1, under subheading, “Allometric Equations and Biomass/Carbon Mass Estimates” which states:

“The equations in this appendix should be used for biomass and carbon mass estimations using the bole diameter and total height for live trees and sound standing dead trees.” The approved equations no longer are found in Appendix A; they have been moved to the Forest Project Protocol Resources page of the Reserve’s website, here:

<http://www.climateactionreserve.org/how/protocols/adopted/forest/resources/#biomass-equations>.

This is a clarification the Reserve will make to the protocol. Appendix A, Developing an Inventory of Forest Project Carbon Stocks, has references that indicate biomass equations could be used that include diameter alone. Table A.2, makes a reference to diameters alone as being the minimum sampling criteria for standing live trees and Step 2, Estimating Carbon in Live Trees from Sample Plots, refers to a non-existent comprehensive list of biomass equations contained in Section 12. The documentation in

Scotia: Canadian Forestry Service, Maritimes Forest Research Centre. See- Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319. Equation Source ID; **82 (Applied to Red Maple)** – Equation reference; Ker, M. 1980b. Tree biomass equations for ten major species in Cumberland County, Nova Scotia. Inf. Rep. M-X-108. Fredericton, NS: Canadian Forestry Service, Maritime Forest Research Center. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319. Equation Source ID; **114 (Applied to Red Maple)** – Equation reference; Pastor, J.; Aber, J. D.; Melillo, J. M. 1984. Biomass prediction using generalized allometric regressions for some northeast tree species. Forest Ecology and Management. 7: 265-274. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319. Equation Source ID; **176 (Applied to Red Maple)** – Equation reference; Williams, R. A.; McClenahan, J. R. 1984. Biomass prediction equations for seedlings, sprouts, and saplings of ten central hardwood species. Forest Science. 30: 523-527. See - Jenkins et al. 2004. USDA Forest Service, Northeastern Research Station. GTR-NE-319.

²⁵ From PDF entitled ‘2010-13-Guidance-Letter-CAR479.pdf, date: 13/9/2010, author: John Nickerson Director of Forestry, CAR.

Step 2 provides evidence that volume and height are to be included in the biomass equations but due to lack of clarity and ambiguity in requirements the Jenkins biomass equations using diameter alone will be accepted for this project. In summary, the equations used in the Forest Vegetation Simulator (FVS) should be consistent with the initial inventory reports (if FVS wasn't used to generate the initial inventory) and should be either the approved biomass equations provided by the Reserve or the Jenkins equations".

Belowground biomass was calculated using Cairns equations²⁶.

13.2 Dead Biomass Calculation Methodologies

13.2.1 Standing Dead

Standing dead was calculated with Jenkins equations for class 1 trees, and with the following equation for class 2 trees:

From the Winrock Sourcebook:

$$\text{Volume} = 1/3 * \pi * h * ((bd/2)^2 + (td/2)^2 + (bd/2) * (td/2))^{27}$$

Where h = measured height in meters; bd = basal diameter in cm; and td = estimated top diameter in cm

13.2.2 Lying Dead

Lying dead biomass was calculated as described in Pearson *et al* (2005):

Step 1: Calculate the wood density for each density class (sound, intermediate and rotten) from the pieces of dead wood collected. Density is calculated by the following formula:

$$\text{Density (g/m}^3\text{)} = \text{mass (g)}/\text{volume (m}^3\text{)}$$

Where mass – the mass of the oven-dried sample, and

$$\text{volume} = \pi * (\text{average diameter}/2)^2 * \text{average width of the fresh sample}$$

Average the densities to get a single density value for each class.

Step 2: For each density class, the volume is calculated separately as follows:

$$\text{Volume (m}^3\text{/ha)} = \pi * ((d_1^2 + d_2^2 \dots d_n^2)/8L)$$

²⁶ Cairns, M. A., Brown, S., Helmer, E. H., & Baumgardner, G. A. (1997) Root biomass allocation in the world's upland forests. *Biomedical and Life Sciences*, Volume 111, Number 1, pp1-11.

²⁷ This equation is from the Winrock Sourcebook for Land Use, Land-Use Change, and Forestry Projects (http://www.winrock.org/Ecosystems/files/Winrock-BioCarbon_Fund_Sourcebook-compressed.pdf) and is equivalent to that provided by Harmon and Sexton (2006) (page 11, equation 4): $V = L * (Ab + (Ab * At)^{0.5} + At)/3$ (where L = length = height; Ab = area at base; At = area at top).

Where d_1, d_2 , etc = diameters of intersecting pieces of deadwood in cm^{28} , and
 L = length of the line in m.

14. Modeling Plan

Biomass growth projections

Biomass growth is projected based on FVS model output.

Carbon output from the FVS runs (using Jenkins equations) for each stratum is shown in the spreadsheets supplied separately from the PDD for review.

The Jenkins equations selected include (from Table 3, Jenkins 2004);

From the list of equations with component ID 2 we selected those covering the relevant species for the Project Area. This smaller list included:

- Eastern conifers
- Loblolly pine
- Red maple
- Sweet gum
- Blackgum
- Oaks
- Hardwood (general)

Growth projections and offset summary

Because the initial field inventory was completed in the weeks of May 11, and June 8, 2009, and the project start date is May 14 2010 (date the conservation easement was officially conveyed), the 2009 aboveground live carbon stocks were projected for one year using annualized output from FVS modeling. Belowground biomass was then calculated using these projected 2010 aboveground stocks. The projected live tree stocks were combined with the standing and lying dead stocks²⁹ to determine carbon stocks at project start (May 2010).

The annualized projections of above and belowground live biomass from FVS modeling were used to determine the annual increase in carbon stocks for the first 20 years of the project.

All spreadsheets including relevant data and data calculations applied the Alligator River Avoided Conversion Project are provided separately from the PDD for review.

²⁸ Units for diameter are incorrectly stated as meters in Harmon and Sexton (1996).

²⁹ Because standing and lying dead trees will not be removed, it is assumed that these pools will remain relatively constant, with future recruitment levels approximately the same as past levels.

14.1 FVS model use

The projected growth on the MV1 project was modeled using the Southern Variant³⁰ of the Forest Vegetation Simulator – FVS – (Dixon, 2002)³¹. The plot data collected by Winrock was entered into a database that can be read by FVS. Each plot was entered as an individual stand, and each tree record within the plots was entered and multiplied by a factor of 12.88 in order to determine the number of trees per acre represented, in accordance with the plot size. Data entered for the stand records included location and age. Data entered for the tree records included diameter at breast height (DBH), condition class, and species. Height was calculated through FVS, using species-specific height-diameter relationships imbedded in the program (Curtis 1967, Arney 1985)³².

FVS was used to calculate 100 years of growth for the with-project scenario, with no harvests planned. The model generates a Tree List Output File, which is a full list of all tree records in each plot, generated at the end of each growth cycle. Output for each tree record includes species, diameter at breast height, and the number of trees per acre represented by the record. In order to calculate future carbon stocks, the species-specific equations described above were used to calculate tree biomass for each record, which was then multiplied by the number of trees represented by that record. The biomass per acre was totaled for each plot, and then converted to metric tons of carbon per acre in standing live trees. This number was then used to calculate belowground carbon (t/ac). Within each stratum, average tons of carbon per acre was then calculated for both the above and belowground pools. Because FVS calculates growth at 5 year intervals for the Southern Variant, the final carbon results were then annualized. These calculations are shown for each stratum in spreadsheets supplied separately from the PDD for review. The weighted annualized growth increment was calculated across all strata and used to project future carbon stocks for the Project Area.

All spreadsheets including relevant data and data calculations applied the Alligator River Avoided Conversion Project are provided separately from the PDD for review.

For the baseline, the total tree volume was harvested over a three year period, with one-third of standing volume harvested every year. Because of the tree species on the property and the lack of pulp

³⁰ The default site index used by FVS is typical of most of the Southern U.S. It is based on the height of 50 year old trees, and according to tree height calculated in the model, the project area has heights in keeping with the FVS default site index.

³¹ Dixon, Gary E. comp. 2002. Essential FVS: A user's guide to the Forest Vegetation Simulator. Internal Rep. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Forest Management Center. 219p. (Last Revised: April 7, 2008).

³² Curtis, Robert O. 1967. Height-diameter and height-diameter-age equations for second-growth Douglas-fir. *Forest Science* 13(4):365-375. Arney, J.D. 1985. A modeling strategy for the growth projection of managed stands. *Canadian Journal of Forest Research* 15(3):511-518.

markets within an economical haul distance, no wood products were included in the baseline. The growth equations used by FVS can be found in Dixon (2002) and Donnelly & Lilly (2001)³³.

No calibrations were applied to the FVS growth and yield model, as the FVS model did not require calibrations that are commonly applied to more specialized forest models with particular site indices or forest types.

15. Carbon Stock Inventory

A summary of carbon stock inventory for the Forest Project by each Carbon Pool is provided below;

2010 Project Crediting Period Gross Volumes (tonnes CO₂e) May 2010 – Dec 2010

Table 5 - 2010 Reporting Period

Pool	May-10	Dec-10
Standing Live	296,059	299,975
Belowground Biomass	73,522	74,384
Lying Dead	27,055	27,055
Standing Dead	13,999	13,999
TOTAL	410,634	415,413

16. Inventory Sampling Error

The inventory sampling error is calculated and presented in MV1 supporting spreadsheet documentation. All spreadsheets including relevant data and data calculations applied the Alligator River Avoided Conversion Project are provided separately from the PDD for review.

The spreadsheet calculations show the **total biomass** from all pools in each stratum, along with the calculations for sampling error for each stratum, as described in the CAR FPP³⁴.

The Post stratified variance estimation as follows³⁵:

³³ Donnelly, Dennis and Barry Lilly. 2001. Southern Variant Overview: Forest Vegetation Simulator. Fort Collins, CO: U.S. Department of Agriculture, Forest Service, Forest Management Center. 63p. (Last Revised June 2009).

³⁴ The sampling error calculations were based on the inventory data, rather than the 2010 projections.

³⁵ From Memo Prepared by Steve Stehman (Biometrician, SUNY ESF), December 6, 2010.

Notation:

h will indicate a stratum

A_h = acres for stratum h

A = total acres (sum A_h over all strata)

$W_h = A_h/A$ (an area weight to use in calculations = proportion of area of stratum h sampled)

n_h = sample size from stratum h

n = total sample size (sum n_h for all strata)

$\bar{y}_h$ = sample mean for stratum h

s_h = sample standard deviation for stratum h

$f_h = (1 - A_h/A)$ = “finite population correction factor” for stratum h

f = proportion of sample area to total area (for entire region)

$SE_h = \sqrt{s_h^2 / n_h}$ = standard error of the mean in stratum h

The variance formulas³⁶ that follow will be based on estimating the mean for all strata combined;

$$\hat{\bar{Y}} = \sum_h W_h \bar{y}_h$$

The formula for estimating the variance of the estimated mean for stratified random sampling (the design is stratified) is;

$$\sum W_h^2 (1 - f_h) s_h^2 / n_h = \sum W_h^2 (1 - f_h) (SE_h)^2 \quad [1]$$

The summation in [1] is summing over all strata. The standard error of the estimated mean is just the square root of the variance given by [1]. The variance formula above is equation 7.10.13 (p. 288 in SSW). Because A_h/A is very small in this application, it can be ignored because $(1 - f_h) = (1 - A_h/A)$ is very close to 1. Equation [1] represents the variation in the estimated mean over the set of all possible stratified random samples with sample size n_h in stratum h . Equation [1] also happens to be the same as the formula recommended in the IPCC guidelines, although the IPCC formula is for combining

³⁶ Reference: Särndal, C. E., Swensson, B., and Wretman, J. (1992), *Model-Assisted Survey Sampling*. Springer-Verlag, New York. (Abbreviated as SSW in these notes).

uncertainty of independent “sinks”. It happens that the two formulas coincide in this particular case, but this would not necessarily be true for all sampling designs.

For poststratified estimation, an additional source of variation is contributed by the variation in the sample size n_h in each stratum (n_h depends on the particular sample selected and will differ if a different sample had been selected). The estimated variance for a poststratified estimated mean is;

$$\frac{1}{n} \left[W_h s_h^2 + \frac{1}{n} \sum (1 - W_h) s_h^2 \right] \quad [2]$$

Equation [2] is based on equation 7.6.6 (p. 267 of SSW)³⁷.

Both equations [1] and [2] are justified as “conditional” variance estimators meaning that they are “conditioned” on the sample sizes n_h realized in the sample obtained (justified in Sec. 7.10.2 in SSW).

For the MV1 Alligator River project, equation [2] was used to calculate variance and sampling error for biomass carbon.

As per Table A. 5 of the FPP; for each of the strata (10 – 19 y.o., 20 – 29 y.o., 30 -39 y.o., 40 – 49 y.o. and 50 -69 y.o.), the standard error of the inventory estimate of the standing live and lying and standing dead pools was determined.

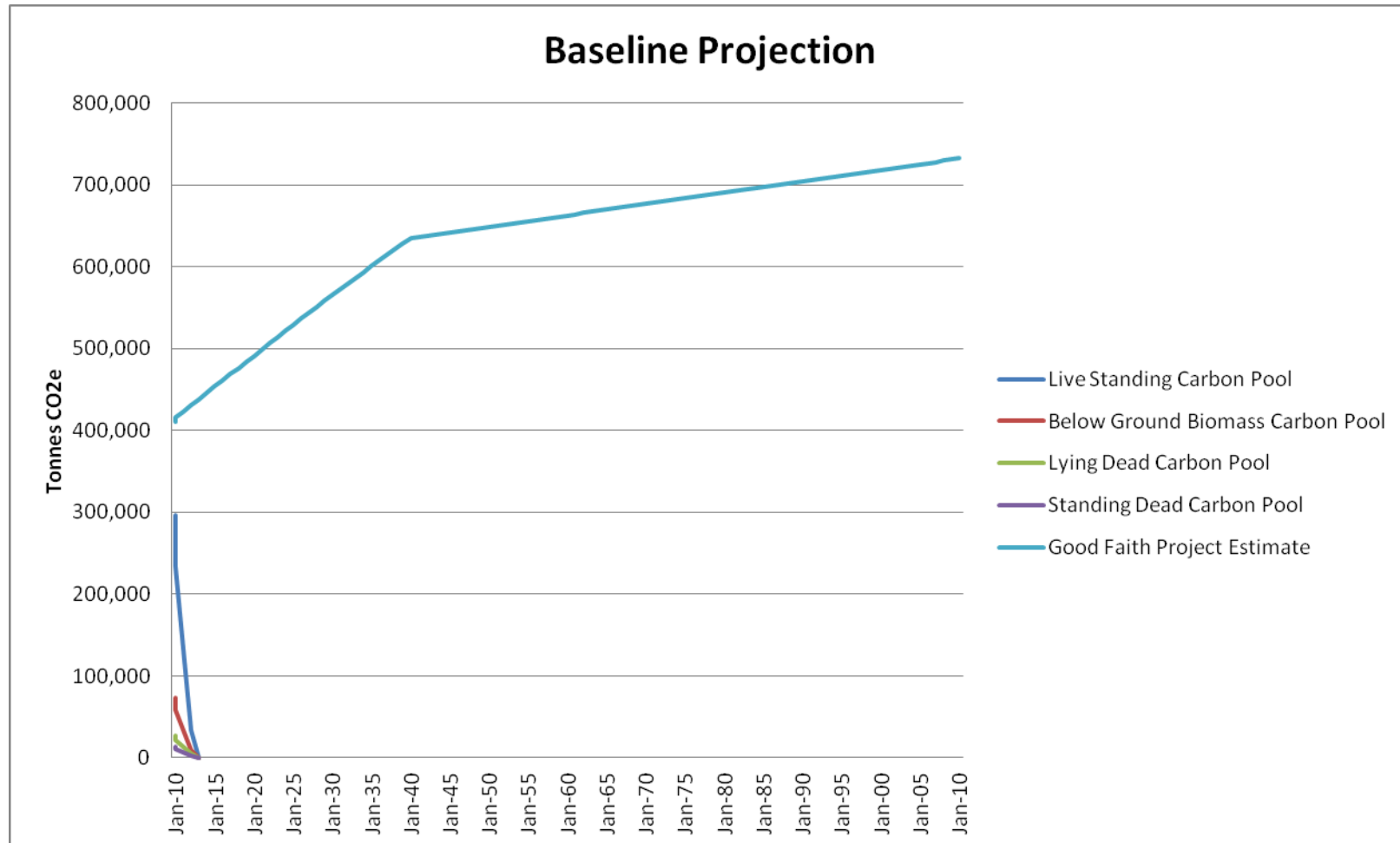
As per FPP requirements in Appendix A.4, the standard error was multiplied by 1.645. The inventory estimate was then divided by the result and then multiplied by 100. This provided the sampling error for each stratum. The weighted average of the standing live and dead pools sampling errors is 6.58%.

Based on Table A.5 in the protocols, the confidence deduction is 1.58% (6.58% – 5.1% = 1.48%)

³⁷ Changes made in [2] were: to omit a multiplier 1-f because the proportion of area sampled (f) is negligible; and to modify the formula [2] to be appropriate for an estimated mean, rather than the variance for an estimated total, as shown by SSW.

17. Baseline Carbon Stock Projection

Figure 7 - Graph of Baseline CO2 Stocks



The baseline for Avoided Conversion projects is a projection of onsite forest carbon stock losses that would have occurred over time due to the conversion of the Project Area to a non-forest land use.

The baseline condition is defined as the deforestation, draining and conversion of the Project Area for agricultural use. In particular, vegetation would have been cleared and the muck soils in the Project Area would have been drained to a depth of 4-6 feet to prepare the site for agricultural production.

18. Baseline Qualitative Description

Under the Baseline (without project) scenario, the Project Area land, as previously described, would be cleared of vegetation which would be piled and burned on site. In the process of clearing, the land would be root raked and grubbed (removal of sub-surface roots and decomposing wood). These too would be piled and burned once unearthed. Once the site preparation phase had been completed the land would be satisfactory for agricultural use. The three main crops would include soybeans, corn and wheat in rotation. This is common practice of the region.

The land would be disc tilled and a method of seed insertion known as 'precision seed drill' would be employed, weed control, fertilizer, and insect/fungal application would be repeated several times through the growth season before harvest would occur. The corn, wheat, soybean rotation would take place over a three year period as outlined below.

The crop rotation would be as follows;

Year 1 -

- **Corn rotation** – disc (tillage), precision seed drill, pre-emergent weed control application, heavy nitrogen fertilizer application 62-0-0 (130 lbs/acre), post emergent weed control, lighter fertilizer application 62-0-0 (30lbs / acre), insect/ fungal application, harvest corn, disc tillage.
- **Wheat rotation** (after corn harvest same season) post emergent weed control, precision seed drill, fertilizer application, fungus- insect application, harvest, disc tillage.

Year 2 -

- **Corn rotation, wheat rotation**

Year 3 -

- **Soy bean rotation** - weed control application, precision seed drill, post emergent weed control, fertilizer application, insect/fungal app, harvest. Then return to **corn rotation** (full 3 year cycle).

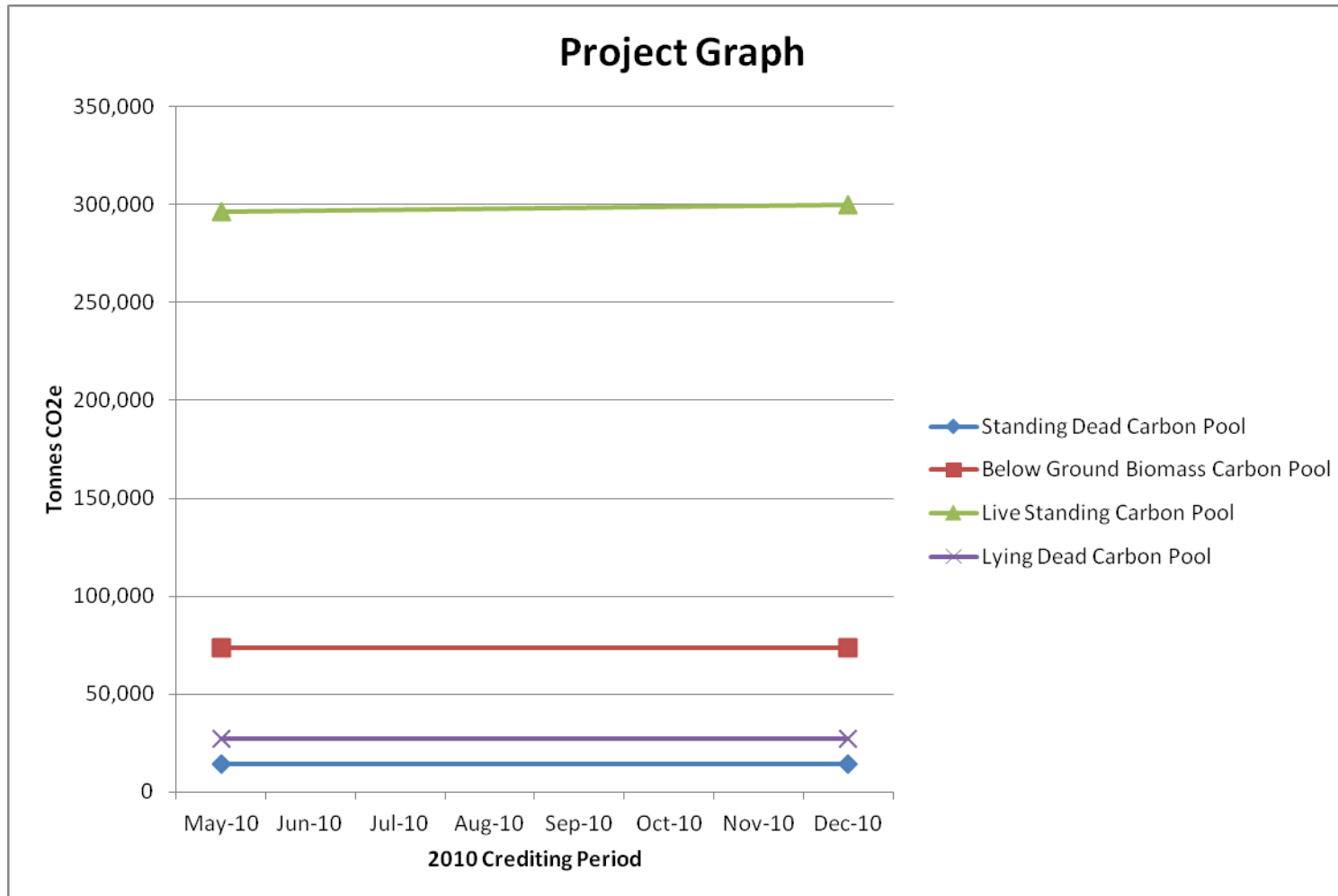
19. Onsite Carbon Stock Projection

The projected volumes of project stock are attributed to the elimination of biomass and carbon loss during and after clearing / conversion, and the ongoing natural of biomass carbon that would not be realized in if the land were converted. As per the FVS model output the total carbon stock projections



can be found in supporting spreadsheets supplied separately for verification purposes. All spreadsheets including relevant data and data calculations applied the Alligator River Avoided Conversion Project are provided separately from the PDD for review.

Figure 8 - Graph Showing Onsite Carbon Stock



20. Harvested Wood Products Stock Projection

As per section 6.1.2 in FPP 3.1, Estimating Baseline Carbon in Harvested Wood Products:

If harvesting of the pre-existing trees would be expected to occur in the baseline, the following steps must be performed:

1. Use a model (see guidance in Appendix B) to determine the *average* amount of carbon in standing live carbon stocks (prior to delivery to a mill) that would have been harvested in each year of the baseline over 100 years. The result will be a uniform estimate of harvested carbon in each year of the baseline. This estimate is determined at the project outset and will not change over the course of the project.
2. On an annual basis, determine the amount of harvested carbon that would have remained stored in wood products, averaged over 100 years, following the requirements in Appendix C.

As no wood is harvested from the Project Area in either the baseline scenario or the project due to the lack of local markets for timber from lands of this nature, the harvested wood product project is zero. As explained in Section 21 below, all timber would be burned or left to decay on site.

21. Harvest Volume Baseline and Project Projections

In the Baseline scenario all timber on the Project Area would be slashed, cleared, and burned on site to make way for agricultural purposes. No commercial harvesting or sale of timber would have occurred.

Mr. James H. Quattlebaum (NC Registered Forester #406) performed an ocular cruise on several blocks of timber on the MV1 property to ascertain if, in the hypothetical event of a harvest, there would be any market for the timber. As per Mr. J.H. Quattlebaum's letter of opinion provided in Appendix A:

'Since 2001, there has only been one mill within 50 miles of Hyde and Washington Counties, the distance that is considered commercially feasible to transport raw logs to market within this region. The Plymouth mill, located in Plymouth, NC, was owned by Weyerhaeuser and used to produce fine papers until 2007 when it was sold to Domtar and converted to a fluff mill.

During this time, the Plymouth mill has only accepted timber from properties owned by, or under long-term supply contract with the previous or current owner. Smaller landowners typically with forest holdings < 5,000 acres which do not contain prime timber stands and do not have a supply contract in place, have heretofore lacked access to commercial markets for their timber. When land is converted to agriculture, the fallen trees and slash are typically burned or left on site to decay, rather than sold to wood product manufacturers.

Therefore, it is my opinion that due to low value of the timber and the high cost of logging and hauling, it has a negative market value.

22. Risk Rating

The risk rating for Alligator River was calculated as 20.937% by applying the default rates provided in Appendix D of the FPP version 3.1 for an Avoided Conversion Project in the United States.

According to Exhibit G of the PIA (see Appendix D at the end of the PDD), the Alligator River project is classed as 'Subordination Clause Type 1' and therefore has a default risk rating of 2 %. This 2% has been added to the default 5% Financial Risk rating from Appendix D, for a total Financial Risk rating of 7%.

The following default risk ratings apply to the Alligator River project:

- Financial Risk: 7%
- Management Risk:
 - Illegal removal 0%
 - Conversion 2%
 - Over-harvest 2%
- Social Risk: 2%
- Natural Disturbance Risk:
 - Wildfire 4%
 - Disease/Insect 3%
 - Other Catastrophic 3%
- Project Implementation Agreement Exhibit G Risk:
 - Subordination
 - Clause Type 1 2% (included in 7% Financial Risk Rating)

Overall Contribution to Buffer Pool: 20.937%=

$100\% - ((100-7\%) \times (100\%-0\%) \times (100\% - 2\%) \times (100\%- 2\%) \times (100\%-2\%) \times (100\%-4\%) \times (100\%-3\%) \times (100\%-3\%))$

23. Secondary Effects

Secondary Effects were accounted for on the Alligator River Project Area by applying Equation 6.7 of the FPP in Section 6.3.5. A default conversion displacement risk of 3.6 % from the state of California was applied.

Where:

$$SE_y = (-1) * CDR * (\Delta AC \text{ onsite} - \Delta BC \text{ onsite}) \text{ or } 0, \text{ whichever is lower}$$

$$(-1) * 3.6\% * (4,103 - 85,605) = -3,229 \text{ tCO}_2\text{e}$$

This deduction has been applied to the CRT model.

II. Avoided Conversion Project Information

1. Easement Documentation

Mattamuskeet Ventures I LLC has conveyed a permanent easement to the USDA NCRS covering the entire Project Area, filed on May 14, 2010 in Hyde County, North Carolina, Book 241, Pages 719. The conveyance of this easement limits the management activities permitted to occur on-site and prevents conversion to non-forest use such as agriculture or land development. The conservation easement is a legally binding agreement that becomes part of the property title, (i.e. the US government retains a covenant against the property) and is therefore also applicable to any future owners of the property.

This easement document has been provided to the Reserve and verifier in separate documentation from this PDD.

2. Legal Permissibility of Conversion

MV1 is legally entitled to clear the Project Area. The Project Area was previous ditched and drained in the 1960's for agricultural use. Since then the ditches and associated water control apparatus (flash board risers) installed at that time have been maintained and of the same dimensions while the land was allowed to naturally regenerate to a wetland forest. The flashboard risers retain the water level at its current high state to promote the wetland forest restoration.

The removal of flash board risers will lead to a lowering of the water level on the Project Area without affecting adjacent lands or potential wetlands. The resulting water level will be in accordance with similar agricultural lands surrounding the Project Area and will connect into similar ditches and form a larger network of ditches, in which the water discharge from the Project Area will be no different from the water that is drained from the connecting ditches.

For these reasons, additional permits would not be required to remove the flash board risers and to convert the Land for agriculture, or to construct or install dykes and water control features.

MV1 will sign the Reserve's Regulatory Attestation Form attesting to the accuracy of this analysis. In addition, a North Carolina Attorney at Law has provided a legal opinion stating there are no statues or regulations under United States or North Carolina law preventing or requiring additional permits for conversion of the Project Area to agricultural use.

The offer from the USDA to acquire an easement preventing conversion of Project Area is further evidence of the land's convertibility.

To further document the owner's right to convert the land to agriculture, a legal opinion was obtained

from a North Carolina land use attorney. The conclusion states:

‘The above-described regulatory permits or approvals are, to the best of our knowledge the only ones potentially applicable to the proposed action of removing the flashboard risers. We are not aware of any additional regulations which would preclude the clearing of the Property and its conversion to agricultural use, provided that it is done in a manner that complies with applicable site development requirements, such as buffers or erosion and sedimentation control measure, and silviculture and agricultural best management practices, none of which would prevent clearing and converting the Property to agricultural use. As the above analysis indicates, the flashboard risers can be removed, and the adjacent areas consequently drained, cleared, and converted for eventual silviculture and/or agricultural use, without having to obtain any of these permits or approvals so long as such activity is done without any dredging or filling, including causing any incidental fallback of fill that might degrade water quality, and without any other alteration or construction that could be considered ‘development’ under CAMA, in the ditches or adjacent wetlands’.

See Legal Opinion by Glenn Dunn at the end of this PDD as Appendix B.

To support the above legal opinion, Mr. D.E. Fox (see Appendix C), a local expert in agricultural land and hydrology management with experience dealing with the Matamuskeet drainage basin was asked to provide his opinion on the requirements to convert the Project Area from forest to agricultural uses (Legal Opinion by Glenn Dunn). Mr. D.E. Fox confirmed that no dredging or filling would be required in order to convert the MV1 Alligator River property from forest to agricultural land. There would be no opportunity for incidental fallback of fill, since no earth moving, alteration, or construction would occur after the flashboard risers have been lifted (which is legally allowed without further permitting).

It is concluded that the conversion of Alligator River Forest Project Area would be legally permissible.

See Opinion Letter by Mr. D.E. Fox at the end of this PDD as Appendix C

3. Project Area Determination

The Project Area was determined as the area covered by conservation easement, all of which was identified in the appraisal as facing significant threat of conversion to agriculture. The entire Project Area conveyed under easement is 2,372 acres including access roads and canals. Of this total area, the total forested area is 2,308 acres on which biomass sampling was performed, and avoided carbon losses are claimed.

4. Appraisal

A full copy of the appraisal that was prepared for the Project Area per the requirements of Section 3.2.1.3 has been supplied for verification purposes. The appraisal was prepared for Blue Source LLC by



Ms. S. Ann McRoy a State Certified General Real Estate Appraiser from The Appraisal Group, of Greenville, North Carolina in 2009.

The work performed for this assignment included: analysis of the appraisal problem; a visit to the subject property; determination of the highest and best use of the property as cropland, valuation 'as woodland' and 'as cleared for cropland use' based on collection and analysis of comparable land sales data; estimating a value indication for the subject property; and preparation of a written report. The timber value was not independently determined as it is established that there is no realizable market for timber of this type in the area (also see Professional Forester Letter, Mr. J.H. Quattlebaum in Appendix A) and comparable sales used to determine the property's non-converted value included comparable woodlands.

The appraisal document has been provided to the Reserve and verifier in separate documentation.

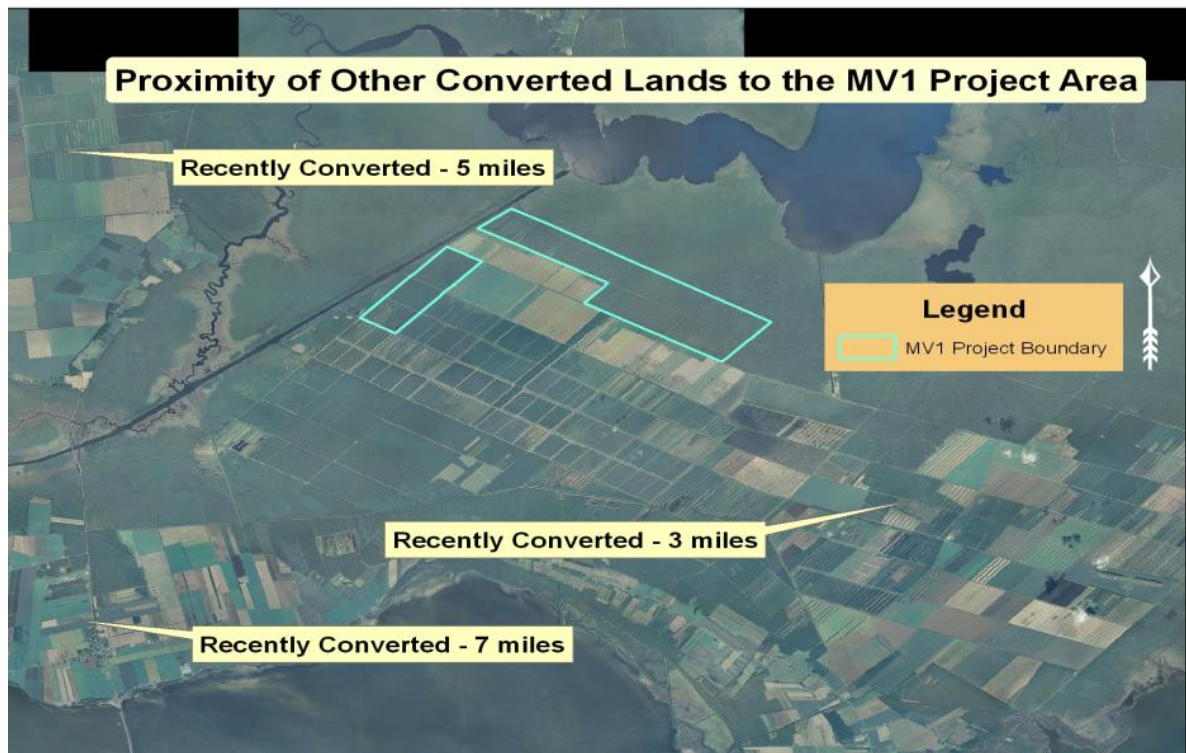
5. Highest Value Alternative Land Use

The highest value alternative identified in the appraisal was conversion to agriculture.

The appraisal document has been provided to the Reserve and verifier in separate documentation.

Further evidence that conversion would render the Project Area more profitable for the owner is provided by the fact that landowners within three to eight miles have been clearing and converting similar lands to agriculture over the past 40 years, and agricultural activity in the immediate area surrounding the Project Area is high.

Figure 9 - Lands in 3-7 mile radius recently converted to agriculture



6. Rate of Conversion & Removal of Onsite Carbon Stocks

Clearing Rate

It is assumed that under the baseline condition (business as usual), the total forest area of 2,372 acres would be cleared over a three-year period at a rate of 769.3 acres per year.

The assumed three-year rate of conversion and removal of onsite carbon stocks is based on clearing contract bids received for the Project Area and the rate when the Project Area was previously cleared from 1962 to 1965. The bid from Precision Farming to clear the can be found at the end of this PDD.

In August 2008, MV1 hired Precision Custom Farming to undertake clearing and conversion of 2,740 acres including the Project Area, as well another parcel that was intended to be included in the Project Area but for which easement financing was delayed until May 2011. This separately eased parcel will be listed as a separate Avoided Conversion project with CAR. The scope of work included vegetation removal and burning and soil preparation (rotoveyer, plow, disc) and conditioning (lime).



Precision Farming began work in August 2008, with 3 bulldozers on site. In less than 6 weeks the team cleared over 180 acres of forested land that is under MV1 ownership and is situated adjacent to the Alligator River Project Area. The 180 acres of land cleared was not under conservation easement and did not impact any of the Project Area acres. The land was cleared at a pace that would have resulted in clearing 920 acres (including Project Area acres) in less than 31 weeks. It was then that the landowner became aware that carbon revenues could potentially provide sufficient revenues to justify maintaining the entire property as forest, and suspended planned clearing and conversion activities.

At that time, MV1 and its members had more than sufficient financial resources to complete clearing of the entire 2,740 acres owned by MV1 (including all Project Area acres). In addition to other income, MV1 sold ~4,000 acres of farmland adjacent to the Project Area in 2007 at a price of \$3,100 per acre, generating ~\$12.4 million in available cash flow.

Removal of Carbon Stocks

Based on this rate of conversion, it is projected that all biomass carbon will be lost over a three-year period.

7. Comparison of Fair Market Value

The fair market value of the Project Area as cropland is \$3,200/acre vs. \$500/acre as forestland, representing a 640% increase in value.

No uncertainty is discount required because post-conversion agricultural use value is >80% higher than forest use.

APPENDICES

Appendix A – Professional Forester Opinion on Timber Markets by Mr. J.H. Quattlebaum

Appendix B – Legal Opinion Letter on Permissibility of Conversion by Mr. G. Dunn

Appendix C – Supporting Letter On Permissibility of Conversion by Mr. D.E. Fox

Appendix D- Precision Custom Farming Quote

Appendix E - Exhibit G of the PIA

Appendix F – Warranty Easement Deed

Appendix G – CAR Forest Calculation Worksheet



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Appendix A - Professional Forester Opinion on Timber Markets by Mr. J.H. Quattlebaum



Jim Quattlebaum
Reg. Forester #406
PO Box 483
Ahoskie, NC 27910
252 332-9636
timberman@embarqmail.com

August 16, 2010

Mattamuskeet Venture
PO Box 128
Fairfield, NC 27826

Dear Sir:

On Friday August 13, 2010, I conducted an ocular cruise on several blocks of timber owned by you in Hyde County. (see attached map) The purpose of that cruise was to determine if the standing timber has any marketable value.

Since 2001, there has only been one mill within 50 miles of Hyde and Washington Counties, the distance that is considered commercially feasible to transport raw logs to market in this region. The Plymouth mill, located in Plymouth, NC, was owned by Weyerhaeuser and used to produce fine papers until 2007 when it was sold to Domtar and converted to a fluff mill.

During this time, the Plymouth mill has only accepted timber from properties owned by, or under long-term supply contract with the previous or current owner. Smaller landowners typically with forest holdings <5,000 acres which do not contain prime timber stands and do not have a supply contract in place, have heretofore lacked access to commercial markets for their timber. When land is converted to agriculture, the fallen trees and slash are typically burned or left on site to decay, rather than sold to wood product manufacturers.

Therefore, it is my opinion that due to the present low value of the timber and the high cost of logging and hauling, it has a negative market value.

If you have any other questions please feel free to call.

Sincerely,

James H Quattlebaum
NC Registered Forester # 406



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Figure 10 – J.H. Quattlebaum Relevant Cruise Locations





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Appendix B - Legal Opinion Letter on Permissibility of Conversion from Mr. G. Dunn

Poyner Spruill^{LLP}

H. Glenn T. Dunn
Attorney-at-Law

May 7, 2009

Blue Source, LLC
Attn: Matthew J. Harmer
3165 E. Millrock Drive, Suite 360
Holladay, UT 84121

Direct Dial: 919.783.2842
gdunn@poynerspruill.com

www.poynerspruill.com

Other offices: Charlotte, Rocky Mount,
Southern Pines

Re: MV 1 Property- Conversion to Agriculture

Dear Mr. Harmer:

I am writing to state my analysis regarding whether the MV 1 property of approximately 2,752 acres in Hyde County, North Carolina (the "Property") may be cleared and used for agricultural purposes without having to obtain further environmental permits or approvals. As I understand the facts, the Property was previously wetlands which were ditched and drained for agricultural use in the 1960s. The water level in the ditches is controlled by flashboard risers that have been kept for some years high enough to raise the water level so that much of the tract has reverted to forested wetlands. However, the ditches have been maintained at their original dimensions and the Property can be drained by simply removing the necessary flashboard risers, without any further excavation. Therefore, this analysis addresses whether the requisite number of flashboard risers can be removed without obtaining further environmental permits or approvals so as to lower water levels in the ditches as necessary to drain the Property, and whether cutting of trees and other land-clearing activities eventually can be done without obtaining further environmental permits or approvals so that the Property would eventually be suitable for farming.

This legal analysis assumes that the flashboard risers can be removed as necessary without any dredging or filling in the ditches or other waters of the United States or in adjacent wetlands. It is our further understanding that the ditches and associated water control apparatus have been maintained in their original form and dimensions and operated to drain the ditches in question since they were constructed in the 1960s, that they are adequate to lower the water level on the Property so that it eventually will not meet the regulatory definition of a wetland, and that they have not been, and will not be, altered to accomplish the desired lowering of water levels. We also understand that upon removal of the flashboard risers the ditches in question will drain into similar ditches to which they connect as part of a large drainage system, and that the water which is discharged is no different in quality from that in the ditches to which they drain. This analysis concerns only environmental permits and approvals that, to the best of our knowledge, are either (i) applicable to activities in or affecting waters of the United States or North Carolina and adjacent wetlands, or (ii) are applicable to activities planned subsequent to removal of the flashboard risers to clear existing vegetation and convert the land to agricultural use. This analysis does not address any other permits or approvals that might be necessary to conducting agricultural activities.



Matthew J. Harmer
May 7, 2009
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FEDERAL PERMITS AND APPROVALS

- **Section 404 Permit under the Federal Water Pollution Control Act (“CWA”).** This permit is administered by the U.S. Army Corps of Engineers (“USACE”) and is required for discharges of dredged or fill material into the waters of the United States and adjacent wetlands. A Section 404 permit would not be required for removing the flashboard risers so long as it is done in a manner that does not cause any dredging or filling, including any incidental fall-back of material that might degrade water quality, in the ditches or adjacent wetlands. In addition, there is an exemption for any discharge of dredged or fill material associated with normal farming and silviculture activities. 33 CFR 323.4(a)(1). However, this exemption does not apply to an operation that has lain idle so long that modifications to the hydrological regime are necessary to resume operations. However, regardless of whether this may be the case with the Property, this regulation also explicitly reaffirms that if the drainage activity does not involve a discharge of dredged or fill material, it does not need a Section 404 permit, whether or not it falls within the farming and silviculture exemption. Consequently, though it may be doubtful that the farming and silviculture exemption applies in this instance, that exemption is not necessary because the ditches in question can be drained without a discharge of dredged or fill material.

- **Section 402 permit for a point source discharge under CWA.** This is a federal permit administered by the U.S. Environmental Protection Agency (“USEPA”). It is required for the (1) addition (2) of any pollutant (3) from a point source (4) into waters of the U.S. (CWA §§301(a), 502(12)). The release over the flashboard risers is a point source and it discharges into other waters of the U.S. if, as we understand it, they are part of a drainage system connected to navigable waters. Therefore criteria (3) and (4) are met. Furthermore, under case law there is a significant possibility that a reopened discharge from the ditches could be considered discharge of a pollutant in that it might induce a water quality change, so there is some risk that criterion (2) may be met. However, under current case law removing the flashboard risers would not be considered to “add” a pollutant, as long as the water is discharged to the same body of water or, more precisely, as long as the water bodies are not “meaningfully distinct.” See South Florida Water Management District v. Miccosukee Tribe of Indians, et al., 541 U.S. 95 (March 23, 2004). If the risers simply inhibit flow within an interconnected ditch system, then any discharge from one side of the riser to the other will occur within the same water body, so criterion (1) is not met.¹

¹ On June 13, 2008, EPA amended 40 C.F.R. §122.3, Exclusions (effective August 12, 2008), to add “Discharges from a water transfer” as a discharge that does not require a permit under §402 of the CWA. 73 Fed. Reg. 33697. That rule states “[w]ater transfer means an activity that conveys or connects waters of the United States without subjecting the transferred water to intervening industrial, municipal, or commercial use. This exclusion does not apply to pollutants introduced by the water transfer activity itself to the water being transferred.” Therefore, under this rule it appears that EPA would not require a permit even if the transfer was between separate water bodies.



Matthew J. Harmer
May 7, 2009
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Since all four criteria must be met to trigger a Section 402 permit, one should not be required to remove the flashboard risers. Furthermore, if there consistently have been releases from the ditches over the years, it likely would be considered a “grandfathered” discharge because it predates the CWA, and exempted entirely from the Section 402 permit requirement.

STATE OF NORTH CAROLINA PERMITS AND APPROVALS

- **Section 401 water quality certification under FWPCA.** This approval is administered by the State of North Carolina to certify that any activity that requires a Section 404 permit will not violate North Carolina’s water quality standards. Consequently, a Section 401 certification is required only if a Section 404 permit is required, and since removing the flashboard risers does not trigger the Section 404 permit, no Section 401 certification will be required.
- **Permit for discharges to isolated wetlands and isolated waters.** This is a State-administered permit for discharges to wetlands or waters that are not connected to waters of the United States, i.e. are “isolated.” (15A NCAC 2H.1300) It is our understanding that the ditches draining the Property are connected to other ditches and eventually to a natural water body, and therefore are not isolated. Consequently, this permit would not apply to removal of the flashboard risers.
- **Coastal Area Management Act (“CAMA”) Permit.** This is a State-administered permit required for development in designated areas of Hyde County. (N.C. Gen. Stat. §113A-118). Development is defined as follows:

(5)a. “Development means any activity in a duly designated area of environmental concern (except as provided in paragraph b of this subdivision) involving, requiring, or consisting of the construction or enlargement of a structure; excavation; dredging; filling; dumping; removal of clay, silt, sand, gravel or minerals; bulkheading, driving of pilings; clearing or alteration of land as an adjunct of construction; alteration or removal of sand dunes; alteration of the shore, bank or bottom of the Atlantic Ocean or any sound, bay, river, creek, stream, lake or canal; or placement of a floating structure in an area of environmental concern identified in G.S. 113A-113(b)(2) or (b)(5).

Furthermore, Subsection (5)b of this statutory definition exempts use of land for agriculture or silviculture activities so long as no excavation or filling of estuarine waters or navigable waters is involved. Removal of the flashboard risers should not be considered development under this definition so long as it does not involve any construction, dredging, filling, etc. in the ditches or adjacent wetlands, or other alteration of the ditches or adjacent wetlands, and consequently it would not require a CAMA permit.



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Poyner Spruill^{LLP}

Matthew J. Harmer

May 7, 2009

Page 4

CONCLUSION

The above-described regulatory permits or approvals are, to the best of our knowledge, the only ones potentially applicable to the proposed action of removing the flashboard risers. We are not aware of any additional regulations which would preclude the clearing of the Property and its conversion to agricultural use, provided that it is done in a manner that complies with applicable site development requirements, such as buffers or erosion and sedimentation control measures, and silviculture and agriculture best management practices, none of which would prevent clearing and converting the Property to agricultural use. As the above analysis indicates, the flashboard risers can be removed, and the adjacent areas consequently drained, cleared, and converted for eventual silviculture and/or agricultural use, without having to obtain any of these permits or approvals so long as such activity is done without any dredging or filling, including causing any incidental fallback of fill that might degrade water quality, and without any other alteration or construction that could be considered "development" under CAMA, in the ditches or adjacent wetlands.

Sincerely,

H. Glenn Dunn



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Appendix C – Supporting Letter On Permissibility of Conversion by Mr. D.E. Fox

Donald Eugene Fox Jr.
34306 US Highway 264
Engelhard, NC 27824

To Whom It May Concern:

For 8.5 years, I have been professionally employed in the area as a Land Manager. In this time period I have worked and managed several large commercial farms that employed similar drainage techniques as part of a congruous system among landowners to maintain agriculture as a viable land use. Currently I am employed with Alligator River Growers, overseeing their 13,000 acre property in Hyde County, North Carolina. In this role, I am responsible for managing the farm's hydrology and operating its system of drainage ditches and canals. Like MV1, Alligator River Growers is a member of the Mattamuskeet Drainage Association.

In addition to my work as Land Manager at Alligator River Growers, I provide land use consulting services to the Mattamuskeet Drainage Association. I am a Technical Service Provider for the NRCS (since 2003), providing wetland restoration project design, development, and implementation consulting services to landowners. In 2006 I had the pleasure of designing the first wetlands reserve project in North Carolina by a TSP. This was a 12,000 acre project that restored wetlands, opened historical tidal flows, and enhanced the commercial farmland by providing more adequate drainage for crops. At this time, I am involved with a project, in conjunction with NRCS, US Fish & Wildlife Service, and a local Non-profit organization, to restore historical flows through prior converted wetlands. When completed, this project will greatly enhance water quality in the Pamlico Sound, restore natural hydrology, restore historical flows, and protect the natural communities in the area from further degradation due to sea level rise. I hold a degree in Environmental Science from Catawba College.

Through my work with the Mattamuskeet Drainage Association, I am very familiar with the MV1 property and drainage system. My work managing a similar system on Alligator River Growers' property gives me familiarity with its operation as well.

Based on this experience and working knowledge, it is clear to me that the MV1 property blocks listed below and referenced in the attached map, could be drained for clearing and conversion to agricultural use simply by opening flashboard risers releasing flow into the current drainage system. The referenced blocks of land are in proximity to one of the major pump stations operated by the drainage association.

426N, 425N, 424N, 423N&S, 422N&S and 416

No dredging or filling would be required. There would be no opportunity for incidental fallback of fill, since no earth moving, alteration, or construction would occur.

Donald E. Fox Jr.
Technical Service Provider
TSP #03-2426

Figure 11 - Blocks Assessed by Mr. D.E. Fox





Appendix D – Precision Custom Farming Forest Clearing Quote

PRECISION CUSTOM FARMING

April 23, 2008

Reference: CLEARING and DISPOSAL BID

To the Mattamuskeet Ventures Members,

Please find below a quote from Precision Custom Farming Company to clear 100% of the desired Mattamuskeet Ventures Property over a three year period commencing in the month of June, 2008. It is anticipated that the rate of clearing will be approximately 920 acres per year, or 2,750 acres over the three year time frame. The clearing costs would include on a per acre basis, 5 tons of lime, rotoveyer (2), chisel plow (2), disking ditches. All timber, brush and stumps will be piled and burned on site for disposal.

Per Block prices are presented below:

Block	Acres	Amount
422N	292.1	\$511,175.00
422S	311.6	\$545,300.00
423N	274.3	\$480,025.00
423S	281.2	\$492,100.00
424N	353.3	\$618,275.00
424S	192.57	\$336,997.50
425N	307	\$537,250.00
426N	116.8	\$204,400.00
406N	206.4	345,720.00
406S	203.1	\$335,115.00
416N	214.5	\$353,925.00
Total	2752.87	\$4,760,282.50

Regards,

Precision Custom Farming



Appendix E - Exhibit G of PIA

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EXHIBIT G ADDITIONAL BUFFER POOL CONTRIBUTION

The contributions to the Buffer Pool listed in the following Table 1 of this Exhibit G are in addition to the contributions described in Appendix D of the Forest Protocols, including but not limited to, the contributions listed in "Table D.2. Financial Risk Identification" of the Forest Protocols.

Table 1

Risk Category	PIA with "Subordination Clause Type 2"	PIA with "Subordination Clause Type 1"
Financial Failure	10%*	2%*

*The Reserve may, from time to time, transfer CRTs from the Buffer Pool to the Forest Owner's account or may partially waive future Buffer Pool contributions if the Reserve determines, in its sole and absolute discretion, that the previously assessed risk percentages, as listed above, were unnecessarily high. Similarly the Reserve may, from time to time, require additional Buffer Pool contributions if the Reserve determines, in its sole and absolute discretion, that the previously assessed risk percentages, as listed above, were too low, or should otherwise be modified based upon a LTV Ratio.

For purposes of this Exhibit G only, the following terms shall be defined as follows:

- 1) "PIA" is a "restrictive covenant and project implementation agreement."
- 2) "Subordination Clause Type 1" reads as follows (italics added):

"Notwithstanding Paragraph 8, so long as Forest Owner is not in default or breach, Forest Owner may request that this Paragraph 9 be amended as set forth below in exchange for Forest Owner's contribution of additional CRTs to the Buffer Pool in an amount which matches the additional contribution that would have been made at the time of the execution of this Agreement and for each subsequent year thereafter had Forest Owner chosen at that time to execute a version of the project implementation agreement which would have made this Agreement automatically subordinate to subsequent deeds and mortgages, as shown in the "Buffer Pool Contributions" attached hereto as Exhibit G. The contributions to the Buffer Pool as shown in Exhibit G are in addition to the Buffer Pool contributions required in the Forest Project Protocols and shall be an ongoing obligation of Forest Owner for the Term; provided, however, that the Reserve may, from time to time, decrease or increase the required additional Buffer Pool contributions if the Reserve determines, in its sole and absolute discretion, that the percentages as listed in Exhibit G are either too high or too low, or otherwise should be modified based upon a LTV Ratio. So long as Forest Owner is not in default or breach, including but not limited to its contributions to the Buffer Pool, Forest Owner may request from time to time that Reserve execute the "Subordination of Restrictive



Covenant and Project Implementation Agreement" in the form attached hereto as Exhibit E. Reserve's consent to execute the "Subordination of Restrictive Covenant and Project Implementation Agreement" in the form attached hereto as Exhibit E shall not be unreasonably withheld so long as Forest Owner has contributed the required additional CRTs to the Buffer Pool as described herein. Prior to the Reserve's execution of Exhibit E, the Forest Owner shall provide an appraisal of the Property prepared by a Qualified Appraiser within the previous six months. From and after the recordation of the "Subordination of Restrictive Covenant and Project Implementation Agreement," this Paragraph 9 shall be deleted and shall be replaced in its entirety with the following new Paragraph 9:"

3) "Subordination Clause Type 2" reads as follows (italics added):

"Subordination and Buffer Pool Contribution. This Agreement shall be subordinate to any deed or mortgage on or affecting the Property that arises subsequent to the date of this Agreement. Forest Owner acknowledges that Reserve would not agree to this Paragraph 9 without Forest Owner's increased contribution to the Buffer Pool in accordance with the 'Buffer Pool Contributions' attached hereto as Exhibit G. The contributions to the Buffer Pool as shown in Exhibit G are in addition to the Buffer Pool contributions required by the Forest Project Protocols and shall be an ongoing obligation of Forest Owner for the Term; provided, however that the Reserve may, from time to time, decrease or increase the required additional Buffer Pool contributions if the Reserve determines, in its sole and absolute discretion, that the percentages as listed in Exhibit G are either too high or too low, or otherwise should be modified based upon a LTV Ratio. So long as Forest Owner is not in default of its obligations hereunder, including but not limited to its contributions to the Buffer Pool, Forest Owner may request from time to time that Reserve execute the 'Subordination of Restrictive Covenant and Project Implementation Agreement' in the form attached hereto as Exhibit E. Reserve's consent to execute the 'Subordination of Restrictive Covenant and Project Implementation Agreement' in the form attached hereto as Exhibit E shall not be unreasonably withheld. Prior to the Reserve's execution of Exhibit E, the Forest Owner shall provide an appraisal of the Property prepared by a Qualified Appraiser within the previous six months."

Table 2 below is illustrative only and provides an example relevant only to Subordination Clause Type 1, in which Forest Owner in Year 3 requests that the PIA be amended and subordinated to a mortgage and in exchange Forest Owner contributes to the Buffer Pool in an amount equal to what the Forest Owner would have contributed had it originally chosen to execute a version of the PIA with Subordination Clause Type 2, which makes the PIA subordinate to subsequent deeds and mortgages. Thus, in Year 3 Forest Owner would need to contribute an additional 8% to the Buffer Pool for Years 1 through 3, for a total of 36 CRTs to the Buffer Pool in Year 3. In future years beyond Year 3, Forest Owner would contribute 10% to



the Buffer Pool for risks associated with financial failure, as if it had executed a PIA with Subordination Clause Type 2.

Table 2 EXAMPLE *(illustrative only)*

Year	Year 1	Year 2	Year 3
Agreement Type	PIA with Subordination Clause Type 1	PIA with Subordination Clause Type 1	PIA with Subordination Clause Type 2
CRTs	100	100	100
Hypothetical Contribution to Buffer Pool (assume fire risk at 3%)	12%	12%	20%
CRTs contributed to Buffer Pool for Current Year	12 CRTs	12 CRTs	20 CRTs
Adjustment, based on applying current Buffer Pool contribution % to previous CRTs	8 CRTs	8 CRTs	8 + 8 + 20 = 36 Total CRTs due in Year 3



Appendix F – Warranty Easement Deed

(See following page.)



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Issued May 14 2010
\$3,084.00
by E MERITA LEWIS-SPENCER
Register of Deeds ID.51556
State Of Hyde
North Carolina County
Real Estate Excise Tax

Filed in Hyde County, NC
on May 14 2010 at 02:25:55 PM
by E MERITA LEWIS-SPENCER
Register of Deeds
Book 241 Page 719

**WARRANTY EASEMENT DEED
WETLANDS RESERVE PROGRAM
AGREEMENT NO. 66-4532-8-003/6645320800MHX
MATTAMUSKEET VENTURES I, LLC**

Prepared by:
USDA – Natural Resource Conservation Service
4407 Bland Road, Suite 117
Raleigh, NC 27609

md: Attorney Danny Harrington 5/18/2010
P.O. Box 1726
Greenville, NC 27835



U.S. DEPARTMENT OF AGRICULTURE
COMMODITY CREDIT CORPORATION

CCC-1255
6-25-00
OMB No. 0578-0013

Warranty Easement Deed Book 241 Page 720

**WETLANDS RESERVE PROGRAM
AGREEMENT NO.6645320800MHX**

THIS WARRANTY EASEMENT DEED is made by and between Mattamuskeet Ventures I, LLC, of P.O. Box 128, Fairfield, NC 27826 (hereafter referred to as the "Landowner"), Grantor(s), and the **UNITED STATES OF AMERICA**, by and through the Commodity Credit Corporation (CCC) (hereafter referred to as the "United States"), Grantee. The Landowner and the United States are jointly referred to as the "Parties". The acquiring agency of the United States is the Natural Resources Conservation Service (NRCS), United States Department of Agriculture.

Witnesseth:

Purposes and Intent. The purpose of this easement is to restore, protect, manage, maintain, and enhance the functional values of wetlands and other lands, and for the conservation of natural values including fish and wildlife and their habitat, water quality improvement, flood water retention, groundwater recharge, open space, aesthetic values, and environmental education. It is the intent of CCC to give the Landowner the opportunity to participate in the restoration and management activities on the easement area.

Authority. This easement deed acquisition is authorized by Title XII of the Food Security Act of 1985, as amended (16 U.S.C. §3837), for the Wetlands Reserve Program.

NOW THEREFORE, for and in consideration of the sum of One Million Five Hundred Forty One Thousand Eight Hundred Fifty Two Dollars (\$1,541,852.), the Grantor(s), hereby grants and conveys with general warranty of title to the UNITED STATES OF AMERICA and its assigns, the Grantee, forever, all rights, title and interest in the lands comprising the easement area described in Part I and appurtenant rights of access to the easement area, but reserving to the Landowner only those rights, title, and interest expressly enumerated in Part II. It is the intention of the Landowner to convey and relinquish any and all other property rights not so reserved. This easement shall constitute a servitude upon the land so encumbered; shall run with the land in perpetuity; and shall bind the Landowner, (the Grantor(s)), their heirs, successors, assigns, lessees, and any other person claiming under them.



SUBJECT, however, to all valid rights of record, if any.

PART I. Description of the Easement Area. The lands encumbered by this easement deed, referred to hereafter as the easement area, are described on EXHIBIT A which is appended to and made a part of this easement deed.

TOGETHER with a right of access for ingress and egress to the easement area across adjacent or other properties of the Landowner. Such a right-of-way for access purposes is described in EXHIBIT B which is appended to and made a part of this easement deed.

PART II. Reservations in the Landowner on the Easement Area. Subject to the rights, title, and interest conveyed by this easement deed to the United States, the Landowner reserves:

- A. **Title.** Record title, along with the Landowner's right to convey, transfer, and otherwise alienate title to these reserved rights.
- B. **Quiet Enjoyment.** The right of quiet enjoyment of the rights reserved on the easement area.
- C. **Control of Access.** The right to prevent trespass and control access by the general public subject to the operation of State and Federal law.
- D. **Recreational Uses.** The right to undeveloped recreational uses, including hunting and fishing, and including leasing of such rights for economic gain, pursuant to applicable State and Federal regulations that may be in effect at the time.
- E. **Subsurface Resources.** The right to oil, gas, minerals, and geothermal resources underlying the easement area, provided that any drilling or mining activities are to be located outside the boundaries of the easement area, unless activities within the boundaries are specified in accordance with the terms and conditions of EXHIBIT C

PART III. Obligations of the Landowner. The Landowner shall comply with all terms and conditions of this easement, including the following:

- A. **Prohibitions.** Without otherwise limiting the rights of the United States acquired hereunder, it is expressly understood that the rights to the following activities and uses have been acquired by the United States and, unless authorized by the United States under Part IV, are prohibited of the Landowner on the easement area:
 - 1. haying, mowing, or seed harvesting for any reason;



2. altering of grassland, woodland, wildlife habitat or other natural features by burning, digging, plowing, disking, cutting or otherwise destroying the vegetative cover;
3. dumping refuse, wastes, sewage, or other debris;
4. harvesting wood products;
5. draining, dredging, channeling, filling, leveling, pumping, diking, impounding, or related activities, as well as altering or tampering with water control structures or devices;
6. diverting or causing or permitting the diversion of surface or underground water into, within, or out of the easement area by any means;
7. building or placing buildings or structures on the easement area;
8. planting or harvesting any crop;
9. grazing or allowing livestock on the easement area; and
10. disturbing or interfering with the nesting or brood-rearing activities of migratory birds.

- B. Noxious Plants and Pests. The Landowner is responsible for noxious weed control and emergency control of pests as required by all Federal, State, and local laws. A plan to control noxious weeds and pests must be approved in writing by CCC prior to implementation by the Landowner.
- C. Fences. Except for establishment cost incurred by the United States and replacement cost not due to the Landowner's negligence or malfeasance, all other costs involved in maintenance of fences and similar facilities to exclude livestock shall be the responsibility of the Landowner.
- D. Taxes. The Landowner shall pay any and all real property and other taxes and assessments, if any, which may be levied against the land.
- E. Reporting. The Landowner shall report to CCC any conditions or events which may adversely affect the wetland, wildlife, and other natural values of the easement area.

PART IV. Allowance of Compatible Uses by the Landowner.

- A. General. The United States may authorize, in writing and subject to such terms and conditions CCC may prescribe at its discretion, the use of the easement area for compatible economic uses, including, but not limited to, managed timber harvest, periodic haying, or grazing.
- B. Limitations. Compatible use authorizations will only be made if, upon a determination by CCC in the exercise of its discretion and rights, that the proposed use is consistent with the long-term protection and enhancement of the wetland and other natural values of the easement area. CCC shall prescribe the amount, method, timing, intensity, and duration of the compatible use.



PART V. Rights of the United States. The rights of the United States include:

- A. **Management activities.** The United States shall have the right to enter unto the easement area to undertake, at its own expense or on a cost-share basis with the Landowner or other entity, any activities to restore, protect, manage, maintain, enhance, and monitor the wetland and other natural values of the easement area. The United States, at its own cost, may apply to or impound additional waters on the easement area in order to maintain or improve wetland and other natural values.
- B. **Access.** The United States has a right of reasonable ingress and egress to the easement area over the Landowner's property, whether or not the property is adjacent or appurtenant to the easement area, for the exercise of any of the rights of the United States under this easement deed. The authorized representatives of the United States may utilize vehicles and other reasonable modes of transportation for access purposes. To the extent practical, the United States shall utilize the access identified in EXHIBIT B.
- C. **Easement Management.** The Secretary of Agriculture, by and through CCC may delegate all or part of the management, monitoring or enforcement responsibilities under this easement to any entity authorized by law that CCC determines to have the appropriate authority, expertise and resources necessary to carry out such delegated responsibilities. State or federal agencies may utilize their general statutory authorities in the administration of any delegated management, monitoring or enforcement responsibilities for this easement. The authority to modify or terminate this easement (16 U.S.C. §3837e(b)) is reserved to CCC in accordance with applicable law.
- D. **Violations and Remedies - Enforcement.** The Parties agree that this easement deed may be introduced in any enforcement proceeding as the stipulation of the Parties hereto. If there is any failure of the Landowner to comply with any of the provisions of this easement deed, the United States or other delegated authority shall have any legal or equitable remedy provided by law and the right:
 - 1. To enter upon the easement area to perform necessary work for prevention of or remediation of damage to wetland or other natural values; and,
 - 2. To assess all expenses incurred by the United States (including any legal fees or attorney fees) against the Landowner, to be owed immediately to the United States.



PART VI. General Provisions.

- A. **Successors in Interest.** The rights granted to the United States shall accrue to any of its agents, successors, or assigns. All obligations of the Landowner under this easement deed shall also bind the Landowner's heirs, successors, agents, assigns, lessees, and any other person claiming under them. All the Landowners who are parties to this easement deed shall be jointly and severally liable for compliance with its terms.
- B. **Rules of Construction and Special Provisions.** All rights in the easement area not reserved by the Landowner shall be deemed acquired by the United States. Any ambiguities in this easement deed shall be construed in favor of the United States to effect the wetland and conservation purposes for which this easement deed is being acquired. The property rights of the United States acquired under this easement shall be unaffected by any subsequent amendments or repeal of the Wetlands Reserve Program. If the Landowner receives the consideration for this easement in installments, the Parties agree that the conveyance of this easement shall be totally effective upon the payment of the first installment.

PART VII. SPECIAL Provisions (if any).

- A. Exhibit B is contained in and hereby made a part of Exhibit A. Therefore, there is no Exhibit B attached to this Warranty Easement Deed.
- B. There are no Subsurface Resources known. Therefore, there is no Exhibit C attached to this Warranty Easement Deed.



TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed.

Dated this 29 day of April, 2010.

Landowner(s): Mattamuskeet Ventures I, LLC

By: [Signature]
Hoyt G. Lowder, Member

ACKNOWLEDGMENT

STATE OF

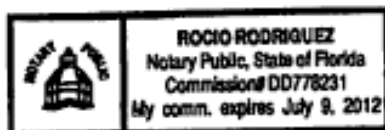
Florida

COUNTY OF

DeSoto

On this 29th day of April, 2010, before me, the undersigned, a Notary Public in and for said State personally appeared Hoyt G. Lowder, known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.



Rocio Rodriguez
[Signature]
Notary Public for the State of Florida
Residing at _____
My Commission Expires July 9, 2010



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Book 241 Page 726

TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed.

Dated this 28 day of April, 2010

Landowner(s): Mattamuskeet Ventures I, LLC

By: [Signature]
Benjamin C. Simmons, Jr., Member

ACKNOWLEDGMENT

STATE OF

COUNTY OF

On this 28 day of April, 2010, before me, the undersigned, a Notary Public in and for said State personally appeared Benjamin C. Simmons, Jr. known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

Stephanie G. Cahoon



[Signature]
Notary Public for the State of North Carolina
Residing at Hyde
My Commission Expires Sept. 24, 2011



TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed.

Dated this 28 day of April, 2010.

Landowner(s): Mattamuskeet Ventures I, LLC

By: Thomas John Harrison
Thomas John Harrison

ACKNOWLEDGMENT

STATE OF

COUNTY OF

On this 28 day of Apr., 2010, before me, the undersigned, a Notary Public in and for said State personally appeared Thomas John Harrison, known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that he executed the same as written free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.

Beth Carraway Brice
Beth Carraway Brice
Notary Public for the State of NC
Residing at Washington Co.
My Commission Expires June 7, 2011





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TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed.

Dated this 28th day of April, 2010.

Landowner(s): Mattamuskeet Ventures I, LLC

By: W. G. Blount & Sons Farm Limited Partnership, Member

By: W. G. Blount
W. G. Blount, General Partner

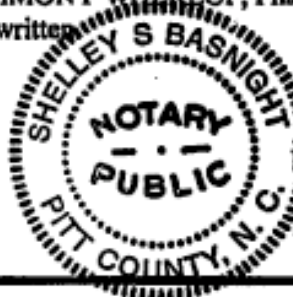
ACKNOWLEDGMENT

STATE OF

COUNTY OF

On this 28th day of April, 2010, before me, the undersigned, a Notary Public in and for said State personally appeared W. G. Blount, known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that he executed the same as his free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.



Shelley S. Basnight

Shelley S. Basnight
Notary Public for the State of North Carolina
Residing at Pitt County
My Commission Expires April 1, 2011.



TO HAVE AND TO HOLD, this Warranty Easement Deed is granted to the United States of America and its assigns forever. The Landowner covenants that he, she, or they are vested with good title to the easement area and will warrant and defend the same on behalf of the United States against all claims and demands. The Landowner covenants to comply with the terms and conditions enumerated in this document for the use of the easement area and adjacent lands for access, and to refrain from any activity not specifically allowed or that is inconsistent with the purposes of this easement deed.

Dated this 3 day of May, 2010.

Landowner(s): Mattamuskeet Ventures I, LLC

By: Parks Marital Trust

By: Elizabeth J. Parks
Trustee
Elizabeth J. Parks

ACKNOWLEDGMENT

STATE OF NORTH CAROLINA

COUNTY OF CUMBERLAND

On this 3 day of May, 2010, before me, the undersigned, a Notary Public in and for said State personally appeared Elizabeth J. Parks, known or proved to me to be the person(s) described in and who executed the foregoing instrument, and acknowledged that she executed the same as her free act and deed.

IN TESTIMONY WHEREOF, I have hereunto set my hand and official seal the day and year first above written.



Beatrice Breitenfeld

Beatrice Breitenfeld
Notary Public for the State of North Carolina
Residing at Cumberland County
My Commission Expires February 20, 2015



This instrument was drafted by the Office of the General Counsel, U.S. Department of Agriculture, Washington, D.C. 20250-1400.

OMB DISCLOSURE STATEMENT

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0578-0013. The time required to complete this information collection is estimated to average 0.69 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

NONDISCRIMINATION STATEMENT

The United States Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.). Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (202) 720-5964.



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**WETLANDS RESERVE PROGRAM
AGREEMENT NO. 66453200800MHX**

UNITED STATES DEPARTMENT OF AGRICULTURE

ACCEPTANCE BY GRANTEE OF PROPERTY INTEREST BY THE NATURAL
RESOURCES CONSERVATION SERVICE

I, J. B. Martin, Jr., State Conservationist, being the duly authorized representative of the Natural Resources Conservation Service, United States Department of Agriculture, do hereby accept this Conservation Easement Deed (NRCS Wetlands Reserve Program Warranty Easement Deed #6645320800MHX) acting on behalf of the United States of America, Grantee.

5/13/2010
Date

[Signature]
State Conservationist
Authorized Signatory for the USA, USDA, NRCS

ACKNOWLEDGEMENT

STATE OF NORTH CAROLINA
COUNTY OF WAKE

I, Kelly L. Grimes, a Notary Public for the aforesaid County and State, do hereby certify that this day personally appeared J.B. Martin, Jr., as the duly authorized representative of the Natural Resources Conservation Service, United States Department of Agriculture, acting on behalf of the United States of America, whose name is signed to the foregoing writing bearing the date May 13, 2010, who is known to me, acknowledged the same before me in the County and State aforesaid on this day that being informed of the contents of this conveyance, he/she, as the duly authorized representative, executed the same voluntarily for and as the act of the United States of America.

Given under my hand this 13th day of May, 2010.



[Signature]
NOTARY PUBLIC

My Commission expires: 3/5/2011

**LEGAL DESCRIPTION – MATTAMUSKEET VENTURE I, LLC PROPERTY
HYDE COUNTY****EASEMENT DESCRIPTION – TRACT I**

BEING all that tract of land containing 2,100.18 acres more or less, located in Lake Landing Township, Hyde County, North Carolina; and bounded by lands owned by and/or in possession of persons as follows: on the north and east by United States of America (Alligator River NWR) on the south by Mattamuskeet Ventures I, LLC and on the west by Edward C. Maubry, Jr. and being more particularly described by courses based on North Carolina Grid Coordinate System North (NAD 83-NSRS 2007) and distances according to a survey entitled "WRP Conservation Easement Survey Plat on the lands of Mattamuskeet Ventures I, LLC for United States Department of Agriculture" by McKim and Creed, P.A., dated January 23, 2009 and being more particularly described as follows:

COMMENCING at an iron rod set on the northeastern edge of 4th Avenue West (Bear Track Road) near the intersection of 4th Avenue West (Bear Track Road) and 7th Street West (Copperhead Road), said iron rod having N.C. Grid (NAD 83-NSRS 2007) Coordinates N = 701,238.10 feet, E = 2,853,665.81 feet; thence with tie lines the following three calls: (1) south 65 deg. 15 min. 59 sec. east 4,448.33 feet to an iron rod set on the southwestern edge of 4th Avenue West (Bear Track Road), (2) south 65 deg. 39 min. 32 sec. east 4,391.65 feet to an iron rod set at the centerline intersection of 4th Avenue West (Bear Track Road) and 5th Street West (Fox Den Road) and (3) north 57 deg. 22 min. 04 sec. east 45.00 feet to an iron rod set on the eastern edge of 5th Street West (Fox Den Road); the POINT OF BEGINNING; thence with new lines with Mattamuskeet Ventures I, LLC the following two calls: (1) along the eastern edge of 5th Street West (Fox Den Road) north 41 deg. 05 min. 26 sec. east 2,660.13 feet to an iron rod set in the northern edge of 4th ½ Avenue West (Powder Horn Road) and (2) along the northern edge of 4th ½ Avenue West (Powder Horn Road) north 65 deg. 21 min. 41 sec. west 11,310.53 feet to an iron rod set in the western property line of Mattamuskeet Ventures I, LLC; thence with the western property line of Mattamuskeet Ventures I, LLC north 52 deg. 27 min. 09 sec. east 3,135.86 feet to an iron rod set in the northern property line of Mattamuskeet Ventures I, LLC; thence with the northern property line of Mattamuskeet Ventures I, LLC and contiguous with the property line of United States of America (Alligator River National Wildlife Refuge (NWR) along the southern edge of 5th Avenue West (Pocosin Swamp Road) south 64 deg. 31 min. 28 sec. east 22,801.87 feet to an aluminum monument found, thence with the eastern property line of Mattamuskeet Ventures I, LLC and contiguous with United States of America (Alligator River NWR) south 42 deg. 43 min. 59 sec. west 5,265.75 feet to an iron rod set; thence with a new line with Mattamuskeet Ventures I, LLC approximately 40 feet north of the centerline of 4th



Avenue West(Bear Track Road) north 65 deg. 17 min. 48 sec. west 12,070.03 feet to an iron rod set, the BEGINNING iron rod.

INGRESS/EGRESS EASEMENT DESCRIPTION TO TRACT I

Ingress and egress to the above tract is along the centerline of the following roads shown on Plat Cabinet B, Slide 7B; First Street(Rock Road) (allowing 150 feet right-of-way), 4th Avenue West(Bear Track Road)(allowing 100 right-of-way) for 3,700 feet from the intersection of First Street(Rock Road), (60 feet right-of-way from that point forward) and 5th Street West(Fox Den Road)(allowing 60 feet right-of-way), the centerline of aforesaid roads being described as follows:

BEGINNING at a Nail Found, said Nail being where the intersection of First Street (Rock Road) intersects with the centerline of North Lake Road (SR 1311); thence with the centerline of First Street (allowing 75 feet on each side of the centerline) the following thirteen calls: (1) north 30 deg. 09 min. 41 sec. east 2,457.23 feet to an iron pipe found, (2) with a curve to the right having a radius of 370.50 feet, an arc length of 279.26 feet and a chord bearing and distance of north 51 deg. 44 min. 57 sec. east 272.70 feet to an iron pipe found, (3) north 73 deg. 20 min. 33 sec. east 1,212.66 feet to an iron pipe found, (4) with a curve to the left having a radius of 1,340.19 feet, an arc length of 730.33 feet and a chord bearing and distance of north 57 deg. 42 min. 13 sec. east 721.32 feet to an iron pipe found, (5) north 42 deg. 06 min. 52 sec. east 810.29 feet to an iron pipe found, (6) north 41 deg. 55 min. 23 sec. east 2,842.06 feet to an iron pipe found, (7) north 43 deg. 08 min. 02 sec. east 36.78 feet to an iron pipe found, (8) north 41 deg. 48 min. 23 sec. east 2,932.89 feet to a nail found, (9) north 42 deg. 04 min. 57 sec. east 2,775.79 feet to a nail set, (10) north 37 deg. 01 min. 53 sec. east 1,787.39 feet to a nail set, (11) north 36 deg. 47 min. 20 sec. east 2,749.78 feet to a nail set, (12) north 36 deg. 48 min. 28 sec. east 3,621.18 feet to a nail set and (13) north 36 deg. 21 min. 32 sec. east 2,702.27 feet to an iron pipe found in the centerline intersection of First Street(Rock Road) and 4th Avenue West(Bear Track Road), said iron pipe found being north 74 deg. 13 min. 13 sec. west 31.88 feet from an aluminum monument found marking the southeast corner of United States of America (Alligator River NWR) Plat Cabinet "C" Slide 70L, thence with the centerline of 4th Avenue West(Bear Track Road) (allowing 50 feet on each side of the centerline for 3,700 feet) the following ten calls: (1) north 73 deg. 53 min. 45 sec. west 2,965.12 feet to an iron rod set, (2) north 75 deg. 26 min. 09 sec. west 362.20 feet to a computed point, (3) with a curve to the right having a radius of 500.00 feet, an arc length of 176.89 feet and a chord bearing and distance of north 65 deg. 18 min. 02 sec. west 175.97 feet to a computed point, (4) with a curve to the left having a radius of 200.00 feet, an arc length of 66.20 feet and a chord bearing and distance of north 64 deg. 38 min. 53 sec. west 65.90 feet to a computed point, (5) north 74 deg. 07 min. 50 sec. west 133.69 feet to a computed point (end of 100 feet right-of-way), (6)



allowing 30 feet on each side of the centerline north 74 deg. 07 min. 50 sec. west 177.91 feet to a computed point, (7) north 76 deg. 07 min. 18 sec. west 2,277.60 feet to a computed point, (8) north 73 deg. 44 min. 39 sec. west 4,047.72 feet to a computed point, (9) north 65 deg. 11 min. 15 sec. west 2,626.34 feet to an iron rod set in the eastern property line of Mattamuskeet Ventures I, LLC and (10) north 65 deg. 17 min. 06 sec. west 12,081.18 feet to an iron rod set in the centerline intersection of 5th Street West(Fox Den Road); thence with the centerline of 5th Street West(Fox Den Road)(allowing 30 feet on each side) the following two calls: (1) north 41 deg. 03 min. 56 sec. east 2,363.79 feet to a nail set and (2) north 43 deg. 23 min. 28 sec. east 339.80 feet to an iron rod set, said iron rod being a new corner with Mattamuskeet Ventures I, LLC on the northern edge of 4th ½ Avenue West(Powder Horn Road); the point of termination.

EASEMENT DESCRIPTION – TRACT II

BEING all that tract of land containing 271.90 acres more or less, located in Lake Landing Township and Fairfield Township, Hyde County, North Carolina; and bounded by lands owned by and/or in possession of persons as follows: on the north, east and south by other lands of Mattamuskeet Ventures I, LLC and on the west by Intracoastal Properties, LLC and being more particularly described by courses based on North Carolina Grid Coordinate System North (NAD 83-NSRS 2007) and distances according to a survey entitled "WRP Conservation Easement Survey Plat on the lands of Mattamuskeet Ventures I, LLC for United States Department of Agriculture" by McKim and Creed, P.A., dated January 23, 2009 and being more particularly described as follows:

COMMENCING at an iron rod set on the northeastern edge of 4th Avenue West (Bear Track Road) near the intersection of 4th Avenue West (Bear Track Road) and 7th Street West (Copperhead Road), said iron rod having N.C. Grid (NAD 83-NSRS 2007) Coordinates N = 701,238.10 feet, E = 2,853,665.81 feet; thence with tie lines the following two calls: (1) south 40 deg. 20 min. 01 sec. west 24.67 feet to an iron rod found at the centerline intersection of 4th Avenue West (Bear Track Road) and 7th Street West(Copperhead Road) and (2) south 79 deg. 58 min. 08 sec. west 25.26 feet to an iron rod set in the southern edge of 4th Avenue West(Bear Track Road) and the western edge of 7th Street West(Copperhead Road); the POINT OF BEGINNING; thence with new lines with Mattamuskeet Ventures I, LLC the following two calls: (1) along the western edge of 7th Street West(Copperhead Road) south 42 deg. 47 min. 54 sec. west 4,096.77 feet to an iron rod set in the northern edge of 3rd Avenue West (Covey Rise Road) and (2) along the northern edge of 3rd Avenue West (Covey Rise Road) north 64 deg. 42 min. 43 sec. west 3,049.60 feet to an iron rod set in the western property line of Mattamuskeet Ventures I, LLC; thence with the western property line of Mattamuskeet Ventures I, LLC north 42 deg. 48 min. 32 sec. east 3,908.10 feet to an iron rod set; thence with new lines with Mattamuskeet Ventures I,

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LLC the following two calls: (1) south 81 deg. 36 min. 21 sec. east 129.37 feet to an iron rod set and (2) north 15 deg. 38 min. 38 sec. east 106.76 feet to an iron rod set on the southern edge of 4th Avenue West(Bear Track Road); thence with southern edge of 4th Avenue West(Bear Track Road) south 65 deg. 25 min. 27 sec. west 3,000.02 feet to an iron rod set, the BEGINNING iron rod.

INGRESS/EGRESS EASEMENT DESCRIPTION TO TRACT II

Ingress and egress to the above tract is along the centerline of the following roads shown on Plat Cabinet B, Slide 7B; First Street(Rock Road) (allowing 150 feet right-of-way), 4th Avenue West(Bear Track Road)(allowing 100 right-of-way) for 3,700 feet from the intersection of First Street(Rock Road), (60 feet right-of-way from that point forward) and 5th Street West(Fox Den Road)(allowing 60 feet right-of-way), the centerline of aforesaid roads being described as follows:

BEGINNING at a Nail Found, said Nail being where the intersection of First Street (Rock Road) intersects with the centerline of North Lake Road (SR 1311); thence with the centerline of First Street (allowing 75 feet on each side of the centerline) the following thirteen calls: (1) north 30 deg. 09 min. 41 sec. east 2,457.23 feet to an iron pipe found, (2) with a curve to the right having a radius of 370.50 feet, an arc length of 279.26 feet and a chord bearing and distance of north 51 deg. 44 min. 57 sec. east 272.70 feet to an iron pipe found, (3) north 73 deg. 20 min. 33 sec. east 1,212.66 feet to an iron pipe found, (4) with a curve to the left having a radius of 1,340.19 feet, an arc length of 730.33 feet and a chord bearing and distance of north 57 deg. 42 min. 13 sec. east 721.32 feet to an iron pipe found, (5) north 42 deg. 06 min. 52 sec. east 810.29 feet to an iron pipe found, (6) north 41 deg. 55 min. 23 sec. east 2,842.06 feet to an iron pipe found, (7) north 43 deg. 08 min. 02 sec. east 36.78 feet to an iron pipe found, (8) north 41 deg. 48 min. 23 sec. east 2,932.89 feet to a nail found, (9) north 42 deg. 04 min. 57 sec. east 2,775.79 feet to a nail set, (10) north 37 deg. 01 min. 53 sec. east 1,787.39 feet to a nail set, (11) north 36 deg. 47 min. 20 sec. east 2,749.78 feet to a nail set, (12) north 36 deg. 48 min. 28 sec. east 3,621.18 feet to a nail set and (13) north 36 deg. 21 min. 32 sec. east 2,702.27 feet to an iron pipe found in the centerline intersection of First Street(Rock Road) and 4th Avenue West(Bear Track Road), said iron pipe found being north 74 deg. 13 min. 13 sec. west 31.88 feet from an aluminum monument found marking the southeast corner of United States of America (Alligator River NWR) Plat Cabinet "C" Slide 70L, thence with the centerline of 4th Avenue West(Bear Track Road) (allowing 50 feet on each side of the centerline for 3,700 feet) the following eleven calls: (1) north 73 deg. 53 min. 45 sec. west 2,965.12 feet to an iron rod set, (2) north 75 deg. 26 min. 09 sec. west 362.20 feet to a computed point, (3) with a curve to the right having a radius of 500.00 feet, an arc length of 176.89 feet and a chord bearing and distance of north 65 deg. 18 min. 02 sec. west 175.97 feet to a computed point, (4) with a curve to the left having a radius



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of 200.00 feet, an arc length of 66.20 feet and a chord bearing and distance of north 64 deg. 38 min. 53 sec. west 65.90 feet to a computed point, (5) north 74 deg. 07 min. 50 sec. west 133.69 feet to a computed point (end of 100 feet right-of-way), (6) allowing 30 feet on each side of the centerline north 74 deg. 07 min. 50 sec. west 177.91 feet to a computed point, (7) north 76 deg. 07 min. 18 sec. west 2,277.60 feet to a computed point, (8) north 73 deg. 44 min. 39 sec. west 4,047.72 feet to a computed point, (9) north 65 deg. 11 min. 15 sec. west 2,626.34 feet to an iron rod set in the eastern property line of Mattamuskeet Ventures I, LLC, (10) north 65 deg. 17 min. 06 sec. west 12,081.18 feet to an iron rod set in the centerline intersection of 5th Street West(Fox Den Road) and (11) north 65 deg. 36 min. 55 sec. west 8,846.68 feet to an iron rod found in the centerline intersection of 4th Avenue West(Bear Track Road) and 7th Street West(Copperhead Road); thence with the centerline of 7th Street West(Copperhead Road) allowing 30 feet on each side of the centerline south 42 deg. 49 min. 06 sec. west 270.12 feet to an iron rod set; thence north 47 deg. 12 min. 06 sec. west 15.17 feet to an iron rod set in the eastern WRP easement line described above, the point of termination.



3/2

Change Due: \$0.00

Total \$3,149.00
Amount Tendered: \$3,149.00
Check Amt \$3,149.00 Ref#

# of Item	Charges	Amount
ITEM #1		
18	EASEMENT	\$65.00
ITEM #2		
1	EXCISE STAMPS	\$3,084.00

5/14/2010 2:28:00 pm MERTTA
Transaction# 18875
EMERITALEWISSPENCER
Registrar of Deeds
Hyde County NC
Client CASH

APPENDIX G – CAR Forest Calculation Worksheet

Type of Project: <i>Avoided Conversion</i>		Data determined by Forest Owner at each verification									
		Data determined by Forest Owner at time project is registered									
		Data calculated automatically									
Reporting Period Data entered for <u>end</u> of each Period; after Period 2, each Period = 12 months		Initial Data at Start Date	1 (Start Date to Initial Verification)	2 (Can be Partial Year)	3	4	5	6	7	8	9
Calc Row	Calculating GHG Reductions/Removals for Onsite Carbon Stocks - All Project Types										
1	Actual Onsite Carbon Stocks (tonnes CO ₂ e)	410,634	415,413							-	-
2	Confidence Deduction	1.5%	1.5%								
3	Adjusted Actual Onsite Carbon Stocks (adjusted for confidence deduction) (tonnes CO ₂ e)	404,474	409,182	-	-	-	-	-	-	-	-
4	Increment in Actual Onsite Carbon Stocks (tonnes CO ₂ e)		4,707	-	-	-	-	-	-	-	-
5	Baseline Onsite Carbon Stocks (tonnes CO ₂ e)	410,634	325,085								
6	Increment in Baseline Onsite Carbon Stocks (tonnes CO ₂ e)		(85,549)	-	-	-	-	-	-	-	-
7	Quantified GHG Reductions / Removals for Onsite Carbon Stocks (tonnes CO ₂ e)	(6,160)	90,256	-	-	-	-	-	-	-	-
Calc Row	Calculating Carbon Stored in Wood Products Including Market Effects and Leakage - All Project Types										



8	Actual Carbon in Trees Harvested for Wood Products in (tonnes CO ₂ e)		-	-							
9	Baseline Carbon in Trees Harvested for Wood Products (tonnes CO ₂ e)		-	-							
10	Actual Carbon in Harvested Wood Delivered to Mills (tonnes CO ₂ e)		-	-							
11	Baseline Carbon in Harvested Wood Delivered to Mills (tonnes CO ₂ e)		-	-							
12	Actual Carbon Stored Long-term in Wood Products (tonnes CO ₂ e) - Excl Landfill	0	0	0	0	0	0	0	0	0	0
13	Actual Carbon Stored Long-term in Wood Products (tonnes CO ₂ e) - Incl Landfill	0	0	0	0	0	0	0	0	0	0
14	Baseline Carbon Stored Long-term in Wood Products (tonnes CO ₂ e) - Excl Landfill	0	0	0	0	0	0	0	0	0	0
15	Baseline Carbon Stored Long-term in Wood Products (tonnes CO ₂ e) - Incl Landfill	0	0	0	0	0	0	0	0	0	0
16	Diff Between Actual and Baseline Carbon in Harvested Wood (tonnes CO ₂ e) - Excl Landfill	0	0	0	0	0	0	0	0	0	0
17	Difference Between Actual and Baseline Carbon in Harvested Wood (tonnes CO ₂ e) - Incl Landfill	0	0	0	0	0	0	0	0	0	0
18	Difference in Actual and Baseline Carbon Stored in Wood Products (tonnes CO ₂ e) - Landfill Adj	0	0	0	0	0	0	0	0	0	0
19	GHG Reductions / Removals for Carbon Stored in Wood Products (tonnes CO ₂ e) w/ mkt response	0	0	0	0	0	0	0	0	0	0



Calc Row	Calculation Other Secondary Effects - Reforestation Projects									
20	Mobile Combustion Emission Factor (average tonnes CO ₂ e per acre)									
21	Initial Site Prep Acres in Project Area (Acres)									-
22	One-time combustion emissions associated with machinery use in site preparation (CO ₂ e tonnes)		-	-	-	-	-	-	-	-
23	Leakage Risk Percentage for Leakage from Shifting Cropland and Grazing Activities (%)			0%	0%	0%	0%	0%	0%	0%
24	Secondary Effect emissions due to shifting cropland or grazing activities (tonnes CO ₂ e)		-	-	-	-	-	-	-	-
25	Other Secondary Effect Emissions for Reforestation Projects (tonnes CO ₂ e)		NA	NA	NA	NA	NA	NA	NA	NA
Calc Row	Calculating Other Secondary Effects - Improved Forest Management Projects									
26	Difference Between Actual and Baseline Carbon in Harvested Wood (tonnes CO ₂ e)	-	-	-	-	-	-	-	-	-
27	Other Secondary Effects Emissions (shifting activities/materials) IFM Projects	NA	NA	NA	NA	NA	NA	NA	NA	NA



	(tonnes CO ₂ e)											
Calc Row	Determining the Uncertainty Discount Factor and Calculating Other Secondary Effects - Avoided Conversion Projects											
28	Appraised Fair Market Value of Anticipated Alternative Land Use of Project Area (000\$)	7,590,400										
29	Appraised Fair Market Value of the Current Forested Land use of Project Area (000\$)	1,186,000										
30	Avoided Conversion Discount Factor		0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
31	Quantified GHG Reductions / Removals for Onsite Carbon Stocks (tonnes CO ₂ e)		90,256	-	-	-	-	-	-	-	-	-
32	Other Secondary Effect Emissions for Avoided Conversion Projects (tonnes CO ₂ e)		(3,249)	-	-	-	-	-	-	-	-	-
Calc Row	Quantified GHG Reductions and Removals											
33	Annual GHG Reductions/Removals Net of Discounts and Secondary Effects (tonnes CO ₂ e)	-6,160	87,007	0	0	0	0	0	0	0	0	0
34	Cumulative GHG Reductions/Removals; <u>not</u> incl.neg. carryover or reversals (tonnes CO ₂ e)	0	87,007	87,007	87,007	87,007	87,007	87,007	87,007	87,007	87,007	87,007



35	Cumulative Negative Carryover from Prior Year (tonnes CO ₂ e)		-6,160	0	0	0	0	0	0	0	0
36	CRTs Issued - <u>Net</u> of Negative Carryover, <u>bef.</u> Buffer or adjust for Reversals (tonnes CO ₂ e)	0	80,847	0	0	0	0	0	0	0	0
Calc Row	Calculation of Buffer Pool Contribution										
37	Project Specific Reversal Risk Rating		20.9%								
38	Buffer Pool Contributions (CRTs)	-	16,898	-	-	-	-	-	-	-	-
Calc Row	Accounting for Reversals										
39	Annual Reversals (tonnes CO ₂ e)		-	-	-	-	-	-	-	-	-
40	Total "Avoidable Reversals" to be compensated by the Forest Owner (tonnes CO ₂ e)		-			-	-				
41	"Unavoidable Reversals" compensated by the Reserve from the Buffer Pool (tonnes CO ₂ e)		-	-	-	-	-	-	-	-	-
Calc Row	Compensating for Avoidable Reversals										
42	"Avoidable Reversals" compensated by retirement of CRTs in the Forest Owners Reserve Account (tonnes CO ₂ e)		-								



43	"Avoidable Reversals" compensated by retirement of CRTs issued to other Forest Projects Registered with the Reserve (tonnes CO2e)		-								
44	Carryover "Avoidable Reversals" which need to be compensated by Forest Owner (tonnes CO2e)		-	-	-	-	-	-	-	-	-
Calc Row	CRTs Issued to Account Holder										
45	Annual CRTs Issued to Account Holder	-	63,949	-	-	-	-	-	-	-	-
46	Cumulative CRTs Issued to Account Holder	-	63,949	63,949	63,949	63,949	63,949	63,949	63,949	63,949	63,949