I grew up spending my weekends and vacations working and playing on my grandfather's 400 acre farm in New Hampshire. Sunny Acres Farm was a wonderful place for a child to explore, play with cows, horses, pigs and chickens, and let his imagination run wild. When I was younger, working and living on the farm seemed like a life of leisure. My grandfather was always busy, but never seemed stressed, and got to play with animals and big machinery all day long. I now realize that running a farm is not a life of leisure. It is an everyday, hardworking way of life, with few opportunities to rest. However, grandpa loved working off the land and did it well enough to raise five children.

My grandfather passed away in 2001, the summer before I started my undergraduate studies at Babson College. One summer day in 2001 two strangers came to take away the remaining farm animals my grandfather sold to them after he came to grips with the fact that he could no longer maintain and keep his livestock healthy. It was a very sad day that left me feeling like my life was missing something. I decided that afternoon, before I started college or even considered a career in finance, that I would dedicate myself to eventually bringing the farm back to the way I remember it as a child.

Within his will, my grandfather had Sunny Acres Farm divided into five sections, one for each of his children. My Aunt Mary and mother Sara collectively own 118 acres, with Mary making the original farmhouse her full time residence, and my mother owning a small house my grandfather built in the 1970s. In addition, my mother was made the beneficiary of a lakeside cottage, 7 miles from the farm and my grandmother's current residence. As an heir apparent of both Aunt Mary and my mother, these properties may one day become my responsibility.

Of course, financially supporting these properties is a tremendous undertaking, never mind trying to operate a sustainable farm. Nevertheless, if given the opportunity, I am fully dedicated to maintaining my family's property and one day successfully operating the farm for my family and future generations to enjoy. I am excited and very fortunate to be in such a position, and have used this graduate school project as a starting point to understand the full cost of this responsibility and how I can financially make my estate dream a reality.

Sunny Acres Farm

Sunny Acres Farm consists of three large fields, two ponds, four running streams, and seemingly endless woodland. See Exhibit A for an aerial map of the property. In 1991 my grandfather placed a conservation easement on the 118 acres that was left to Aunt Mary and my mother with the Society for the Protection of New Hampshire Forests ("Forest Society"). The Conservation Easement Deed essentially placed the property in an irrevocable trust and so understanding its terms and conditions is important when planning for the future of the farm.

The Conservation Easement Deed is a legal document that limits use of the property to agriculture and forestry activity, restricts any industrial or commercial activities from being conducted, and is binding upon all future owners of the property in perpetuity. Agriculture and forestry activities include: animal husbandry, floriculture, and horticulture activities including the production of plant and animal products for domestic or commercial purposes, the growing, cutting and sale of trees, and the processing and sale of organic products produced on the property (such as apple cider and maple syrup). See Exhibit B for more specific Use Limitations.

By accepting the easement, the Forest Society agreed to ensure that all future owners of the property would honor its restrictions through annual aerial monitoring of the property, periodic contact with the land owners, and site visits. By donating the conservation easement my grandfather ensured that the property will remain the way he wanted it: as undivided "Open Space" forever, managed for the benefit of nature conservation. The designation as Open Space also provides owners of the property with significant tax benefits as New Hampshire's Current Use Taxation Statute 79-A states that land dedicated to the preservation of open space in New Hampshire is valued at only $150/acre for tax purposes, as opposed to the land's actual assed value, which is generally significantly more.[i]

There are two areas on the 118 acres excluded from the Easement with existing houses built upon them. The main farmhouse where Aunt Mary lives sits on 237,500 sqft of land (Lot 1 on Exhibit A) at the southwestern corner of the property. Additionally, a small 20x18ft house was left to my mother on 90,000 sqft of land (Lot 2) located in the northeastern corner, approximately 3/4 mile up a steep dirt road. The main farmhouse was built in the early

1800s, bought by my Great-Great-Aunt Ann in the early 1900s, and has been well maintained by my family over subsequent generations. My grandfather built my mother's house in 1970; however, it is now a tear down structure. No one has lived in the house for decades, its foundation is crumbling, and the siding is rotting.

My mother stated that Lot 2 is available for me to use and rebuild upon whenever I would like. Owning a log cabin has always been a dream of mine and this would be a wonderful location for me to build one. The site on top of Peaked Hill is peaceful and quiet, and could provide pristine mountain views with proper logging of trees. It also gives me the opportunity to start preparing for farm life while Aunt Mary is living in the main farmhouse. My goal is to build a log cabin over the next 15 years to move into by the time I turn 45 and use as my primary residence while I continue to work and put my children through college. Then, as I get used to country living again and hopefully save up enough money to retire by age 60, I can make caring for the farm estate and animals my full time job.

Log Cabin

Several factors make Lot 2 difficult and costly place to construct a home. Specifically, the location is very remote up a steep dirt road, there are no power lines running to the lot, and no septic system or water well. It is truly "off the grid." I have used part of this project as an opportunity to research the different cost components that go into building a year-round livable dwelling from the ground-up in order to better understand if building upon Lot 2 is feasible, and if so, what kind of log cabin I can afford.

The first step in building my log cabin is tearing down the existing house on Lot 2. The cost to demolish the existing house and removing the foundation is approximately $10,000.[ii] However, there is a very unique brick fireplace with a beehive oven that I would want to salvage, as well as some long wooden beams I would like to have incorporated into my cabin. Therefore, I may have to deconstruct the house rather than demolish it, which could cost upwards of $20,000.[iii]

There are also a number of systems that need to be installed before construction can even begin on a new log cabin. For example, a foundation needs to be built to the specification of my desired log cabin floor plan. I will also need to get a water well dug and septic system installed for access to drinking water and disposal of wastewater. Aunt Mary recently had both of these installed at the farmhouse and they cost $10,000 and $7,500, respectively. The cost of the well depends largely on how deep it needs to be to reach drinkable water. For Aunt Mary, the $10,000 cost was for a 400-foot deep well, which is presumably as deep as I would need to go given the proximity of Lots 1 and 2.

Once the site is ready to build upon, costs of constructing a livable home go far beyond just the expense of the structure. Insulation, electrical wiring, and plumbing pipes need to be installed throughout the cabin. There is also the need for a propane furnace and a tankless water heater for heating, as well as other miscellaneous site work costs to consider, such as staining of the logs. See Exhibit C for a full breakdown on my expected costs, which shows how a 2,000 – 2,500sqft log structure costing $165,000 equates to $596,500 in total home construction costs.

The next step is to figure out how to power and heat the cabin given the remoteness of the property from any public power source. Utility service in NH is provided by the Public Service of New Hampshire ("PSNH"). PSNH charges $11.40/foot to install power lines and poles.[iv] At a distance of 3/4 of a mile from the nearest power line, it would cost approximately $45,000 to have electricity and cable lines running to the cabin. An alternative is to construct a Zero Net Energy ("ZNE") cabin, which is a more environmentally friendly and energy efficient type of home.

ZNE homes are green homes that are built very airtight, highly insulated, and utilize energy efficient appliances, resulting in minimal heating and lighting energy use. Constructing a ZNE home costs approximately 10-15% more to build than a similar home built to code (after accounting for federal tax savings).[v] The pay back on these added costs ranges from 5 to 15 years through reduced energy bills. The Builder's Partnership is one of three full service remodeling and building contracting companies in New Hampshire, concentrating on energy efficient and ZNE homes.

With all aspects of my cabin built as energy efficient as possible, a combination of solar panels and a generator can then be used to provide the cabin's electricity needs. Solar panels can provide 40-80% of a house's energy requirements and cost approximately $15,000 to install.[vi] A 20kw light/medium duty air cooled generator would be sufficient to satisfy any remaining energy needs and costs about $2,500.[vii] The location of Lot 2 is ideal for utilizing solar panels to harness the sun's energy given that it is south facing on a hill with an open field in front of it and dense woods behind it. Therefore, the southern side of the cabin will contain most of the windows, and a porch overhang can be situated in such a way that blocks the sun's rays from entering the cabin in the summer, yet allows the sun to enter and warm the cabin in the winter when the sun rotates a lower arc across the sky.

Log cabins are naturally energy efficient for heating due to the logs' ability to absorb and slowly release heat.[viii] Most housing codes, however, require a back-up heating system, such as a wood stove or conventional furnace. Given the abundance of fire wood on the property and my personal preference, I will have the cabin built to include two stone chimneys in order to utilize wood stoves with fan blowers to heat the cabin. Log cabin structure kits are often only designed to accommodate fireplaces. Therefore, the quoted price does not include the immaculate fireplaces as shown in the brochures. I have always felt that a stone fireplace goes hand-in-hand with a log cabin. The added cost to build a stone chimney, including the stones, sand and cement, engineering and labor, runs upwards of $10,000, depending on size.[ix]

Once I finally have my dream log cabin constructed, I will be living on a sizeable amount of land that requires significant work to maintain, particularly if I want to care for farm animals. Speaking with family members over Thanksgiving was an eye opening experience into how much work is required. It amazes me that I never thought of grandpa as stressed out. Time and manual labor aside, there is a never-ending list of expensive equipment that is required to keep land suitable for a farm.

Machinery & Equipment

The equipment needed to maintain farmland can be categorized into the purposes of landscaping, excavation, logging, and haying. Due to the size of the fields and length of the road to Lot 2, I will need more heavy duty equipment than a simple push lawnmower and snow blower for landscaping. I will also need logging equipment to make and possibly sell firewood. According to neighbors in the area, I will burn through 2-3 cords of firewood a year to heat a 2,000 – 2,500sqft house (compared to 10 cords Aunt Mary needs to heat the farmhouse). Also, because my farm is located in the "Granite State," I will need a tractor with various attachments designed for excavating rocks and tree stumps as well as maintaining the ponds. Finally, since I plan on eventually housing farm animals over the winter, I will need haying equipment to feed them once the snow covers the fields. Exhibit D provides a breakdown for various types of equipment I have selected as necessary, which combined cost an estimated $67,800.

The primary machine I will need for landscaping is a tractor with a 3-point hitch system to which I can connect various attachments. The 26hp Kubota B2620 is an example of such a tractor, which costs approximately $17,000 depending on the attachments included in the package.[x] Even well-kept used tractors cost over $10,000. A 3-point system is handy because it allows you to increase and decrease the height of the attachment (i.e., to avoid hitting rocks), as well as to pivot the attachment right to left. The first attachment I will need is a rotary motor, or brush hog. This is essentially a lawnmower with thick metal blades useful for cutting thick grass, heavy bushes, weeds, and small trees. Aunt Mary currently has my grandfather's 54" rotary motor, which is an appropriate size; however, it has almost reached the end of its useful life. Another mower attachment needed is a sickle bar, which is a long saw blade that comes off the side of the tractor and allows you to mow steep and tight access areas, such as underneath fences. This attachment is important because the perimeter of the fields will need to be enclosed with electric fences to corral the farm animals. Further, electric fences need to be constantly cleared of any brush so that the electricity is not diverted from the fence to various objects in the environment, such as grass weeds or a tree limb. Once I am able to cut the fields I will need to use a landscape rake attachment to gather the debris and clean the fields. Landscape

rakes can also be used to aerate the soil to aid in seed planting. Finally, for winter landscaping I can attach both a snow plow blade as well as a snow blower to the tractor for clearing the snow and ice from transportation areas.

Excavation and logging work requires a more heavy duty tractor than the one used for landscaping. The Kubota diesel TLB26 is an example of such a tractor and costs approximately $30,000 depending on the attachments that are included.[xi] The primary attachments needed for excavation purposes are a front end loader and a backhoe. A front end loader is a bucket on an articulated arm that goes at the front of the tractor and is used for digging and loading earth. I will also want a rock bucket, which is similar to the standard front end loader but has spaces so that it collects rocks while allowing the excess dirt/sand and gravel to fall through. A third attachment I will need to be able to put at the front of the tractor is a pallet fork. A pallet fork essentially turns the tractor into a forklift and is used to transport material that is too long for a front end loader, such as a tree. A backhoe will go on the back of the tractor, which is a digging bucket at the end of a two-part articulated arm used for digging up rocks and tree stumps. There are also various other types of machinery I will need for logging, including a wood splitter to break lumber down into firewood as well as a wood chipper.

Once I retire and have time to care for farm animals, I will need to purchase various tractor attachments designed for haying the fields so that I can have adequate food supply available for the animals when the weather makes grazing too difficult. Haying is an intricate and time consuming process that involves cutting grass at a particular maturity stage, then allowing the sun time to dry the grass into hay, then raking the hay into long, narrow piles known as windrows, and finally bailing the hay and storing it in a covered barn. Each of these stages requires separate equipment. The rotary motor used for landscaping can be used to initially cut the grass. Then a hay tedder uses spinning forks to aerate the grass and speed up the drying process. A hay rake than cuts the hay into windrows for bailing. A hay bailer is then used to compresses the raked hay into compact square bales. Lastly, a hay grapalator is used to gather all the hay bales and stack them in organized piles in the barn.

In addition to hay, farm animals require shelter and access to water, particularly if they are going to be kept year-round. This is a very demanding undertaking both in terms of financial and labor requirements. I will use the backhoe on the tractor to continually dig out the ponds to ensure the animals always have access to water while they are outside. However, when they are inside the barn during the winter, running water has to be provided to the various stalls. Maintaining a working barn with running water is very difficult, especially in the winter when the pipes frequently freeze. Given the time commitment farm animals require, I am reluctant to take on such a responsibility while working a full time job. However, once I can financially afford to retire from my full-time job I would love to raise and care for farm animals the way my grandfather did.

Farm Animals

Farm animals provide great companionship, protection, food and other byproducts such as wool, and are a natural fertilizer for growing vegetables. Each of these attributes adds great value to an off-the-grid home and is really the heart of why I love the farming lifestyle. As I think about the animal diversity I want to see in my fields when I look out my window in retirement, I have made it a goal to have five Hereford cows, two horses, and five sheep on my farm. The cost of each of these animals will vary by breed. I have roughly estimated that I will pay $1,500 for both a horse[xii] and a Hereford cow,[xiii] and $700 for a sheep,[xiv] for a total cost of $14,000. Hereford cows are a beef cattle breed, and I want these specifically because my grandfather always had them when I was growing up. Beef cattle are also easier to care for than are dairy cows, which need to be milked twice a day, every day.

All farm animals need to be provided with shelter, food and water, and basic veterinary care. The primary cost of having farm animals is the start-up costs of building a maintainable barn and actually purchasing the animals. Fortunately, Aunt Mary renovated the barn at Sunny Acres Farm in 2012 by having the rotting foundation, floors and siding replaced (Exhibit E). This was a costly undertaking, but one that only needs to be completed approximately every 100 years. Therefore, assuming I will be able to use Aunt Mary's barn, I do not expect to need to make a large capital outlay for an animal shelter on the farm.

Start-up costs aside, the ongoing maintenance costs of caring for grazing animals is fairly minimal, though very labor intensive. Large grazing animals can be fed on grass alone, with minor mineral amendments, such as a salt lick. Maintaining one acre of open-grassland per animal is a traditional rule of thumb for how many animals a pasture can feed, but one animal for every three acres is recommended as a starting point to ensure the fields stay healthy.[xv] It is also recommended to rotate the animals to different sections of the fields every couple months using a moveable electric fence so as not to stress the health of the fields. Electric fences can also be solar powered and would only cost a few hundred dollars if I installed them myself, or a couple thousand dollars if I hire someone to install them all along the perimeter of the fields.[xvi] While grazing farm animals can typically live happily amongst each other, moveable fences are also a good way of letting new and existing animals get acquainted for a few days before fully intermingling in the fields.

In addition to the size of the fields, one must also consider the capacity of the shelter, particularly in cold weather climates. According to a 1984 article on my grandfather titled “One Man’s Tree Farm,” the barn at Sunny Acres Farm needs to house at least nine hoofed animals to generate enough body heat to keep the water pipes from freezing (though it still seemed to happen all the time).[xvii] In talking with my mother and Aunt Mary, Sunny Acres Farm reached its shelter and hay capacity at thirteen animals. I am sure my grandfather reached his labor capacity with thirteen animals as well.

Large animals like these are very hardy and typically do not need to be seen by a veterinarian more than once a year. A yearly veterinary visit includes teeth cleaning or floating, deworming, and vaccinations. This can cost upwards of $250 per animal, in addition to another $75 fee to have the veterinarian come to your property.[xviii] Horses require extra care because they can founder, which is a painful decaying condition of their hooves caused by sugary green grass, which can lead to lameness and death. Foundering is prevented by monthly trimming of the horse’s hooves and is recommended to have completed by an experienced farrier at a cost of approximately $50 per horse.[xix]

I also want to breed Hereford cows as my grandfather did because I love seeing baby calves in the springtime. However, breeding cows quickly exhausts the feeding and space capacity of the fields and barn. Therefore, in order to keep a sustainable farm, I may have to sell cows as they get older to be processed into beef. One cow is typically processed into 300 – 350 pounds of meat. Selling the meat direct-to-consumer at a farmer’s market will earn an average of $6.50 per pound, or just over $2,000 per cow.[xx] At an initial cost of $1,500, buying, caring for, and selling cows on the farm would not a profitable venture.

Finances

To me, farming has never been about making a profit. Rather, I see it as a give-and-take lifestyle choice of caring for animals while enjoying their company. It is also a unique way of staying in touch with my heritage by living off the land the way my ancestors did. This lifestyle is typically referred to “hobby farming,” given that the farm is not run as a primary source of income. However, like grandpa said: “There’s more work to it than there should be in a hobby… It’s not a financially viable calling, but those who can afford it will take care of the land.”[xxi] In recognition of how tight money can get on a farm, I would like to earn enough during my career in finance to be able to retire by the age of 60 so that I can financially maintain the farm before I get too old to be able to enjoy and physically handle that way of life.

Exhibit F provides a financial timeline for how much I will need to save throughout the remainder of my career to be able to financially support my dream. In order to have my log cabin with a total cost of $596,500 built, as well as to have purchased $47,800 worth of landscaping and logging equipment by the time I turn 45 years old (i.e., deferring the purchase of haymaking equipment until I turn 60) I will need to save $97,100. This is a nominal value, which equates to $149,308 in real terms after adjusting for an estimated 3% inflation rate and 6% nominal rate of return on my investments. This is also assuming I sell my current house for the $300,000 I initially paid for it, and make a 20%, or $119,300, down payment on construction of the new log cabin. With my mortgage balance having

declined to $230,000 in 15 years, and my current savings of $120,000 equating to $184,521 in real terms, I will have $35,213 left over in savings when I am 45.

Over the following 15 years I will need to have savings enough to pay: $240,000 for my children's college tuition; $114,000 remaining on my assumed 30-year 4.5% log cabin mortgage; $20,000 for haymaking equipment; and $14,000 for 2 horses, 5 Hereford cows, and 5 sheep. This equates to a total savings requirement of $388,000 by the time I turn 60 years old, or $917,401 in real terms. In addition, I will need to have saved enough money to be able to pay the property taxes on the land I may inherit, as well as the ongoing care and maintenance costs of the farm and animals (approximately $4,200 per year including veterinary and farrier care). I would also like to maintain my current $24,000 annual spend for a combination of: maintenance and utility costs, discretionary spending, and an emergency fund.

As a beneficiary of Lot 1 and Lot 2 of Sunny Acres Farm, the combined property taxes were $7,500 in 2012 under New Hampshire's open-space Current Use tax law. I have adjusted this upwards to $10,000 assuming the property tax on Lot 2 will increase after my log cabin is built. The annual property tax on the separate lakeside cottage my mother will be inheriting and possibly transferring to me is another $6,000. However, this could be an income producing property if I chose to rent it during periods of the summer. An analysis of current comparable rental properties on Newfound Lake indicates that I could currently rent the 2 bedroom cottage for $2,000 per week,[xxii] or $5,200 if I rent it for the entire month of August, assuming a 35% income tax rate.

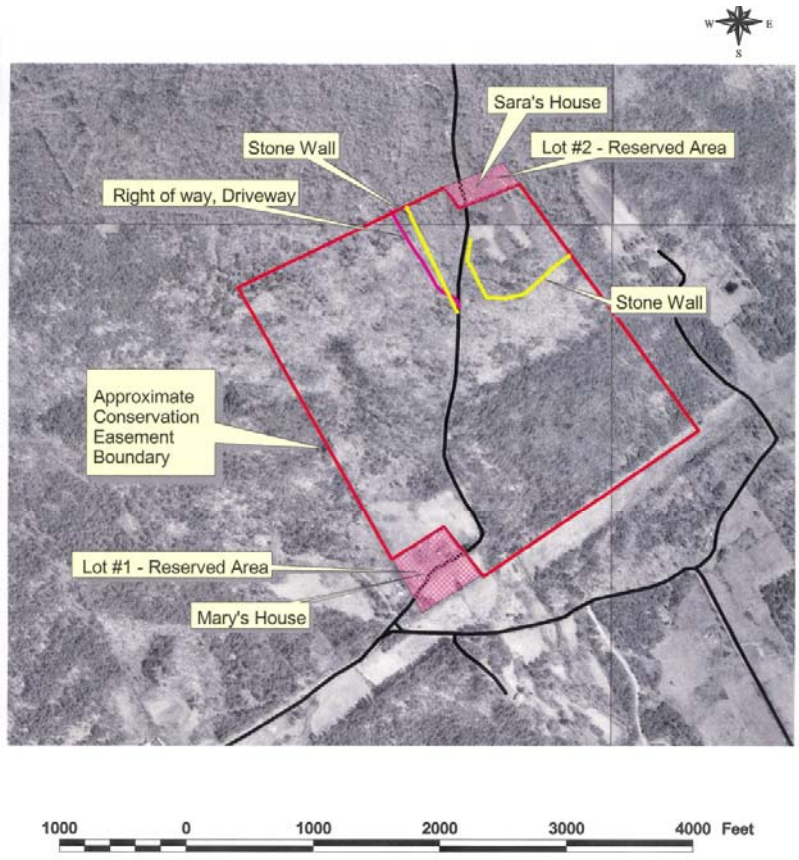
Based upon the considerations above, I calculate my total retirement savings need to be $1,832,137. If the $35,213 in savings I have left over after I build my log cabin grows to $54,146 in real terms by the time I turn 60, my remaining savings need is $1,777,912. This equates to $37,920 per year for the next 30 years, or $3,098 per month, that I need to save for retirement.

These savings estimates assume that I do not generate any additional income in retirement, aside from renting the lakeside cottage. In reality there are numerous other ways of generating income from the land and its resources. Farm activities will not generate enough income to sustain the costs of the properties. Nevertheless, these activities can provide meaningful income and are part of what operating a farm is all about. When my grandfather ran the farm, he generated income from the sale of his cattle to the beef market, the sale of maple syrup and apple cider in the local community, as well as the logging of his trees to lumber companies. Neighbors in the area also have bee farms to produce and sell honey. I would love to use the farm to continue these timeless traditions.

The larger scale production of maple syrup and apple cider that grandpa operated would require a large capital outlay for machines and equipment, including the construction of a sap house to collect the sap from the many maple trees on the property and boil it down into syrup, as well as a cider press to grid the apples into cider. Income from logging activities also depends on the quantity and maturity of the trees on the land. My parents generated $20,000 from the logging of 40 acres on Lot 2 to pay towards my college tuition in 2002. I assume such income could be generated again with the forest replenished 40 years later.

I have not included these various sources of income for my retirement planning purposes in this report given the complicated process and equipment used in these operations. I also know that construction and maintenance costs always end up being greater than expected. However, it is comforting knowing that the farm provides opportunities to generate income in retirement while living my dream lifestyle. It will certainly be something I research when I am relaxing by the fire in my log cabin, approaching retirement with my family.

Exhibit A



Mary's House (Original farmhouse)

Sara's House

Exhibit B

2. USE LIMITATIONS (Subject to the reserved rights specified in Section 3 below)

A. The Property shall be maintained in perpetuity as open space without there being conducted thereon any industrial or commercial activities, except agriculture and forestry as described below, and provided that the productive capacity of the Property to produce forest and/or agricultural crops shall not be degraded by on-site activities.

i. For the purposes hereof, "agriculture" and "forestry" shall include animal husbandry, floriculture, and horticulture activities: the production of plant and animal products for domestic or commercial purposes; the growing, stocking, cutting, and sale of Christmas trees or forest trees of any size capable of producing timber or other forest products; and the processing and sale of products produced on the Property (such as pick-your-own fruits and vegetables and maple syrup) all as not detrimental to the scenic purposes of this easement.

ii. Agriculture and forestry on the Property shall be performed, to the extent reasonably practicable, in accordance with a coordinated management plan for the sites and soils of the Property. Forestry and agricultural management activities shall be in accordance with the current scientifically based practices recommended by the U.S. Cooperative Extension Service, U.S. Soil Conservation Service, or other government or private, non-profit natural resource conservation and management agencies then active. Management activities shall not materially impair the scenic quality of the Property as viewed from public roads.

B. The Property may be subdivided once as specified in 3.C. below.

C. No structure or improvement, including, but not limited to, a dwelling, tennis court, swimming pool, dock, aircraft landing strip, tower, or mobile home, shall be constructed, placed, or introduced onto the Property. Ancillary structures and improvements including, but not limited to, a road, dam, fence, bridge, culvert, barn, maple sugar house, or shed may only be constructed, placed, or introduced onto the Property as necessary in the accomplishment of the agricultural, forestry, conservation, or noncommercial outdoor recreational uses of the Property.

D. No removal, filling, or other disturbances of soil surface, nor any changes in topography, surface or sub-surface water systems, wetlands, or natural habitat shall be allowed unless such activities:

i. are commonly necessary in the accomplishment of the forestry, conservation, habitat management, or noncommercial outdoor recreational uses of the Property; and

ii. do not harm state or federally recognized rare or endangered species, such determination of harm to be based upon information from the New Hampshire Natural Heritage Inventory or the agency then recognized by the State of New Hampshire as having responsibility for identification and/or conservation of such species.

Prior to commencement of any such activities, all necessary federal, state, and local permits and approvals shall be secured.

E. No outdoor advertising structures such as signs and billboards shall be displayed on the Property except as desirable or necessary in the accomplishment of the agricultural, forestry, conservation, or noncommercial outdoor recreational uses of the Property, and provided such signs are not detrimental to the purposes of this easement.

F. There shall be no mining, quarrying, excavation, or removal of rocks, minerals, gravel, sand, topsoil, or other similar materials on the Property, except in connection with any improvements made pursuant to the provisions of paragraphs C, D, or E, above. No such rocks, minerals, gravel, sand, topsoil, or other similar materials shall be removed from the Property.

G. There shall be no dumping, injection, burning, or burial of manmade materials or materials then known to be environmentally hazardous.

Exhibit C

Log Cabin Cost Breakdown	
Outside the Cabin	
Septic	$ 7,500
Water Well	$ 10,000
	$ 17,500
The Cabin	
Log Structure	$ 165,000
Site Work	$ 40,000
Foundation	$ 30,000
Labor to Construct	$ 115,000
Insulation	$ 15,000
Plumbing	$ 30,000
5,000 watt Generator	$ 4,000
Solar Panels	$ 15,000
2 Stone Chimneys	$ 20,000
Electrical Wiring	$ 25,000
Heating	$ 20,000
Kitchen	$ 20,000
Flooring	$ 20,000
Appliances	$ 5,000
Staining	$ 5,000
Miscellaneous	$ 10,000
	$ 539,000
2 Car Garage & Workshop	$ 40,000
Total	$ 596,500

Sources: www.coventryloghomes.com
www.homeadvisor.com/cost

Exhibit D

Equipment Cost Breakdown			
Landscaping Equipment			
	Tractor	$	17,000
incl. in Tractor	Rotary Mower	$	3,000
	Sickle Bar	$	4,500
	Landscape Rake	$	500
	Snow Blower	$	700
	Snow Plow	$	4,500
Logging Equipment			
	Chainsaw	$	500
	Pallet Fork	$	1,000
	Log Splitter	$	1,500
	Wood Chipper	$	2,800
Excavation Equipment			
	Tractor	$	30,000
incl. in Tractor	Front Loader (w/ teeth)	$	6,000
	Rock Bucket	$	1,800
incl. in Tractor	Backhoe Loader	$	6,500
Haymaking Equipment			
	Hay Tedder	$	6,000
	Hay Rake	$	2,000
	Hay Baler	$	7,000
	Hay Grapalator	$	5,000
Total		$	67,800

Source: www.farmequipment24-7.com

Exhibit E

Exhibit F

Timeline to Retirement			Notes	Source
7/1/2028	Age 45			
Sell House	Desired Sale Price	300,000		
	- Remaining Mortgage Balance	(230,000)		www.citimortgage.com
	Equity for Log Cabin Downpayment	70,000		
Build Log Cabin	Desired Value	596,500		
	- Downpayment	(119,300)	20%	
	- New Money Needed for Downpayment	49,300		
	New Mortgage:	477,200		www.citimortgage.com
	Mortage Term	30	year fixed	
	Interest	5.000%		
	Homeowners Insurance	$280	per month	
	P&I	$2,147	per month	
	Total Payment	$2,427	per month	
Buy Farm Equipment	Cumulative Cost (excluding Haymaking Equipment)	47,800		
	Savings Needed by Age 45	97,100	Nominal Value	
	1) Savings Needed by Age 45	149,308	Real Value	
7/1/2036	Age 53			
First Child Starts College	UNH Undergraduate Tuition - Resident	30,000	per year	admissions.unh.edu/tuitionfees
7/1/2039	Age 56			
Second Child Starts College	UNH Undergraduate Tuition - Resident	30,000	per year	admissions.unh.edu/tuitionfees
7/1/2043	Age 60			
Retire	Payoff Remaining Cabin Mortgage Balance	114,000		www.citimortgage.com
	Payoff College Loans	240,000		
	Buy Haymaking Equipment	20,000		
	Buy 2 Horses	3,000		
	Buy 5 Hereford Cows	7,500		
	Buy 5 Sheep	3,500		
	Savings Needed by Age 60	388,000	Nominal Value	
	2) Savings Needed by Age 60	917,401	Real Value	
Spend in Retirement	Lake House Real Estate Tax	500	per month	
	Farm Real Estate Tax	500	per month	
	Log Cabin Real Estate Tax	333	per month	
	Maintain Current Living Spend	2,000	per month	
	Care for 2 Horses:			
	tack and grooming	100	per month	
	vaccinations and veterinary care	42	per month	
	total	142	per month	
	Care for 5 Hereford Cows			
	health care	104		
	total	104	per month	
	Care for 5 Sheep			
	health care	104		
	total	104	per month	
	Recurring Annual Retirement Spend	44,200	per year	
Earn in Retirement	- Rent Lake House for 1 month	(5,200)	per year	
	Net Recurring Annual Retirement Spend	39,000	Nominal Value	
	3) Amount Needed to Cover $39K Annually for 40 years	914,737	Real Value	
	Total Savings Needed for Retirement Spending	1,832,137	Real Value	
	Current Savings	120,000		
	4) Value of Current Savings at Age 45	184,521	Real Value	
	- Savings Needed at Age 45	(149,308)	Real Value	
	Net Savings for Retirement at Age 45	35,213	Real Value	
	Year until Retirement	15		
	5) Value of Net Savings for Retirement at Age 60	54,146	Real Value	
	Total Extra Savings Needed at Age 60	1,777,992	Real Value	
	6) Extra Savings Needed per Year	37,920		
	7) Extra Savings Needed per Month	3,098		

Formulas	
	1) =FV(2.91%, 15,0,-97100)
	2) =FV(2.91%, 30,0, -388000)
	3) =PV(2.91%, 40, -39000,0)
	4) =FV(2.91%, 15,0,-120000)
	5) =FV(2.91%, 15,0,-35213)
	6) =PMT(2.91%, 30,0,-1777992)
	7) =PMT((2.91%/12),(30*12), 0, -1777992)

Sources

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