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**Admitted in MA and NH*

March 26, 2015

Lisa Davis Lewis
Carlisle Board of Appeals
Town Hall
66 Westford Street
Carlisle, MA 01741

Re: "The Birches"
100 Long Ridge Road application for Comprehensive Permit

Dear Ms. Lewis and Members of the Board of Appeals:

As you are aware, the undersigned represents Lifetime Green Homes, LLC (hereinafter the "Applicant"), in its application for a Comprehensive Permit pursuant to M.G.L. Chapter 40B and the regulations promulgated thereunder for "The Birches" affordable housing development at 100 Long Ridge Road, Carlisle, MA.

I am writing to provide the Board with responses to a number of questions raised at the last meeting as well as responses to many of the questions proposed by submittals from various Town boards and committees. Please accept the following for your consideration:

1. Civil Engineering Review:

In accordance with M.G.L. Chapter 40B the applicant provided preliminary site plan drawings and associated drainage information with its initial application. Those plans and relevant information was subsequently peer reviewed by Steven Ventresca, PE and Jennifer Johnson, PE of Nitsch Engineering (hereinafter collectively "Nitsch"). As a result of that initial peer review report and requests from the Board and various Town departments, the Applicant submitted a revised set of plans and calculations constituting final definitive level design plans and calculations. This revised set of plans and information has also been reviewed by Nitsch on behalf of the Town. Currently the Applicant and Nitsch have had a number of discussions regarding the plans and data and the resolution of questions and/or concerns raised by Nitsch. It is the intention of the Applicant to address any questions or concerns raised and to consider any recommendations presented by Nitsch. However, please note that Nitsch determined in its letter of December 22, 2015 that "it generally appears that the project is technically feasible." Further, upon a specific request of the Board of Appeals on a portion of the overall review, they report in their letter of March 13, 2015 the following:

“Based on the revised documentation, including the HydroCAD model, it appears that the proposed drainage system will meet the stormwater quantity mitigation requirements of Standard 2 of the MassDEP stormwater standards.”

Therefore, it is the applicant’s position that the Project plans meet the standards under the Comprehensive Permit regulations.

2. Landscaping

A Landscaping plan was provided and presented to the Board. Requested revisions, including additional screening along portions of the northern and westerly boundary lines, have been provided in revised plans submitted to the Board. Further, the landscaping utilized in conjunction with the LID drainage design has been peer reviewed by Nitsch. The Applicant has thereafter responded to any comments or concerns raised by Nitsch.

3. Snow Plowing/Storage

Questions have been asked regarding snow plowing and snow storage locations and the adequacy of the storage areas. The issue of snow storage has been reviewed as part of the drainage peer review. Revised/expanded snow storage areas are shown on the latest, revised site plans currently being reviewed by the Town’s peer review engineer. No snow storage areas are proposed on any of the septic leach fields. The rain gardens are not within the designed snow plow areas and the melting of these areas is directed to the rain gardens, as preferred by MassDEP. The applicant will agree to any reasonable changes to the snow storage areas required by the Board or its peer reviewer. A copy of the detail of this that was added to the latest design set is included herewith as Attachment A.

4. Units/Bedrooms/Architecture:

Pursuant to 760 CMR 56.05(c), the Applicant has provided the Board “preliminary, scaled architectural drawings.” Those plans were prepared by a registered architect and included typical floor plans, typical elevations and sections, and identified the construction type and exterior finishes. These plans were subsequently submitted, reviewed and discussed with the Board. Additional plans/designs requested by the Board have been provided.

Exhibit B provides an updated listing of the units, bedroom counts, and Title 5 daily flow generation originally provided to the Board at its January 5, 2015 meeting.

5. Traffic:

The Project Traffic Impact Assessment (TIA) including information on the Project’s egress/access, as prepared by MDM Transportation Consultants, Inc. (hereinafter “MDM”), has been reviewed by Nitsch, acting as the Town’s traffic peer reviewer. Subsequent revisions to the report and the submission of additional information was completed by MDM and submitted on February 3, 2015. Comments or recommendations of the peer review report have been discussed with the Board including issues such as the road geometry including the ability to

accommodate the Carlisle Fire Department's largest firefighting vehicle, road grades, egress, number of units, single access, and other related site specific safety matters. It is our opinion that there are no outstanding issues on traffic and transportation as the outlined and reviewed issues are all within the generally accepted industry standards, as verified by the peer reviewer. To the best of my our knowledge, the only outstanding traffic issue relates to the concept for an off-site secondary means of access to Nowell Farm Road, for which the TIA indicates would be a town responsibility. At the request of the Building Inspector, the Applicant reviewed the ownership of the existing emergency access currently impeded by some stones and small trees (blocked) to thru traffic and determined that the adjacent neighbor owns at least part of the extension of Prospect Street and this secondary access. It is our understanding that the Town's emergency services are of the opinion that they can open that access to provide a secondary means of emergency access to the existing and proposed neighborhood, if so desired. The Applicant is in support of this action, however, it is for the Town of Carlisle to decide.

6. Hydrogeological Studies:

As the Board is aware Northeast Geoscience Inc. (hereinafter "NSI") is currently conducting hydrogeological studies on behalf of the Applicant as presented to the Board by the Applicant in its letter of September 12, 2014. The scope of the studies is detailed in the NGI letter to Mr. Brem, dated September 15, 2014, which letter is attached hereto as Exhibit C. It was hoped that the report would be completed by the end of February. However, due to extreme weather conditions, the completion of that report is now expected to be on or before March 25, 2015.

7. Waivers:

As the Board is aware, this office previously withdrew a number of waivers that were part of the original application. Due to changes in the proposed plan, in the Applicant's opinion, a number of waivers are no longer needed. Additionally, a number of waivers from the Carlisle Board of Health Regulations were proposed to be withdrawn as it had been determined by the Applicant that they were in fact not applicable to the proposed septic system and/or wells. However, the Board of Health ("BOH"), has been adamant in its position that the regulations do apply and therefore, as proposed, the systems would require the waivers originally sought. Although the Applicant is confident in its position that the waivers are not necessary, in order to address the concerns of the BOH, and apparently a number of the Board members, please see Exhibit D attached hereto. Said Exhibit D is a request to reinstitute the waivers previously withdrawn plus the addition of two other waivers now necessary according to the Board of Health.

8. Response to Department Letters:

The Applicant response to the Carlisle Board of Health letter dated February 19, 2015 is attached as Exhibit E attached hereto.

The Applicant response to the Carlisle Board of Health letter dated January 20, 2015 is attached as Exhibit F attached hereto.

The Applicant response to the Carlisle Fire Department letter dated January 17, 2015 is attached as Exhibit G attached hereto.

The Applicant response to the Carlisle Conservation letter dated January 26, 2015 is attached as Exhibit H attached hereto.

The applicant response to Attorney Heep's letter of March 13 is attached as Exhibit I and to be discussed with the Board on March 26, as requested.

9. Response to Mr. Galligan spread sheet labeled "variations from standard practice" dated 2-22-15

A response to this document has been provided to the Board under separate cover by the applicant.

Thank you for your time and consideration. Please contact the undersigned with any comments or questions you might have. We look forward to your continued consideration of this Project at the March 26, 2015 meeting.

Sincerely,
Deschenes & Farrell, P.C.

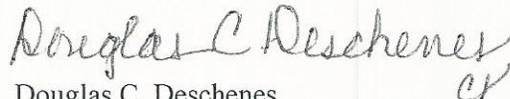
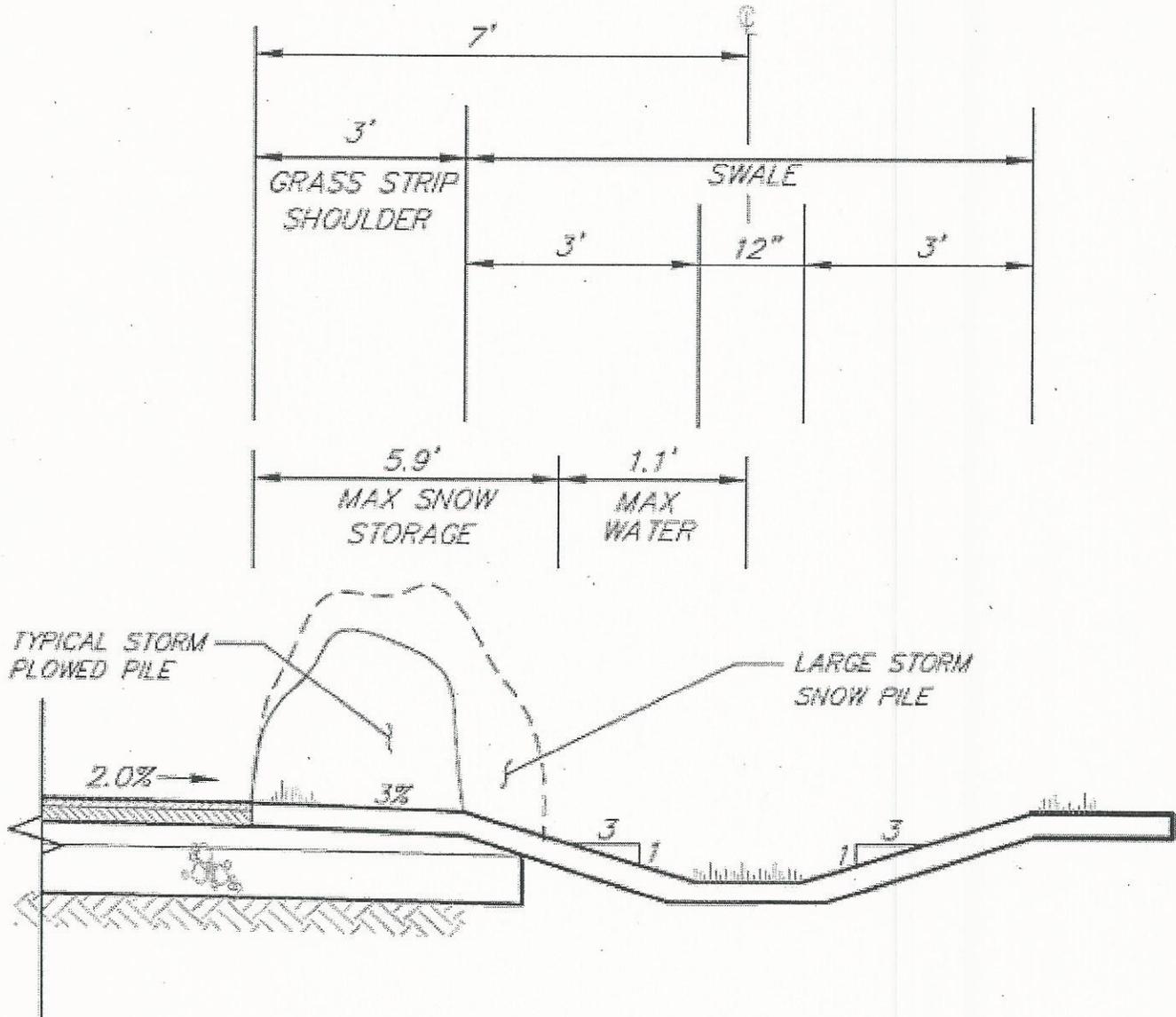

Douglas C. Deschenes

EXHIBIT A



TYPICAL DRIVEWAY SNOW PLOWING CROSS SECTION

NOT TO SCALE

The Birches

1/5/2015

Computation of Sewage Flows

Septic System 1:

Unit	1	3 BR	330	GPD
	2	3 BR	330	GPD
	3	3 BR	330	GPD
	4	3 BR	330	GPD
	5	3 BR	330	GPD
	6	3 BR	330	GPD
			<hr/>	
			1980	GPD

Septic System 2:

Unit	7	3 BR	330	GPD
	8	3 BR	330	GPD
	9	3 BR	330	GPD
	10	3 BR	330	GPD
	18	3 BR	330	GPD
	19	3 BR	330	GPD
			<hr/>	
			1980	GPD

Septic System 3:

Unit	11	2 BR	220	GPD
	12	2 BR	220	GPD
	13	3 BR	330	GPD
	14	3 BR	330	GPD
	15	3 BR	330	GPD
	16	3 BR	330	GPD
	17	2 BR	220	GPD
			<hr/>	
			1980	GPD

EXHIBIT C

The Birches – 100 Long Ridge Road, Carlisle, MA

1-9-2015

Applicant Summary of Proposed Hydro-geologic Study Testing and Analysis

I. Data Generation and Testing:

- Well Drilling:
Install a series of groundwater monitoring wells using a hollow stem auger drilling rig. Soil samples will be taken every 5 feet.
- Water Level Gauging:
Install a series of wooden stakes in the nearby wetlands on subject property to act as water gauges.
- Surface Contours:
Use GIS mapping and other mapping with site information to develop a surface contour map and locate existing wells within 500 feet of septic systems.
- Soils:
Obtain and analyze past soil testing on site for septic systems and for sampling for this study done by NGI in November, 2014. Amend the soils information with the soil sampling done above.
- Pump Testing:
Perform a pump test on each monitoring well pair by pumping water in one well and measuring the water level drawdown in the adjacent well or perform a rising head/falling head permeability and/or hydraulic loading test.

II. Modeling and Analysis:

- Develop a pre and post development groundwater contour map.
- Determine groundwater flow direction and hydraulic gradients across the site and surrounding areas.
- Determine saturated thickness at the site.
- Determine aquifer permeability.
- Perform a mass-balance nitrogen loading model to estimate the post development nitrogen concentration in the groundwater with Title 5 determined loading rates with dilution and dispersion models for various scenarios.
- Develop an analytical solute transport model to estimate nitrate plume extent and magnitude.
- Determine the groundwater mound under each of three septic systems using Title 5 determined loading rates and in-situ data developed per above and assuming pressure distributed flow to the leaching area.

EXHIBIT D

. The following waivers are hereby requested.

Board of Health Regulations:

§15.211 The minimum setback distance between a system 2000 GPD/BR or larger to a well is 150'.

Waiver: Seeking waiver from the well setback requirement of 150 feet to allow for a setback of 100 feet.

Basis: The shape of the Project land and the proposed development density do not allow for the required distance of 150'. A redesign of the Project to allow for the 150' required setback would result in a loss of units thereby making the Project uneconomic. The intent of the Carlisle Board of Health Regulations is presumably for the protection of public health, including but not limited to, the protection of aquifers and abutting wells. The proposed 100' setback conforms to the Massachusetts DEP regulations and is therefore protective of public health. Furthermore, the Project proponent has agreed to conduct nitrogen loading analysis, groundwater studies and a mounding analysis. The results of these tests will provide the Board information regarding the adequacy of this proposed setback. Therefore allowing the proposed 100' setback will meet the intent of the Bylaw.

Section 15.221 General Construction Requirements for All System Components

Waiver: Seeking waiver from the requirement of Total GPD/BR required per Bedroom to allow for design standard of 110 GPD/BR.

Basis: A determination of the required GPD/BR design standard under the Regulations is defined based on the number of bedrooms being serviced by the system. In the Project, multiple dwellings will "share" a common system such that each individual system will service no less than 6 bedrooms. Therefore, the bylaw allows for a design standard of 110 GPD/BR, which is what the Project design allows for. However, in the event that the BOH interprets the bylaw to require a higher GPD/BR design standard, a waiver from the higher design standard is requested. The size of the Project land and the proposed development density do not allow for septic designs utilizing a minimum design flow requirement higher than 110 GPD/BR. A redesign of the Project to allow for a higher GPD/BR design standard would result in the loss of units making the Project uneconomic.

The general intent of the Carlisle Board of Health Regulations is presumably for the protection of public health, including but not limited to, the protection of aquifers and abutting wells. A more specific intent of the 165 GPD/BR requirement is to account for the installation of garbage grinders by adding 50% of the daily flow. This Project will not allow garbage grinders and therefore does not require the additional 50%. Also, the proposed 110 GPD/BR design standard conforms to the Massachusetts DEP regulations and is therefore protective of public health. Lastly, the Project proponent has agreed to conduct nitrogen loading analysis, groundwater studies and a mounding analysis. The results of these tests will provide the Board information regarding the adequacy of this proposed design standard. Therefore, allowing the proposed 110 GPD/BR design standard will meet the intent of the Bylaw.

§15.290-293(5) Shared Systems, Condominium and Systems over 2000 GPD/BR.

Waiver: Seeking waiver from the required minimum design flow standard of 165 GPD/BR to allow for a design flow standard of 110 GPD/BR.

Basis: The size of the Project land and the proposed development density do not allow for septic designs utilizing a minimum design flow requirement higher than 110 GPD/BR. A redesign of the Project to allow for a higher GPD/BR design standard would result in the loss of units making the Project uneconomic.

The general intent of the Carlisle Board of Health Regulations is presumably for the protection of public health, including but not limited to, the protection of aquifers and abutting wells. A more specific intent of the 165 GPD/BR requirement is to account for the installation of garbage grinders by adding 50% of the daily flow. This Project will not allow garbage grinders and therefore does not require the additional 50%. Also, the proposed 110 GPD/BR design standard conforms to the Massachusetts DEP regulations and is therefore protective of public health. Lastly, the Project proponent has agreed to conduct nitrogen loading analysis, groundwater studies and a mounding analysis. The results of these tests will provide the Board information regarding the adequacy of this proposed design standard. Therefore, allowing the proposed 110 GPD/BR design standard will meet the intent of the Bylaw.

§15.100 General Provisions.

Waiver: Seeking waiver from the requirement that a proposed septic system design model "predict no rise in ground water elevation and no greater than 5 mg/L of total nitrogen at the perimeter boundary. The requested waiver is to allow for conformance with Title 5 which has no such limitation.

Basis: The size of the Project land and the proposed development density do not allow for septic design meeting the 5 mg/L limitation without a total redesign of the Project. A redesign of the Project to meet the 5 mg/L limitation would result in the loss of units making the Project uneconomic.

The general intent of the Carlisle Board of Health Regulations is presumably for the protection of public health, including but not limited to, the protection of aquifers and abutting wells. The proposed septic design conforms to the Massachusetts DEP regulations and is therefore protective of public health. Lastly, the Project proponent has agreed to conduct nitrogen loading analysis, groundwater studies and a mounding analysis. The results of these tests will provide the Board information regarding the adequacy of this proposed design standard.

Town Of Carlisle Water Supply Regulations

Section VI Location And Use Requirements:

Waiver: Seeking a waiver from the requirement that a "well shall be located....., one-hundred fifty (150) feet from systems 2000 GPD or greater." The waiver sought is to allow the well to be within one hundred (100) feet from a proposed septic system

Basis: Requiring all proposed wells to be greater than any system of 2000 GPD will require a redesign of the Project such that units will be lost. Any number of units less than the 20 proposed

below
except for
1-5.3

will make the Project uneconomic. Additionally, it is the Applicant's position that none of the proposed "systems" on the site exceed 2000 GPD. However, in the event the Board applies the roadway standard a waiver is sought.

The intent of the Carlisle Board of Health Regulations is presumably for the protection of public health, including but not limited to, the protection of aquifers and abutting wells. The proposed 100' setback conforms to the Massachusetts DEP regulations and is therefore protective of public health. Furthermore, the Project proponent has agreed to conduct nitrogen loading analysis, groundwater studies and a mounding analysis. The results of these tests will provide the Board information regarding the adequacy of this proposed setback. Therefore allowing the proposed 100' setback will meet the intent of the Bylaw.

EXHIBIT E

Board of Health letter February 19, 2015

In specific response to the Board of Health (hereinafter the ("BOH"), letter dated February 19, 2015, as stated many times, the proposed septic system has been designed to comply with Title V, the State Sanitary Code and the applicable Commonwealth of Massachusetts building and plumbing codes without waivers therefrom.

With all due respect to the BOH, who are empowered to knowledgeably enforce Title 5 pursuant to 310 CMR 15, since the proposed system is intended to comply with Title 5, any review should be related thereto and done at the time of submission of the septic designs to the BOH. However, the BOH is requesting that my client provide the services of a peer reviewer to the Board to address the conformity of the proposed system with Title 5 and to review specific technical aspects of the proposed system. I am advising my client not to agree to pay for such peer review as requested by the BOH so that they (through the Board) may better understand the Title 5 regulations they are authorized to enforce. The plans submitted comply with the requirements for septic systems outlined in 760 CMR 56.05(2)(f). Further, regulations pursuant to M.G.L. Chapter 40B, specifically 760 CMR 56.05(5)(b)1 prohibits review fees paid by the applicant for "independent studies on behalf of the Board". Whereas the jurisdiction of the septic system and wells lies with the BOH, any studies or peer review initiated by the Board would constitute "independent studies" by the Board.

EXHIBIT F

Response to the Board of Health Letter dated February 20, 2015

In generally addressing the BOH letter dated February 20, 2015, my client disagrees with the determination by the BOH that the Project, does not satisfy the requirements of 310 CMR 22.00 Mass. Drinking Water Regulations or 310 CMR 15.00 State Environmental Code Regulating Septic Systems (Title 5). To the contrary, it is the Applicant's position that the proposed Project will in fact satisfy these regulations. This will be shown when the applicant files with and appears before the BOH for its well and septic permits. Should the Board have concerns with this, it is well within its jurisdiction to require such conformance as a condition of approval for the Project. It is not within its jurisdiction to dictate whether the proposed water system be a Public Water Supply (as proposed by the BOH). It is the applicant's right to propose a water supply system for review and permitting by the BOH and/or DEP. The ZBA may however, require conformance with Title 5 and/or that the Applicant obtain any applicable BOH or DEP permits

More specifically the Applicant responds point by point to the February 20, 2015 letter as follows:

- 1) The proposed water supply for the project is in conformance and equivalent to every other single family home within the Town of Carlisle with a privately funded and maintained drilled well.
- 2) Not applicable.
- 3) Twelve (12) wells are proposed including the existing well to be used as an irrigation supply. There is no local or state regulation relating to the number of wells or proximity of private wells. As such, No waiver is required or requested.

The project complies with the required private well setbacks for the Town of Carlisle being 25 feet to property lines. Further, all wells are separated by over 50 feet, which is the state default standard for no influence. All wells are separated over 100 feet with the exception of the two wells for units 10,11 and 12,13, which is separated by 80 feet. There are many instances, including within Carlisle where private wells are separated by less than 80 feet. In fact, Carlisle's own regulation allows for wells to be as close as 50 feet using the 25' feet setback to property lines as a guide.
- 4) There is no Carlisle requirement or regulation that requires a well to study a potential hydraulic connection. No waiver is required or requested.
- 5) The proposed private roadway is not a "public" road. The Carlisle requirement states clearly that the well setback must be from the "public roadway". A waiver is not required but due to clarity only, a new waiver request is hereby proposed.
- 6) There is no setback requirement for a roof infiltration device. The drilled well will utilize a sealed steel casing. No waiver is required or requested.
- 7) The proposed wells meet all setback requirements. No waiver is requested.
- 8) A local waiver is requested for the Carlisle well setback within the local well and septic regulations for septic systems larger than 2000 gallons per day to a leaching area to comply with the state requirement of 100 feet.
- 9) Zone 1 is a public water supply term. The use of the project is residential, single family homes as allowed by zoning. The Carlisle Board of Health does not have regulations for accessory uses to

- residential including individual, privately owned parked automobiles, use of fertilizers or pesticides, or propane tanks. No waiver is required or requested.
- 10) The Town of Carlisle does not have any requirement for residential back up power in Zoning or other regulation. When the power is disabled, everyone in Carlisle shares the same situation without water and, therefore, without sewer. We manage. No waiver is required or requested.
 - 11) The maintenance of a private well is exactly the same as it is for every private well in Carlisle; no more. In fact, any expenses will be shared by the homeowners and could therefore, essentially, be less expensive by half. No waiver is required or requested.
 - 12) Well testing is proposed in accordance with Carlisle Board of Health Regulations typical of all private wells in Carlisle. The applicant asked to be on the agenda and met with the Board of Health on December 9, 2014 to discuss specific parameters to test or to ascertain if the Board of Health wants to add certain or specific testing or monitoring protocols. No waiver is required or requested.
 - 13) The private wells will be owned and maintained by either i) each homeowner or ii) shared with another homeowner. Any treatment system for hardness or aesthetic enhancements such as iron, will be paid for, installed within, and maintained by each individual unit. The water withdrawals are very small, often with less volume than is typically stored within the casing and exactly similar to all other private wells in Carlisle. As there are over one thousand of these drilled wells within the Town, all essentially the same, the applicant does not understand what it is that the Board of Health is questioning or what issues it expects to encounter here that is not present elsewhere. Even if the Board of Health is concerned that those in the affordable units can actually afford the well maintenance, it is clear that the costs would be 50% of the standard cost due to sharing and that the maintenance costs of private wells is not burdensome.
 - 14) Mass DEP will not act on a project until it is fully approved by the local boards, as you are aware. Additionally, as you are aware, as a State regulation it is MassDEP's role and not the purview of the Board of Health or the Board of Appeals to make this determination.
 - 15) The project does not propose a Facility Aggregation Plan as it is one facility.
 - 16) The design flow for the facility was submitted directly to the Board of Appeals at the January 5, 2015 meeting. Three systems are proposed. Due to the issues continuously raised by the Board of Health related to this issue, the applicant hereby requests the local Board of Health waivers related to flows in excess of 2000 gallons per day including the daily flow rate, the well setbacks, the requirement for hydrogeologic study, and the nitrogen standard of 5 mg/l.
 - 17) The Environment One pump system is regulated by the State Plumbing Code. They have been used extensively throughout most parts of the earth, the entire United States of America, and throughout all areas of Massachusetts. It is proven technology with over 40 years of service records. Any concern is baseless.
 - 18) Lastly, the project intends to comply with Title 5 completely. Any review of technical materials is simply to verify conformance to the standards already documented within Title 5. The applicant intends to only use Alternative Technologies already employed on various facilities throughout Carlisle. No new technology, specialty knowledge, or expert intelligence beyond the basic standards of Title 5 are required. The applicant will be paying the standard fees for the permits at the appropriate time. Additional funding is not necessary, certainly at this time. The Board of Health appears to be viewing this project differently than all other projects which comply with Title 5, but they should not. The Board of Health should appreciate that Title 5 is a code which requires compliance, but not more or less, and certainly not more stringent because it is for affordable housing. The review process is no different than many other projects successfully reviewed by the Carlisle Board of Health without special funding.

EXHIBIT G

Response to the Fire Department Letter dated January 17, 2015

More specifically the Applicant responds point by point to the January 17, 2015 letter as follows:

- 1) Cistern: There is no requirement for a fire cistern or any device to hold and store water within the Carlisle Zoning By-Law or Carlisle Rules and Regulations governing the Subdivision of Land. Therefore, a waiver is not requested therefrom. Further, pursuant to the Spreadsheet prepared by the National Fire Protection Association (NFPA), as shown on Attachment G-1, an adequate public water supply for this class of structures and use is no more than 29,083 gallons including all relevant safety factors. (NFPA 1403). Thus, in keeping with past offers of providing a water supply to be used for the Project and the neighborhood, the applicant offers to provide a concrete or fiberglass underground and buried cistern with appropriate fittings and connections to a volumetric capacity of at least 29,083 gallons. A condition that the tank will be filled to capacity with water prior to any new occupancy permit would be acceptable. A separate water supply (well) with associated separate electric service is not proposed to be provided.
- 2) No comment required. Porch setbacks already comply with NFPA standards, with or without a water supply or cistern.
- 3) The comment accepts the geometry of the cul-de-sac. No response is necessary.
- 4) Requiring a specific alarm and monitoring program is not a regulation currently in use or in force within Carlisle and requiring a monitoring service for each proposed home is an expense that is not considered in the submitted proforma. The applicant does not agree to this proposed condition.
- 5) There is no required turning radii within the Carlisle Regulations and therefore, no waiver is requested. The proposed turning radius proposed is 40 feet which allows for a full and complete turn by the Carlisle Fire Truck as proven and shown in the Traffic Impact Assessment Report by MDM Associates. We would not be opposed to this condition.
- 6) The applicant is not opposed to a condition which outlines a logical street numbering system as a condition of approval.
- 7) The applicant has proposed a "pull off" area of 10' wide by 50 feet long as requested on the latest submitted plans and is not opposed to this condition.
- 8) The applicant is opposed to this condition per the explanation given above in item 1. The cistern is proposed to be filled prior to occupancy of the first new unit.

First Floor: Length = 58 Width = 40 Sq. Ft. = 2,320

Second Floor: Length = 58 Width = 40 Sq. Ft. = 2,320

Third Floor: Length = 0 Width = 0 Sq. Ft. =

Total Sq. Ft. = 4,640

Ceiling Height = 8 Cu. Ft. = 37,120

*Note: Fill in one. Attic Height = 10 Standard pitch Cu. Ft. = 23,200

or: Attic Height = Gambrel attic Cu. Ft. =

or: Attic Height = Mansard attic Cu. Ft. =

Additional space: (porch, etc.) Length Width Height Cu. Ft. =

Total Cu. Ft. = 60,320

Total Cu. Ft. = 60,320 OHC = 7 Gallons = 8,617

Note Occupancy Hazard Classification number is 7 for dwellings, small office complexes and similar constructed facilities. Refer to NFPA 1142 for other types of structures.

Gallons = 8,617 CCN = 1.5 Gallons = 12,926

Note Type II Construction .75. Ex: Cinderblock, approved non-combustible material.
Type III Construction 1.0. Ex: Brick veneer, approved non-combustible material, or limited combustible.
Type V Construction 1.5. Ex: Wood frame, wood or other approved combustible material.

Gallons = 12,926 Exp = 1.5 Gallons = 19,388.57 Total

Note Any structure within 50' of burn structure is considered an exposure and requires total gallons to be multiplied by 1.5. Add .5 to this number for each additional exposure. (Example: 1.0 + .5 + .5 + .5 = 2.5 exposure factor for 3 exposures.)

Total Gallons Required	GPM Flow
Up to 2,499 Gallons	250 GPM
2,500 to 9,999 Gallons	500 GPM
10,000 to 19,999 Gallons	750 GPM
20,000 or more	1000 GPM

Required GPM's = 750

In accordance with NFPA 1403, an additional water supply in the amount of 50% of total required fire flow must be available to handle unforeseen situations.

Gallons = 19,389 at 750 GPM for 26 Minutes

19,389 Gallons x 1.5 = 29,083 Total Gallons

EXHIBIT H

Response to the Conservation Commission Letter dated January 26, 2015

More specifically the Applicant responds point by point to the January 26, 2015 letter as follows:

- 1) The total proposed wetland resource area filling is 0 square feet. No wetlands are proposed to be impacted. The Carlisle Conservation Commission (Commission) requested increasing the buffer as much as possible. There is no regulation requiring a specific setback. As such, the applicant revised the plan so that two of the units were moved away from the wetland. At the Commission's request, locations of above ground decks were shown with impact in the buffer area for only the concrete pier supports. Further, and most importantly the re-grading in this area suggested by the Commission's consultant resulted in the protection of over 6500 square feet of land previously intended to be graded but now intended to be protected from grading with the associated saving of the trees and canopy. This is certainly an improvement by setback to the wetland resource area.

Stormwater runoff discharges to the buffer zone on virtually every project. Equivalently, utilities and roof recharge devices are also often within the 100 foot buffer setback as these single family home features are certainly not prohibited in the buffer. The Commission has authority to rule on this specific features of this project in terms of compliance to "general performance standards" governed in the regulations they are empowered to enforce. All work will comply with these standards and the Commission will make that determination after the project has been acted on by the Board of Appeals, as is the recommended sequencing.

- 2) The Stormwater Management is subject of review by the Board of Appeals Peer Reviewer, Nitsch Engineering. Again, the standards will need to be met or the Commission can deny or condition the project accordingly. The request for 1 foot contours is not based on any regulation and is not expected to be done. Currently, animal waste from horses, several dogs, and several cats, and future livestock is discharging into the wetland resource areas. This will be substantially diminished with this project. The temperature of the stormwater is not a general performance standard. Wildlife habitat is not a performance standard. The comments generated seem purposefully intended to raise issues not specifically authorized by the Wetland Protection Act regulations and those necessary for meeting the statutorily authorized responsibilities of the Commission.
- 3) There is no Snow storage proposed within 100 feet of the wetland resource area and therefore, this is outside the jurisdiction of the Conservation Commission. The Board of Appeals Peer Reviewer is reviewing the rain gardens in relation to snow plowing and snow storage; which are two different operations identified by MassDEP. There is no snow storage proposed for the rain gardens. The Commission should review the MassDEP details and specifications for rain gardens as the issues are really i) in a snow plow situation, the rain gardens need to capture the snow plowing and therefore need to be wide enough (4-5 feet) and ii) snow piled storage areas should not be located in rain gardens. The project complies with MassDEP.
- 4) The total site area is 9.84 acres. The total developed area is 5.82 acres. The tree removal within the buffer zone is 0.77 acres or only 8% of the site or 13% of the developed site area. This does not seem excessive. The tree line is shown clearly on the plans. As stated above, for work within the 100 foot buffer zone, the Commission has authority and will draft their own conditions.

- 5)
 - a. A sediment control barrier is located to protect the wetland. The stone walls are not a wetland feature but we can appreciate reasonable measures to protect them. Orange snow fence seems more appropriate.
 - b. Acceptable condition for siltation barrier though this can be conditioned by the Commission.
 - c. The proposed conditions on the dumpsters is acceptable.
 - d. The proposed condition for protection of the well drilling spoils entering the wetland are acceptable for any well within the buffer zone though this can be conditioned by the Commission.
 - e. A one month notification for well pumping is acceptable.
 - f. The bridge was removed as unnecessary and causing way too much interest.
 - g. The retaining wall is simply a 2 foot high stone wall. It is not much and was placed there at the recommendation of the Commission's consultant to reduce some buffer zone grading. Contours at 0.5 feet are meaningless. This comment can be addressed with the Commission as part of their Order.
 - h. It is a tiny, 2 foot high piled stone wall. Again, this comment can be addressed with the Commission as part of their Order.
 - i. The drywells for any water softeners will be the same as for the roof infiltration system. A condition to note this is acceptable.
 - j. Native plantings are acceptable conditions.
 - k. The lighting will conform to the Mass Electrical Code. No streetlights are proposed. Further conditions are not acceptable.
 - l. The open space is not for the public to utilize. The open space is not intended for recreational use, either passive or active. This change is due to continual irrational concern over this wooded area when over 1000 acres of available similar woodland is directly adjacent. It simply is not necessary.
 - m. A condition that other approvals are required is acceptable.
 - n. A condition that the project comply with the Order of Conditions seems the same as m. above.

- 6) The fee waiver is still a valid request as the applicant paid the Town a consultant fee of \$3290 to administer the responsibilities of the Town. The fees paid to the Conservation Commission pursuant to the Wetland Protection Act was \$1012.50. The Commission's comment is that another \$500 is due each, to the Commission and to Mass DEP. That subject is in debate and is not an issue that the Board of Appeals needs to address. The local fee paid and requested to be waived is the \$500 fee already paid directly to the Conservation Commission as a local fee. Additionally, the Commission is apparently disputing this amount too, which may be moot if this fee is waived by the Board of Appeals or on appeal thereto.

EXHIBIT I

Response to Chris Heep letter of March 13, 2015

By: JA Brem, 3-23-2015 Notes of items to be discussed with the Board of Appeals on March 26 as requested by Mr. Heep.

1. Each innovative or alternative technology manufacturer will design the specific alternative technology to the requirements of the state. In this case, the design will be to 19 mg/L (state guidelines are 35 mg/L for non-secondary treated effluent).
2. Title 5 allows Alternative Technology to be used to increase the daily flow rate from 440 gpda to 660 gpda at 19 mg/L and to 550 gpda at 25 mg/L.
3. There are three (3) separate soil absorption systems ("on-site systems") on one "facility" pursuant to the definitions of each in 310 CMR 15.002. We acknowledge and agree that each system will be pressure dosed in conformance to 310 CMR 15.231(1) and that a groundwater mound will be computed for each system pursuant to 310 CMR 15.212(2).
4. Yes, waivers of the sections cited are being requested (see other correspondence for more detail).
5. No credit land is proposed at this time. The computation is as follows:

# units	# BR	Flow Rate	Daily Flow Rate (GPD)	Area Factor - Alter. Tech	Acreage Required (Ac)
1	4	110	440	660	0.67
2	2	110	440	660	0.67
17	3	110	5610	660	8.50
			6490		9.83

Total Project Area = 9.84 Acres

[9.84 > 9.83 --- OK]

6. Irrigation will be used for irrigating the lawn and planting areas with the use of an underground sprinkler system on timers to irrigate at night. There are 2.30 acres of irrigated lawn proposed. The pump system will be installed by the irrigation contractor in the irrigation cistern or in a separate pumping chamber just off the cistern. It is anticipated that there will be one pump. The irrigation plan will comply with the Board of Health policy on limiting irrigation withdrawal to 15% of the recharge capacity of the property. The allowed withdrawal volume for the subject land is 9.84 acres X 543,120 gallons per acre per season X 15% = 801,645 gallons. The project expects to withdraw approximately 412,000 gallons per season based on figures accepted in the past by the Carlisle Board of Health and Board of Appeals so, yes, the project complies.
7. MassDEP classifies three types of snow activities: Snow Disposal, Snow Storage, and Snow Plowing. Obviously there will be no Snow Disposal (from off site areas) onto the project. Snow Storage is shown on the latest Site Plans by Meisner Brem (dated 2-06-2015) in five designated areas, none of which is over a soil absorption (leaching) area for the septic system. Snow plowing is not a regulated DEP activity. However, the Stormwater Handbook cautions that the

bio-retention facility should be placed in a position where it will not receive the plowed snow directly but can capture the snow from the melting of the plowed pile to ensure that the runoff does not “bypass the cell and drain into downgradient wetlands without first receiving the required water quality treatment (See Stormwater Handbook, Vol. 2, Ch 2 P. 28). This is how the project is designed; with the plowed snow on the shoulder upstream of the rain garden.

8. See above and the snow plow detail on Sheet 9 of the referenced revised plan set (dated 02-06-2015).
9. The hydrogeological study will be submitted on or about March 20, 2014.
10. A signed plan set was provided on or about February 6, 2015. Any reference to other towns have been removed previously. It is expected by the applicant that, prior to the close of the hearing, one more iteration of the final civil engineering design will be made but at a point in time in concert with the peer review to address a multitude of minor comments.