Amesbury Planning Board
Special Project Meeting – **BC Realty trust, John Cormier and Robert O. Cormier, Trs.**
April 13, 2015

Questions from the Owners at Acadia Kimball Condominiums

1. We feel the community impact study is not an accurate representation of the situation. It does not consider many real factors of day-to-day life in the area. Kimball Road is heavily traveled and the road surface is in bad condition. Increased traffic to the proposed development would exacerbate these problems. The road has significant curvatures and straightening one small area will not bring significant improvement. Kimball Road has no sidewalks which makes it unsafe to travel on foot. Also some of the proposed houses are to be built less than 25 feet from the road

2. We would like clarification on which part of Kimball Road would be widened.

3. We request a traffic study be conducted on the number of additional cars that will travel on Kimball Road on a daily basis should these proposed homes be approved.

4. Kimball Road is already prone to large puddles and flooding when the weather is warm and experiences severe ice build-up in winter. If more trees are removed there is a greater risk of drainage problems due to soil erosion. We would like to know what preventive measures will be taken.

5. We would like to know how many trees will be removed for the construction of the homes, cul de sac, 2 driveways and the widening of Kimball Road. The permit says they will preserve existing trees over 12" caliber where possible (the key word being possible), how many trees is this and from where will they be removed?

6. Application C, item # 6 states, "Encroachment onto the subject premises by the railroad tie flower bed, gravel driveway and fence appurtenant ..." We would like clarification/explanation of this statement. Are they saying we are on their land?

7. Application C, item # 4 "Easement for septic system purposes ... to the Trustees of Acadia Condominium Trust ..." There are sewer lines on that part of Kimball Road. We absolutely do not want septic systems on our property. Why are they asking for an easement for a septic system?

8. Application for Special Permit for Cluster Residential Special Permit: The statement that "The development site does not contain ... watershed divides ... " is incorrect. At the top of our driveway is a sign stating that this area is a watershed area. If Acadia Condominiums is in a watershed Area, then so is this parcel of land. Please see attached environmental study on Lake Attitash conducted by UNH Center for Freshwater Biology which states: "Although the percentage of developed land is minimal, the relatively small watershed to lake ratio (6.8:1) suggests that any slight increases in development would have detrimental effects of nutrient loading input into the lake". (The full report may also be found at http://cfb.unh.edu/PDF/Special/Lake_Attitash_Management_Plan_2010.pdf)

9. We request that a wetlands study be conducted on the area where the proposed eight houses are to be located, as well as the cul de sac, the 2 driveways and where Kimball road is to be widened.

10. We kindly request that the number of houses that are to be built be reduced from eight to six – giving the residents of Acadia Kimball Condominiums an undisturbed view of the woods. The application states the area is approved for 6 single family houses, what is the date this was approved and when does it expire? The application makes reference to a 1970 plan and a 1999 plan that superceded it.

11. We request that the Commissioner require supporting plans and calculations prepared and stamped by a Registered Professional Engineer for registered landscape, registered land surveyor.

12. We request that the vernal pools behind units 15-21 be reviewed by a Wildlife Biologist to assess the effects the proposed housing project will have on areas wetlands and the vernal pools.

13. Frontage for lots 6, 7 and 8 require a waiver. Will a waiver be requested? How will the unsafe location for these lots be addressed?

14. Trash removal, if not private this will impact service fees. Where will the shed be built?

15. In Application for Special Permit: Common Access Driveway, it states, "A CAD further serve to preserve, protect and enhance environmentally sensitive lands location on the site by allowing the development of smaller lots within the Cluster Residential Development, thereby preserving wetlands and open space." How does increasing the number of houses with more people and more cars preserve and protect sensitive lands?

16. In Application for Special Permit: Common Access Driveway, it states, "The plan dividing the lots into their current configurations was endorsed as Approval Not Required by the Planning Board in the year 1999. The Approval Not Required plan superceded a definitive subdivision plan constructively approved in 1971". We want to know why there is a 44 year gap and a 16 year gap in development of this land. Why now?

17. We would like to know when the proposed construction will begin, how long it will last and if all of the homes will be built at once rather than building them when a buyer purchases the property.

Amesbury

PLANNING BOARD

Town Hall

RECEIVED
15 MAR -1 PM 12:25
AMESBURY CITY CLERK

APPLICATION FOR SPECIAL PERMIT

Date February 15th, 2015

Name BC Realty Trust, John Cormier and Robert O. Cormier, Trs.

Address 64 School Street, Merrimac, MA 01860

Title Reference - Book 5697 **Page** 435

Application is hereby made for a special permit under the requirements of Section V, Paragraph D of the Amesbury Zoning Bylaw.

Premises affected are situated on Kimball Road (# 47.5 - 57) **Street, Amesbury, Massachusetts, and on Map #** 60 **, Lot #** 6, 6A, 6B, 6C, 6D and 6E **of the Assessor's Map.**

1. **Type of Special Permit Required:** Cluster Residential Special Permit; Section XI.D of the Zoning Bylaw.
2. **Zoning District:** R40
3. **Has there been any previous appeal or permit on this property:** No

   If yes, explain:
4. **Lot Size:** 19.3350 acres
5. **Size of Building(s) existing or proposed:** Eight single family residences to be constructed, approximately 28' by 60' in size as shown on the plan. The ninth lot will remain common open space.
6. **Occupancy of Use, existing /proposed:** Eight single family residential lots and one lot of Common Open Space is proposed; the site is currently unimproved.
7. **Is site plan review required:** No
8. **Is Subdivision Control Law approval required:** Yes

9. **Other permits required:** Wetlands; Definitive Plan approval; Common Access Driveway Special Permit.

10. **Description of proposed work/use:** Construction of a Cluster development and related infrastructure; construction of eight single-family residential dwellings on eight lots is proposed, with an additional lot for common open space.

11. **Principal Points upon which application is based:**
This application is made pursuant to Amesbury Zoning Bylaw Section V, Table of Use Regulations as a Specially Permitted use under section XI.D. The Petitioner states that the Special Permit may be appropriately granted for the reasons stated in the attached narrative.

John Cormier, Trustee
BC Realty Trust
Signature of Applicant

Yvon Cormier, Pres. & Treas.
Yvon Cormier Construction Corp.
Owner (if not Applicant)

Filing Fee: $500.00 plus $100 per lot (CAD, Cluster) or $50 per dwelling unit (multi-family)
Received:_____
Distributed:_____
Hearing:_____

Application must be filed in duplicate, accompanied by five (5) sets of plans, a list of abutters, and a Building Inspector refusal; If site plan approval or subdivision control law approval is necessary, eight (8) sets of plans shall be submitted.

SPECIAL PERMIT REQUIREMENTS

1. All special permit applications must be presented by individuals, partnerships or corporations being parties of interest in the permit applied for. No application will be acted upon unless accompanied by the name or names of the person having title to the property involved, and the book and page of the recording of the deed to said property. The applicant, their attorney, or representative must be present at the time of the public hearing; otherwise the application may be dismissed.
2. All applications shall be accompanied by a plot plan in ink, drawn to scale, showing the actual dimensions of the lot and the exact location and size of the existing building(s) or structure(s) or of the building(s) or structure(s) to be erected. Included ion the plan should be the streets or ways adjacent to the lot. The Planning Board shall keep on file in their office a copy of the application and a copy of the plan.
3. The application must include the names and addresses of all abutters to the property in question, including property across the street or right of way, the owners of land within three hundred (300) feet of the property line; all as they appear on the most recent applicable tax list and certified by the Board of Assessors.
4. Applications requiring a recording of a plan must be accompanied by a recordable linen plan, plus copy, and said plan must contain an engineer's seal. A plan that is to be recorded in the Registry of Deeds must be at least 14 by 9½ inches.
5. All applications must specifically set out the nature of the special permit sought. Only the appeal that is specifically set forth in the application will be considered by the Board unless a change is voted by a majority of the Board.
6. A public hearing will be held by the Planning Board within 65 after filing of an application. Notice of public hearing will be given by publication in the newspaper once in each of two successive weeks, the first publication being not less than fourteen (14) days before the day of the gearing. Cost of the mailing and publication will be paid by the applicant.
7. No application will be accepted or published until the application form, the plan, the list of abutters, review fees and the filing fee have been submitted to the Planning Board or their representative.
8. Complete regulations for special permits are found in Section X, Paragraph J of the Amesbury Zoning Bylaw.

Application for Special Permit – Cluster Residential Special Permit –
BC Realty Trust, 47.5 – 57 Kimball Road, Amesbury, MA

Approval of the application of BC Realty Trust for a Cluster Residential Special Permit is sought for the following principal reasons.

The subject site contains 19.3350 contiguous acres in area and approximately 860 feet of frontage on Kimball Road. It is located in the R40 zone. The parcel is a wooded, sloped parcel interspersed with wetlands and resource areas. It is a vacant tract of land. Access to the site is via Kimball Road and a 30 foot wide Right of Way extending from Lake Attitash Road. The site currently consists of six approved single family lots, each of which conforms to conventional bulk criteria for lots in the R40 zone. Each lot maintains its road frontage on Kimball Road. The plan dividing the lots into their current configurations was endorsed as Approval Not Required by the Planning Board in the year 1999. The Approval Not Required plan superceded a definitive subdivision plan constructively approved in 1971 which created 14 lots, 10 of which were to be accessed via a proposed roadway stretching from Kimball Road to the 30 foot wide Right of Way extending from Lake Attitash Road.

The Petitioner proposes to create a Cluster Residential development consisting of eight residential lots, with a ninth lot comprising common open space. A Cluster Residential Special Permit is being sought pursuant to Section XI.D of the Amesbury Zoning Bylaw. The development is also contingent upon the grant of Definitive Subdivision Plan approval and a Special Permit for a Common Access Driveway. Access to five of the proposed subdivision lots will be via the Common Access Driveway, which as proposed is approximately 255 feet in length extending from Kimball Road. The other three subdivision lots will be accessed via driveways on Kimball Road. The Definitive Plan and Special Permit applications have been filed for consideration simultaneously.

The parcel of land comprising the Cluster Residential development exceeds the minimum allowable tract size under Amesbury's Zoning Bylaw. One-family detached dwellings on separate lots are proposed; they are uses allowed under the Bylaw. No residential lot in the development will directly abut any other homes already existing. The bulk of the common open space will be located to the rear of the subdivision, away from Kimball Road, in the area closest to Lake Attitash Road. The common open space surrounds the proposed residential lots, such that buffer zones will be maintained between abutting properties already improved. In addition, for safety purposes, the Petitioner is proposing as part of the subdivision plan to convey to the City a strip of land along Kimball Road to widen the road layout, reduce the curve, and increase sight distances for vehicles travelling on it.

The proposed Cluster Residential development for the subject parcel is superior to a conventional one in preserving open space for conservation or recreation, and in utilizing the natural features of the land. The majority of the property will remain in its undisturbed natural state. Where possible, the optimal building sites have been identified and located not closer than 100 feet to wetlands. The Common Access Driveway to serve the lots has been located to avoid or minimize adverse impacts on open space areas and to provide views of and access to the open space for the lots. As such, the plan allows a more efficient provision for utilities and other

public services than does a conventional subdivision. The reduced lot sizes discourage the sprawl associated with lots in a conventional subdivision. The Cluster development will not have detrimental effects on abutting neighborhoods and in preparing the plan, consideration has been given to the recommendations contained in the Amesbury Open Space & Recreation Plan, Preservation Plan and Overall Master Plan in the engineering and designing of it.

The proposed cluster subdivision encourages the preservation of valuable open space and maintains Amesbury's traditional character and land use pattern in which small villages contrast with open land. The open space shall consist of a contiguous area to which each proposed lot and house has direct reasonable, physical and visual access by a strip of land at least 20 feet wide suitable for a footpath. Narrow areas of open space less than 100 feet wide are limited, and only occur as vegetated buffers along wetlands or the perimeter of the site, and as connections between open space areas. The open space areas are designed to protect and enhance wetlands areas, all significant woodlands, treelines, rocky outcroppings of ledge or bedrock, wildlife habitat and corridor areas and areas of slopes greater than 10%. All significant wetlands, scenic views, fences and stone walls, and roads and trails are shown or described on the plans and incorporated into the open space. The development site does not contain any floodplains, open fields or meadows, any public water supply areas, watershed divides, aquifer recharge areas, drainage ways, soil test pits or percolation test areas or sites, recreational areas, historic structures or known archeological sites. The common open space area is of a shape, dimension, character, and location suitable to assure that all of the residents of the tract may use it for park, recreation, and conservation purposes.

All land within the cluster subdivision not covered by buildings, roads, walkways, parking areas or service areas, and which is not set aside as private yards is set aside and preserved as part of the common open space. The common open space area comprises 82.98% of the tract, of which 36.9% is within Wetlands areas. The common open space is not less than the square footage of the areas by which the lots are reduced below the minimum lot area required for conventional development.

The Applicant anticipates conveying the common open space and all appurtenances thereto to a homeowner's association, the principal purpose of which is to be conservation and passive recreation. In the event the Planning Board determines that the use of the open space may best be required for addressing an overriding public need, or prefers that the open space be otherwise conveyed to a different entity, the Applicant will defer to the Planning Board's discretion. The Applicant will cause the appropriate documents in proper form and content to be recorded in the Essex South Registry of Deeds restricting and/or conveying the common open space.

In addition, the Applicant anticipates imposing restrictive covenants on the lots within the development which will include, among other provisions, the following:

- there shall be no parking of automobiles in those areas designated as common open space;
- No cluster lot or any portion of the common open space may be further subdivided for the purposes of residential construction;

- no certificate of occupancy shall be issued by the Building Inspector until he has certified to the Planning Board that the premises have been built in accordance with any plan approved by the Board;
- any special permits granted pursuant hereto shall lapse within two (2) years if not exercised;
- Each unit shall consist of a single-family dwelling;
- Open space shall be used solely for recreation, conservation, agriculture or forestry purposes by residents and/or the public, and in accordance with the terms of the homeowner's association or entity acceptable to the Planning Board.

Each lot will also be conveyed an appurtenant right to use, and ownership of, the Common Access Driveway.

In general, the proposed cluster subdivision protects water bodies and supplies, wetlands, flood plains, forestry lands, wildlife, and other natural resources.

It minimizes the total amount of disturbance on the site and preserves open space areas for active and passive recreational use, including the provision for neighborhood parks and trails. The Petitioner intends to dedicate the Open Space for conservation and passive recreation purposes.

The proposed cluster subdivision permits greater flexibility and more attractive, efficient, economical design of residential subdivisions.

It will facilitate economical and efficient provision of utilities. A conventional subdivision would require the extension of infrastructure in excess of that proposed in order to serve proposed residences.

The proposed cluster subdivision is consistent with the City's Master Plan to meet housing needs and to promote diverse and energy efficient housing at a variety of costs.

Wherefore, the Applicant requests that the Planning Board grant its application for a Cluster Residential Special Permit upon such reasonable terms and conditions as it deems necessary to further the provisions of the Master Plan and Zoning Bylaw.

Amesbury

PLANNING BOARD

Town Hall

APPLICATION FOR SPECIAL PERMIT

RECEIVED
15 MAR -2 PM 12:25
AMESBURY CITY CLERK

Date February 15th, 2015

Name BC Realty Trust, John Cormier and Robert O. Cormier, Trs.

Address 64 School Street, Merrimac, MA 01860

Title Reference - Book 5697 **Page** 435

Application is hereby made for a special permit under the requirements of Section V, Paragraph D of the Amesbury Zoning Bylaw.

Premises affected are situated on Kimball Road **Street, Amesbury, Massachusetts, and on Map #** 60 **, Lot #** 6, 6A, 6B, 6C, 6D, & 6E **of the Assessor's Map.**

1. **Type of Special Permit Required:** Common Access Driveway; Section XI.O of the Zoning Bylaw.
2. **Zoning District:** R40
3. **Has there been any previous appeal or permit on this property:** No

   If yes, explain:
4. **Lot Size:** 19.3350 acres
5. **Size of Building(s) existing or proposed:** Eight single family residences to be constructed, approximately 28' by 60' in size as shown on the plan. The ninth lot will remain common open space.
6. **Occupancy of Use, existing /proposed:** Eight single family residential lots and one lot of Common Open Space is proposed; the site is currently unimproved.
7. **Is site plan review required:** No
8. **Is Subdivision Control Law approval required:** Yes

9. **Other permits required:** Wetlands; Definitive Plan approval; Cluster Residential Special Permit.

10. **Description of proposed work/use:** Construction of Common Access Driveway (CAD) and related infrastructure; construction of eight single-family residential dwellings is proposed. The CAD is proposed to serve three (3) units and two (2) abutting units located along the intersection of the CAD and the public way. Vital access to the public way, Kimball Road, is reasonably available for the two abutting units.

11. **Principal Points upon which application is based:**
This application is made pursuant to Amesbury Zoning Bylaw Section V, Table of Use Regulations as a Specially Permitted use under section XI.O. The Petitioner states that the Special Permit may be appropriately granted for the reasons stated in the attached narrative.

John Cormier, Trustee
BC Realty Trust
Signature of Applicant

Yvon Cormier, Pres. & Treas.
Yvon Cormier Construction Corp.
Owner (if not Applicant)

Filing Fee: $500.00 plus $100 per lot (CAD, Cluster) or $50 per dwelling unit (multi-family)
Received:_____
Distributed:_____
Hearing:_____

Application must be filed in duplicate, accompanied by five (5) sets of plans, a list of abutters, and a Building Inspector refusal; If site plan approval or subdivision control law approval is necessary, eight (8) sets of plans shall be submitted.

SPECIAL PERMIT REQUIREMENTS

1. All special permit applications must be presented by individuals, partnerships or corporations being parties of interest in the permit applied for. No application will be acted upon unless accompanied by the name or names of the person having title to the property involved, and the book and page of the recording of the deed to said property. The applicant, their attorney, or representative must be present at the time of the public hearing; otherwise the application may be dismissed.
2. All applications shall be accompanied by a plot plan in ink, drawn to scale, showing the actual dimensions of the lot and the exact location and size of the existing building(s) or structure(s) or of the building(s) or structure(s) to be erected. Included ion the plan should be the streets or ways adjacent to the lot. The Planning Board shall keep on file in their office a copy of the application and a copy of the plan.
3. The application must include the names and addresses of all abutters to the property in question, including property across the street or right of way, the owners of land within three hundred (300) feet of the property line; all as they appear on the most recent applicable tax list and certified by the Board of Assessors.
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6. A public hearing will be held by the Planning Board within 65 after filing of an application. Notice of public hearing will be given by publication in the newspaper once in each of two successive weeks, the first publication being not less than fourteen (14) days before the day of the gearing. Cost of the mailing and publication will be paid by the applicant.
7. No application will be accepted or published until the application form, the plan, the list of abutters, review fees and the filing fee have been submitted to the Planning Board or their representative.
8. Complete regulations for special permits are found in Section X, Paragraph J of the Amesbury Zoning Bylaw.

Application for Special Permit – Common Access Driveway Special Permit – BC Realty Trust, 47.5 – 57 Kimball Road, Amesbury, MA

Approval of the application of BC Realty Trust for a Common Access Driveway Special Permit is sought for the following principal reasons.

The subject site contains 19.3350 contiguous acres in area and approximately 860 feet of frontage on Kimball Road. It is located in the R40 zone. The parcel is a wooded, sloped parcel interspersed with wetlands and resource areas. It is a vacant tract of land. Access to the site is via Kimball Road and a 30 foot wide Right of Way extending from Lake Attitash Road. The site currently consists of six approved single family lots, each of which conforms to conventional bulk criteria for lots in the R40 zone. Each lot maintains its road frontage on Kimball Road. The plan dividing the lots into their current configurations was endorsed as Approval Not Required by the Planning Board in the year 1999. The Approval Not Required plan superceded a definitive subdivision plan constructively approved in 1971 which created 14 lots, 10 of which were to be accessed via a proposed roadway stretching from Kimball Road to the 30 foot wide Right of Way extending from Lake Attitash Road.

The Petitioner proposes to create a Cluster Residential development consisting of eight residential lots, with a ninth lot comprising common open space. A Cluster Residential Special Permit is being sought simultaneously herewith pursuant to Section XI.D of the Amesbury Zoning Bylaw. The development is also contingent upon the grant of Definitive Subdivision Plan approval and a Special Permit for a Common Access Driveway pursuant to Section XI.O of the Amesbury Zoning Bylaw. Access to five of the proposed subdivision lots will be via the Common Access Driveway, which as proposed is approximately 255 feet in length extending from Kimball Road. The other three subdivision lots will be accessed via driveways on Kimball Road. The Definitive Plan application has also been filed for consideration simultaneously herewith.

The proposed Common Access Driveway (CAD) shall be built to the design standards stated in the Zoning Bylaw, and as shown on the Definitive Subdivision plan. The use of the CAD for five of the lots is preferable to the use of individual driveways for the following reasons. Public safety is enhanced by reducing the number and frequency of points at which vehicles may enter onto Kimball Road, particularly in the area of the proposed subdivision. The development site consists of approximately 860 feet of frontage on Kimball Road, and is located on the inside of a long, gradual curve which limits sight distances for vehicles travelling southeasterly and southerly. The development site is currently comprised of six individual lots, each of which, if built upon, would maintain a separate driveway onto Kimball Road. Across from the southerly portion of the site, Ashley Drive intersects Kimball Road. Ashley Drive is a public roadway which serves approximately eight residences. In order to provide the safest access to the development site and balance those needs with the interests of the public travelling along Kimball Road, the Applicant proposes on the Subdivision plan to convey a parcel of land to the City for the future purpose of widening Kimball Road, thereby reducing the severity of the curve in the road and increasing sight distances. This proposal, along with the use of a CAD for the proposed development, would greatly address public safety concerns.

A CAD would further serve to preserve, protect and enhance environmentally sensitive lands located on the site by allowing the development of smaller lots within the Cluster Residential Development, thereby preserving wetlands and open space. The area of land that would otherwise need to be cleared, excavated, filled and/or covered with impervious surface is diminished. Further, the use of a CAD encourages the protection and preservation of significant natural features and vistas located on the development site, which will now be maintained as Common Open Space. The proposed CAD will not serve as a primary means of access to any property which is publicly-controlled or which serves a public purpose. To the extent possible, the CAD has been designed and located so as to minimize soil disturbance, vegetation removal, drainage impacts, and preserve existing trees of over 12" caliper, while minimizing the impact upon other natural features of special significance.

The Applicant does propose that the CAD shall be used to satisfy zoning frontage requirements as a waiver under the Cluster Residential Special Permit as it applies to Lots 6, 7 and 8 on the proposed plan, the remaining Lots all maintaining frontage on Kimball Road. The CAD will have a minimum surface width of sixteen (16) feet, exclusive of two foot shoulders on either side cleared of brush and trees, and shall provide access to the Lots served thereby.

The Applicant proposes that Planning Board allow the CAD to serve three (3) dwelling units for single family detached structures within the Cluster Residential development, while also permitting access to and from the CAD two (2) additional abutting dwelling units located along the intersection of the CAD and Kimball Road. Vital access to Kimball Road is reasonably available to the two (2) additional lots, but in the interests of safety, it is preferable that vehicles enter and exit those lots from the CAD.

The Applicant, upon the sale of any lot within the Cluster Residential development, shall establish within such deed that a grantee shall have rights of access, and ownership in common with the other lot owners, in and to the CAD.

The Applicant shall adopt restrictive covenants affecting the subdivision lots that state that the CAD shall not become a public or private way maintained by the City. Further, it shall be stated that the City of Amesbury shall not be required to provide construction, reconstruction, maintenance, snowplowing, school bus pickup or police patrols along the CAD, unless by contract duly entered into by the City and all landowners served by the CAD. A covenant shall be placed on the property stating that the owners of property served by the CAD shall not petition the City for accepting the way as a public way and that it shall always remain a private way. Each landowner served by the CAD shall be liable and responsible shall be jointly and severally responsible and liable for the repair and maintenance of all portions of the CAD to which more than one landowner holds a right-of-way.

As a condition of the development and construction of the subdivision and CAD, the Applicant shall install mailboxes for all of the units being serviced by the CAD along Kimball Road. The location and height of the mail boxes shall be as per current rules and regulations of the United States Postal Services. A granite post(s) no greater than forty eight (48) inches in height shall be used to support the mailboxes, which shall be uniform in appearance, and the post or box shall indicate the street number address assigned to each lot served by the CAD.

The Applicant proposes that the owners of the dwellings to be constructed shall contract with a private trash disposal service, such that public trash service will not be used. However, in the event public service is utilized, a permanent storage shed shall be constructed and used for the temporary storage of household trash and recycling for all lots being served by the CAD in the style, configuration and location as specified in the Zoning Bylaw.

The proposed CAD is beneficial to the design of the Applicant's development, and as such, furthers the best interests of the City of Amesbury.

Wherefore, the Applicant requests that the Planning Board grant its application for a Common Access Driveway Special Permit upon such reasonable terms and conditions as it deems necessary to further the provisions of the Master Plan and Zoning Bylaw.

RECEIVED
15 MAR 31 AM 12:25
AMESBURY CITY CLERK

PLANNING BOARD

Amesbury

Town Hall, Amesbury, MA 01913

FORM C - Application for DEFINITIVE SUBDIVISION Approval

Date February 15th, XX2015

The undersigned, being the applicant as defined under Chapter 41 §81-O, for approval of a proposed subdivision plan, hereby submits a DEFINITIVE plan and makes application for approval to the Amesbury Planning Board:

1. Name of Plan Definitive Subdivision of Land At 47.5 - 57 Kimball Road In Amesbury, Massachusetts
   Date 1-20-15 Drawn by Atlantic Engineering & Survey Phone 978-352-7870

2. Name of Applicant BC Realty Trust, John Cormier and Robert O. Cormier, Trs.

   Address 64 School Street Merrimac, MA 01860 508-962-1354
   No. Street City/Town State Phone

3. Deed Reference: Book 5697, Page 435, Certificate of Title N.A.

4. Easements & Restrictions See attached list.

Signature of Owner:
Yvon Cormier Construction Corp., by Yvon Cormier, Pres. & treas.

Address: 3 Crenshaw Lane
Andover, MA 01810

OFFICE USE ONLY

Received by Town Clerk:
Date 3-24 Time 12:25 pm
Signature BMF

Easements and Restrictions
Form C – Application for DEFINITIVE SUBDIVISION Approval
Definitive Subdivision of Land At 47.5 – 57 Kimball Road In Amesbury, Massachusetts
BC Realty Trust, Applicant

The premises is subject to the following easements and restrictions, as follows:

1. Easement to the New England Power Company recorded in the Essex South Registry of Deeds at Book 4512 Page 40.

2. Rights of Hawley Patten, his heirs, successors and assigns, to pass and re-pass over a "30' Right of Way to Kimball Rd." as shown on a Plan recorded in the Essex South Registry of Deeds at Plan Book 90, Plan 64, as described in a deed of Laura P. Warner recorded in the Essex South Registry of Deeds at Book 4444 Page 219.

3. Easement to New England Telephone and Telegraph Company recorded in the Essex South Registry of Deeds at Book 6022 Page 310.

4. Easement for septic system purposes described in a deed from Yvon Cormier Construction Corp. to the Trustees of Acadia Condominium Trust recorded in the Essex South Registry of Deeds at Book 6720 Page 445.

5. Orders of Taking in favor of the Town of Amesbury for sewer easements recorded in the Essex South Registry of Deeds at Book 7697 Page 531 and Book 7697 Page 555.

6. Encroachment onto the subject premises by the railroad tie flower bed, gravel driveway, and fence appurtenant to the property abutting to the north belonging to the Acadia Condominium as shown on a Plan recorded in the Essex South Registry of Deeds at Plan Book 426, Plan 90.

7. The subject premises has the benefit of an appurtenant easement over a "30' Right of Way to Kimball Rd." as shown on a Plan recorded in the Essex South Registry of Deeds at Plan Book 90, Plan 64, as reserved in the deed of Laura P. Warner to Hawley Patten recorded in the Essex South Registry of Deeds at Book 4444 Page 219.

FORM C (con't)
This information is to be filled in by the Planning Board, however, the applicant may find the checklist useful for plan preparation

OFFICE USE ONLY

Definitive Plans (Ch. 41 §81U)

Submission Requirements:

____ 10 prints of plan
____ Copy of Form C to Town Clerk
____ locus plan 1" = 1000'
____ street plans & Profiles
____ cross sections
____ closures/ownership info
____ drainage calcs / sewage calcs
____ environmental & community analysis
____ erosion & sedimentation plan
____ landscaping plan
____ soil survey/test pits
____ fee paid (see filing fees)

Plan Contents:

____ title/owners/applicant/surveyor
____ boundary/area/reference/monuments
____ abutters
____ zoning classification/boundaries
____ FEMA information
____ street locations
____ detention calculations
____ stamp & signature of Land Surveyor
____ certification by plan preparer
____ major site features/utilities
____ Clerk & Planning Board signature area

Referred to	sent	rec'd back	comment?
Board of Appeals	____	____	____
Conservation Commission	____	____	____
Board of Health	____	____	____
Public Works Dept.	____	____	____
Police Dept.	____	____	____
Fire Dept.	____	____	____
Other _____	____	____	____
Other _____	____	____	____

_____ PLAN ACCEPTED
_____ PLAN REJECTED (Circle missing items)

Date Plan Filed: _____
+90 Days: _____
Hearing Date: _____

Decision:

_____ PLAN APPROVED
_____ PLAN DENIED (State reasons)
_____ Date of decision

____ Preliminary Plan Approved
____ Definitive Plan Submitted
____ Approval Deadline Date
____ Hearing Date
____ Hearing Date
____ Date of letters to abutters
____ Newspaper notices (H-14)
____ Approval or Disapproval
____ Appeal Deadline (A+20)
____ Recording date
____ Book ____ Page

COMMENTS: _____

Introduction

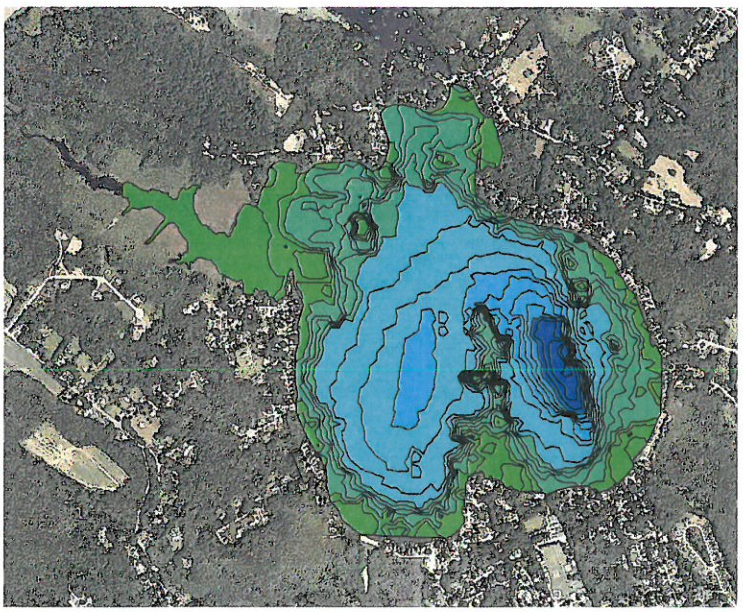
Geographic, Spatial, and Demographic Information

Lake Attitash is a 360-acre natural lake split between the towns of Amesbury and Merrimac, Massachusetts. The lake provides a secondary public drinking water supply for the Town of Amesbury, following the primary sources of the Powwow River and Tuxbury Pond. In 1712, a dam was constructed on the northeast side of the lake with a purpose of raising the water level approximately three feet to maintain flow for the water-powered mills along the Powwow River.

Until the late 1800's, Lake Attitash was formerly named Kimball's Pond after a family that owned much of the surrounding area. With close proximity to the coast and Boston, Ma, the 30 mile radius population of 1,991,452 people includes the states Massachusetts, Maine, and New Hampshire.

Physical Water Body Characteristics

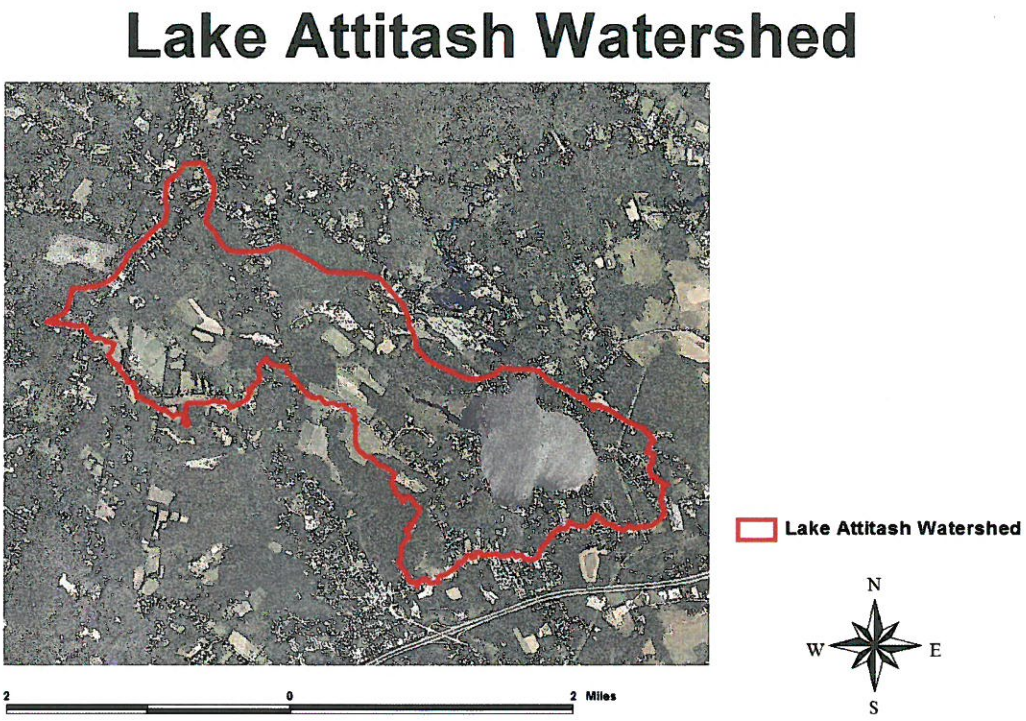
Lake Attitash has a maximum depth of >10 m with a mean depth of 2.8 m. Variable in shape with frequent shoreline convolutions, the lake consists of one larger basin. The major inlet is Back River with a length of 3.7 km and whose confluence is located on the northwest shore. It is important to note that the outlet is also located on the north end of the lake, preventing water circulation throughout the entire lake.



The shore-land area within the 250 foot high water mark surrounding the lake is 52.7 % developed, but of the remaining undeveloped areas, 24.6 % is considered wetlands, preventing development to occur on these lands in Massachusetts. Approximately, 7.77 % of the shore-land is classified as impervious surfaces, which include driveways, roofs, and other hard-packed urban surfaces.

With a watershed of approximately 2,504 acres and spread over three towns (Amesbury, Merrimac, Newton) and two states (NH and MA), only 30.5 % of the land is developed.

Although the percentage of developed land is minimal, the relatively small watershed to lake ratio (6.8: 1) suggests that any slight increases in development would have detrimental effects of nutrient loading input into the lake.



Recreational Activities

With close proximity to the coast and the high density population within the surrounding area, Lake Attitash attracts a variety of recreational users. A public boat ramp located in Merrimac that is capable of accommodating nearly two dozen vehicles attracts a large number of high horsepower motorboats with restrictions limiting only the use of Jet-skis. A preliminary study performed by the Lake Attitash Association indicated a 60% powerboats: 40% sailboats/kayak comparison.

Lake Attitash parameters and habitat sustain a healthy population of warm-water fish species, which include Largemouth Bass, Chain Pickerel, Black Crappie, White Perch, Yellow Perch, Bluegill, Pumpkinseed, Brown Bullhead, and the Northern Pike (Mass Wildlife Survey). A management stocking effort was performed by the Massachusetts Fish & Wildlife to introduce a Northern Pike fishery into many of the larger warm-water lakes statewide. Northern Pike were stocked in 1979, 1985, 1986, and

1988. Recent samples from Lake Attitash suggest excellent growth rates and survival for this particular species, making it one of the best northern pike waters in the Northeast District.

Since the establishment of Camp Bauercrest in 1931, this recreational facility has provided younger children with many outdoor activities. Unfortunately, the recent discovery of cyanobacteria blooms in the lake has directed the camp towards building a swimming pool to provide an alternative solution for safe aquatic activities.

Lake Attitash Association: Past and Current Involvement

The Lake Attitash Association (LAA) was established in 1993 as a non-profit organization to provide any person interested in improving and practicing responsible behavior the ability to help conserve the varying lake values. Mostly comprised of members from the lake community, they strive towards addressing concerns such as nutrient loading, water quality, invasion of aquatic weeds, and wildlife preservation.

Active residents on the lake have been monitoring water quality since 1978 providing more than 30 years of data. The proactive group has made several improvements on the lake such as obtaining a grant from the state to install a storm water drainage system and restrictions preventing the use of jet-skis on the lake. In 2003, an engineered aquatic filter barrier system known as a "gunderboom" was installed at the inlet of the Back River. The system filters "weed promoting" nutrients from entering the lake, while still allowing water passage. Currently, the association continues to monitor and test water samples for cyanobacteria on monthly intervals.

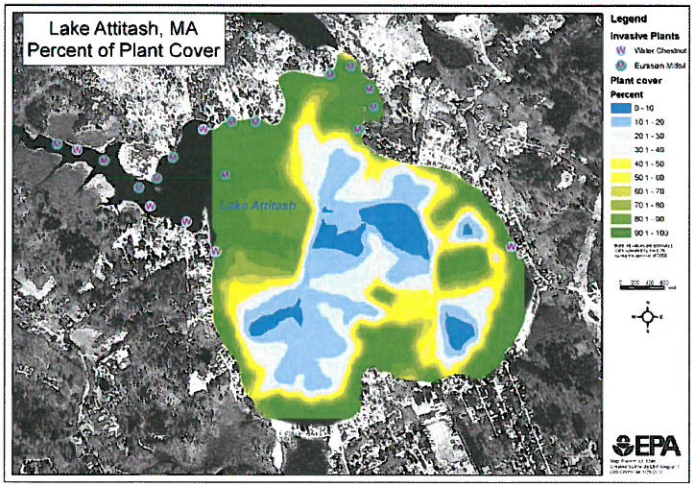
Water Quality Characteristics

Through evidence of previous sampling by the lake association, their data has suggested a progression towards a more eutrophic lake with degrading water quality. Point and non-point sources have been identified throughout the watershed that have undoubtedly increased nutrient loading input into the lake. Numerous farms exist within the watershed, but agricultural runoff and a composting facility from specific operations adjacent to Back River and its wetlands are topographically structured to stimulate extensive nutrient inputs. Mulch storage and gravel yard facilities also exist within close proximity of Back River. Shore development surrounds the lake with the high density residential areas composed of secondary and tertiary waterfront residents. These residents may contribute relatively high levels of phosphorus associated with lawn fertilizers, car wash detergents, and other household supplies.

The input of excessive nutrients in combination with warm and slow circulating flows provides ideal water conditions for algal blooms. In the past years, increasing evidence of cyanobacteria blooms has alerted MA Department of Public Health officials to test the water quality, which resulted in the closure of public access to the lake due to the severity.

Aquatic Invasive Species

Currently two aquatic invasive species exist within Lake Attitash. The more abundant is Eurasion Milfoil, which exists primarily around the inlet and outlet on the north end of the lake. The majority of this section is shallow and nutrient rich, providing proficient native and invasive macrophyte growth. The second invasive species, water chestnut is also found within the same area, although it is not as prolific. Future plans are in place in attempts to eradicate some of the macrophyte abundance through herbicides and winter drawdown.

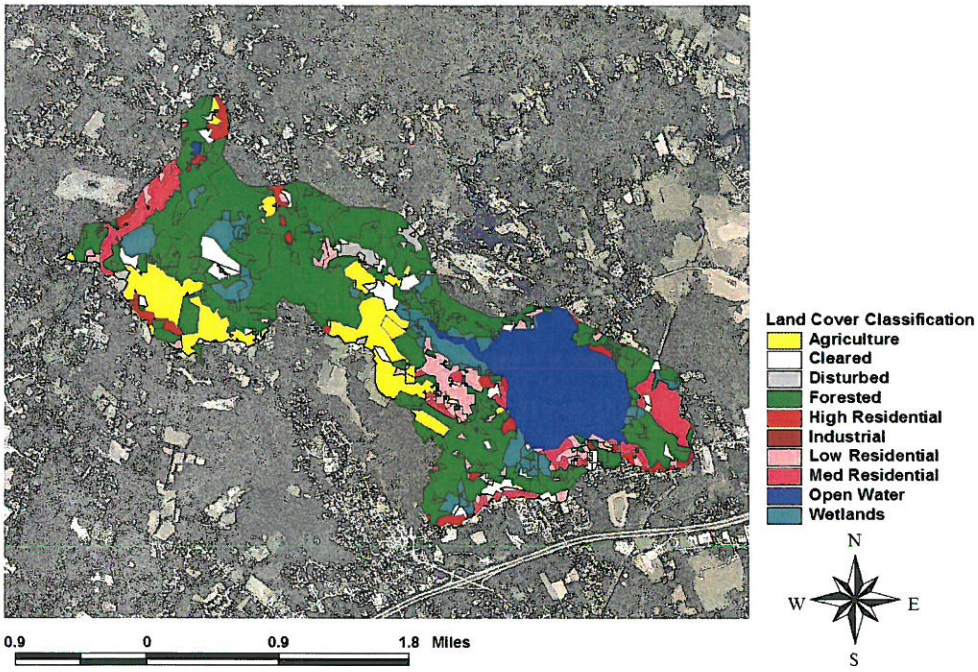


Comprehensive Lake Inventory (CLI)

In order to determine what aspects of Lake Attitash's current status should be addressed as the main priority of this management plan, a Comprehensive Lake Inventory (CLI) was created as a foundation of information about the lake and the watershed. The information included in the CLI ranges from the physical and biological characteristics of the lake, to the laws and guidelines set in place to protect the watershed. Many resources were used to find this information. The Lake Attitash Association

was a wealth of knowledge when it came to both the historic and current characteristics of the lake. Much of the data collected also came from government sources such as the town halls of Merrimac and Amesbury, MA and Newton, NH. Other government agencies such as Mass Wildlife, the Department of Environmental Protection, the Environmental Protection Agency and the Department of Public Health also were helpful resources in the search for information. Biological characteristics of Lake Attitash were provided by data collected by volunteers with the lake association, as well as from the Center of Freshwater Biology with the University of New Hampshire. Some of the questions on the CLI are very specific as to the percentages of land area or population and this information was found using a computer program called Global Information Systems. This allowed for the manipulation of satellite images that were necessary for the data retrieval and calculations. Most of the data in the completed CLI has been crosschecked between multiple references to make sure that it is the most accurate and up to date information available. However, some of the data was collected from personal conversations with lakeside residents or town officials, which could make the information bias or open to dispute.

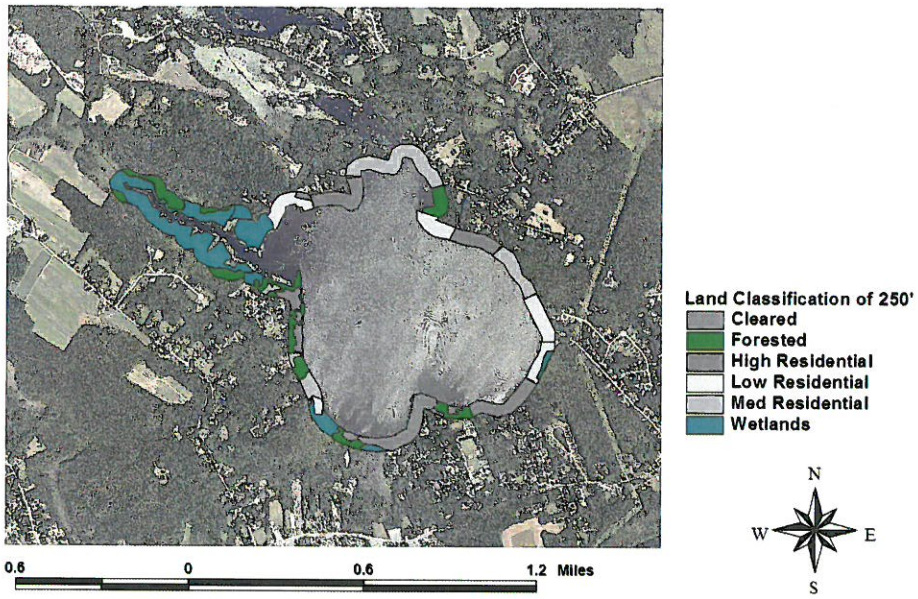
Lake Attitash Watershed Land Classification



The inventory is organized in a way that focuses on the recreational value, any unique and outstanding value, along with the susceptibility to impairment of the lake. Each of these values is assigned twenty questions that relate directly to the main theme and the answers fall into a category

gaining a value between one and five. The final values are summed to get a score out of a possible one hundred. For this management plan a value for Lake Attitash has been determined for each of these three categories. The total recreational value of the lake was 46 which considering the amount of boating that occurs there in the summer months, it seems like a low value. Due to the large drop of recreation in the fall and winter months the annual average of recreational activities appears smaller. The lake also does not provide the ability for much out of water recreation, as the majority of the shoreline is devoted to residential developments. A score of 52 was found for the unique or outstanding value for the lake. This is a relatively low value due to the lack of unique natural features in the area, as well as the absence of distinctive habitats. Lakes that score high in this category are normally known for their rare geological settings or specialized habitats for rare species of animals, factors such as these would need to be protected as to prevent their further disappearance. Lake Attitash scored 68 out of 100 in the susceptibility to impairment category. This means that the lake is very vulnerable to any changes in the watershed; it also means that there are likely already multiple factors that are causing stress on the lake's ecosystem. High scores such as this are more common in shallow lakes surrounded by areas with a high population density. Since Lake Attitash scored so high in this category the main aspects of the management plan designed relate to environmental and physical features that may be adding stress to the lake.

Land Classification of Lake Attitash Shoreland



Issues of Concern

Cyanobacteria

Cyanobacteria, or blue-green algae, are single-celled organisms that occur in fresh, brackish and marine water systems, but strive in stagnant, nutrient-rich waters. Cyanobacteria are filamentous and form algae mats on the lake floor with sediment and weed beds. As the mats grow throughout the summer, photosynthetic gases are often trapped within the mats, causing them to float toward the surface. This occurrence referred to as algae blooms generally occur in the late summer during consistently dry, hot and calm days. Cyanobacteria blooms can look like foam, scum or mats on the water surface of lakes and can be blue, bright green, brown or red and often looks like paint floating on the water (CDC). Cyanobacteria photosynthesize and thus require both nutrients and light in order to undergo this process. The control of cyanobacteria blooms is just one of the many reasons in lake management for the reduction of nutrient inputs.

Human health concerns

Specific species of cyanobacteria produce toxins, which consequently raises concerns for their affect on animal and human health. Species within the genus of Microcystis and Anabaena exist in Lake Attitash, both of which produce the toxin microcystin. Microcystins are a hepatotoxin, which affect the liver. Microcystins have also been found to promote the growth of tumors. Under certain environmental conditions Anabaena also may produce anatoxin-a, which is a neurotoxin, toxins that affect the nervous system (Center for Disease Control (CDC)). Depending on the type of toxin produced and the type of water exposure (drinking vs. skin contact), cyanotoxins are known to cause a range of symptoms in humans ranging from skin irritation, stomach cramps, vomiting, nausea, diarrhea, fever, sore throat, headache, muscle and joint pain, blisters of the mouth and liver damage (World Health Organization (WHO)). People swimming in waters containing cyanotoxins may suffer reactions such as asthma, eye irritation, rashes and blisters around the mouth and nose.

These toxins remain within the cyanobacteria until they die in the waterbody or when they are ingested by animals or humans. Once cyanobacteria are ingested, the digestive juices destroy their cell walls, releasing the toxin into the gastrointenstinal tract (Massachusetts Bureau of Environmental Health (MA BEH)). Because the toxins are not released until cyanobacteria dies, it is important to note that the toxin concentration in the water may rise for a period after the algae blooms have disappeared (MA BEH).

Microcystin threshold

Currently, WHO has only set guidelines for the maximum concentration of microcystin that humans should be exposed to which is a maximum concentration of 1 parts per billion (ppb or 1 ug/L). There is a correlation between the number of cyanobacteria present in a water sample and the toxin concentrations in the water (WHO). Concentrations of cyanobacteria cells in drinking water above 50,000 cells/mL, suggest that microsystin levels exceed the maximum threshold set by the World Health Organization. Estimating the concentration of cyanobacteria cells is a commonly used method to determine if the concentration of toxins in the water could exceed set toxic levels.

Accumulation in fish

Cyanobacteria are often ingested by aquatic micro-invertebrates that filter lake water. Larger invertebrates such as fish consume these zooplankton in their early juvenile planktonic stages, thus

indirectly accumulating the biotoxins. The accumulation of these toxins through the food chain should be noted by anglers who consume fish from lakes that suffer from cyanobacteria blooms.

Cyanobacteria in Lake Attitash

In August of 2009, a group from the Center for Freshwater Biology (CFB) at the University of New Hampshire (UNH) identified cyanobacteria blooms in Lake Attitash that measured cell concentrations ranging from 62,000 - 350,000 cells/mL (UNH CFB). Because these cell counts exceeded the Massachusetts Department of Public Health (DPH)'s recommended levels of 70,000 cells/mL, warnings of the cyanobacteria bloom was posted from most of August into September (Amesbury Town Hall). The only known period of cyanotoxin testing was conducted by the Department of Public Health (DPH) in August 2009 while the lake was closed for high cyanobacteria levels (Yandell, 4 May 2010). The DPH tested for the toxin microsystin as it is the most common toxinthat is tested for in freshwater. (MA BEH). The DPH did not measure any microsystin in the tested lake water samples during the three week sampling period

The high probability that cyanotoxins exist at unhealthy levels in Lake Attitash is especially concerning because it is used as a supplementary drinking source for the town of Amesbury. The town of Amesbury draws down Lake Attitash each fall to prevent flooding and this water is diverted to the Amesbury Water Treatment Facility and used as a supplementary drinking source to the Powwow River. During the fall, cyanobacteria cells decay and release their toxins, coincidently in time for winter lake drawdown. Besides the testing conducted by the DPH in 2009, no other tests currently measure cyanotoxin levels. The Amesbury Water Treatment Facility currently does not have its drinking water tested for cyanotoxins. The facility does however periodically conduct rough cell counts of cyanobacteria when blooms occur in the summer.

Water testing

The WHO recommends that cyanotoxin testing be conducted when the cyanobacteria cell counts exceeds 50,000 cells/mL and since cyanobacteria cell counts far exceeded this concentration in August 2009, it is suggested that both the lake water of Lake Attitash as well as the drinking water of Amesbury be tested for cyanotoxins during the summer and fall. It is recommended that both integrated and surface water samples be tested biweekly throughout the summer and fall. During hot, dry and calm conditions, especially during periods of cyanobacteria blooms, testing should be conducted at more frequent intervals.

One option for Lake Attitash to have their water tested for microcystin is through a program with the Center for Freshwater Biology (CFB) at the University of New Hampshire. The CFB is offering a microsystin testing program for interested lakes for the summer of 2010. Each sample will cost $40 to process and provide a full analysis of the sample.

To fund testing, the Lake Attitash Association could apply for a grant with the Massachusetts Department of Environmental Protection (DEP). The Clean Water Act Section 604(b) grant program is offering competitive grants to municipalities and regional planning agencies to support watershed or sub-watershed based point and nonpoint source assessment leading to the determination of the nature, extent and causes of water quality problems. The town of Amesbury could look into applying for this grant or one like it to help fund this important testing program. More information about this grant and other grants offered by the DEP can be found at the Massachusetts Department of Environmental Protection website.

Managing cyanobacteria

Excess phosphorus from point and non-point sources suggests large increases in cyanobacteria blooms. A reduction of nutrient loading input into the lake will coincidently affect the concentration of cyanobacterial cells. In addition to the reduction of nutrients, there are other experimental control methods of cyanobacteria such the use of phosphorous-binding compounds (copper, aluminum, or calcium) or sediment oxidation to reduce the amount of phosphorous available to cyanobacteria on the lake floor (Holdren et al. 2001). However, due to the large expenses and the lack of unknown effects, we do not recommend any of these experimental options at this time.

There have been numerous studies on the removal of cyanotoxins from drinking water and it has been found that the process of ozonation is the most effective in destroying cyanobacteria and removing microcystins. However, these treatments were not always found to be sufficient during periods of blooms or when high organic load is present (Hitzfield et al. 2000). In addition, the Amesbury Water Treatment Facility does not currently use this form of water treatment technology.

Nutrient Loading

Lake Drawdown

An alternative method includes a lake water level drawndown, which typically occurs in the later fall for multiple reasons. Lake drawdowns are typically performed in preparation for ice shelves that fluctuate in height levels throughout the season dependent on precipitation as well as spring runoff and

snow melt. The drawdown allows a lake basin to absorb more water during the spring floods when rainfall and runoff create an abnormally high water table. Fortunately, a fall drawndown can also perform as a management method to control the spread of aquatic invasive macrophytes as well as nutrient loading.

Many aquatic invasive macrophytes inhabit the shallow littoral benthic regions of lakes. Lake drawdown has the greatest direct affect on the littoral region as this area will be exposed to dehydration and the harsh winter conditions. Previous studies of drawdown suggest positive results on inhibition of Eurasian Milfoil distribution, mainly due to the extended period of exposure to winter weather conditions (Goldsby & Bates, Stanley et al.). With the correct time period and depth of drawdown on a lake, further distribution of Water Chestnut may also be regulated. The life period of this species witin a specific waterbody is important, as the offspring produced as seeds have evolved to survive extreme climate changes. They will remain viable in the sediments until conditions are ideal to begin growth.

Drawdown removes a large volume of the lake water, thus flushes out suspended particales and nutrients within the water column. This rapid water level decrease may have positive effects on removal of excess nutrient abundance in the lake, thus decreasing probabilities of cyanobacterial blooms in the spring.

Lake drawdown is a viable management tool that may prevent a number of lake related issues, but the environmental impact may have detrimental effects on the lake community. During drawdown, the littoral benthic community is exposed to dehydration and winter conditions for an extended period of time. Exposure to these large areas of sediment may lead to erosion through waves and high winds, which are common occurrences of winter storms. The erosion will wash away the organic matter that is vital to the native macrophytes and micro-invertebrate communities. The littoral region serves as an important breeding community as well as providing ideal habitat for juvenile organisms where food and protection from predation is abundant. The destruction of this habitat will undoubtedly lead to a decrease in the young of the year organisms, thus affecting future populations. Dissolved oxygen becomes a limiting factor during extremely cold winters when ice depth is high. The aquatic macrophytes in the littoral region provide much of the oxygen for the organisms during the winter months, but even these macrophytes die during the season increasing carbon dioxide and minimizing oxygen. Seasonal trends of oxygen concentration unquestionably decrease throughout the season and with the depletion of photosynthetic organisms in the littoral zones, high fish kills will occur. It is important to evaluate the negative and positive attributes to determine the most beneficial decision for the lake.

After researching solutions towards the removal of aquatic invasive species, the most economically viable method of management is hand-pulling. This method specifically targets the invasive species without the removal of other native macrophytes that are beneficial to the entire community. The plants are uprooted by hand and preferrably removed to reduce the amount of biomass.

Phosphorus Budgeting

This process allows researchers to determine the input of phosphorus into the lake each year. This service can be provided by research laboratories such as the Water Resource Research Center at the University of New Hampshire. Phosphorous budgeting is a relatively expensive procedure, but with the help of volunteers to take regular samples, the costs are reduced substantially. In order to determine the total input of phosphorus per year, the total water input must be determined. The nutrient input of the Back River (the main inlet) would be measured, as well as that from the wetland at the southwest corner of the lake. Both of these inputs have proven to be major sources of phosphorus. Previous water quality tests, from the summer of 2009, show a reading of 119.0 μg/L at the mouth of the southwestern wetland, and a reading of 59.3 μg/L at the mouth of the Back River. These high levels of phosphorus provide evidence that the nutrient loading into the lake is a major source of current problems. The storm water runoff as well as any other input sources into the lake will be measured for phosphorus content and also added into the calculation. Creating a phosphorus budget will provide more evidence as to the main sources of nutrient loading into the lake, which would allow for a more targeted solution to the problem. If the results prove that the input and output of the phosphorus in the lake does not correspond, this will prove that the lake is being affected by internal sources of phosphorus. This may cause a larger gap of time before any improvements are seen from a decrease in external phosphorus sources.

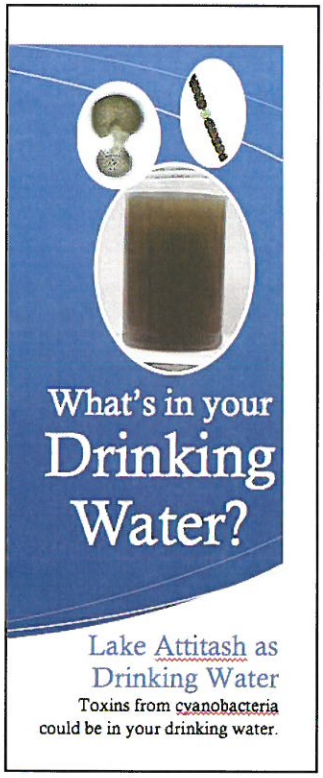
Outreach

After speaking to the members of the Lake Attitash Association it was clear that they were doing a very successful job at reaching out to the residents who live directly on the lake. They expressed a desire for the new management plan to include an educational plan that was directed toward the residents in the secondary and tertiary residential layers around the lake. It is very important for all of the residents in the watershed to understand that they have an impact on the health of the Lake Attitash ecosystem. Other people who use the lake for recreation purposes also need to be educated as to the repercussions of their actions on the lake. Due to the use of Lake Attitash as a secondary drinking water source it is especially

important for the residents of Amesbury, MA to understand that the health of the lake affects the health of their entire town.

Currently Lake Attitash is exhibiting high levels of cyanobacteria, which increase in the summer months to toxic levels. As stated above the water filtration systems in most towns, specifically the town of Amesbury, MA, have not been proven to have an effective means of filtering the cyanotoxins out of the drinking water supply. The residents of Amesbury have the right to be educated about what health hazards they may be exposed to by ingesting drinking water from such a polluted source. The use of educational workshops, pamphlets and bulletins it will be possible to educate a greater number of people in the area about the health risks of the lake water and what they can do to minimize their impact.

In order to encourage a larger number of people to be concerned about the lake it is important to show them why an unhealthy lake can affect their lives. A brochure regarding the effects of water quality on their drinking water is a good way to start. Creating an informative brochure is a great first step to getting the attention of residents who have never before attended a lake association meeting, and are not very involved with the town. The key is to use a title that peaks the interest of the reader and gets them to take the time to look at the beneficial information and tips inside. An example for this specific issue is "Where does your drinking water come from?" or "What's in your drinking water?". The figure shown on the right is just one example of an eye catching design for a pamphlet. Inside the brochure there should be lots of helpful information explaining the dangers of cyanotoxins, where they come from, and what the Lake Attitash Association is doing to limit the increase of toxins in the lake. Outreach resources such as these are not only a good way to send out information about the lake, but also about the association itself. This may encourage more of the watershed residents to join the association, and learn more about how they can help the lake.



Educational workshops are another important way to get information out to the public. These workshops should focus on small topics that help the residents reduce their effect on the lake in small easy steps. Lawn care is a great topic to start with. It is a large factor in nutrient loading for a lake's ecosystem and can be minimized in easily. This topic is also one that will easily relate to many of the residents in the watershed. A seminar on lake friendly lawn care would include discussing non-

phosphorus fertilizers, and the construction of buffer zones for the lakeside residents. Fertilizers are a problem that is often addressed with the public but in order for it to be successful you must provide the audience with all of the necessary information. It is important to explain the destructive effects of nutrient loading, and how it leads to the eutrophication of the lake and can be a cause of toxic cyanoblooms. It is important to mention that just because someone does not live directly on the lake that does not mean that the runoff from his or her house is not affecting the lake. Once they understand why normal fertilizers cause damage, it is important to provide them with information about an alternative fertilizer. This information should include where you would find it, how to know if it is phosphorus free. Adding information about price differences between the phosphorus-free fertilizer and the more commonly used version will also help them understand that the cost is not drastically different. It is even possible that by talking to your local provider they maybe willing to team up with your Lake Association to give members a discount. Buffer zones can also be addressed in this workshop. The Massachusetts Department of Environmental Protection has many resources stating suggested guidelines for the size and composition of buffer zones. During a workshop it is important to provide not only visual representations of what the people should be doing, but also a take home resource for them to look back at when they begin to put the knowledge they learned to work. Supplying the targeted group with a reference to take home with them, not only are they less likely to forget what was said, but they may also share the information with friends or neighbors that did not attend the class.

Informational workshops can be advertised for through the Lake Association, as well as with help from the public libraries, the Board of Health, and the town selectmen. By getting these other groups involved in your efforts it draws in a different demographic of people who you may not have previously thought to target. Public Libraries are often a great resource to use for function or in dispersal of information. The Town Selectmen are a valuable contact to use for support in your efforts or in order to get information about your educational workshops and the Lake Attitash Association into the town meetings. These meetings are often broadcast on public television channels, which provide a larger audience for your message to reach. Both the towns of Amesbury, MA and Merrimac, MA have public access stations, which are willing to work with nonprofit groups to broadcast informational meetings or workshops to the public in the corresponding towns. Not only does this allow for larger audiences, but it also catches the attention of people who would not normally get involved in an educational workshop of this type. In order to focus on the youth in the area it is also possible to get involved with local schools or Camp Bauercrest to organize a day of fun, educational activities for a younger age group. The local high

schools may be especially important to contact so that students in the biology, biodiversity, or environmental science classes, who would be especially interested in this subject would have a chance to participate in the workshops or data collection.

Another public outreach option is to install a kiosk at the public boat ramp. This would provide both the town and the Lake Attitash Association a place to post information about lake health. On the bulletin board information could be posted regarding cleaning boats before entering the pond, as well as safety rules and regulations for lake users. This is also a valuable space to display a schedule of upcoming events concerning the lake, such as meetings or seminars that would be of interest to those who frequent the lake. Warning signs referring to the health of the lake, for cyanobacteria blooms or mercury levels could also be posted in this kiosk. It would be best to purchase a kiosk that has a glass cover with a lock so that it is weather proof, and to ensure that the information is safe from any acts of vandalism.

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