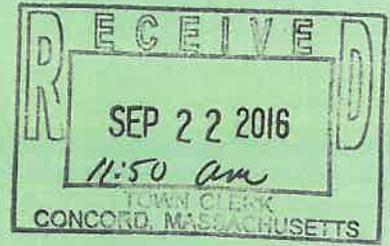


F#1 9/23/16



# **PHASE II BLACK BIRCH**

**Alternative Planned Residential Development**

**Preliminary Site Development and Use Proposal  
for  
Lot 4A and Parcel A Forest Ridge Road**

**September 12, 2016**

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*Advanced Built. Individually Inspired.*

September 12, 2016

Concord Planning Board  
141 Keyes Road  
Concord, Massachusetts 01742

Re: Phase II Black Birch Preliminary Site Development and Use Proposal  
for Lot 4A and Parcel A Forest Ridge Road

Dear Members of the Board:

As we have discussed Concord's Long-Range Plan and Housing Production Plan have set goals for the Town to facilitate development of housing options for residents looking to downsize and stay in Concord. Based in part on these goals the 2015 Annual Town Meeting approved the first phase of Black Birch which consists of a 25-unit age 55 or older Alternative Planned Residential Development (PRD) located on 15.57 acres off Forest Ridge Road. This phase of our work is progressing successfully with 14 of the 22 market-rate homes under contract or sold. In addition there are three affordable units. The first is scheduled for delivery by the end of this month. The affordable units are restricted to persons earning 120% and 140% of area median income with sales prices of \$335,000 and \$399,000 respectively.

Because there is strong demand for this type of housing, over the past few months I have met with your Board and consulted the Planning Department, the Select Board, the Concord Housing Foundation and the Housing Development Corporation regarding a second phase of Black Birch consisting of 16 units. Based on those discussions ABODE has prepared the enclosed Phase II Black Birch Alternative PRD Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road dated September 12, 2016 which is hereby being filed with the Planning Board and Town Clerk in accordance with Section 10.3.4 of the Concord Zoning Bylaw. Concurrent to this filing ABODE is also submitting the following petition articles for consideration at the 2016 Special Town Meeting:

Article 1 – This article requests that the Town Meeting vote pursuant to Section 10.3.4 of the Zoning Bylaw to approve the Phase II Black Birch Alternative PRD Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road dated September 12, 2016 (herein "Black Birch Phase II). Town Meeting approval of Black Birch Phase II will be based upon the following standards, which may be modified prior to the vote of Town Meeting in accordance with Section 10.3.4.3(d) of the Zoning Bylaw, but cannot be modified after said vote:

1. The maximum number of units shall not exceed sixteen (16) units and each unit shall be occupied by at least one individual who is fifty-five (55) years or older.

2. The Common Open Space shall not be less than 4.6 acres, 3.32 acres of which shall be donated to the Town and the balance of which shall be owned and used in accordance with terms and conditions established by the Board of Appeals.
3. Two (2) of the 16 units shall be deed-restricted in perpetuity to maintain their affordability and sold, leased or rented under terms and conditions established by the Board of Appeals.
4. As an alternative to the provision of two (2) Affordable Units in Phase II of Black Birch and in exchange for the right to build the proposed sixteen (16) units in Phase II all as market-rate units, ABODE shall donate one million dollars (\$1,000,000.00) to the Town to be placed in a fund earmarked for affordable housing purposes. Such fund to be subject to the control and management of the Select Board with the objective of spending these funds in a manner which the Select Board determines is appropriate to enhance affordable housing opportunities in the Town of Concord.

NOTE: As stated above ABODE intends to request the Planning Board's approval in accordance with Section 10.3.4.3(d) to amend Condition 3 and 4 above. Section 10.3.4.3(d) provides that Preliminary Site Development and Use Proposal may be amended after the Planning Board's Public Hearing on the Warrant provided the Planning Board approves the amendment and a copy of the amendment is filed with the Town Clerk and Planning Board at least five (5) days before the day on which the Town Meeting votes on the proposed Alternative PRD. The purpose of the amendment will be to determine if the Town Meeting's vote on Black Birch Phase II should be based upon: (a) two (2) of the sixteen (16) proposed units being set aside as Affordable Units or (b) approval to build the proposed sixteen (16) units all as market-rate units in exchange for ABODE's agreement to donate one million dollars (\$1,000,000.00) to the Town to enhance affordable housing opportunities.

Article 2 – The second article requests that Town Meeting vote to authorize the Board of Selectmen to enter into an agreement to release Lot 4A Forest Ridge Road containing 5.79± acres and Parcel A Forest Ridge Road containing 3.32± acres, both as shown on a plan entitled "Plan of Land in Concord, Massachusetts, Owned by: Todd A. Pulis, Trustee of Thoreau Realty Trust" dated August 25, 2016 to be recorded with the Middlesex South District Registry of Deeds, from a certain Easement and Restrictive Covenant Agreement dated September 19, 1990 and recorded with said Deeds in Book 20781, Page 75 and to agree that said Lot 4A and Parcel A may be used for residential purposes as a primary use. The requested release for Lot 4A and Parcel A is the same type of release approved by the 2001 Annual Town Meeting for the Riverbend Alternative PRD and the same type of release approved by the 2015 Annual Town Meeting for the first phase of the Black Birch Alternative PRD.

Article 3 – The third article requests that Town Meeting vote to amend the **Zoning Bylaw Table III – Dimensional Regulations under Maximum Floor Area Ratio in the Limited Industrial Park #2 District (LIP #2)** by deleting after the word "Educational" the words "in LIP #2," and substituting in place thereof the words "and Residential uses in the LIP #2, provided such Residential uses are located within an Alternative PRD," so that the first part

of the provisions under Maximum Floor Area Ratio in the LIP District would read as follows:

6,000 sq. ft.  
gross floor  
area per acre  
for Educational  
and Residential  
uses in the LIP #2,  
provided such  
Residential uses  
are located  
within an  
Alternative PRD,

Following Town Meeting approval a Special Permit from the Board of Appeals based upon reports and recommendations from the Planning Board and Natural Resource Commission will also be required for Black Birch Phase II together with other Town approvals as more fully set forth herein. ABODE looks forward to working with your Board and all other Town boards, committees, neighbors and staff to successfully permit and complete Black Birch Phase II and to enhance housing opportunities in Concord. In the interim if you have any questions about the information provided herein or any other aspect of our proposal please feel free to contact me (978-846-0264) or Kevin Hurley (978-369-5035).

Very truly yours,

  
\_\_\_\_\_  
Jack McBride  
President

cc: Town Clerk  
Select Board  
Concord Housing Foundation  
Concord Housing Development Corporation  
Natural Resources Commission

## **PHASE II BLACK BIRCH OVERVIEW STATEMENT**

### **Alternative Planned Residential Development (PRD) Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road**

**September 12, 2016**

#### **BACKGROUND**

The 2015 Annual Town Meeting approved the first phase of Black Birch which consists of a 25-unit age 55 or older Alternative Planned Residential Development (PRD) located on 15.57 acres off Forest Ridge Road. This Town Meeting action, which included approval of a Preliminary Site Development and Use Proposal under Section 10.3.4 of the Zoning Bylaw, was based in part upon the Planning Board's recommendations as well as the support of numerous other Boards and Committees including the Select Board and Finance Committee.

Black Birch has been designed and developed in response to Concord's Long Range Plan and its Housing Production Plan which have found that: over 28 percent of the residents in Concord are age 55 or older and the Town needs to facilitate development of small housing options for residents who want to downsize. Features and benefits in the first phase of Black Birch include:

- New construction for those 55 or older
- Two and three-bedroom homes ranging from 1,700 to 2,600 square feet
- Attached two-car garages
- Low maintenance with the convenient lifestyle of condominium living
- Options to modify house plans to meet specific needs
- Three (3) affordable homes

#### **ESTABLISHED NEED AND BLACK BIRCH'S COMMITMENT**

The Town's long-range plans have established the need. Few small homes are being constructed in Concord today. In recent years many small inefficient homes have been demolished and the size of the replacement housing has grown significantly. At Black Birch our goal has been to facilitate options at Forest Ridge for those seeking new construction of energy-efficient homes for individuals age 55 or older with access to fitness (Thoreau Club), walking trails (Town Conservation) and nearby services/shopping (Powder Mill Plaza).

## **FOREST RIDGE**

Forest Ridge is comprised of 98± acres. The existing use of this land can be summarized as follows: 5.4 acres educational (Minute Man Arc), 5.6 acres municipal (CMLP Substation), 22.6 acres residential (Riverbend Alternative PRD and Phase I Black Birch Alternative PRD), 20.3 acres Town conservation and 44.3 acres recreational (Thoreau Club and Camp Thoreau). Approximately 6.5 acres of the Town's conservation land is zoned Residence A District and the balance of the 98± acres are zoned Limited Industrial Park (LIP) #2 District. Permitted uses in the LIP #2 District include: Alternative Planned Residential Development (PRD).

Summary of existing land uses:

- Education                      5.5%
- Municipal                        5.7%
- Residential                      23.1%
- Conservation                    20.6%
- Recreation/Camp                45.1%

## **PROPOSED BLACK BIRCH PHASE II**

ABODE Builders has entered into an agreement with Thoreau Realty to purchase 9.11 additional acres at Forest Ridge for Phase II. Under Section 10.3.4 of the Zoning Bylaw, a 16-unit age 55 or older expansion of Black Birch is proposed on Lot 4A which contains 5.79 acres as well as the conveyance of Parcel A containing 3.32 additional acres to the Town for conservation purposes (see enclosed plan entitled "Locus Plan Lot 4A and Parcel A, Black Birch Alternative Planned Residential Development", dated June 24, 2016, Revised September 12, 2016).

Eight (8) detached single-family homes and eight (8) proposed attached townhouses are planned with site amenities similar to the first phase of Black Birch (see enclosed site plan entitled "Black Birch II Proposed Alternative Planned Residential Development Lot 4A and Parcel A Forest Ridge Road", dated May 5, 2016, Revised September 12, 2016 by Hawk Design). The detached and attached units will be similar to the Carriage House I, Carriage House II, the Patio Home and the Colonial II presently offered at Black Birch (see enclosed typical elevations and floor plans for these units from Phase I). Units will range in size from 1,800 square feet to 2,600 square feet each with a two-car garage. Options will include: adding a bedroom to any two (2) bedroom unit, modifying floor plans to meet specific needs and finishing space on the lower level of each unit.

The Phase II site improvements will feature a Village Green, a 20 foot-wide internal drive with all storm water drainage connected to an existing retention area on Lot 5F, an existing sidewalk shared with the Thoreau Club, a fifty (50) foot setback from Forest Ridge Road and twenty-five (25) foot front, side and rear yards setbacks from all other boundaries of the PRD as may be authorized under Section 6.3.4 of the Zoning Bylaw, exclusive use areas for each unit and not

less than fifty (50) percent Common Open Space. As stated above the most significant Common Open Space consisting of the 3.32 acres in Parcel A which will be donated to the Town. Non-donated Common Open Space will include uses and activities similar to Black Birch's existing Common Open Space in Phase I which is restricted by the terms and conditions of the Board of Appeals' Special Permit rather than a conservation restriction.

### **TOWN MEETING AND OTHER APPROVALS**

Three (3) articles applicable to Black Birch Phase II will be submitted for Town Meeting approval. The first article will ask the Town to vote pursuant to Section 10.3.4 of the Zoning Bylaw to approve the Phase II Black Birch Alternative PRD Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road dated September 12, 2016 (herein "Black Birch Phase II). Town Meeting approval of Black Birch Phase II will be based upon the following standards, which may be modified prior to the vote of Town Meeting in accordance with Section 10.3.4.3(d) of the Zoning Bylaw, but cannot be modified after said vote:

1. The maximum number of units shall not exceed sixteen (16) units and each unit shall be occupied by at least one individual who is fifty-five (55) years or older.
2. The Common Open Space shall not be less than 4.6 acres, 3.32 acres of which shall be donated to the Town and the balance of which shall be owned and used in accordance with terms and conditions established by the Board of Appeals.
3. Two (2) of the 16 units shall be deed-restricted in perpetuity to maintain their affordability and sold, leased or rented under terms and conditions established by the Board of Appeals.
4. As an alternative to the provision of two (2) Affordable Units in Phase II of Black Birch and in exchange for the right to build the proposed sixteen (16) units in Phase II all as market-rate units, ABODE shall donate one million dollars (\$1,000,000.00) to the Town to be placed in a fund earmarked for affordable housing purposes. Such fund to be subject to the control and management of the Select Board with the objective of spending these funds in a manner which the Select Board determines is appropriate to enhance affordable housing opportunities in the Town of Concord.

The second article requests that Town Meeting vote to authorize the Board of Selectmen to enter into an agreement to release Lot 4A Forest Ridge Road containing 5.79 acres and Parcel A Forest Ridge Road containing 3.31 acres, both as shown on a plan entitled "Plan of Land in Concord, Massachusetts, Owned by: Todd A. Pulis, Trustee of Thoreau Realty Trust" dated August 25, 2016 to be recorded with the Middlesex South District Registry of Deeds, from a certain Easement and Restrictive Covenant Agreement dated September 19, 1990 and recorded with said Deeds in Book 20781, Page 75 and to agree that said Lot 4A and Parcel A may be used for residential purposes as a primary use. The requested release for Lot 4A and Parcel A is the same type of release approved by the 2001 Annual Town Meeting for the Riverbend Alternative PRD and the same type of release approved by the 2015 Annual Town Meeting for the first phase of the Black Birch Alternative PRD.

The third article requests that Town Meeting vote to amend the **Zoning Bylaw Table III – Dimensional Regulations under Maximum Floor Area Ratio in the Limited Industrial Park #2 District (LIP #2)** by deleting after the word "Educational" the words "in LIP #2," and substituting in place thereof the words "and Residential uses in the LIP #2, provided such Residential uses are located within an Alternative PRD," so that the first part of the provisions under Maximum Floor Area Ratio in the LIP District would read as follows:

6,000 sq. ft.  
gross floor  
area per acre  
for Educational  
and Residential  
uses in the LIP #2,  
provided such  
Residential uses  
are located  
within an  
Alternative PRD,

Under existing zoning the maximum floor area ratio that can be authorized under Section 6.3.4 Dedication of Land to the Town of Concord for Municipal or Other Public Uses on Lot 4A is 34,740 square feet of gross floor area (5.79 acres x 3,000 S.F./acre x 2 = 34,740). The proposed zoning is intended to allow the Board of Appeals, in exchange for the dedication of the fee interest in Parcel A containing 3.32 acres to the Town of Concord for conservation purposes, to authorize under Section 6.3.4:

1. The transfer of development rights to Lot 4A so that the maximum gross floor area permitted on Lot 4A shall be 38,400 square feet (16 units x 2,400 average unit size = 38,400); and
2. The transfer of the balance of the development rights otherwise applicable to Parcel A to Lot 5F Forest Ridge Road.

In addition to Town Meeting approval of the foregoing articles, Black Birch Phase II will necessitate several subsequent approvals including but not limited to a Special Permit from the Board of Appeals pursuant to Section 6.3.4 Dedication of Parcel A to the Town, Section 7.5 Earth Removal and Section 10.3.4 Alternative PRD. Under a separate but related application to the Planning Board, Thoreau Realty and/or ABODE will also seek to amend Thoreau's Site Plan approval #99-19 dated November 15, 1999 to modify the existing Staff and Overflow Parking which presently consists of 100 spaces located in part on Lot 4A and in part on Lot 5F. These modifications will include the removal of 50 existing spaces and the redevelopment of the remaining 50 spaces all located on Lot 5F which will bring the total Thoreau parking on Lot 5F to 318 parking spaces which equals 88 percent of the parking requirement for the full operation of Thoreau facilities. Furthermore in order to provide the potential for a total of 360 parking spaces as required for the full operation of Thoreau's 35± acre campus, Thoreau will also seek Planning Board approval of 42 additional parking spaces (12 in Parking Lot B and 30 in Parking Lot D) under Section 7.7.2.8 Reserved Parking Spaces which provides in part that the Planning

Board can require any Reserved Parking approved pursuant to Section 7.7.2.8 to be built at any time in the future upon the Building Inspector determination that such parking is needed.

**TABULAR SUMMARY**

1. Number of Units

- Sixteen (16) Unit age 55 or older Alternative PRD

2. Unit Type and Size

- Carriage House I – Two (2) Bedroom/2.5 Baths with 2,129± square feet of gross floor area
- Carriage House II – Two (2) Bedroom/2.5 Baths with 1,869± square feet of gross floor area
- Patio Home – Two (2) Bedroom/2.5 Baths with 2,350± square feet of gross floor area.
- Colonial II – Three (3) Bedroom/3.5 Baths with 2,527± square feet of gross floor area.

The unit type, the number of bedrooms and/or baths and the gross floor area of each unit may be varied to meet market requirements and provide buyers with the option to modify the proposed house plans to meet specific needs. However the total gross floor area permitted on Lot 4A will not exceed 38,400 square feet as stated above.

3. Area of Proposed Uses

- Common Open Space

• Parcel A	3.32± Acres
• Parcel B-1	0.21
• Parcel B-2	0.26
• <u>Parcel B-3</u>	<u>0.91</u>
Sub Total	4.70± Acres (52%)

- Exclusive Use Areas (Residential)

• EUA 1	1.70± Acres
• EUA 2	0.37
• <u>EUA 3</u>	<u>1.54</u>
Sub Total	3.61± Acres (40%)

▪ Other Area(s)

- Common Drive 0.80± Acres
- Sub Total 0.80± Acres (8%)

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Total Lot 4A and Parcel A 9.91± Acres

**PRELIMINARY SITE EVALUATION  
PHASE II BLACK BIRCH ALTERNATIVE PRD**

**5.4.1 Plans**

- a) Boundaries of the subdivision, existing and proposed streets and proposed lot lines.

The boundaries of Lot 4A and Parcel A, the proposed Common Open Space, existing street and the proposed access off Forest Ridge Road are shown on the Preliminary Site Development Plan for Lot 4A and Parcel A by Places Associates. No new streets are proposed.

- b) Topography, drainage, location of existing structures and wetlands.

Existing topography, proposed spot elevations and existing structures are shown on the Preliminary Site Development Plan for Lot 4A and Parcel A. This plan also shows Existing Drainage Easement C and the existing head wall therein. There is no surface water, wetlands or flood-plain on or within 100 feet of Lot 4A and Parcel A.

- c) Vegetative cover, tree groupings, wildlife habitats and identification of areas not to be disturbed.

Approximately 0.7± acres of Lot 4A are maintained as an open field, 0.3± acres have been developed for parking and related access and the remaining 4.79± acres are wooded. The Preliminary Site Development Plan shows the approximate location of existing trees to remain and the Black Birch Phase II Proposed Alternative PRD Plan by Hawk Design shows the approximate location of street trees.

Parcel A is wooded and will be retained substantially in its existing as-is natural condition.

- d) Soils types (based on Soil Conservation Service), approximate ground water and location/results of subsurface tests.

The Soil Conservation Service classifies the soils on Lot 4A and Parcel A as Windsor Soils which are droughty soils formed in deep deposits of sand. Based upon soils testing by Haley and Aldrich the groundwater is 80± feet below the proposed area of development. On-site soils testing in Phase I, which has the same Windsor Soils, by Perley indicated 2 to 2 ½ feet of A and B horizon soils followed by 18 to 21 feet of sand with no ground water observed and percolation rates less 2 minutes per inch.

- e) Visual analysis including impact of the Proposal Alternative Planned Residential Development on other properties.

As shown on the Locus Plan and Preliminary Site Development Plan, Parcel A abuts other Town of Concord conservation land and Lot 4A abuts the apartments at Concord Mews, the Concord Municipal Light Substation, Black Birch Phase I and the Thoreau Club. Lot 4A is located 788± feet from Border Road and 880 feet from the Assabet River. All of the proposed buildings on Lot 4A will be set back at least 50 feet from Forest Ridge Road and 25 feet from all other lot lines.

#### 5.4.2 Site Evaluation

- a) Surface and Groundwater – There is no surface water on Lot 4A or Parcel A. Lot 4A is situated on an esker with well-sorted sand soils and generally drains to the east towards the Thoreau Club driveway or westerly toward the property line. There is an existing drainage system in the Thoreau Club driveway which collects runoff from a portion of the site and conveys it to a kettle hole on the easterly side of the driveway located within Drainage Easement C which functions as a recharge basin.

As this kettle hole is a naturally occurring isolated low point, it will be utilized for the site drainage with minimal disturbance to the area. Lot 4A drainage will be directed to this kettlehole as any additional runoff will have a minimal impact.

When Forest Ridge Road was developed in 1993 this kettlehole was not identified as wetlands. Over time, some hydric soils have developed at the bottom of the kettlehole resulting from drainage sediment and organic leaf matter. An ANRAD will be filed with the Natural Resources Commission to confirm that this area is not subject to the Wetlands Protection Act or the Concord Wetlands Bylaws.

Storm water management for Lot 4A will also incorporate the Low Impact Development techniques to recharge runoff in multiple smaller locations throughout the house sites wherever possible using swales and shallow depressions which is appropriate for these soils. Runoff for larger storms will be routed to the kettlehole to mitigate any increase in runoff to the perimeter of the Lot 4A flowing onto abutting properties. This collection system will pretreat runoff prior to discharge into the groundwater through the use of catchbasins with deep sumps and hoods, and discharged into either a water quality inlet or a proprietary stormwater treatment unit. The treated stormwater will then be discharged into the naturally occurring kettlehole which will function as an infiltration basin.

The net impact will be no increase in the rate of runoff from Lot 4A.

- b) Wildlife Habitats, Botanical Features and Historic Sites or Buildings – None of the property is located in any "Priority Habitat of Rare Species" or any "Estimated

Habitat of Rare Wildlife" as designated by the Natural Heritage and Endangered Species Program and there are no known outstanding botanical features or historic buildings. Portions of the land at Forest Ridge were in the late nineteenth and early twentieth century used in a small and peripheral manner to the nearby American Powder Mills. A 1998 archeological examination of the adjacent Camp Thoreau property concluded: (i) subsurface archeological testing at three Camp Thoreau sites yielded little that can be used; (ii) the remains do not appear to meet criteria for inclusion on the NRHP and (iii) no further archeological investigation was recommended.

- c) Soils, Vegetative Cover and Erosion Control – As stated above the soils are Windsor soils found on deep deposits of sand and the existing vegetation on Parcel A and within substantial portions of the Open Space on Lot 4A will be retained. However because the proposed site work will alter more than one acre of land a Stormwater Pollution Prevention Plan (SWPPP) and a permit under the National Pollution Discharge Elimination System (NPDES) with the EPA will be required. The SWPPP will provide site specific detailed erosion control and will be prepared prior to construction.

The overall approach to erosion control on this site will be to eliminate and control it before erosion occurs. The sandy soils will minimize the potential waterborne erosion except on the steeper portions of the land adjacent to the kettle hole. Typical erosion control methods would include the use of compost socks or straw wattles; temporary stabilization of soil stockpiles with mulch, seed or a tarp when inactive for more than three weeks; use of wood chips and stump grindings as temporary slope stabilization and providing permanent vegetative stabilization as soon as practicable.

- d) Increase in Peak Run-Off – As stated in Paragraph 5.4.2(a) above the net impact will be no increase in the rate of runoff from the Lot 4A due to existing site conditions and the proposed mitigation.
- e) Wetlands or Flood Plain Areas – As stated above there is no surface water, wetlands or flood plain areas on or within 100 feet of the property.
- f) Traffic Flow and Effect of Project on Public Services – TEC, prepared a Traffic Impact Assessment dated September 19, 2016 for the Proposed Age-Restricted Housing Development on Lot 4A Forest Ridge Road (see complete copy of the Traffic Impact Assessment in appendix attached hereto). This assessment concluded that the 16-unit age-restricted project will generate 5 new vehicle trips (1 entering and 4 exiting) during the weekday morning peak hour and 4 new vehicle trips (2 entering and 2 exiting) during the weekday evening peak hour and that the minor increase in traffic resulting from the project is not anticipated to warrant any project specific mitigation.

The effect of the project on public services can be summarized as follows:

- i. Water and Sewer – Based on Title 5 the proposed residential water use will not exceed 5,280 gallons per day (48 bedrooms) which is within the capacity of the existing water main located in Forest Ridge Road. No connection will be made to the Town's sanitary sewer system.
  - ii. Schools – All of the proposed units will be age-restricted and each unit will be required to be occupied by at least one individual who is fifty-five (55) years or older. Children under the age of 18 will be allowed to visit but not permanently reside in any of the units. Therefore there will be no impact on any school services except for the potential participation in adult education services.
  - iii. Police and Fire – The effect on these services will be minimal.
  - iv. Waste Disposal – Recycling and waste pickup will be by private contractors.
  - v. Recreation Facilities – The effect on existing Town recreational facilities is estimated to be minimal particularly with the availability of the existing Thoreau Club within a short walk of all of the proposed units. The dedication of Common Open Space Parcel A to the Town of Concord for conservation, recreation and park land purposes will also enhance passive recreation for residents of the proposed project as well as abutters and nearby neighbors.
- g) Tabular Summary of Lot Areas – See Tabular Summary in the Phase II Black Birch Overview Statement portion of this submission.
- h) Town Costs and Revenues – There will be no school-age children, no connection to the Town's sewer system and waste disposal/recycling will be by private contractor. Furthermore impacts on police, fire, recreation and water services will be minimal.

As previously stated the Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road includes the option for the Town to approve Black Birch Phase II with the right to build the proposed sixteen (16) units all as market rate units in which case ABODE has agreed to donate one million dollars (\$1,000,000.00) to the Town to enhance affordable housing opportunities in the Town of Concord. Under this alternative the estimated Real Estate Tax Revenues for the proposed 16-residential units is projected as follows:

- Sixteen (16) Market Rate Units based on an average unit price estimated to be \$1,100,000 \$17,600,000
- Affordable Units None

---

Total Residential Estimated Value \$17,600.00  
@ a tax rate of  
 \$13.92 per \$1,000  
 equals \$244,992

---

Total Estimated Annual Tax Revenue based on Residential Use. \$245,000\*

\*NOTE: In the Alternative if fourteen Market Rate units and two affordable units are constructed the total Estimated Value would be reduced to \$16,100,000 resulting in a total Estimated Annual Tax Revenue of approximately \$225,000.

Alternatively if Lot 4A and Parcel A are developed for office use, the Real Estate Tax revenue based upon the maximum permitted gross floor area of office permitted in the District (9.11 acres x 3,000 square feet acres = maximum gross floor area of 27,330) can be projected as follows:

- Town of Concord Assessed Value of Office Building at 35 Forest Ridge Road \$3,776,700
- Existing Gross Floor Area of Office Building at 35 Forest Ridge Road 19,444 of gross floor area
- Town of Concord Assessed Value per Square Foot of Office Building at 35 Forest Ridge Road \$194.23 per square foot
- Total Estimate Value of Maximum Gross Floor Area on Lot 4A and Parcel A at \$194.23 psf (27,330 x 194.23 = \$5,308,306) \$5,300,000

Total Office Estimated Value	\$5,300,000
	@ a tax rate of
	\$13.92 per \$1,000
	equals \$73,776

---

Total Estimated Annual Tax Revenue based on Office Use	\$74,000
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- i) Site Distances – See Traffic Flow in paragraph (f) above and complete copy of TEC Traffic Impact Assessment in appendix attached hereto.
- j) Historical and Architectural Resources – There are no State or Local historical or cultural resources located on or within 100 feet of the property.
- k) Concord Open Space Plan – The Thoreau Club presently owns Lot 4A, Parcel A and Lot 5F all of which total approximately 44± acres and are classified by the Town as recreational land. The 9.11± acres contained in Lot 4A and Parcel A have been used for staff and overflow parking for the Thoreau Club and for outdoor recreation in conjunction with the operation of Camp Thoreau. All of Lot 5F will continue in recreational use, Parcel A will be donated to the Town of Concord for conservation purposes and approximately 1.38 acres within Lot 4A will be set aside as Common Open Space.

NOTE: On September 1, 2016 Notice was given to the Town under the provisions of the MGL Chapter 61B that Thoreau Realty Trust had executed a Purchase and Sale Agreement to sell Lot 4A and Parcel A. This Notice requested that the Town waive its Right of First Refusal to purchase Lot 4A and Parcel A. Response to this Notice is pending.

**TABULAR SUMMARY OF ALTERNATIVE  
USES FOR LOT 4A AND PARCEL A**

	<u>Residential Use</u>	<u>Office Use</u>
1. Proposed Use	16 Unit Age 55 or older PRD	27,330 Square Foot Office Building
2. Approximate Gross Floor Areas	38,400 S.F.	27,330 S.F.
<p><u>Note</u> The residential gross floor equals the total floor area minus the floor area of any affordable units, enclosed parking, trash/recycling building, basement area, and unfinished attic area all per Section 10.3.4.4(d) of the Zoning Bylaw</p>		
3. Required Parking	32 Spaces	91 to 109 Spaces
4. Proposed Parking	16 Two-Car Garages	91 to 109 Surface Spaces
5. Weekday Daily Trips	58 Trips	298 Trips
6. Weekday Morning Peak Hour	5	42
7. Weekday Evening Peak Hour	4	40
8. Affordable Units	2 Units or \$1,000,000.00 Fund	None
9. Common Open Space	4.7 Acres	None
10. Estimated Annual Real Estate Tax Revenues to Town	\$225,000 to \$245,000	\$74,000

**LIST OF ALTERNATIVE PRD PRELIMINARY  
SITE DEVELOPMENT PLANS FOR LOT 4A AND PARCEL A**

1. Locus Plan, Lot 4A and Parcel A, Black Birch Alternative Planned Residential Development dated June 24, 2016, Revised September 12, 2016.
2. Plan of Land in Concord, Massachusetts, owned by: Todd A. Pulis, Trustee of Thoreau Realty Trust, dated August 25, 2016 by Perley Engineering.
3. Black Birch Phase II Proposed Alternative Planned Residential Development, Lot 4A and Parcel A, Forest Ridge Road, Concord, MA by Hawk Design, Inc., dated May 5, 2016, Revised September 12, 2016.
4. Preliminary Site Development Plan Lot 4A and Parcel A, Forest Ridge Road, Concord, MA, Sheets 1 and 2 by Places Associates, Inc., dated September 12, 2016.
5. Carriage House I – Plans and Specifications.
6. Carriage House II – Plans and Specifications.
7. Patio Home – Plans and Specifications.
8. Colonial II – Plans and Specifications.

**LIST OF BLACK BIRCH  
DEVELOPMENT TEAM**

1.     Developer                             Jack McBride  
  ABODE Builders of New England, Inc.  
  83 Great Road  
  Suite 1B  
  Acton, MA 01742
  
2.     Land Planning                     Kevin Hurley  
  Hurley Associates  
  1489 Main Street  
  Concord, MA 01742
  
3.     Site Design & Landscape  
          Architect                         Thomas Miner  
  Hawk Design, Inc.  
  P.O. Box 1309  
  Sandwich, MA 02563
  
4.     Architects                         Elise Braceras Stone, Architects  
  288 Old Marlboro Road  
  Concord, MA 01742  
  
  Paul Mahoney  
  Mahoney Architects  
  70 Seven Star Lane  
  Concord, MA 01742
  
5.     Civil Engineers                   Susan E. Carter P.E.  
  Places Associates, Inc.  
  256 Great Road  
  Suite 4  
  Littleton, MA 01460
  
6.     Legal                               Mark A. Kablack  
  M.A. Kablack & Associates, P.C.  
  176 East Main Street  
  Suite 3  
  Westborough, MA 01581



**ALTERNATIVE PRD**  
**PRELIMINARY SITE DEVELOPMENT**  
**AND USE PROPOSAL FOR**  
**LOT 4A AND PARCEL A FOREST RIDGE ROAD**

**ARTICLE 1.** To determine whether the Town will vote pursuant to Section 10.3.4 of the Zoning Bylaw to approve the Phase II Black Birch Alternative PRD Preliminary Site Development and Use Proposal for Lot 4A and Parcel A Forest Ridge Road dated September 12, 2016 as filed with the Town Clerk and Planning Board or take any other action relative thereto.

**RELEASE OF RESIDENTIAL RESTRICTION APPLICABLE TO  
LOT 4A AND PARCEL A FOREST RIDGE ROAD**

**ARTICLE 2.** To determine whether the Town will vote to authorize the Board of Selectmen to enter into an agreement to release Lot 4A Forest Ridge Road containing 5.79± acres and Parcel A Forest Ridge Road containing 3.32± acres, both as shown on a plan entitled "Plan of Land in Concord, Massachusetts, Owned by: Todd A. Pulis, Trustee of Thoreau Realty Trust" dated August 25, 2016 to be recorded with the Middlesex South District Registry of Deeds, from a certain Easement and Restrictive Covenant Agreement dated September 19, 1990 and recorded with said Deeds in Book 20781, Page 75 and to agree that said Lot 4A and Parcel A may be used for residential purposes as a primary use, or take any other action relative thereto.

**AMENDMENT OF THE ZONING BYLAW TABLE III –  
DIMENSIONAL REGULATIONS UNDER  
MAXIMUM FLOOR AREA RATIO IN THE LIP #2 DISTRICT**

**ARTICLE 3.** To determine whether the Town will vote to amend the **Zoning Bylaw Table III – Dimensional Regulations under Maximum Floor Area Ratio in the Limited Industrial Park #2 District (LIP #2)** by deleting after the word "Educational" the words "in LIP #2," and substituting in place thereof the words "and Residential uses in the LIP #2, provided such Residential uses are located within an Alternative PRD," so that the first part of the provisions under Maximum Floor Area Ratio in the LIP District would read as follows:

6,000 sq. ft.  
gross floor  
area per acre  
for Educational  
and Residential  
uses in the LIP #2,  
provided such  
Residential uses  
are located  
within an  
Alternative PRD,

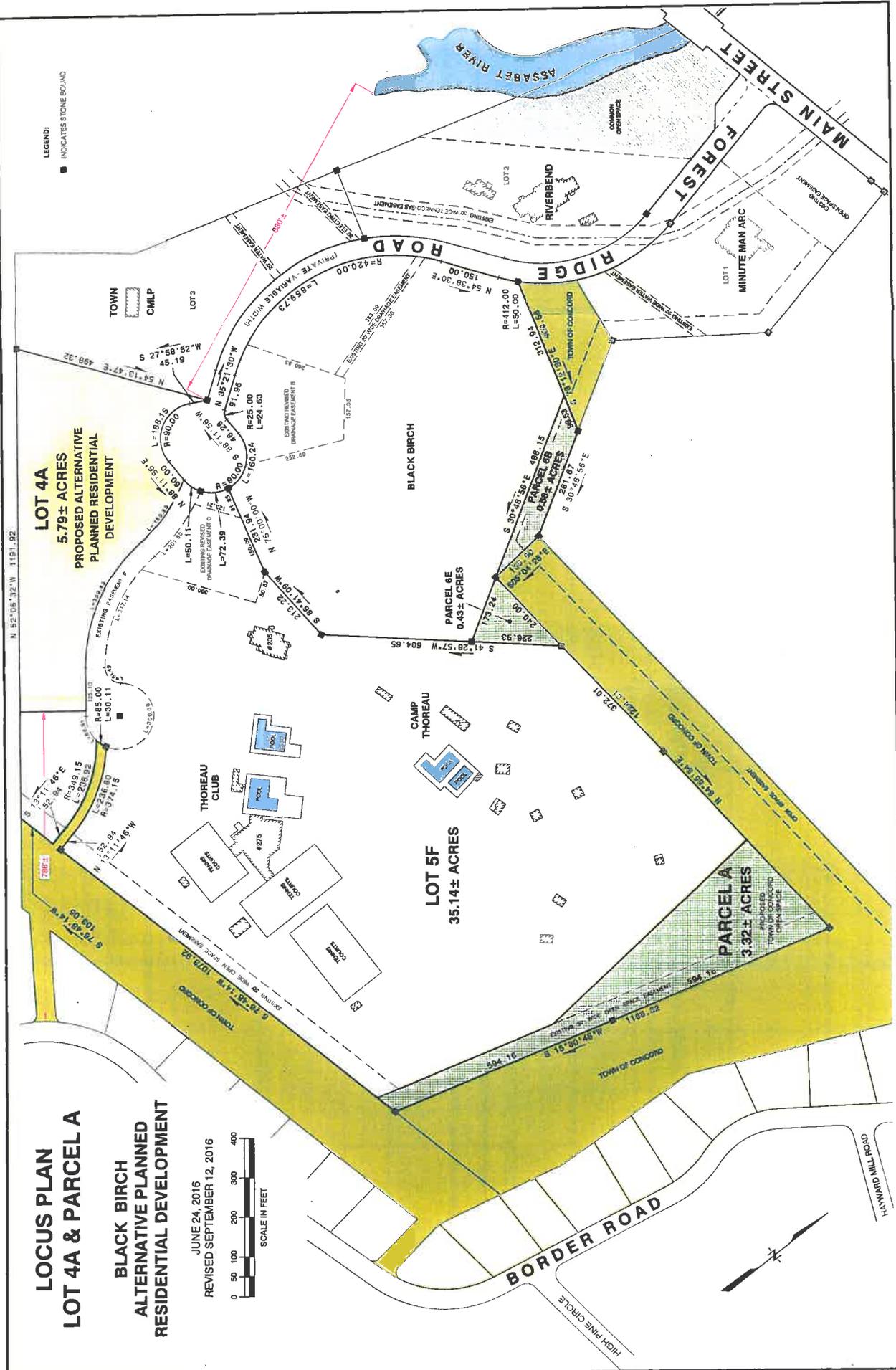
or take any other action relative thereto.

**LOCUS PLAN  
LOT 4A & PARCEL A  
BLACK BIRCH  
ALTERNATIVE PLANNED  
RESIDENTIAL DEVELOPMENT**

JUNE 24, 2016  
REVISED SEPTEMBER 12, 2016



LEGEND:  
■ INDICATES STONE BOUND







*The Thoreau Club*

**Black Birch Phase II**  
**Proposed Alternative Planned Residential Development**

Lot 4A and Parcel A - Forest Ridge Road, Concord, Massachusetts

Date: May 5, 2010

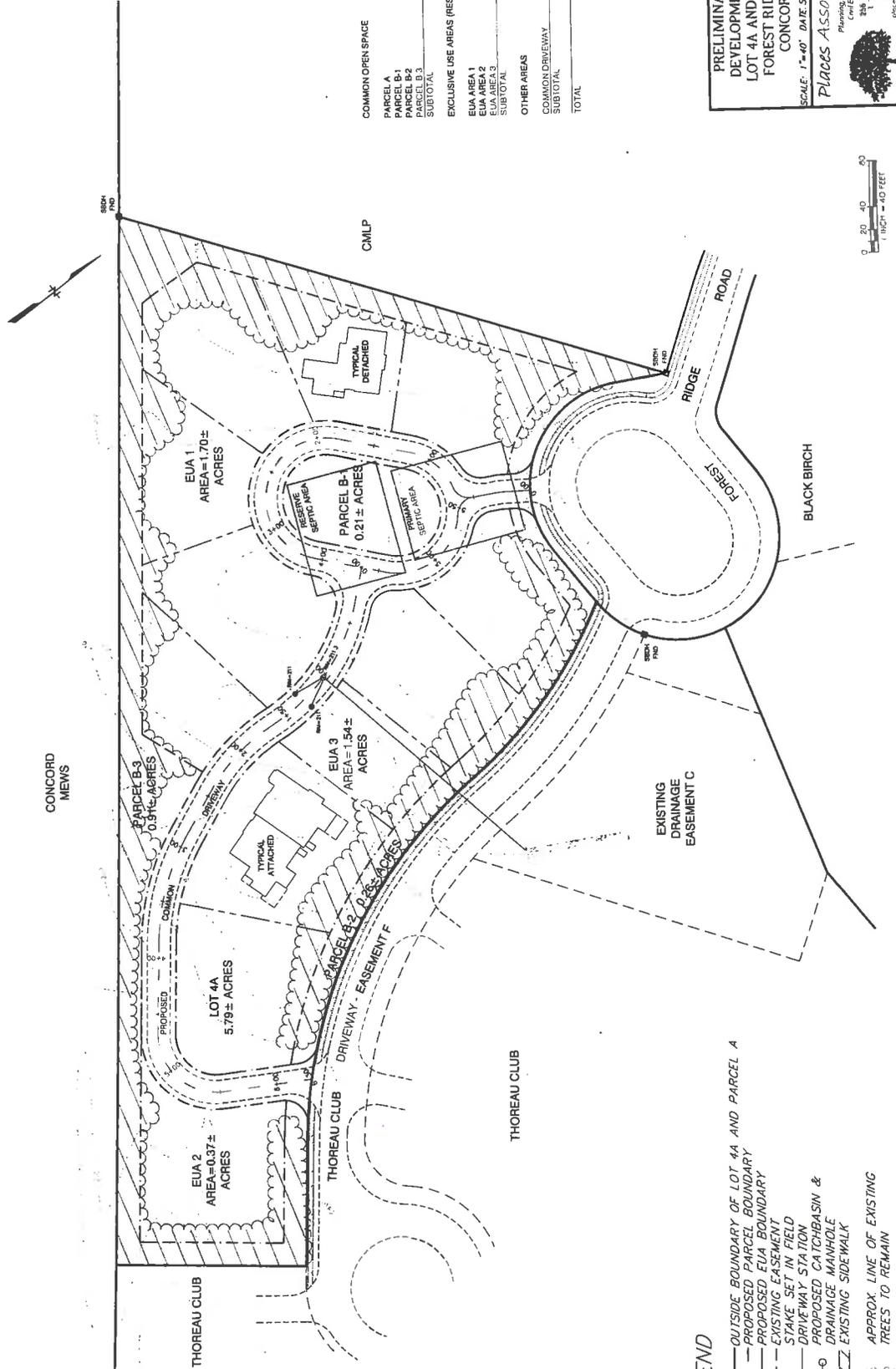
Revision #971: September 12, 2010

Prepared by: Black Birch, Inc. - Landscape Architects & Land Planners  
 P.O. Box 1028, Southwick, Massachusetts



Scale

# Lot 4A - Site Improvements and Common Open Space



COMMON OPEN SPACE	
PARCEL A	0.26 acres
PARCEL B	0.26 acres
PARCEL C	0.81 acres
PARCEL D	4.70 acres
<b>SUBTOTAL</b>	<b>6.03 acres</b>

EXCLUSIVE USE AREAS (RESIDENTIAL)	
EUA AREA 1	1.70 acres
EUA AREA 2	0.37 acres
EUA AREA 3	1.12 acres
EUA AREA 9	1.54 acres
<b>SUBTOTAL</b>	<b>4.73 acres</b>

OTHER AREAS	
COMMON DRIVEWAY	0.80 acres
<b>SUBTOTAL</b>	<b>0.80 acres</b>

TOTAL	
<b>SUBTOTAL</b>	<b>11.56 acres</b>
<b>TOTAL</b>	<b>9.11 acres</b>

**PRELIMINARY SITE DEVELOPMENT PLAN**  
**LOT 4A AND PARCEL A**  
**FOREST RIDGE ROAD**  
**CONCORD, MA**

SCALE: 1"=40' DATE: SEPTEMBER 12, 2016

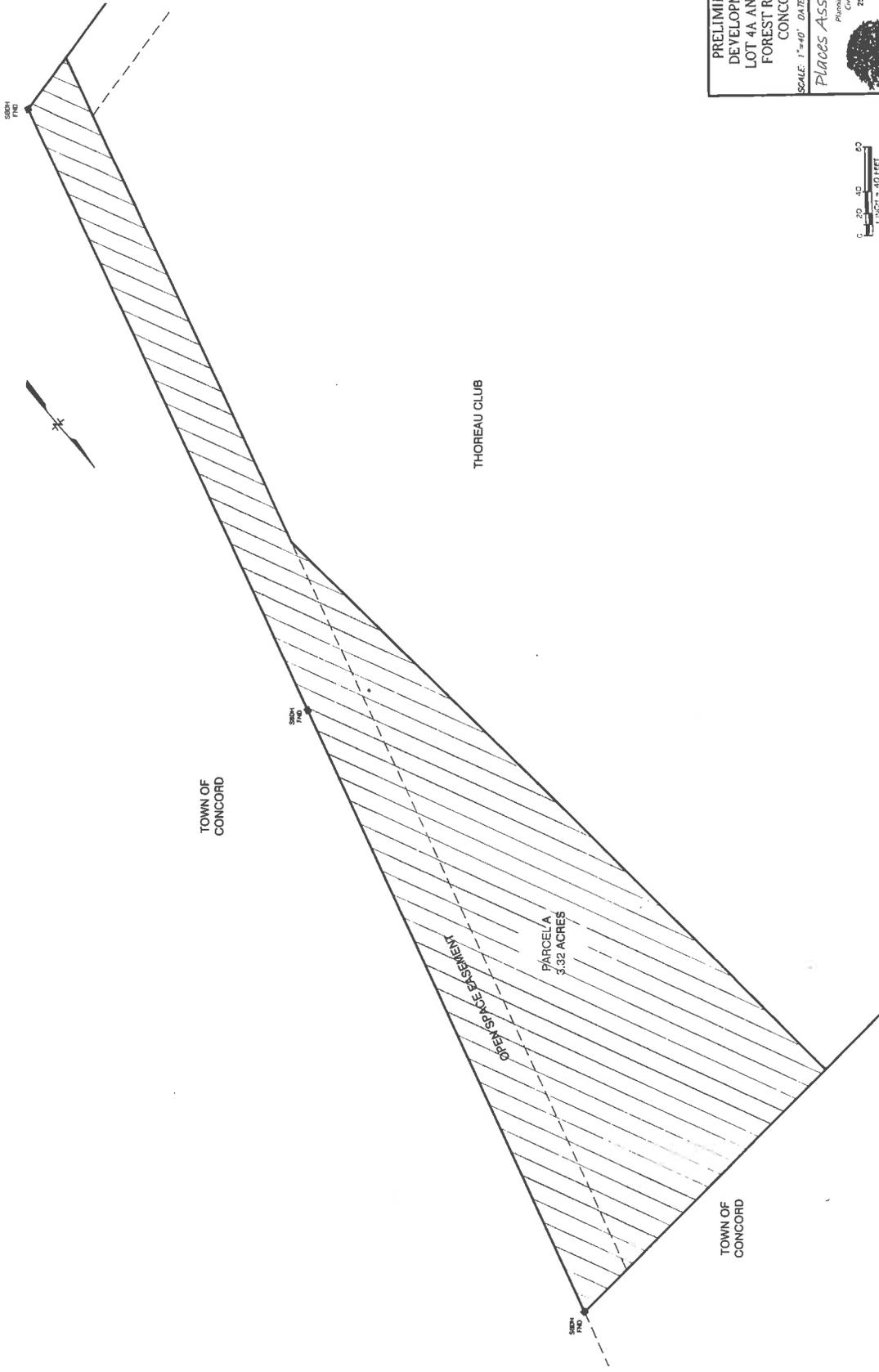
**PLACES ASSOCIATES, INC.**  
 Planning, Landscape Architecture,  
 Civil Engineering and Surveying  
 1000 North Main Street, Suite 200  
 Concord, MA 01742  
 Tel: 978.486.2414 Fax: 978.486.2417  
 www.placesassociates.com

PROJECT No. 2004 PLAN No. 2004-1000 (1 of 2)

- LEGEND**
- OUTSIDE BOUNDARY OF LOT 4A AND PARCEL A
  - - - PROPOSED PARCEL BOUNDARY
  - - - PROPOSED EUA BOUNDARY
  - - - EXISTING EASEMENT
  - STAKE SET IN FIELD
  - DRIVEWAY STATION
  - PROPOSED CATCHBASIN & DRAINAGE MANHOLE
  - EXISTING SIDEWALK
  - APPROX. LINE OF EXISTING TREES TO REMAIN



Parcel A - Common Open Space to be Conveyed to the Town for Conservation Purposes



PRELIMINARY SITE  
DEVELOPMENT PLAN  
LOT 4A AND PARCEL A  
FOREST RIDGE ROAD  
CONCORD, MA  
SCALE: 1"=40' DATE: SEPTEMBER 12, 2016

**Places Associates, Inc.**  
Planning, Landscape Architecture,  
Civil Engineering, Surveying  
25 FORT AVENUE, SUITE 4  
CONCORD, MA 01742  
978-366-7247 Fax  
places@placesassociates.com

PRODUCT No. 5004 PLAN No. 5004 page 3 of 2



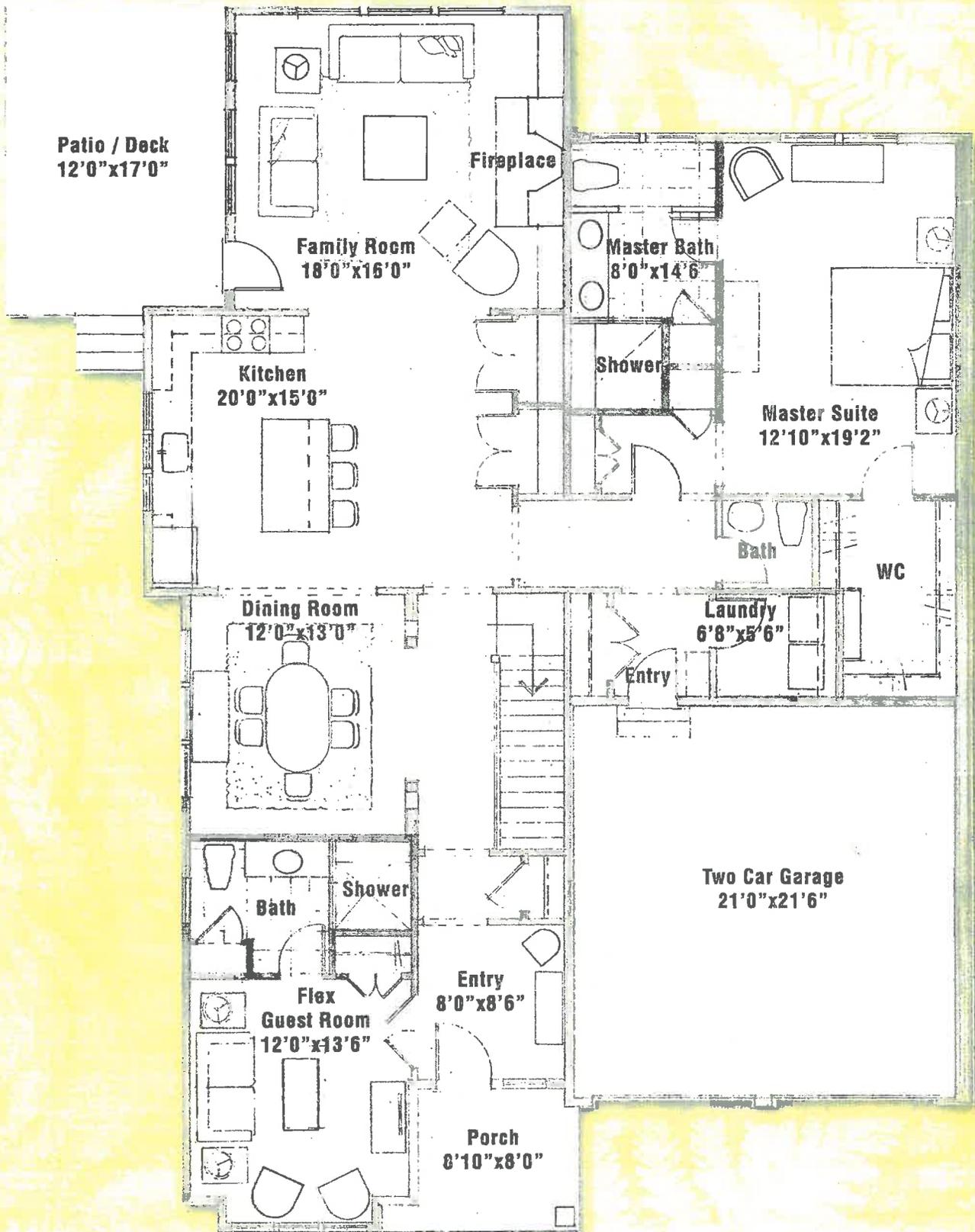
BLACK BIRCH  
CONCORD

# Carriage House I

2 Bedroom / 2.5 Bath / 2,129 SF

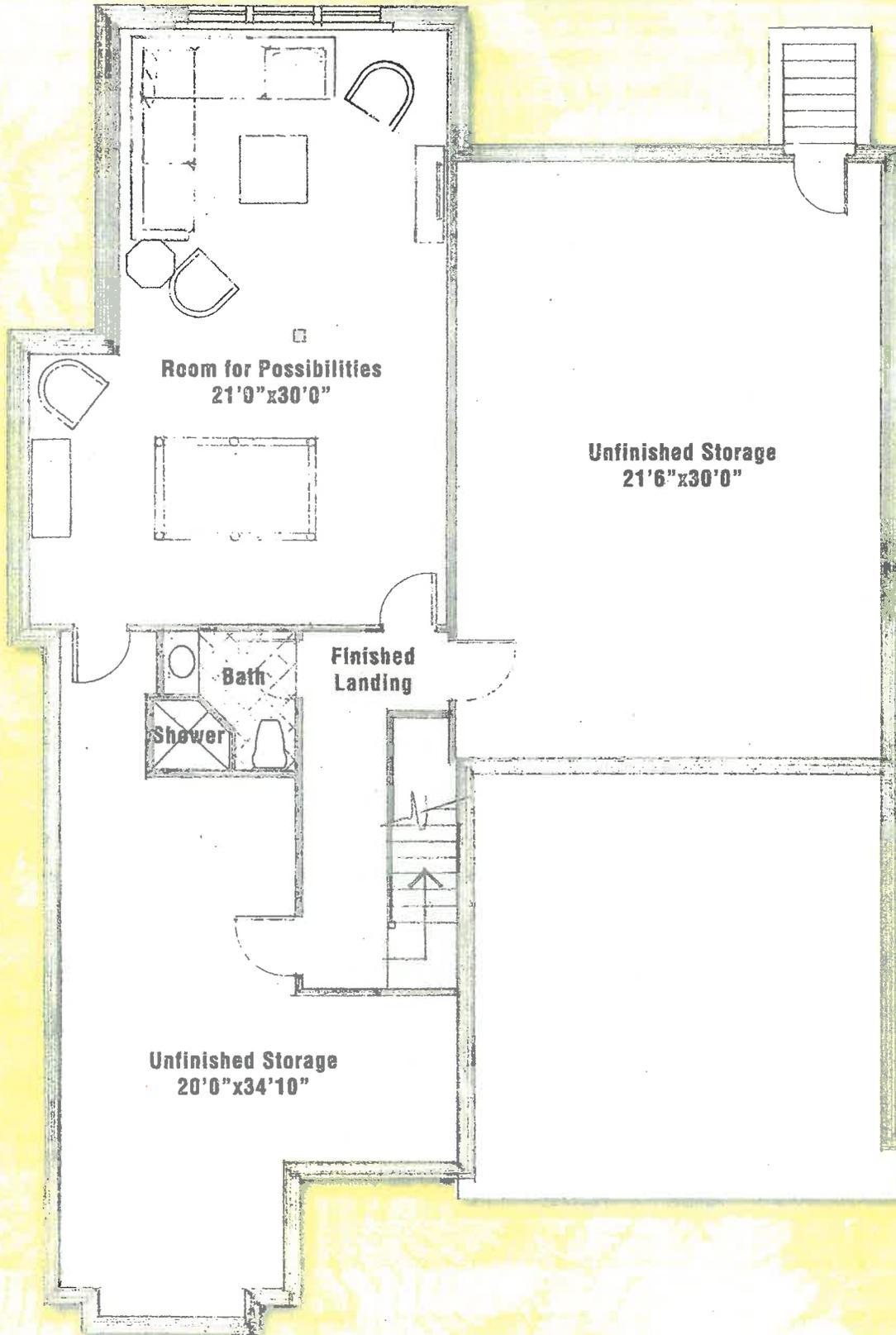


# FIRST FLOOR



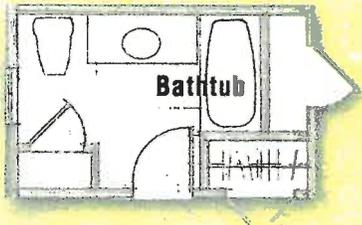
Floor plans subject to change; all measurements are approximate and subject to normal construction variances.

# OPTIONAL FINISHED LOWER LEVEL

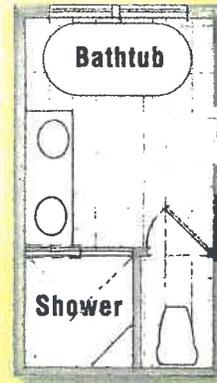


Floor plans subject to change; all measurements are approximate and subject to normal construction variances.

# BATH OPTIONS



**Alternative Guest Bath**



**Alternative Master Bath**



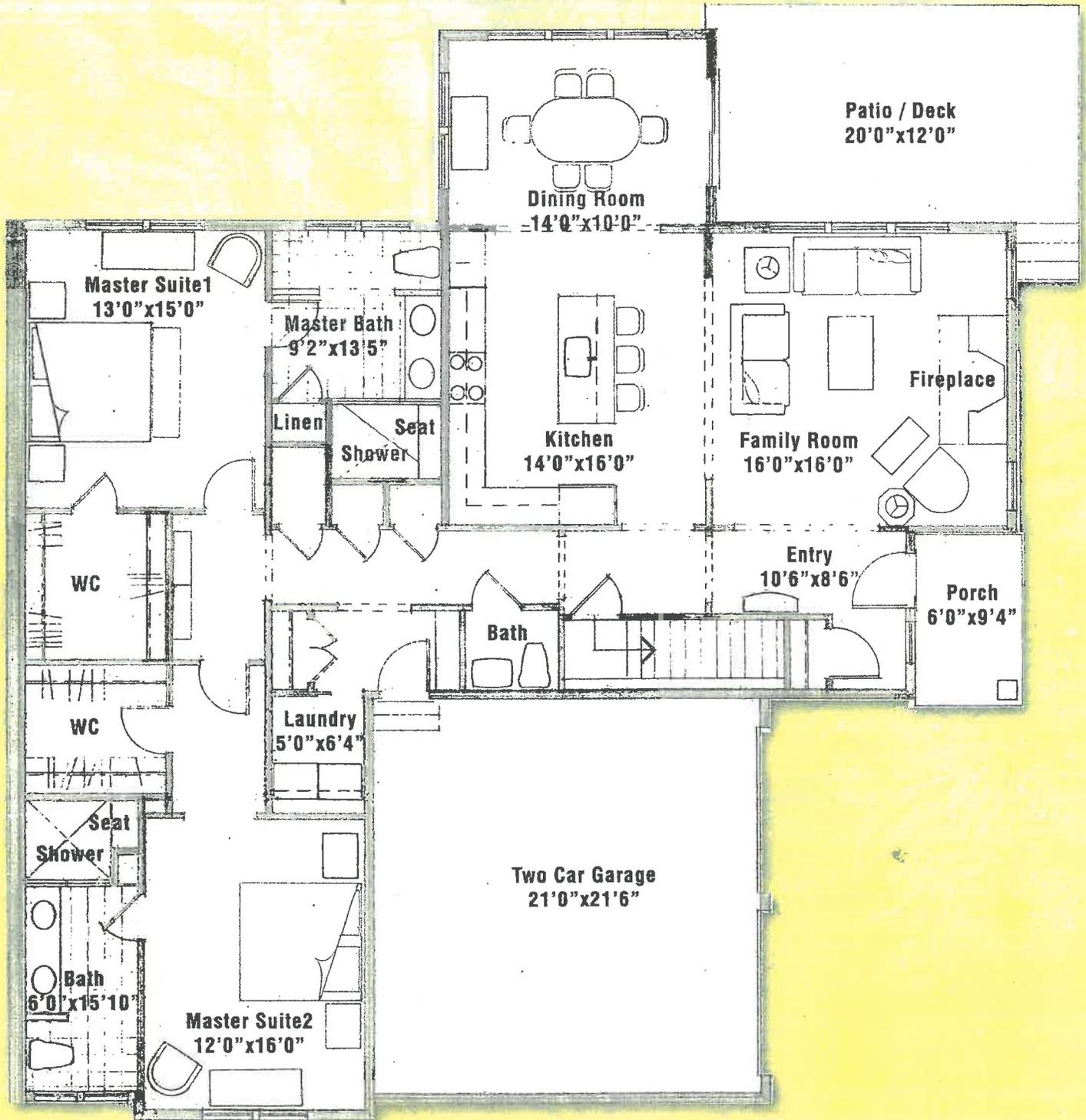
BLACK BIRCH  
CONCORD

# Carriage House II

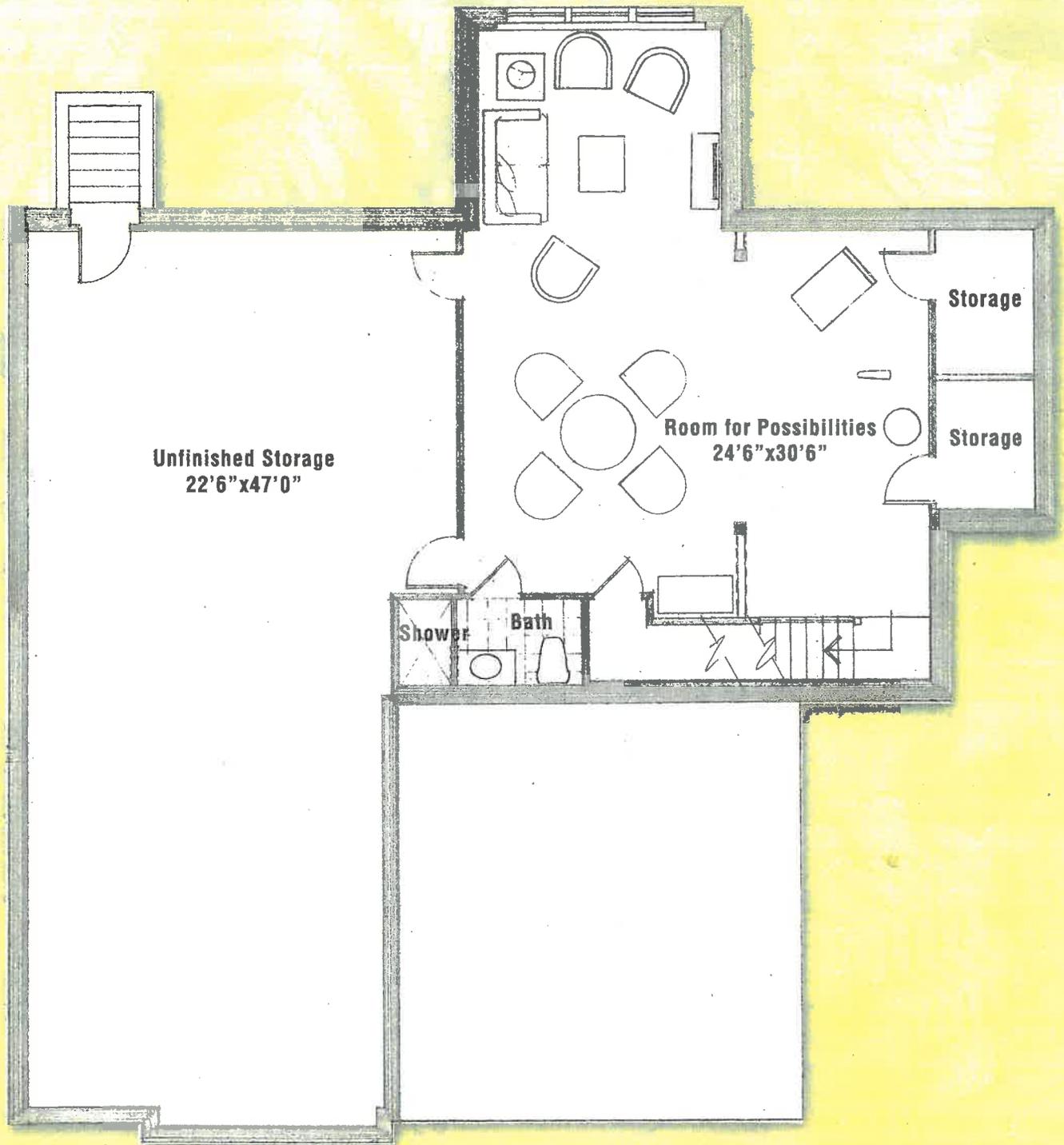
2 Bedroom / 2.5 Bath / 1,867 SF



# FIRST FLOOR



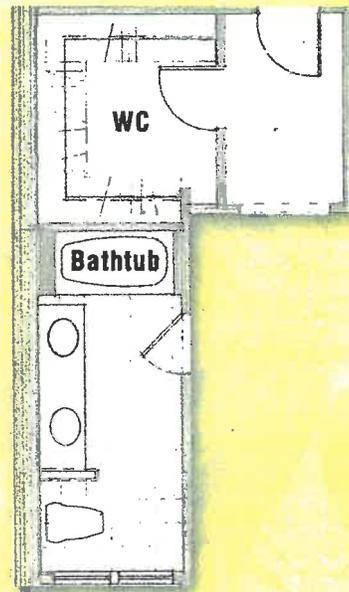
# OPTIONAL FINISHED LOWER LEVEL



# BATH OPTIONS



**Master Bath / Suite 1**



**Master Bath / Suite 2**



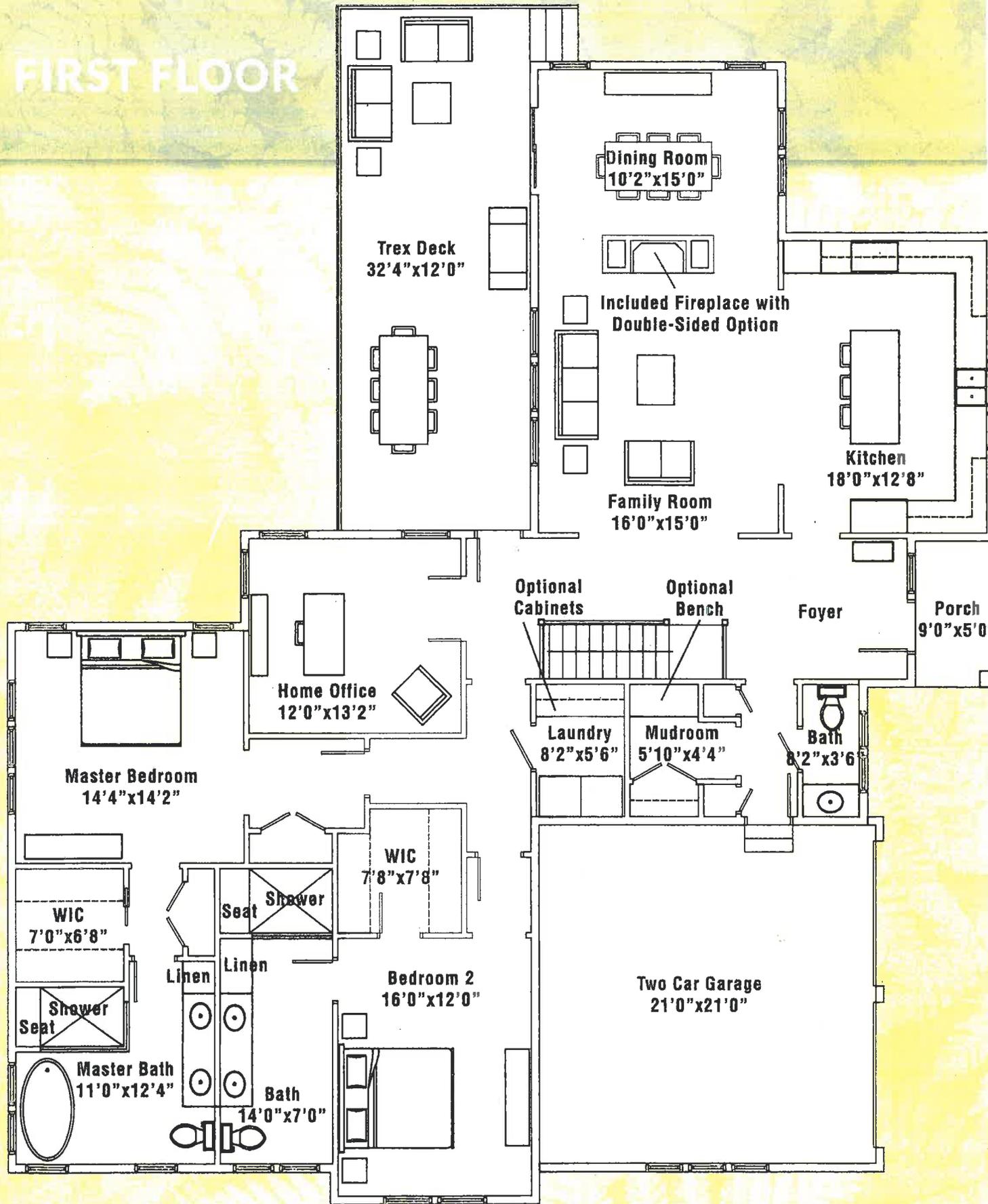
BLACK BIRCH  
CONCORD

# The Patio Home

Expansive 2,350 SF of single floor living  
plus endless lower level possibilities

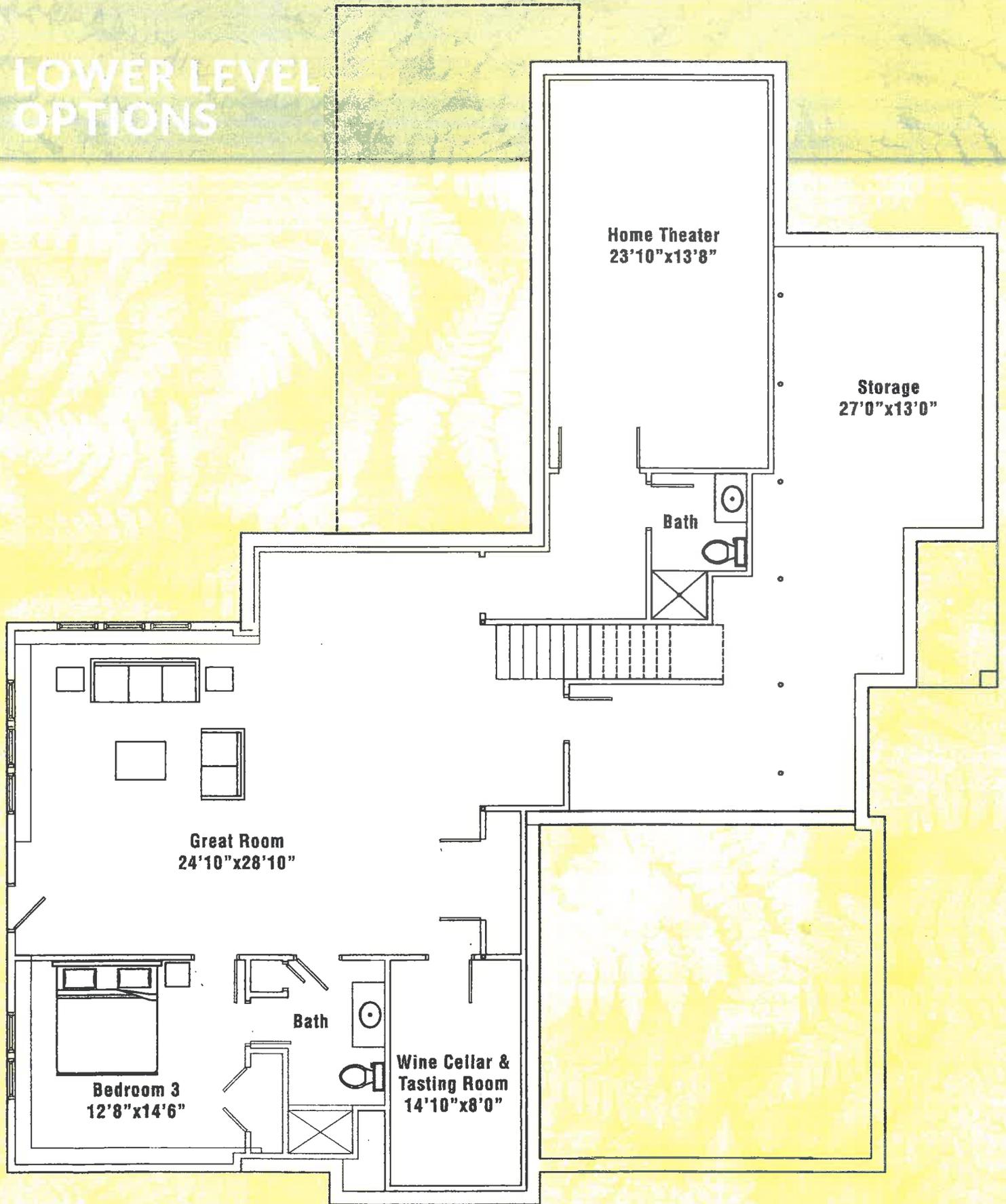


# FIRST FLOOR



Floor plans subject to change; all measurements are approximate and subject to normal construction variances.

# LOWER LEVEL OPTIONS



Floor plans subject to change; all measurements are approximate and subject to normal construction variances.



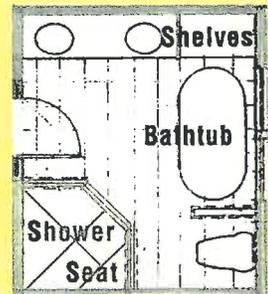
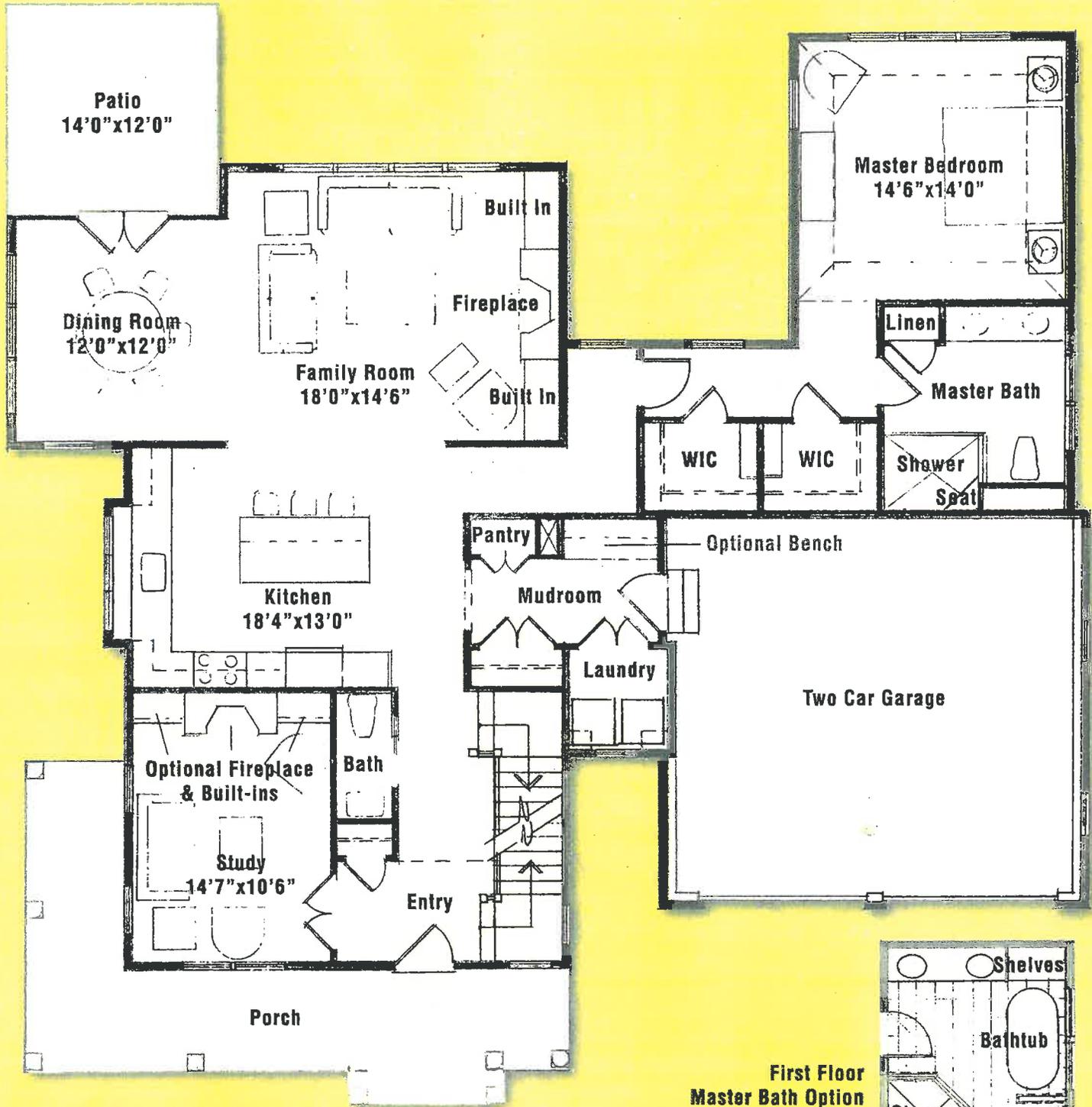
BLACK BIRCH  
CONCORD

# The Colonial II

3 Bedroom / 3.5 Bath / 2,527 SF

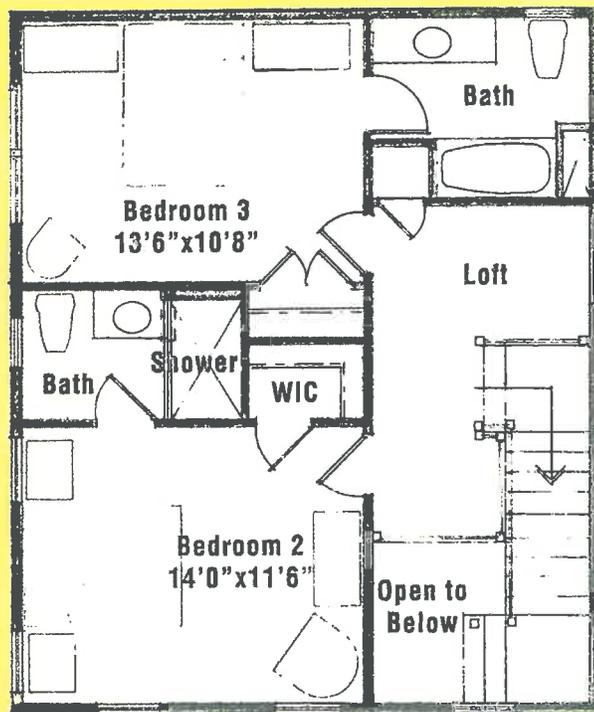


# FIRST FLOOR



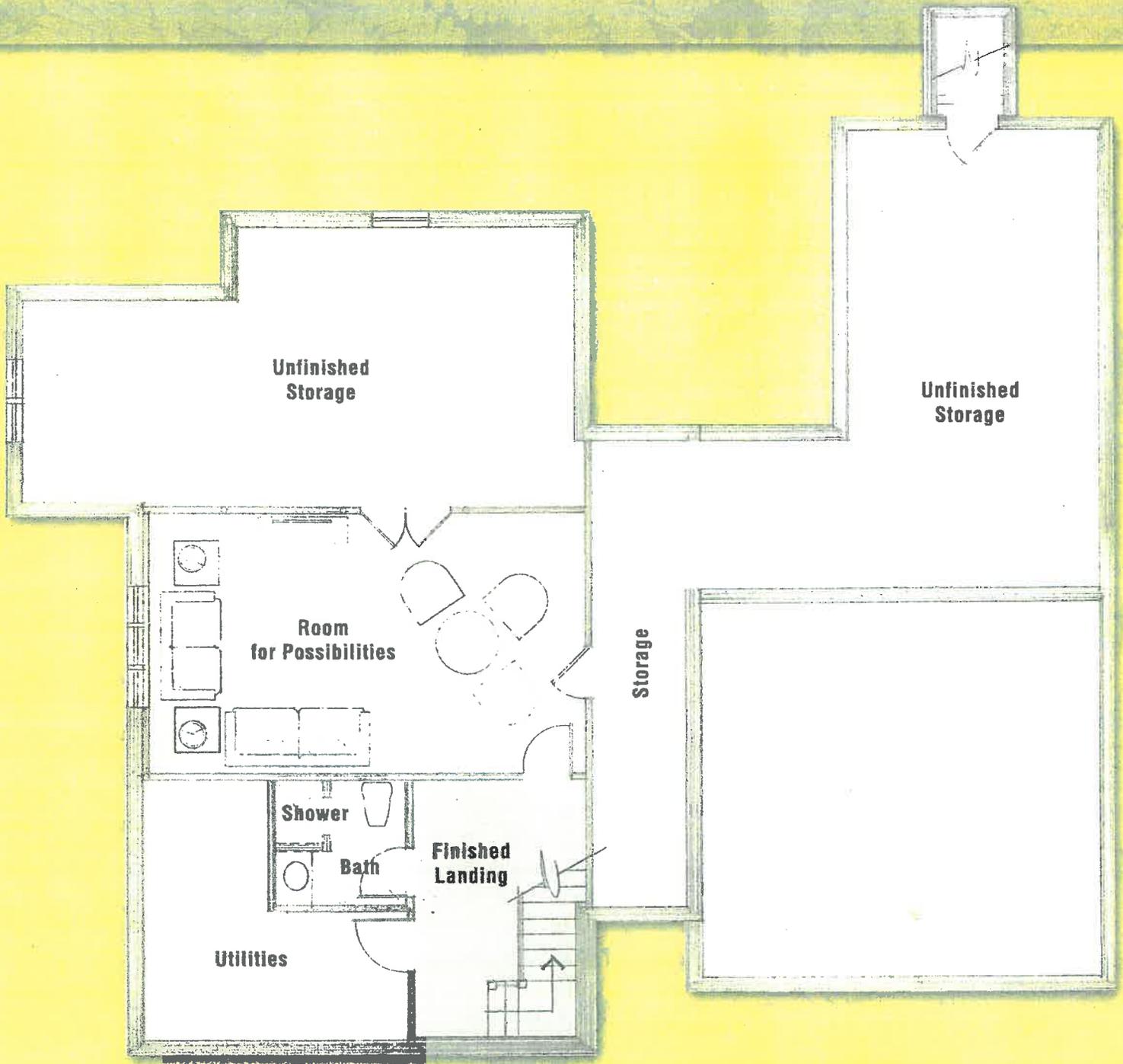
Floor plans subject to change; all measurements are approximate and subject to normal construction variances.

# SECOND FLOOR



**2 Bedroom / 2 Bath**

# OPTIONAL FINISHED LOWER LEVEL



Floor plans subject to change; all measurements are approximate and subject to normal construction variances.



65 Glenn Street | 169 Ocean Blvd.  
Lawrence, MA 01843 | Unit 101, PO Box 249  
Hampton, NH 03842  
T:978.794.1792 T:603.601.8154  
TheEngineeringCorp.com

Mr. Jack McBride  
ABODE Builders of New England  
568 Tenney Mountain Highway  
Plymouth, New Hampshire 03060

September 19, 2016

TEC Ref. T0665

RE: Proposed Age-Restricted Residential Development – Concord, Massachusetts  
Traffic Impact Assessment

Dear Mr. McBride:

TEC, Inc. (TEC) has been retained by ABODE Builders of New England to provide a Traffic Impact Assessment (TIA) for a proposed 16-unit age-restricted residential development along the westerly side of Forest Ridge Road in Concord, Massachusetts. Access to the site will be provided via two (2) full-access/egress driveways along the westerly side of Forest Ridge Road.

As part of this TIA, TEC has evaluated factors affecting site access/egress and potential traffic-related impacts associated with the project. This TIA includes an assessment of the available sight distances at the proposed site driveways, an estimate of the site-generated traffic volumes, a comparison of site-generated traffic volumes between the proposed residential use and an alternative office use for the property, evaluation of the operations of the study area intersections, and recommendations for improving sight lines.

### **Sight Distance Measurements**

TEC, Inc. visited the site on Tuesday, September 13, 2016 to measure the available sight distances along Forest Ridge Road at the two proposed site driveways. The available sight distances were compared to minimum requirements established by the American Association of State Highway and Transportation Officials (AASHTO).

Sight distance represents the length of roadway that is visible to a driver traveling within the roadway. Two types of sight distance are typically evaluated for driveways and intersections: stopping sight distance (SSD) and intersection sight distance (ISD). SSD is the minimum distance required for a driver traveling along a roadway to perceive an object in the roadway and stop safely in advance of the object when traveling on a wet pavement surface. SSD is measured from an eye height of 3.5 feet to an object height of 2 feet above the ground, which is equivalent to a driver viewing the taillight of a vehicle ahead. SSD is measured along the centerline of the travel lane approaching the driveway or intersection.

ISD represents the length of the roadway visible to a driver waiting to exit a driveway or minor street. Minimum ISD requirements are based on the distance required for a driver to exit a minor street onto a major street without requiring an approaching vehicle to reduce its speed from the design speed to less than 70 percent of the design speed. ISD is measured from an eye height of 3.5 feet to an object height of 3.5 feet and is measured from a distance of 15

feet off the edge of the travel-way of the major roadway to represent a driver waiting to exit a driveway or minor roadway.

SSD is typically considered the critical sight distance, as it represents the minimum distance required for safe stopping, while ISD represents an acceptable speed reduction for approaching vehicles. The ISD, however, must be at least equal to the minimum required SSD in order to prevent a driver from entering the roadway when an approaching vehicle is too close to safely stop. The guidance provided by AASHTO states:

*"If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions. However, in some cases, this may require a major-road vehicle to stop or slow to accommodate the maneuver by a minor-road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road."*

Table 1 provides a summary of the available sight distances at the proposed driveway locations along Forest Ridge Road based on the posted speed limit of 25 miles per hour (MPH). Although the speed limit is posted at 25 MPH, vehicles traveling along Forest Ridge Road through the two traffic circles near the northerly and southerly site driveways were observed travelling at speeds at or below 20 MPH due to the curved alignment of the roadway.

**Table 1 – Existing Sight Distance Measurements**

Approach / Direction	Speed	Minimum Required	Measured	
			Stopping Sight Distance	Intersection Sight Distance
Northerly Site Driveway at Forest Ridge Rd: <i>North of Driveway</i>	25 mph	155 FT	230 FT*	230 FT*
<i>South of Driveway</i>	-	-	N/A**	N/A**
Southerly Site Driveway at Forest Ridge Rd: <i>North of Driveway</i>	25 mph	155 FT	500 FT	500 FT
<i>South of Driveway</i>	25 mph	155 FT	160 FT***	160 FT***

\*could be extended to 590' with the removal of tall pine trees and regrading of a hill.

\*\*N/A due to one-way travel around roundabout.

\*\*\*could be extended to 570' (around the entire roundabout) with the removal of a tall pine tree and regrading of a hill.

As shown in Table 1, the SSD and ISD at the northerly site driveway and the southerly site driveway exceed AASHTO's minimum recommendations for safe operations based on an operating speed of 25 MPH. In both instances, these sight distances could be extended further with the removal of large pine trees and regrading of hills near the edge of Forest Ridge Road; however, these activities are not necessary in order to meet the minimum required sight distances.



**Site-Generated Traffic Volumes**

The project consists of the construction of a 16-unit age-restricted (55 and over) residential development. The site-generated traffic-volumes for the project were estimated based on standard trip rates published in the Institute of Transportation Engineers (ITE) publication *Trip Generation, 9th Edition* for Land Use Code (LUC) 251 – Senior Adult Housing - Detached. Table 2 provides a summary of the resulting trip generation estimate. The detailed trip generation calculation worksheets are provided in Attachment A.

**Table 2 – Trip Generation Summary**

Time Period	Site-Generated Trips		
	Entering	Exiting	Total
Weekday Daily	29	29	58
Weekday Morning Peak Hour	1	4	5
Weekday Evening Peak Hour	2	2	4
Saturday Daily	22	22	44
Saturday Midday Peak Hour	2	2	4

The project is anticipated to generate approximately 5 new vehicle trips (1 entering and 4 exiting) during the weekday morning peak hour and 4 new vehicle trips (2 entering and 2 exiting) during the weekday evening peak hour. This level of trip generation represents one additional vehicle on Forest Ridge Road every 12 to 15 minutes during the peak hours and will result in negligible impacts to traffic operations on surrounding area roadways.

**Office Trip Generation Comparison**

TEC has performed a comparison of the trips generated by the proposed age-restricted residential development to those that could be generated by the development of an office use on the site.

To estimate the trips generated for a general office development, TEC estimated trips based on standard ITE trip rates for LUC 710 – General Office. Approximately 27,000 square feet of office space could be developed on the site, and Table 3 provides a comparison of the trips generated by the proposed age-restricted residential use to those generated by a 27,000 square foot office use. The detailed trip generation calculation worksheets are provided in Attachment A.

**Table 3 - Trip Comparison to Office Use**

Time Period	Age-Restricted Housing (LUC 252)	27,000 SF Office (LUC 710)
Weekday Daily	58	298
Weekday Morning Peak Hour	5	42
Weekday Evening Peak Hour	4	40
Saturday Daily	44	60
Saturday Midday Peak Hour	4	12

As shown in Table 3, the proposed age-restricted residential development is anticipated to generate 88 percent fewer trips during the weekday morning peak hour and 90 percent fewer



trips during the weekday evening peak hour as compared to an office space development on the site.

### **Conclusions**

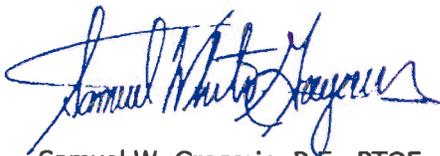
TEC has examined the potential traffic impacts associated with a proposed 16-unit age-restricted residential development. The following is a summary of the results and conclusions of this effort.

- Access to the site will be provided via two (2) full access/egress driveways on Forest Ridge Road. The available SSD and ISD at both site driveways will exceed AASHTO's minimum recommendations for safe sight distance.
- The project is anticipated to generate approximately 5 new vehicle trips (1 entering and 4 exiting) during the weekday morning peak hour and 4 new vehicle trips (2 entering and 2 exiting) during the weekday evening peak hour. This level of trip generation represents one additional vehicle on Forest Ridge Road every 12 to 15 minutes during the peak hours and will result in negligible impacts to traffic operations on surrounding area roadways.
- The proposed age-restricted residential development is anticipated to generate 21 percent fewer trips during the weekday morning peak hour and 73 percent fewer trips during the weekday evening peak hour as compared to an office space development on the site.

In conclusion, the traffic generated by the proposed age-restricted residential development can be safely and efficiently accommodated along the existing street system. The minor increase in traffic resulting from the project is not anticipated to warrant any project-specific mitigation.

Please do not hesitate to contact me at (978) 794-1792 if you have any questions regarding this traffic impact assessment.

Sincerely,  
TEC, Inc.



Samuel W. Gregorio, P.E., PTOE  
Senior Traffic Engineer

Attachments:  
A – Trip Generation Calculation



**Attachment A**

**Trip Generation Calculations**

## Site Generated Trip Assessment

Project: T0665 - Proposed Age-Restricted Residential Development - Forest Ridge Road, Concord,  
Date: September 12, 2016  
Analyst: TEC, Inc. / Eindra (Elena) Aung, E.I.T  
Source: Institute of Transportation Engineers - *Trip Generation - 9th Edition*

### Institute of Transportation Engineers (ITE) ITE Land Use Code (LUC) 251 - Senior Adult Housing - Detached

Average Vehicle Trips vs: Dwelling Units  
Independent Variable (X): 16

#### AVERAGE WEEKDAY DAILY

$$T = 3.68 * (X)$$

$$T = 3.68 * ( 16 )$$

$$T = \boxed{58} \text{ vehicle trips}$$

with 50% ( 29 vpd) entering and 50% ( 29 vpd) exiting.

#### WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.22 * (X)$$

$$T = 0.22 * ( 16 )$$

$$T = \boxed{4} \text{ vehicle trips}$$

with 35% ( 1 vph) entering and 65% ( 3 vph) exiting.

#### WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$$T = 0.27 * (X)$$

$$T = 0.27 * ( 16 )$$

$$T = \boxed{4} \text{ vehicle trips}$$

with 61% ( 2 vph) entering and 39% ( 2 vph) exiting.

#### SATURDAY DAILY

$$T = 2.73 * (X)$$

$$T = 2.73 * 16$$

$$T = \boxed{44} \text{ vehicle trips}$$

with 50% ( 22 vpd) entering and 50% ( 22 vpd) exiting.

#### SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$$T = 0.23 * (X)$$

$$T = 0.23 * 16$$

$$T = \boxed{4} \text{ vehicle trips}$$

with 48% ( 2 vph) entering and 52% ( 2 vph) exiting.

## Site Generated Trip Assessment

Project: T0665 - Proposed Age-Restricted Residential Development - Forest Ridge Road, Conco  
Date: September 12, 2016  
Analyst: TEC, Inc. / Eindra (Elena) Aung, E.I.T  
Source: Institute of Transportation Engineers - *Trip Generation - 9th Edition*  
By-Right Use: Office - 27,000 SF

### Institute of Transportation Engineers (ITE) ITE Land Use Code (LUC) 710 - General Office Building

Average Vehicle Trips Ends vs: 1,000 Sq. Feet Gross Floor Area  
Independent Variable (X): 27.000

#### AVERAGE WEEKDAY DAILY

$T = 11.03 * (X)$   
 $T = 11.03 * 27.000$   
 $T = \boxed{298}$  vehicle trips  
with 50% ( 149 vph) entering and 50% ( 149 vph) exiting.

#### WEEKDAY MORNING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 1.56 * (X)$   
 $T = 1.56 * 27.000$   
 $T = \boxed{42}$  vehicle trips  
with 88% ( 37 vph) entering and 12% ( 5 vph) exiting.

#### WEEKDAY EVENING PEAK HOUR OF ADJACENT STREET TRAFFIC

$T = 1.49 * (X)$   
 $T = 1.49 * 27.000$   
 $T = \boxed{40}$  vehicle trips  
with 17% ( 7 vph) entering and 83% ( 33 vph) exiting.

#### SATURDAY DAILY

$T = 2.46 * (X)$   
 $T = 2.46 * 27.000$   
 $T = \boxed{66}$  vehicle trips  
with 50% ( 33 vpd) entering and 50% ( 33 vpd) exiting.

#### SATURDAY MIDDAY PEAK HOUR OF GENERATOR

$T = 0.43 * (X)$   
 $T = 0.43 * 27.000$   
 $T = \boxed{12}$  vehicle trips  
with 54% ( 6 vph) entering and 46% ( 6 vph) exiting.

**Abutters List for Parcel# 2970-1-5, 275 Forest Ridge Rd., using a distance of 300 ft.:**

<b>Parcel</b>	<b>Parcel Location</b>	<b>Name &amp; Billing Address as of January 1, 2016</b>
2970-1-5	275 Forest Ridge Rd	Thoreau Realty Trust Todd A Pulis Tr 275 Forest Ridge Rd Concord, MA 01742
2891-58	56 Border Rd	Glenn T & Laura L Hoffman 56 Border Rd Concord, MA 01742
2891-59	66 Border Rd	Brian R & Julie G Doherty 66 Border Rd Concord, MA 01742
2891-60	78 Border Rd	Joseph S Cavallo 78 Border Rd Concord, MA 01742
2891-61	92 Border Rd	Peter J & Lisa A DeRosa 92 Border Rd Concord, MA 01742
2891-62	104 Border Rd	Todd C & Patricia L DeBinder 104 Border Rd Concord, MA 01742
2891-63	118 Border Rd	Barbara Pike Tr The Barbara Pike Trust No 1 118 Border Rd Concord, MA 01742
2891-64	134 Border Rd	Alan C & Catherine Perry 134 Border Rd Concord, MA 01742
2891-65	144 Border Rd	Tamara A Lerner Tr The Tamara Lerner Trust 144 Border Rd Concord, MA 01742
2891-66	162 Border Rd	David E & Michelle L Frink 162 Border Rd Concord, MA 01742

**Abutters List for Parcel# 2970-1-5, 275 Forest Ridge Rd., using a distance of 300 ft.:**

<b>Parcel</b>	<b>Parcel Location</b>	<b>Name &amp; Billing Address as of January 1, 2016</b>	<b>Name &amp; Billing Address as of August 31, 2016</b>
2891-8309	210 Border Rd	Vadym & Iryna Synakh 210 Border Rd Concord, MA 01742	
2891-8310	222 Border Rd	Ryan & Merav Sorley 222 Border Rd Concord, MA 01742	Eric & Katie Meissner 222 Border Rd Concord, MA 01742
2891-8311	240 Border Rd	Timothy Hellman & Tatyana Frolov 240 Border Rd Concord, MA 01742	
2891-8312	252 Border Rd	Philipp & Beatrice M T Blacksmith 252 Border Rd Concord, MA 01742	
2891-8312	270 Border Rd	Mitchell K Beard & Janet C Magurn 270 Border Rd Concord, MA 01742	
2891-8314	288 Border Rd	Wayne R & Katheryn W Hingston Trs 288 Border Rd Concord, MA 01742	
2891-8315	300 Border Rd	John M Jenkins & Christine F Lamb 300 Border Rd Concord, MA 01742	
2891-8316	310 Border Rd	Huan Zhang & Sun Li 310 Border Rd Concord, MA 01742	
2891-8317	32B Border Rd	Huan Zhang & Sun Li 310 Border Rd Concord, MA 01742	
2891-836	32Y Border Rd	Town Of Concord PO Box 535 Concord, MA 01742	
2970-1	2229 Main St	Starmet NMI Corp 1000 Johnnie Dodds Blvd Mt Pleasant, SC 29464	

**Abutters List for Parcel# 2970-1-5, 275 Forest Ridge Rd., using a distance of 300 ft.:**

<b>Parcel</b>	<b>Parcel Location</b>	<b>Name &amp; Billing Address as of January 1, 2016</b>	<b>Name &amp; Billing Address as of August 31, 2016</b>
2970-1-1	9X Forest Ridge Rd	Black Birch Development Partners LLC 83 Great Rd Ste 3 Acton, MA 01720	
2970-1-9	9 Forest Ridge Rd	Town Of Concord PO Box 535 Concord, MA 01742	
2970-1-10	8X Forest Ridge Rd	Town Of Concord PO Box 535 Concord, MA 01742	
2971-3	150 Forest Ridge Rd	Town Of Concord PO Box 535 Concord, MA 01742	
2971-5	66 Old Powder Mill Rd	Hayes Pump Nominee Trust C/O Denormandie P Y Tr 12 Marshall St Boston, MA 02108	
2973	48 Old Powder Mill Rd	CIP/MCRT Longview Meadows LLC C/O Greystar Real Estate Partners 374 Congress St Ste 202 Boston, MA 02210	

