Environmental & Community Impact Analysis:

I. PROJECT INFORMATION:

NAME OF PROJECT:	Estates at Bull Meadow
ACREAGE:	33.38 acres
TYPE OF PROJECT:	Single Family Residential
OWNER(S):	Bull Meadow, LLC. Mr. Gordon Lewis, Manager 2 Rachel Road Boylston, MA
LOCATION:	Off Appaloosa Drive & Bridle Ridge Drive
ZONING DISTRICT:	R40
PARCEL NUMBERS:	MAP 32, PARCEL 5A MAP 32, PARCEL 100

II. PROJECT DESCRIPTION

A. Number of Lots: 15 new

B. Number of Bedrooms: 75

III. NATURAL ENVIRONMENT

A. Air & Noise Pollution

Air pollution is commonly associated with non-residential developments. Permanent sources of Air Pollution associated with residential uses are vehicle exhaust and home heating oil burning. Federal regulations are in place to ensure that the concentrations are below safe thresholds.

With any construction, there is some level of short term noise impact. This is normally associated with construction of roadways, excavation for placement of foundations, and heavy equipment used in the construction of the homes. This is a temporary impact experienced only during the construction phase. Once built out, we would not expect any Noise Pollution to occur in a single family residential development.

Under this proposed Project, a large portion of wooded area is being protected as open space. The wooded areas act as a natural noise barrier between the Project and the surrounding uses.

B. Storm Water

The Project will be designed to fully comply with the Massachusetts Storm water Management Guidelines. The Storm water Management Guidelines provide ten (10) standards for new developments. Those standards prevent new untreated discharges, provide for attenuation of the peak rate of run-off, provide for recharge to groundwater, provide a minimum standard for water quality, provides regulations for sites with Higher Potential Pollutant Loads & for Critical Areas, provides for redevelopment projects, requires preparation of a Construction Period Pollution Prevention Plan, requires the preparation of an Operation & Maintenance Plan for the BMP's constructed, and prohibits illicit discharges.

The upland soils on the site are sands and gravels with significant depth to seasonal high ground water. This type of soil is well suited for the construction of storm water controls. As a result the soils have the ability to infiltrate the run-off from the proposed impervious surfaces. We do not expect any impact on the water table in the area or any on or off-site flooding to occur.

C. Land

The upland portion of the site is mostly a hardwood forest over sand & gravel soils. The land slopes down gently from Bridle Ridge Drive and Appaloosa Drive to the on-site wetland series. As shown on the proposed roadway profile, the proposed centerline grade of the roadway closely matches existing grade at 5%. As a result, we do not expect significant off-grading to be required to establish the road beds. We would expect grading to occur around the proposed foundations and to establish sewage disposal areas. This limited amount of grading will allow for the preservation of a significant portion of the wooded areas as large cuts & fills will not be required. Also, as the proposed grade will closely match existing grade, the potential for erosion will be minimized as steep cut or fill slopes will not be required.

D. Plants & Wildlife

EcoTec, Inc. of Worcester, MA is the Wetland and Habitat Consultant for the Project. EcoTec conducted a wetland resource evaluation of the property in November of 2014. The delineated edge of wetlands is shown on the Definitive Subdivision Plans. Paddock Ridge Drive, is proposed to cross the "A" series wetland. This crossing will be accomplished with an open bottom culvert to allow for wildlife access from one side of the crossing to the other. The total wetland impact is less than 5,000 SF for the entire project, roads & individual house lots.

A portion of the site is located within the limit of the Priority Habitat for Rare Species and Estimated Habitat of Rare Wildlife. In January of 2014, EcoTec submitted a MESA Project Review Checklist, a copy of the Conceptual Subdivision Plan (Conventional Layout) and other supporting materials to the Division of Fisheries and Wildlife. On August 13, 2014 we received a letter from

Thomas French, Ph.D. indicating that the project will not result in a prohibited "take" of the state listed rare species. A copy of the letter was submitted with the Preliminary Subdivision Approval Documents.

In addition the proposed plan provides for a portion of the site to be protected as permanent open space, 7.44 acres and 4.97 acres respectively.

E. Water Supply

The homes will be connected to the Town of Grafton Water Supply. Each house is expected to have five bedrooms which will require 550 gallons per day of potable water. The surrounding homes on Appaloosa and Bridle Ridge Drives are served by individual on-site wells.

F. Sewage Disposal

The homes will be served by on-site sewage disposal systems as no Town of Grafton Sewer System is available in this area. Sixty (63) deep hole test pits were conducted on the site in 2015 in accordance with Title V regulations which revealed that the soils are sand & sandy loam with adequate depth to groundwater. The soils are well suited for the construction of on-site sewage disposal systems. The anticipated design flow is 550 gallons per day. The soil testing, system design, and system construction will all be reviewed and approved by the Town of Grafton Board of Health.

A copy of the test pits logs from 2015 are included in the application package.

IV. MAN MADE ENVIRONMENT

A. Existing Neighborhood Land Use

The existing neighborhood is a 70 lot +/- single family conventional development that was built in two phases in the early 2000's. The plans for that development provided access to the current Project site by means of a 50 foot right-of-way off of Bridle Ridge Drive and a 50 foot future roadway access easement at the end of Appaloosa Drive. Clearly, the Town anticipated that this land would be developed at some point in the future by requiring that access be provided. Both the existing development and the proposed Project are single family in design and as such are compatible uses.

B. Zoning

The Project Site is located entirely within the R40 zoning district. Detached one-family dwellings are allowed by right in this zoning district.

C. Architecture

The single family homes will be of colonial design and will be in conformity with the local and state building code. The designs routinely employed within the community are Garrison and Straight Front, Raised and Contemporary Cape, Ranch with Elevated Roof Pitch, Traditional New England Farmhouse, and New England Colonial with Center Fireplace. Irregular Landscaping and Planting areas will surround the homes, with lawn areas and isolated planting surfaces blending with the natural environments though the use of wood chips of varying colors and planting complimentary to the natural vegetation.

V. Public Services

A. Schools

The proposed development is anticipated to increase the demand on the Grafton Public School system. Based on the 2001 Grafton Master Plan, Table 2-4 (Impact of Residential Growth), the factor used to measure that increase is 4 classrooms per 100 families. This breaks down to a factor of 0.04 classrooms per family or single family residential unit. Utilizing this factor, the proposed conventional subdivision (15 units) would result in an increase of 0.6 classrooms. The impact to school bus routing will be minimal. The surrounding neighborhoods are currently served by school busses therefore the proposed development will extent the bus route by approximately 2,100 linear feet.

B. Police

The town of Grafton has one police station located at 28 Providence Road which is 3.8 miles or 8 minutes from the project site.

Based on the 2001 Grafton Master Plan, Table 2-4 (Impact of Residential Growth), the factor used to measure the increase in demand on the police department caused by residential development is 0.64 police officers per 100 families. Utilizing this factor, the proposed conventional subdivision (15 units) would result in a need for an additional 0.01 police officers.

C. Fire

The Town of Grafton has three Fire Stations. Station 1 is located at 26 Upton Street which is 3.3 miles or 6 minutes from the Project Site. Station 2 is located at 2 Mill Street which is 3.3 miles or 8 minutes from the Project Site. Station 3 is located at 92 Main Street which is 3.1 miles or 6 minutes from the Project Site. The Fire Department would be able to respond from any of the stations to the Project Site within the same relative time frame.

Based on the 2001 Grafton Master Plan, Table 2-4 (Impact of Residential Growth), the factor used to measure the increase in demand on the fire department caused by residential development is 0.48 fire fighters per 100

families. Utilizing this factor, the proposed conventional subdivision (15 units) would result in a need for an additional 0.07 fire fighters.

The Project will be supplied with town water from the Town of Grafton. Based on this condition fire hydrants will be placed every 500 feet from Old Wetboro Road, along Bridle Ridge Dr into the proposed subdivision. This will provide the fire department with easy access to water in the area.

All of the proposed houses will be equipped with Smoke Alarms and Carbon Monoxide Detectors as required by the Massachusetts State Building Code.

D. Recreation

A significant portion of the proposed development will be available for passive recreation. The plan provides for a large area of the site to be protected as permanent open space, 7.44 acres and 4.97 acres respectively. Additionally, sidewalks will be provided throughout the proposed development providing pedestrian access to the adjacent residential neighborhoods with pedestrian sidewalks south of Old Westborough Road.

E. Solid Waste Disposal

Based on the 2001 Grafton Master Plan, Table 2-3 (Growth Impacts on Town Resources and Municipal Services at Probable Buildout), residential units generate approximately 1.6 tons/year of solid waste. Utilizing this number, the proposed conventional subdivision (15 units) would result in the generation of approximately 24 tons of solid waste /year. Recycling data was not available in the 2001 Grafton Master Plan, however it should be anticipated that a significant portion of the projected solid waste generation would be redirected to recycling facilities.

F. Traffic

Traffic issues are not anticipated to be generated as a result of the proposed development. Based on the 2001 Grafton Master Plan, Table 2-4 (Impact of Residential Growth), 11.7 trips per day per single family dwelling are anticipated to be generated by the proposed development. Utilizing this rate, the proposed conventional subdivision (15 units) would result in approximately 175.5 trips per day. A comprehensive traffic study will be conducted and provided to the Town as part of the Definitive Subdivision submission if required by the Board.

G. Highway

Significant highway impacts are not anticipated beyond the standard costs and maintenance of a typical town owned roadway. Roadway maintenance, snow

removal, and storm water infrastructure will be integrated into the proposed subdivision operation and maintenance plan and will be the responsibility of the developer until the construction of the subdivision is complete and the proposed roadway is officially accepted by the Town of Grafton.

VI. Aesthetics

A. Lighting

The proposed development will incorporate lighting on the individual lots consistent with the surrounding neighborhoods. Street lighting will not be proposed. Functional aesthetic lighting will be provided on the exterior of each residence at entrances and exits in addition to along lengthy walkways or driveways if required to provide safe access. Light spillage over adjacent property lines will not be allowed.

B. Landscaping

The proposed development will incorporate landscape features throughout to add aesthetic beauty to the subdivision that is consistent with surrounding neighborhoods. In addition to the required street trees, perennials and hardscape features may be incorporated into the design to accent walkways, intersections or existing stone walls on site.

C. Visual

The visual aesthetics of the existing property will be maintained to the greatest extent practical. The natural topography slopes from southwest to northeast from approximate elevation 510 ft. to 434 ft. the proposed roadways will follow the existing topography to minimize the amount of cuts and fills, and each lot will be selectively cleared to preserve mature specimen trees and minimize the amount of clear-cutting required.

VII. Planning

The Town of Grafton has published a Vision and Mission Statement that is intended to preserve the community's values and characteristics and maintain the small town historical New England village atmosphere. The goals and objectives are discussed within the 2007 Open Space and Recreation Plan and the 2001 Comprehensive/Master Plan. The proposed conventional and flexible preliminary subdivision layouts were designed with these objectives and goals in mind and incorporate setbacks and buffers that minimize the amount of disturbance and maintain the natural resources to the greatest extent practical. In addition the proposed plan provides for a portion of the site to be permanently protected as open space, 7.44 acres and 4.97 acres respectively.

VIII. Cost/Benefit Analysis

The monetary benefits to the Town of Grafton after the completion of the proposed subdivision will be recognized in the form of taxes including but not limited to real estate tax, excise tax, meal tax, sales tax and other miscellaneous taxes and fees. Although most of these taxes can't be estimated at this time, an estimated real estate tax can be calculated and is as follows.

Tax revenue to Town from the proposed conventional development based on an anticipated property value of $600,000±. Current Tax rate = $16.75/$1,000:

$600,000/$1000 X $16.75 X 15 residences = $150,750/Year

The proposed definitive subdivision design incorporates elements that will not require excessive and costly maintenance that would be the responsibility of the Town of Grafton after the subdivision roadways have been accepted as public streets. The proposed subdivision will be served by public water but not sewer, therefore public maintenance costs will be less than normal maintenance cost by the Town. Storm water infrastructure will be incorporated into the proposed design, however the cost to maintain a new system will be minimal for the 20+ year lifespan of the infrastructure. Additionally, the roadway will be new construction therefore once approved by the Town, the expected lifespan of the pavement will exceed 25 years. Based on the elements of either proposed design, it appears that the financial benefits of the subdivision to the Town will significantly outweigh the costs.