



ENGINEERING SUCCESS **TOGETHER**

June 27, 2016

The Dover Road Residences
Town of Millis
900 Main St.
Millis, MA 02054

Attn.: Mr. Brutus Cantoreggi
Chairman of Planning Board

**Re: "The Dover Road Residences" Assisted Living Community
Peer Review**

Dear Mr. Cantoreggi:

BETA Group, Inc. (BETA) has reviewed supplemental and revised documents for the Application for Site Plan Approval and Special Permit for "The Dover Road Residences" Assisted Living Community. This letter is provided to update BETA's findings, comments and recommendations. The letter includes an updated section reviewing the application documents against the Town's Assisted Living Residence (ALR) By-law revisions, as approved by Town Meeting vote in May 2016.

BASIS OF REVIEW

BETA received the following supplemental documents:

- Letter to the Millis Planning Board dated June 9, 2016 from GLM Engineering Consultants, Holliston MA
- Plans (25 sheets) entitled ***Site Development Plans "The Dover Road Residences" Assisted Living Community*** dated March 7, 2016, revised June 8, 2016, prepared by GLM Engineering Consultants, Holliston, MA
- ***Stormwater Management Report for "The Dover Road Residences"*** dated June 8, 2016, revised May 10, 2016, prepared by GLM Engineering Consultants, Holliston, MA

COMPILED REVIEW LETTER KEY

BETA reviewed this project previously and provided review comments in letters to the Board dated April 18, 2016 and June 3, 2016 (original comments in standard text). GLM Engineering Consultants, Inc. (GLM) and Green International Affiliates, Inc. (Green) provided responses (responses in italics) and BETA has provided comments on the status of each (status in bold standard text).

INTRODUCTION

The proposed assisted living community is located on a 7.7 acre wooded lot at the intersection of Dover Road with Bridge Street. The proposed use requires a Special Permit from the Planning Board. The plan proposes to construct a 62,411 SF main building, seven outlying cottages and accessory buildings with a combined area of 79,425 SF and 93 proposed parking spaces. The plan includes utility, lighting, and landscape design. The plan also proposes stormwater management in an infiltration basin on an adjacent lot

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of the same property owner which is also wooded in the existing conditions. Access to this adjacent lot is through an existing 20' wide drainage easement where drainage piping is proposed to carry stormwater from the site to the proposed infiltration basin. Portions of the adjacent property where the infiltration basin is proposed contain wetlands, and are within Zone II Wellhead Protection Area and the FEMA AE Flood Zone.

ZONING

Section V Use Regulations

The site is located within the Residential-Suburban (R-S) Zoning District. The proposed use, housing for the elderly, requires a Special Permit from the Planning Board. The project also proposes a greenhouse and maintenance building. These areas are considered to be an accessory use and are permitted in the R-S District.

Section VI Area, Height and Bulk Regulation

The proposed project meets the minimum lot frontage, lot depth and setbacks for front yard, side yard, and rear yard. The applicant does not show perimeter to area ratio calculations, building heights, or square footage of individual cottages and accessory buildings. Architectural drawings, Sheet A4 are not drawn to scale. The applicant provides lot coverage by structure calculations on Plan Sheet 1. Without individual building areas shown on the plans, this calculation cannot be verified.

- Z1. Identify lot perimeter to area ratio. *GLM: Revised (see Sheet C-1).* **BETA: Plan revised – issue resolved.**
- Z2. Identify proposed building heights. *GLM: See Architectural Plans for Height.* **BETA: Information provided – issue resolved.**
- Z3. Show square footage for individual buildings on plans. *GLM: Revised (see Sheet C-5).* **BETA: Plan revised – issue resolved.**

Section VII Signs

The plans do not show any proposed signage.

- Z4. Show proposed signage on plans and submit details to confirm that building and site signage meets zoning requirements. *GLM: Revised (see Sheet C-5). Provided stop signs at street intersection and site entrance sign location only. Actual sign design to be completed at a later date.* **BETA: Recommend a condition that site entrance sign be designed in accordance with Section VII and submitted to Town for approval. GLM2: The applicant is in agreement, will submit sign to Town for approval. BETA2: Issue resolved. If submittal does not predate potential site plan approval, signage submittal should be made contingent to approval.**

Section VIII Off Street Parking and Loading Regulations

The proposed plans show 93 housing units within the main building. One parking space is required per unit for elderly housing. The project is providing 93 parking (including 10 handicap) spaces. Seven double cottages with a garage and driveways are also proposed on the submitted plans. It is assumed 2 parking spaces per cottage unit are provided within the garage and driveway for a total of 4 off street parking spaces per structure. All proposed parking spaces comply with minimum setback requirements.

- Z5. The Town's standard parking space size is 9 ft. wide by 21 ft. long and minimum area of 189 sq. ft. The proposed parking spaces are 9 ft. wide by 18 ft. long (162 sq. ft.). The Board should discuss

whether to approve modified parking dimensions. *GLM: Request the board review the modified parking dimensions as shown. Green: In reviewing national guidelines, including the Urban Land Institute's publication The Dimensions of Parking (5th edition, 2010) consistently refers to 9' x 18' perpendicular parking spaces. BETA: Defer to Board discussion on reduced parking stall lengths. GLM2: Request the board review the proposed parking and advise.*

26. Parking areas on the east side of the building are separated by a loading area, which also houses the employee entrance. Minimal pedestrian cross traffic is desirable within the path of trucks traveling to the rear of the site. Consider relocating delivery area, or provide separate employee accessible entrances on each side of the delivery area. *GLM: Revised, rear entrance area has been modified (see Sheet C-5). BETA: Plan revised. Provide ramps to allow a continuous accessible path. GLM2: Revised See sheet C-5, provided ramps at the rear. BETA2: Issue resolved. Consider a marked crosswalk to alert delivery drivers to the potential for conflicts with pedestrians.*
27. Consider adding handicap parking spaces to rear parking area for employee use. Ensure accessible path exists from employee parking area to employee entrance(s). *GLM: There is more than the required handicap parking proposed in the front area. There does not seem to be a need for additional handicap parking. BETA: Verify that the potential for accessible parking use by employees is served by the spaces provided in front of the building. GLM2: The proposed plan depicts ten (10) handicap spaces located at the front of the building. Only four (4) spaces are required for 93 parking spaces. The front area will serve employee handicap parking. BETA2: Information provided – issue resolved.*
28. Consider identifying signage separating employee parking from resident/visitor parking. *GLM: It does not seem necessary to provide employee nor resident parking signs. BETA: Response noted. Signage for employee parking is required by Millis' recently accepted Assisted Living Residences Bylaw. Conformance with these Bylaw amendments is not required for this proposal. GLM2: The applicant would prefer not to install numerous parking signs throughout the site. BETA2: The Applicant has since filed the site proposal under the Assisted Living Residences (ALR) Bylaw. Signs should be provided.*
29. Identify snow storage areas on the plans. *GLM: Revised (see Sheet C-5). BETA: Plan revised – issue resolved.*
210. Consider adding sidewalk on outside tract of proposed access road. Sidewalk should be provided if cottage residents will partake in activities inside the main facility. If this is the case, identify entrance likely to be used by cottage residents and provide an accessible path including marked crosswalk(s) across the site driveway. *GLM: A sidewalk is proposed along the inside tract of the access road. We do not see the need to add a second walk around the perimeter. BETA: Clarify whether cottage residents will partake in activities inside the main facility. GLM2: The cottage residents would partake in activities inside the main facility. The plan has been revised to include handicap access ramps across from the drives of the cottage buildings. BETA2: Handicap access ramps should connect to marked crosswalks. Increased pedestrian safety would be realized by providing a sidewalk outside the access road, with crosswalk locations corresponding to pedestrian desire lines based on entrance locations.*
211. Provide details for accessible parking (detectable warning panel, stall markings and signage, etc.) and additional spot elevations showing proposed parking spaces and walks meet ADA requirements. *GLM: Revised (see Sheets C-5, C-6, C-12). BETA: Information provided. Provide a detail for bollard with parking sign as shown on Sheet C-5, to verify that an accessible path will*

remain. *GLM2: Revised See Sheet C-14, Bollard Detail.* **BETA2: Bollard detail is provided, but does not illustrate clear path. Detail should illustrate horizontal offset from bollard to front and back of sidewalk. Alternately this could be shown using a typical dimension on sheet C-5.**

A lighting plan has been presented concerning safety lighting around the parking areas and buildings. The Illuminating Engineers Society of North America (IESNA) recommends the following for parking lots:

Level	<u>Horizontal</u> <u>Illuminance (min)</u>	<u>Vertical</u> <u>Illuminance (min)</u>	<u>Uniformity</u> <u>Ratio</u> <u>(max/min)</u>
Basic Maintained Illuminance	0.2	0.1	20/1
Enhanced Security Illuminance	0.5	0.25	15/1

The lighting plan identifies illumination within these recommended levels and there does not appear to be any spillage over the property lines.

Z12. Identify exterior lighting locations on proposed layout plans and provide a detail for the proposed lighting. *GLM: Lighting Plan By Others.* **BETA: Lighting locations not identified – issue remains outstanding.** *GLM2: TAT, Architects to respond.* **BETA2: No formal response provided.**

Z13. Consider adding lighting near maintenance building, green house, dumpster, and play area. *GLM: Lighting Plan By Others.* **BETA: Issue remains outstanding.** *GLM2: TAT, Architects to respond.* **BETA2: No formal response provided.**

Section XI Special Flood Hazard District

The eastern portion of Parcel A is in close proximity to Zone AE as designated on the Norfolk County FIRM issued by FEMA.

Z14. Show FEMA flood zone boundaries on plan and verify no work will be done within flood zone. Dumping, filling, excavating or transferring any earth within the Flood Hazard District requires a special permit. *GLM: Revised (see Sheets C-4, C-7).* *FEMA Flood Zone is located along the embankment of the bordering vegetated wetlands and is not within the area of disturbance.* **BETA: Plan revised – issue resolved.**

Section XIII Special Permit Conditions

A special permit from the Planning Board is required for proposed elderly housing within the R-S Zoning District. There is tree and vegetation cover to be remove and grading, primarily by fill, across all areas within the limits of work. The applicant has submitted a special permit with the Planning Board. It should be noted land clearing, excavation, or tree clearing is not permitted until the issuance of all required approvals, permits, variances, licenses and authorization.

Z15. Identify limit of work and proposed limit of clearing/treeline on Layout and Grading plans. *GLM: Revised (see Sheets C-5, C-6, C-10, C-11).* **BETA: Plan revised – issue resolved.**

Z16. Recommend extending erosion controls along limit of work on western portion of site at Dover Road where grading slopes down toward property line. *GLM: Revised (see Sheet C-10).* **BETA: Plan revised – issue resolved.**

Z17. Provide stabilized construction entrance detail. *GLM: Revised (see Sheet C-11).* **BETA: Plan revised – issue resolved.**

Section XIV Environmental Performance Standards



The project proposes a commercial kitchen on the ground floor on the rear side of the building. A dumpster pad and generator pad are shown on the proposed layout plans at the rear of the building adjacent to the maintenance building. The generator may be fueled with diesel fuel and therefore require registration with the Board of Health.

- Z18. Recommended providing enclosures for dumpster and generator. *GLM: Revised (see Sheets C-5, C-14).* **BETA: Plan revised – issue resolved.**
- Z19. Provide information on type of generator. If diesel identify spill containment. *GLM: Revised (see Sheet C-5). Generator to be Natural Gas.* **BETA: Information provided – issue resolved.**
- Z20. Provide information on controlling odors from building and dumpster. *GLM: The project has indicated that the dumpster would be emptied at a minimum 2 times per week to reduce any odor problems.* **BETA: Information provided – issue resolved.**
- Z21. Provide information on any proposed HVAC (or other) units in regards to noise and the anticipated noise impacts at property limits and to abutters. *GLM: The HVAC units are to be installed on the roof. Architectural plans would indicate that the units will be recessed below the roof line.* **BETA: Provide information regarding anticipated noise impacts at property limits and to abutters – issue remains outstanding. GLM2: TAT, Architects to respond. BETA2: No formal response provided. Discussions with TAT reveal that 12 feet of vertical screening will be provided by the recessed roof.**

Section XV Groundwater Protection District

The eastern portion of Parcel A is in close proximity to MassDEP Zone II Wellhead Protection Area and as such potentially within the Groundwater Protection District.

- Z22. Show Zone II boundaries on plan and verify no work is proposed within groundwater protection district. *GLM: Revised (see Sheets C-4, C-7).* **BETA: Boundaries shown on plans and indicate work is proposed within the groundwater protection district (GWPD – Zone II). As such, work within this area is subject to the requirements found in Section XV of the Zoning Bylaws. Based on these requirements verify the following:**
 - a. **Verify that snow and ice containing de-icing chemicals from the assisted living facility parking lot will not discharge to the infiltration basin (Section XV.5.b.(9)).**
 - b. **Verify that the assisted living facility will not generate hazardous or toxic materials that discharge into the infiltration basin (Section XV.5.b.(15)).**
 - c. **Section XV.5b.(18) prohibits earth removal to within 4 feet of the historical high groundwater elevation. Verify excavations will not occur within 4 feet of the high groundwater elevation and revise design of infiltration basin as necessary.**

GLM2: Section XV does not define a DEP Zone II as part of the Watershed Protection Area. A portion of the drainage basin is within a DEP Zone II. **BETA2: Section XV states that if less than 50% of the property is within the GWPD, then the property shall be considered out of the GWPD. As such, this property is out of the GWPD. Issue resolved.**

ZONING – ASSISTED LIVING RESIDENCE (ALR) BY-LAW

The Applicant submitted the project for consideration under the Town's Assisted Living Residence (ALR) By-law revisions, which were approved by Town Meeting vote in May 2016.

Z23. Update minimum lot area and parking schedule shown on plan sheet C-1 for concurrence with ALR By-law.

Z24. Provide details and location for integrated call, security, telephone and other communication systems, including connection to individual dwelling units. Verify that system details are acceptable to the Millis Fire Department.

STORMWATER MANAGEMENT

The existing site is approximately 7.66± acres and is presently undeveloped. Land use of the site consists predominately of woods. There are no existing stormwater management facilities on the site. The topography of the site consists of high points on the western side of the site adjacent to Bridge Street and Dover Road. Land slopes to the north and east of the site. A second parcel is proposed for the management of stormwater. This tract is undeveloped and wooded and is within the 100-foot wetland buffer.

NRCS maps indicate soils throughout the site are primarily comprised of Montauk fine sandy loam and Woodbridge fine sandy loam, Hydrologic Soil Group (HSG) C indicating low infiltration rates. Portions of the plot of land utilized for the stormwater management system appear to contain Scarboro and Birdsall soil with a HSG rating of A/D indicating high infiltration rates.

The proposed project includes the installation of a new stormwater management system consisting of deep sump catchbasins, a sediment forebay, and an infiltration basin. The infiltration basin is proposed with an outlet to the wooded/wetland area approximately at the 100' wetland buffer line.

Town of Millis Stormwater Management Regulations Comments

Per Town of Millis Stormwater Management Regulations Article I Section 4, construction of a new drainage system serving a drainage area of more than one acre and all activities that result in disturbance of one or more acres of land are required to file an application with the Board of Selectmen for a Stormwater Management Permit (SMP) or Land Disturbance Permit (LDP) or both which is provided to the Planning Board by the Selectmen.

- SW1. Provide applications for Stormwater Management Permit (SMP) and Land Disturbance Permit (LDP) to the Board of Selectmen including the following (§6.A.1-7).
- a. A completed Application Form with original signatures of all owners.
 - b. A list of abutters, certified by the Assessor's Office.
 - c. Certification from the Building Inspector that the application is complete.

GLM: A Stormwater Management Permit shall be obtained from the Board of Selectman. BETA: Recommend including as a condition requiring obtaining these permits and being provided to the Planning Board. GLM2: The applicant is in agreement, this could be a condition of approval. BETA2: Issue resolved – item should be a condition of approval.

The Drainage Report and Operations and Maintenance Plan submitted in the Application for Site Plan Approval and Special Permit covers most of the requirements of the required Stormwater Management Plan however there are a few specific items outstanding which should also be included in the Site Development Plan Set as follows:

- SW2. Provide timing, schedules, and sequence of development including clearing, stripping, rough grading, construction, final grading, and vegetative stabilization (7.1.A.15). *GLM: The applicant shall provide a schedule. BETA: Information provided in draft SWPPP – issue resolved.*

SW3. Provide a maintenance schedule for the period of construction (7.1, A.16). *GLM: Revised (see O & M).* **BETA: Information provided in O&M Plan, recommend including in final SWPPP – issue resolved.**

SW4. Provide Erosion and Sedimentation Control Plan or draft Stormwater Pollution Prevention Plan (SWPPP) and include the following (7.2.C):

- a. Names, addresses, and telephone numbers of the owner, applicant, and person(s) or firm(s) preparing the plan;
- b. Existing soils, volume and nature of imported soil materials
- c. Drainage patterns and approximate slopes anticipated after major grading activities (Construction Phase Grading Plans);
- d. Path and mechanism to divert uncontaminated water around disturbed areas, to the maximum extent practicable;
- e. A description of construction and waste materials expected to be stored on-site. The Plan shall include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of the materials to stormwater, and spill prevention and response;

GLM: Revised (see Draft SWPPP). **BETA: Draft progress SWPPP provided; recommend as a condition providing final version of SWPPP to Town prior to construction once Contractor has been selected.**

SW5. Revise Operations and Maintenance Plan to include the Town of Millis required sections:

- a. Maintenance agreement that specifies the person(s) responsible for financing maintenance and emergency repairs, a list of easements with the purpose and location of each, and the signature(s) of the owner(s).

GLM: Revised (see O & M). **BETA: Information provided, recommend as a condition providing the Town signed final O&M Plan prior to construction.** *GLM2: The applicant is in agreement, this could be a condition of approval.* **BETA2: Issue resolved – item should be a condition of approval.**

Massachusetts Stormwater Management Standards:

The project is subject to the Stormwater Management Standards (Stormwater Regulations (SWR) 7.0). The following are the 10 standards and relative compliance provided by the submitted documentation.

No untreated stormwater (Standard Number 1): *No new stormwater conveyances (e.g., outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.* The project does not propose untreated stormwater discharges to wetlands. Project is discharging treated stormwater runoff from the infiltration to an area outside the 100-foot buffer via a rip-rap apron on the eastern edge of the project. An emergency spillway is proposed for storm events 100-year event and above on the northeastern edge of the project outside of the 100-foot buffer.

SW6. Provide calculations for the sizing of the proposed riprap aprons. *GLM: Revised (see Stormwater Report and Sheet C-14).* **BETA: Calculations provided – issue resolved.**

- SW7. Show limits of riprap emergency spillway on plans. Ensure riprap extends to the bottom of the slope to reduce potential for scouring. *GLM: Revised (see Sheet C-7).* **BETA: Plan revised – issue resolved.**

Post-development peak discharge rates (Standard Number 2): *Stormwater management systems must be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. Calculations utilize rainfall data as required by the MassDEP Stormwater Management Handbook for the 1, 10, 50 and 100 year storms. The project is indicating that the proposed stormwater management design maintains or decrease post-development discharge rates compared to pre-development conditions. An analysis of pre-development and post-development runoff volumes was also presented indicating maintaining or decreasing post-development discharge rates compared to pre-development conditions.*

- SW8. Provide runoff calculations for pre- and post-development conditions for the 2-year storm event. *GLM: Revised (see Stormwater Report).* **BETA: Calculations provided for the 2-year storm – issue resolved.**

- SW9. Time of concentration calculations indicate that runoff is solely shallow concentrated flow. Consider using sheetflow during initial stages of time of concentration calculations or provide justification for not using sheet flow. *GLM: Revised (see Hydrocad Reports).* **BETA: Calculations revised – issue resolved.**

- SW10. Provide justification for the use of a 5 minute time of concentration for Subcatchment P-1B and P-2A. *GLM: Revised (see Hydrocad Reports).* **BETA: Calculations revised – issue resolved.**

- SW11. Verify that infiltration basin was modeled as impervious with a CN value of 98. *GLM: The infiltration basin provides recharge and is not considered impervious.* **BETA: The infiltration basin recharge is already accounted for by including an exfiltration rate to Pond IB: Infiltration Basin (0.52 inches per hour). Using a CN value other than 98 would “double count” the basin’s ability to infiltrate and artificially reduce the peak runoff rates and volumes contributing to the basin – issue remains outstanding.** *GLM2: Revised the drainage report to reflect the bottom of the basin as CN98.* **BETA2: Information provided – issue resolved.**

- SW12. Revise Mannings n for concrete pipe to be 0.013 instead on 0.012. *GLM: Revised (see rational method spreadsheet).* **BETA: Mannings n revised – issue resolved.**

Recharge to groundwater (Standard Number 3): *Loss of annual recharge to groundwater should be minimized through the use of infiltration measures to maximum extent practicable. The site is predominately comprised of soils rated in Hydrologic Soil Group C which are not well suited for infiltration. The required recharge volume is captured through the use of an infiltration basin. Three soil test pits (TP-16-7, TP-6-8, and TP-16-9) were conducted within the limits of the infiltration basin. Data provided indicates the depth to seasonal high groundwater and the bottom of the infiltration basin is approximately 3 feet. Groundwater mounding calculations were provided indicating that groundwater elevation does not adversely impact the infiltration basin during the 100-year storm event.*

- SW13. Recommend a condition to require observation of the subsoil prior to the installation of the infiltration basin. *GLM: Revised (see O & M and Sheet C-14).* **BETA: BETA continues to recommend as a condition. GLM2: Applicant is agreeable. BETA2: Issue resolved – item should be a condition of approval.**

- SW14. Include language for addressing potential compaction of the infiltration basin during construction. *GLM: Revised (see O & M and Sheet C-14).* **BETA: Language included on plans and in O&M Plan – issue resolved.**

- SW15. The proposed easterly infiltration system will be placed in fill in an area that is currently wooded. Ensure that all stumps are fully removed from the area of this system to ensure proper function. *GLM: Revised (see O & M and Sheet C-14).* **BETA: Language included on plans and in O&M Plan – issue resolved.**
- SW16. Infiltration Basin is located within predominately fill area. Provide impermeable core within embankment to reduce probability of break-through. *GLM: Revised (see Sheet C-14).* **BETA: Core included, recommend as a condition to require the observation of the installation of the core and its material. GLM2: Applicant is agreeable. BETA2: Issue resolved – item should be a condition of approval.**
- SW17. Provide location of monitoring well within the infiltration basin and include detail. *GLM: Revised (see Sheets C-17 and C-14).* **BETA: Monitoring well location and detail provided – issue resolved.**
- SW18. Provide minimum 15-foot access for vehicular maintenance around the perimeter of the infiltration basin. *GLM: Revised (see Sheets C-7, C-14).* **BETA: 15-foot vehicular access provided – issue resolved.**

80% TSS Removal (Standard Number 4): *For new development, stormwater management systems must be designed to remove 80% of the annual load of Total Suspended Solids.*

Stormwater runoff from the pavement areas are collected in deep sump catch basins and routed through a sediment forebay and an infiltration basin. Sediment forebay volume calculations and water quality volume calculations have been provided with the submission. A long-term pollution prevention plan was provided within the Stormwater Operation and Maintenance Plan.

- SW19. Identify locations of snow storage on the plans and indicate location of identification signs. *GLM: Revised (see Sheets C-5, C-10).* **BETA: Locations provided – issue resolved.**
- SW20. Provide information to where roof drains of various buildings are to be tied into and show on plans. *GLM: Revised (see Sheet C-6).* **BETA: Information provided – issue resolved.**
- SW21. Provide legible boundaries of various hatched areas (sand, crushed stone, vegetation) of infiltration basin detail. *GLM: Revised (see Sheet C-14).* **BETA: Detail revised – issue resolved.**

Higher Potential Pollutant Loads (Standard Number 5): *Stormwater discharges from Land Uses with Higher Potential Pollutant Loads (LUHPPL) require the use of specific stormwater management BMPs. The proposed project is not classified as a LUHPPL – not applicable.*

Critical Areas (Standard Number 6): *Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. The proposed project is not within or discharges to a known critical area – not applicable.*

Redevelopment (Standard Number 7): *Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. The project involves the development of a previously undisturbed wooded area – not applicable.*

Construction Period Erosion and Sediment Controls (Standard Number 8): *Erosion and sediment controls must be implemented to prevent impacts during construction or land disturbance activities. Plans indicate that earthwork operations will occur throughout much of the site. The project site is over 1 acre in area and land disturbance activities requiring a Notice of Intent with EPA and a Stormwater Pollution Prevention Plan*

(SWPPP). The project documents include a Soil Erosion Control Plan, Notes and Details which have been commented on in this review.

- SW22. Provide silt fence in addition to filter mitt to provide addition protection based on the expected earthwork operations. Set erosion and sedimentation control measures a minimum of 2 feet from the toe of slope and consider staggering controls on steep slopes. *GLM: Revised (see Sheets C-10, C-11).* **BETA: Information provided – issue resolved.**
- SW23. Modify filter mitt detail to either add wood stakes to hold in place or show mitt trenched into ground a minimum 4". *GLM: Revised (see Sheet C-11).* *Silt fence stakes will anchor the filter mitt.* **BETA: Detail modified – issue resolved.**
- SW24. Due to the quantity of earthwork and time between earthwork and paving, provide interim sediment and erosion control plan that displays the erosion and sediment controls and systems for construction stages between earthwork and paving stages. *GLM: Revised (see Sheets C-10, C-11).* *Erosion controls shall remain through earthwork and paving stages.* **BETA: Erosion control plans revised – issue resolved.**
- SW25. Identify Path and mechanism to divert uncontaminated water around disturbed areas to the maximum extent practicable (Millis Stormwater Regulation 7.2, C.10). *GLM: Revised (see Sheets C-10, C-11).* **BETA: Note that infiltration basin shall not be utilized as temporary sedimentation basin during construction – issue remains outstanding.** *GLM2: Revised See Sheet C-10 & C-11.* **BETA2: Location of temporary sediment basin revised – issue resolved.**
- SW26. Provide a description of construction and waste materials expected to be stored on-site. Plan should include a description of controls to reduce pollutants from these materials, including storage practices to minimize exposure of materials to stormwater, and spill prevention and response (7.2, C.14). *GLM: Revised (see O & M, draft SWPPP).* **BETA: Information provided in O&M and draft SWPPP – issue resolved.**
- SW27. Provide information and locations on plans of temporary soil stabilization of slopes throughout the site during construction. *GLM: Revised (see Sheet C-11, draft SWPPP).* **BETA: Information provided – issue resolved.**
- SW28. Recommend that a condition be included requiring a copy of the SWPPP be submitted to the Town for review and comment prior to construction. *GLM: Revised (see Sheet C-11).* **BETA: BETA continues to recommend this as a condition, see SW4.** *GLM2: Final SWPP to be provided prior to commencement of work.* **BETA2: Issue resolved – item should be a condition of approval.**
- SW29. Provide inlet protection for catch basins on Dover Road and Bridge Street on erosion control plans. *GLM: Revised (see Sheet C-10).* **BETA: Inlet protection provided at catch basin locations – issue resolved.**

Operations/maintenance plan (Standard Number 9): *A long-Term Operation and Maintenance Plan shall be developed and implemented to ensure that stormwater management systems function as designed.* An Operation and Maintenance Plan was included in the Stormwater Drainage Report.

- SW30. Provide a drawdown device to outlet structure to draw down the water level in the basin for maintenance purposes or in the event of standing water due to the onsite soils. *GLM: Revised (see Sheet C-14, O & M).* **BETA: Drawdown device to outlet structure provided – issue resolved.**
- SW31. Provide a standalone Long Term Operations and Maintenance Plan (separate from construction period erosion and sediment control plan) updated to include the following:

- a. A map that is drawn to scale (preferably 11"x17") showing the location of the systems and facilities including all structural and nonstructural BMPs
- b. Locations of all snow storage areas
- c. Provide the names, addresses, and telephone numbers of all Owners and Responsible Parties. Identify the person(s) responsible for financing maintenance and emergency repairs.
- d. Provide a description and delineation of public safety measures
- e. Operation and Maintenance log forms for site specific drainage structures and BMPs.
- f. Include inspection and maintenance procedures for site specific BMPs, catchbasins, sediment forebay, infiltration basin, and outfalls.

GLM: Revised (see O & M Post Construction section). **BETA: Operation and maintenance plan provided and information included – issue resolved.**

SW32. Provision for the Planning Board or its designee to enter the property at reasonable times and in a reasonable manner for the purpose of inspection (Section 10.E). *GLM: Revised (see Sheet C-7).* **BETA: Sheet revised to include this provision – issue resolved.**

SW33. Recommend as a condition provide signature(s) of owner(s) prior to construction. *GLM: Condition of approval is acceptable.* **BETA: No action necessary.**

Illicit Discharges (Standard Number 10): *All illicit discharges to the stormwater management systems are prohibited.* An Illicit Discharge Compliance Statement with included with the Long-term Pollution Prevention Plan.

SW34. Recommend as a condition provide signature(s) of owner(s) prior to construction. *GLM: Condition of approval is acceptable.* **BETA: No action necessary.**

UTILITY SERVICES

The utility design includes public water, sewer, and drainage. Electric, telephone, and gas are not shown on the proposed plans. Water and sewer connects on Bridge Street at proposed water and sewer extensions.

An eight-inch CLDI water main is proposed from Bridge Street, at the intersection with Dover Road and runs through the proposed project site, along the proposed road way within the site and connects to the proposed water main further south on Bridge Street. A domestic water service and separate sprinkler service is proposed off the new water main for the main building. Most proposed double cottages have a single water service off the main line that splits into two separate services for each unit. One cottage is proposed with separate service connections off the new water main for each unit. Two fire hydrants are proposed to be installed in landscape areas at the front and rear of the site.

An eight-inch SDR 35 sewer main is proposed in the road way within the site with a connection at a proposed sewer manhole on Bridge Street. A two-inch PVC force main is proposed between SMH4 and SMH5 along the northwest side of the site which discharges to SMH5 and the eight-inch gravity sewer.

- U1. A commercial kitchen requires a grease trap. Provide information regarding proposed grease trap (internal vs external). *GLM: Revised (see Sheet C-6). Grease trap sizing to be done prior to building permit application and approved by the Board of Health.* **BETA: Plans revised to include external grease trap. Recommend condition to require Board of Health approval.** *GLM2: Grease trap sizing to be done prior to building permit application and approved by the Board of Health.* **BETA2: Issue resolved – item to be reviewed and approved by Board of Health.**

- U2. Provide more information on the proposed sewer pumping mechanism/chamber and identify location related to the sewer force main. *GLM: Revised (see sheet C-14). Pump detail provided.* **BETA: Pump detail provided. Location not shown on site plan – issue remains outstanding.** *GLM2: Revised See Sheet C-6, Pump location provided.* **BETA2: Location provided – issue resolved.**
- U3. Town Sewer Construction Guidelines (Section 4.A.e) requires a six-inch sewer cleanout installed a minimum ten feet from outside of the building foundation wall unless there is a cleanout immediately inside the building and cleanouts every one hundred feet for sewer service lines that are one hundred feet or longer between manholes. *GLM: revised (see Sheet C-6). Cleanouts shown.* **BETA: Plans revised – issue resolved.**
- U4. Town Sewer Construction Guidelines (Section 4.A.e) requires a six-inch cleanout at each change of direction, 45 degrees or more, in sewer service lines. A sewer manhole shall be required in place of a clean out when two or more services join together. The pipe size from this manhole to the main will be increased to a minimum of eight-inches. *GLM: Revised (see Sheet C-6).* **BETA: Sewer Construction Guidelines require a sewer manhole in place of a clean out when two or more service join together – issue remains outstanding.** *GLM2: Revised, Cleanouts shown.* **BETA2: Information provided. Updated sewer manholes should be labeled with rim and invert for consistency with other structures on the plan.**
- U5. Add note to sewer service detail that all sewer service pipes shall be SDR 35. *GLM: Revised (see Sheet C-13).* **BETA: Notation has been added to plans – issue resolved.**
- U6. Identify size and material of proposed sprinkler and domestic water service. *GLM: The sprinkler system has not been designed at this time.* **BETA: Recommend a condition that sprinkler and domestic water service to main building design be submitted to Town for approval.** *GLM2: The sprinkler system has not been designed at this time.* **BETA2: Information provided – item should be a condition of approval.**
- U7. Provide data that the existing Town waterline is sufficient to service the proposed project for water demand and any fire demand. Verify that domestic and fire service is compliant with Millis Water Department and that the location and number of fire hydrants is acceptable to the Fire Department. *GLM: The proposed waterline connection from Route 109 to Dover Road was recommended by the Town.* **BETA: Information provided – issue resolved.**
- U8. Provide confirmation from the Town DPW that proposed sewer in Bridge Street is acceptable as designed to verify that connection can be made. *GLM: The DPW has indicated the sewer extension is acceptable.* **BETA: Information provided – issue resolved.**
- U9. Town Water Construction Guidelines (Section 4.A.a) requires all line and branch valves, fittings, and hydrants to be mechanically restrained in addition to the placement of concrete thrust blocks. Provide notation. *GLM: Revised (see Sheet C-13).* **BETA: Notation has been added to plans – issue resolved.**
- U10. Provide note to gate valve detail – open right. *GLM: Revised (see Sheet C-13).* **BETA: Notation has been added to plans – issue resolved.**
- U11. Add note that all ductile iron fittings and mechanical joints meet ANSI and AWWA standards. *GLM: Revised (see Sheet C-13).* **BETA: Notation has been added to plans – issue resolved.**
- U12. Add note to detail for water service size. *GLM: Water service sizing has not been determined at this time. Information to be provided prior to construction.* **BETA: Recommend a condition that water**

service design be submitted to Town for approval. GLM2: Water service design to submitted to Town for approval. BETA2: Information provided – item should be a condition of approval.

- U13. Update hydrant detail to reflect specifications outlined in Millis Town Water Construction Guidelines – detail on plan references Holliston specifications. *GLM: Revised (see Sheet C-13).* **BETA: Detail revised – issue resolved.**
- U14. Provide separate typical trench section details for water main, drainage pipe, and sewer pipe (both gravity and force main). It should be noted that sewer pipe with less than four feet of vertical cover within driveways shall be Class 52-ductile iron pipe. *GLM: Revised (see Sheet C-13).* **BETA: Details provided – issue resolved.**
- U15. There are multiple locations where water and sewer utilities cross. Provide water main crossing and concrete encasement detail for where 10' horizontal of 18" vertical separation cannot be achieved. Provide notation on plan that minimum 10-foot horizontal separation is required between water and sewer services. *GLM: Revised (see Sheet C-14).* **BETA: Detail and notation provided – issue resolved.**
- U16. Show any proposed overhead/underground electric, telephone, and gas utilities and connections to existing utilities. *GLM: Proposed utilities have not been finalized by the local utility companies.* **BETA: Recommend condition that overhead/underground electric, telephone, and gas utilities designs are submitted. GLM2: Electric, Telephone and gas utilities shall be submitted to the Board after designs are complete. BETA2: Information provided – item should be a condition of approval.**

LANDSCAPING

Planting design is well done. Plant species are all natives and will provide seasonal interest and color. Planting details and notes are acceptable.

- L1. Consider providing additional screening between the small building (closest to Dover Road) and Dover Road. **BETA: No response provided. Revised plans show a planted berm along the property frontage, which adds screening near the cottage closest to Dover Road. GLM2: Landscape berm along the property frontage was provided to add screening. BETA2: Information provided – issue resolved.**
- L2. Screening consisting of a solid fence or wall or shrubbery planted not more than 3 feet apart is required alongside and rear lot lines in any residential district (Section VIII.C.1.a.). Is fencing necessary between the project site and abutting residences? If no fencing is provided, consider providing additional screening along northeastern property line if existing treeline to remain will not meet screening requirements. **BETA: No response provided. GLM2: It is our understanding that Section VIII.C.1 pertains to commercial and industrial zones. BETA2: (Reference corrected to Section VIII) Section VIII.C references commercial and industrial districts; however, VIII.C.1 specifically references R districts. This in fact applies to commercial and industrial districts that abut residential districts and as such is not applicable. Issue resolved.**
- L3. Provide detail of walking trail. **BETA: No response provided. GLM2: Revised See Sheet C-13, see trail detail section. BETA2: Information provided –issue resolved.**
- L4. Provide native seeding along cross country connection to the proposed detention basin. **BETA: No response provided. GLM2: Provided a notation that the disturbed area shall be planted with conservation wildlife mic. See sheet C-7, Note 2. BETA2: Information provided – issue resolved.**

- L5. Provide planting and/or seeding around the proposed detention basin. Area may need some evergreen planting to screen abutting properties. **BETA: No response provided.** *GLM2: The area around the detention basin is currently wooded with no direct residential abutters.* **BETA2: Information provided – issue resolved.**

TRAFFIC, PARKING & CIRCULATION

The study area includes Dover Road and Bridge Street immediately adjacent to the project site, and the intersection of Dover Road at Bridge Street, Main Street (Route 109) at Dover Road, and Main Street at Bridge Street and Dwight Street. The study methodology follows MassDOT Transportation Impact Assessment (TIA) guidelines and is consistent with industry standard practices.

Traffic volumes and crash data were collected, compiled and analyzed for existing conditions. The TIAS finds average daily traffic (ADT) volume of 6,800 on Dover Road in the vicinity of Bridge Street, with heavy directional splits identifying the commuter patterns heading north towards the Boston area in the morning, and returning home in the evening. Crash data collected for a three-year period shows six crashes at Main Street and Dover Road, one crash at Main Street and Bridge Street/Dwight Street; and no crashes at Dover Road and Bridge Street.

- T1. Request crash data and reports for the most recent three years from the Millis Police Department for the study intersections to determine the efficacy of MassDOT data. *Green: The MassDOT crash data originates from the Registry of Motor Vehicles (RMV) and therefore should include all of the crash data that the Millis Police Department has. Green does acknowledge that the crash data that the Police Department has more detailed information than what is provided to the RMV, but the number of crashes on record from each agency is expected to be the same. Because of the low crash rates of the study intersections (less than one-half of the District-wide average rates), Green does not see a need to be concerned about safety deficiencies at the study locations. Based upon a telephone conversation with the Town of Millis Police Chief, the data obtained from MassDOT is sufficiently accurate and comprehensive.* **BETA: Information provided – issue resolved.**

The TIS identifies future growth and identifies specific known developments that can contribute to growth in traffic volumes within the study area. A 1% per year growth rate was applied, and specific development projects have been assumed to be included in the background growth rate. Once growth is applied the resultant volumes are analyzed as the “No-Build” condition.

- T2. Continuous counting stations in Westborough, Sutton and Stoughton are presented in the Appendix to support the growth rate, but may not accurately represent growth in Millis. Consult the Boston Region MPO to confirm that the 1% per year growth rate is appropriate for the study area. *Green: MassDOT continuous count stations, which are permanent counters located within the roadway, are usually only located on major arterial roads. The continuous count stations used are the closest to Millis that represent regional (as opposed to long-distance) traffic flows. Because the count stations used are located north, south, and east of the study area and all show 0-2% average annual growth, the growth rate is consistent throughout eastern Massachusetts including Millis. For other projects in Millis, Medway, Norfolk, and Walpole, Green has also used a one percent background growth rate. Additionally, the Functional Design Report for the MassDOT project of the reconstruction of Route 109 in Medway (number 605657), completed by Greenman-Pedersen, Inc. several years ago, used a 0.5% background annual growth rate. Therefore, the 1% annual background growth rate is appropriate.* **BETA: Information provided – issue resolved.**

- T3. The Tractor Supply Company retail site has since been approved by the Mills Planning Board. We concur that the limited traffic expected to be generated can be assumed to be included in the background growth rate. *Green: No response is necessary.* **BETA: Issue resolved.**

Project-generated traffic volumes were determined by utilizing trip-generation statistics published by the Institute of Transportation Engineers (ITE) for similar land uses. The land uses and methodology chosen are accurate and consistent with industry standards. The project will generate 286 new trips on an average weekday, with 15 trips in the weekday morning peak hour and 24 trips in the weekday afternoon peak hour.

New trips were distributed across the roadway network to determine the “Build” condition. Trip distribution percentages were based upon existing traffic patterns, and project that 55% of project-related traffic will arrive and depart from the north on Dover Road. 25% will originate from Main Street (Route 109) to the west of Dover Road, and 20% will originate from Main Street east of Bridge Street.

- T4. Distribution from the west appears low, when considering the proximity of I-495 and its connectivity to surrounding communities. Employee distribution and travel patterns should not be expected to follow existing traffic patterns, which reflect commuters heading from their homes towards the Boston area. It should be noted that revisions in distribution will not substantially change analysis results. *Green: As noted above, changes in trip distribution would result in only minor changes in predicted traffic volumes and so “will not substantially change analysis results” due to the project’s relatively small size.* **BETA: Issue resolved.**

Capacity analysis results show that the proposed development project will not significantly alter traffic operations within the study area. Movements which operate at unfavorable levels of service today will continue to do so in the future, with negligible increase in delay or queue length as a result of site-generated traffic.

Measured available sight distance along Bridge Street at each site drive and along Dover Road at Bridge Street are sufficient based on the measured 85th percentile speed on Dover Road and on the prima facie 30 mph limit on Bridge Street. It is not possible to provide desirable intersection sight distance (ISD) calculated for 30 mph for drivers exiting the site driveways because of the horizontal bend in Bridge Street; however, the TIAS correctly notes that drivers will likely be traveling far below this speed when passing the site driveways. ISD will be improved at both site drives with selective clearing of vegetation.

Site Plan Review

The traffic review also included a detailed review of traffic, parking and circulation as shown on the site Layout Plan C-5.

- T5. Provide a plan showing truck turning maneuvers at the site driveway and the circulating route within the site specifically for delivery and emergency vehicles. *Green: Turning movements have been tested for a 40’ fire ladder truck and for an SU-30 (30’ single-unit truck). These vehicles were found to be able to negotiate around the site. Figures that show these vehicle turning movements are attached to this letter.* **BETA: Information provided. Confirm that the SU-30 is the largest delivery vehicle anticipated for the site.**
- T6. Provide documentation from Police and Fire Departments that the site layout provides adequate access for emergency service vehicles. *Green: The project applicant has spoken with the police and fire departments, which have requested turning movements of emergency vehicles within the site to ensure that emergency vehicles can pass in front of the building. Models of turning movements for a 40’ fire ladder truck show that the site layout does provide adequate access for emergency service*

vehicles. **BETA: Plans appear to show adequate access for a 40' ladder truck. Defer to the fire department for concurrence.**

- T7. Provide warning and regulatory signage where required, including STOP and DO NOT ENTER signage, as appropriate. *Green: STOP signs and STOP bar pavement markings will be installed at the site drive exits.* **BETA: Signs and markings should be shown on the plans.**
- T8. The bend in Bridge Street adjacent to the primary site driveway creates a straight alignment between the short segment of Bridge Street and the site driveway. This may cause drivers entering the site from Dover Road to incorrectly assume that they have the right-of-way when turning from Dover Road onto Bridge Street into the site, when they must in fact yield right-of-way to northbound drivers on Bridge Street. Consider methods to clarify intended right-of-way through signage, markings and/or geometric modifications. *Green: To encourage entering vehicles to yield to Bridge street northbound traffic, a double-yellow center line is recommended to be added to Bridge Street in vicinity of the primary site drive and the intersection with Dover Road.* **BETA: Recommend showing double-yellow centerline on the plans. Further discussion between BETA and GLM included a suggestion to provide a stop sign and stop line on Bridge Street northbound approaching the Dover Road Residences entrance. BETA responded verbally to GLM, suggesting that a solution to this issue should not require Bridge Street traffic to stop or yield right of way to site traffic. Relocation of the driveway may be required – defer to Board discussion. GLM2: The proposed entrance has been revised See Sheet C-5. BETA2: Information provided – defer to Board discussion.**
- T9. Provide 9-foot width accessible spaces. The 8-foot minimum requirement required by 521 CMR should not supersede the 9-foot minimum width required by by-law and provided elsewhere on-site. *Green: State requirements would dictate the dimensions of handicapped spaces provided onsite.* **BETA: State requirements are a minimum, and do not preclude conformance with Town by-law.**

If we can be of any further assistance regarding this matter, please contact us at our office.

Very truly yours,
BETA Group, Inc.



Greg E. Lucas, PE, PTOE
Project Manager



Melissa Recos, PE
Senior Project Engineer



Kendra White
Senior Engineer

cc: Camille Standley
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