



Oak Consulting Group

March 21, 2016

Project 12013

Nipun Jain, Town Planner  
63 Friend Street  
Town Hall  
Amesbury, MA 01913

RE: Site Plan Review  
Village at Bailey's Pond  
Amesbury, Massachusetts

Dear Nipun,

We are in receipt of a memorandum to the Amesbury Planning Board from Stantec Consulting Services Inc, dated January 20, 2016. The memorandum outlined Stantec's peer review of the above-referenced project and noted several questions, comments or other topics that should be addressed as part of the site plan review process for the project.

Below are the comments received and the applicant's response (bulleted and in **Bold**). Additionally, please find the following enclosed plans and additional information showing the changes described below:

- Enclosure A – Revised Plans C-101 and C-102;
- Enclosure B - Subdivision Plan by Cammett Engineering dated 10/11/2005;
- Enclosure C – Turning Movement Diagram;
- Enclosure D – TR-55 Rainfall Charts and Rip Rap Calculations;
- Enclosure E – Environmental Performance Standards Narrative.

**Stantec Comments:**

**Section XI.C.5 Material For Review:**

- a. Parcel information: Existing conditions plans are provided that indicate most of the site boundary, but the northerly most portion of the site is missing from sheet C-102 and recommend the information be provided. We note the following and recommend the plans be revised accordingly by the Applicant:
  - i. Plans lack the appropriate certification by registered land surveyor attesting to the boundary information and easements shown;
    - **Enclosed is the subdivision plan prepared by Cammet Engineering, dated 10/11/2005, previously submitted to and constructively approved by the Planning Board. These plans are prepared and stamped by the registered land surveyor and recorded at the Essex County Registry of Deeds.**
  - ii. Location and owner names of all adjacent properties is missing;
    - **The owner names of abutting properties have been added to Sheets C-101 and C-102.**

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- iii. Location of the two subject parcels and total area of each.
    - **The location of the two parcels and area of each per the City Assessor's information has been added to Sheets C-101 and C-102.**
  - iv. The Applicant should review and confirm with the DEP and Conservation Commission that the southeasterly limits of the 200 foot river front area is a straight line as shown and update if necessary.
    - **The limits of the Boarding Vegetated Wetlands, Top of Bank and Riverfront area have been reviewed and affirmed by the Amesbury Conservation Commission through an Order of Conditions issued in 2013.**
- b. Topographic and existing land features: The existing condition plans indicate most of the topographic contours, except for the missing northerly portion noted above that should be included. We note the following and recommend the Applicant revise the plans accordingly:
- i. The location of all existing trees over 8" in caliper is unclear since the legend does not include all the symbols presented on the plan. Recommend the size and type of each existing tree over 8" be labeled. In addition, we recommend the legend be updated to be complete;
    - **The legend on Sheets C-101 and C-102 has been updated to include the existing tree symbols. The tree locations shown are those identified in the original site survey, previously reviewed and approved by the Planning Board, being all trees 12" DBH or greater as of the date of that survey. The Planning Board previously determined that additional tree survey work was unwarranted given the size and nature of the property and proposed project and given additional review by the Conservation Commission.**
  - ii. The location of the existing drain piping related to the catch basins and the separate 18" pipe at Summit Avenue are missing;
    - **This piping has been added to sheet C-102.**
  - iii. The general location of the tree line is missing;
    - **The approximate tree line has been added to sheets C-101 and C-102.**
- c. Buildings: Conceptual plans are provided that are not part of the project plan set. The building conceptual information does not include dimensions of the overall buildings, total gross floor area, floor finished elevations, building heights or prepared to the proper scale and endorsed by a registered architect in accordance with the bylaws. The Applicant should revise the project plan set accordingly.
  - **More detailed architectural plans have been submitted and updated plans are being prepared in response to comments provided at two meetings with the Design Review Committee.**

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- d. Parking and driveways: Driveways are indicated on plans provided. Parking is not addressed on the plans. See XI.C.8.b below for additional comments.
  - **Responses to above items d. through m. are provided with more detailed comments below.**
- e. Sidewalks, bike paths and recreational trails: Indicated on plans provided. See XI.C.8 n and p below for additional comments.
- f. Utilities: Indicated on plans provided. See XI.C.8 m below for additional comments.
- g. Grading and Stormwater Drainage: Indicated on plans provided. See XI.C.8 e and p below for additional comments.
- h. Landscaping: Indicated on plans provided. See XI.C.8 c below for additional comments.
- i. Lighting: Some information provided. See XI.C.8 i below for additional comments.
- j. Signs: None shown. The Applicant should indicate any proposed signs and provide appropriate information or notes on the site plan that none are proposed.
- k. Open Space: Not labeled on plan. See XI.C.6.f below for additional comments.
- l. Traffic Generation: Information from 2010 provided. See XI.C.6.d and 8.a below for additional comments.
- m. Building Facades and Floor Plans: Conceptual plans provided separately. See XI.C.6.e and 8.d below for additional comments.
  - **Responses to above items d. through m. are provided with more detailed comments below.**

**Section XI.C.6 Additional Review Material:**

- a. Surface and water pollution: Stormwater runoff information provided. No report on the impacts to subsurface groundwater or water tables was provided. The Applicant should provide additional information relative to these items acceptable to the Planning Board.
  - **The project stormwater management system has been designed to control runoff by maximizing the use of infiltration of stormwater so that post development rates and volumes of runoff will be less than the runoff from the site in its current state thereby mitigating the potential for flooding resulting from the project. The proposed infiltration of treated stormwater will also help to recharge the local aquifer.**

**The plans include specific measures to control runoff and erosion both during and after construction. The use of temporary measures such as slope stabilization, sedimentation barriers and seeding will help prevent any sedimentation to the pond during construction. Post construction methods**

**include deep sump catchbasins, infiltration basins, and grassed filter strips. Because the project will disturb greater than one acre of area, a Stormwater Pollution Prevention Plan (SWPPP) will be required to be developed prior to construction per USEPA standards for coverage under the Stormwater Construction General Permit.**

**The submitted stormwater management study also included a Pollution Prevention and Stormwater Operation and Maintenance Plan (Appendix D) detailing methods and procedures for operation of the site to minimize the potential of pollution.**

**The project has been designed with all of these considerations and to have no negative impacts to surface water, groundwater or water tables.**

- b. Soils: Test pit information conducted in 2004 was included in the submission. Stantec recommends that appropriate testing be conducting in the proposed infiltration areas under this design.
- **23 test pits were conducted throughout the site at varying elevations. As shown on the test pits, the results of the test pits were consistent. There is a test pit within 100' of each infiltration area and it is highly unlikely that the results of additional test pits will vary from the information already obtained. The board did not require additional test pits during the 2010-2013 review process. Additional test pits should not be necessary.**

Separately, the project proposes significant alteration of the site with cutting and filling to achieve the proposed elevations, but the amount of soil to be excavated or filled does not appear to be included in the application information relative to Sections XI.A & XI.B of the bylaws. A special permit appears necessary. The Applicant should provide additional information relative to these items acceptable to the Planning Board.

- **The applicant has had ongoing discussions with the Design Review Committee and town staff regarding the overall layout of the site which may affect grading and earthwork. The applicant will submit an earth filing special permit application under Section XI.B.1 (2005 bylaw) once the project layout and design is finalized.**
- b. General environmental impact: No Information provided. The site proposes to create more than 6 acres of impervious area and a MEPA review appears necessary for this current design. We recommend the Applicant provide a report to address the project impacts acceptable to the Board. In addition, the Applicant should submit for a MEPA review for this current project design.
- **The environmental resources at and near the property, and the project's impact to and protection of those resources, are identified and discussed in the plans, stormwater report, project overview and other materials submitted with the application, and will be further described in the updated versions of those materials. The previously proposed development (136 units) was also reviewed by the Conservation Commission and the state MEPA office. The Conservation**

**Commission approved the project in 2013, except those portions within the Riverfront Area. The MEPA office issued a Certificate confirming that no further MEPA review was necessary – determining that the key environmental topics of concern (stormwater, wetlands impacts and traffic) could be appropriately reviewed during the permit proceedings before the Planning Board, Conservation Commission (or DEP) and MassDOT. The revised project currently presented has fewer units/buildings, significantly less impervious area, more open space and is, generally, an alternative to the previously-reviewed project that involves a decrease in environmental impacts. Accordingly, the project revisions are not the sort that would require the filing of a Notice of Project Change with MEPA. The applicant also does not believe preparation of a stand-alone general environmental impact report is warranted given that the resources, impacts and related protective measures are being comprehensively addressed in the plans, stormwater report, traffic reports and other materials presented to the Board (and the Conservation Commission).**

- c. Traffic impacts: The report submitted is based upon information obtained in 2010, for a previous project, but not include any recent developments. We note that the reports' project description is inconsistent with the design submitted with this application; but that the previous report was for 136 residential units versus the current proposal with 100 units and thus the impacts noted in the report would less than noted in the report. The driveway on Summit Avenue is relocated under this latest submission, but this is not reflected in 2010 report. The sight distance for the Summit Avenue driveway is now different that described in the 2010 report. In general, the issues identified in the previous traffic reviews have been addressed. We recommend that the Applicant discuss if additional traffic information is necessary with the Board.
- **See the traffic-related materials submitted to the Board on January 28, 2016, including a 2016 Supplemental Traffic Memorandum prepared by the project traffic engineer, TEPP, LLC.**
- e. Architectural Drawings: Some Information provided. The architectural drawings for the project do not appear to be prepared by a registered architect in accordance with the bylaws.
- **More detailed architectural plans have been submitted and updated plans are being prepared in response to comments provided at two meetings with the Design Review Committee.**
- f. Legal Documents: Some Information provided relative to the previous project. Draft versions for the legal documents (covenants, or agreements) associated with the public access, open spaces and trail system should be provided by the Applicant to the City. We recommend the Applicant clarify the open space for the project. In addition, we note the proposed drainage design indicates the existing drainage flowing from Route 150 and Summit Avenue would be relocated and create a new discharge within in the 200 foot river front area. It is unknown if Mass DOT has agreed to this change to their drainage system, if access is needed to the new pipe and outlet location for maintenance, or if this new outlet location and discharged within the 200 foot riverfront area is acceptable to the Conservation Commission. Additional legal documents may be necessary associated with the submitted design. The Applicant should discuss the necessary legal documents for the project with the Board.

- **Draft condominium documents and other necessary legal documents will be submitted separately and will be dependent, in part, on the status and proposed use of the MassDOT drainage pipe, which is being further considered. With respect to open space, open space is defined in the Bylaw as “The space on a lot unoccupied by buildings, unobstructed to the sky, not devoted to streets, driveways or off-street parking or loading spaces” and is expressed as a percentage of total lot area. In the submitted “Project Overview and History” under subheading Open Space and Protection of Natural Resources (page 2), the calculations are shown. The project, as presented in the October 2015 application, proposes 73% open space where 50% is required. An updated figure will be presented with the revised site plan submittal.**
- g. Additional Information: Copies of the previous Mass DOT, MEPA submittal and Planning Board approval information was provided. The revised project appears to require several permits including an order of conditions for the wetland and buffer impacts, revised Mass DOT for the wider driveway and the drainage relocation related to the existing drainage pipes, and MEPA certification for the current design. It is unclear if the previous project had address the MEPA comments. The Applicant should provide a listing of all state and federal permits, licenses and approval necessary for this project and provide the estimated schedule for application and approvals in accordance with the bylaws. We recommend the necessary project permits be listed on the cover sheet.

- **Following is a list of permits required and the status of each:**

**MassDOT Permit:** Secured in 2014 (approving the driveway as presented in this application).

**MEPA Review:** Certificate issued in 2010. No further MEPA review triggered by currently-presented project revisions.

**Conservation Commission/DEP Order of Conditions:** Notice of Intent for revised project is pending before the Commission. Expect to secure Order of Conditions in April/May 2016.

**Site Plan Approval – Planning Board:** This application.

**Earth Fill Special Permit – Planning Board:** Application to be filed shortly, once site layout is finalized.

**A MassDEP sewer connection permit is not required per recent regulatory revisions and the applicant is revising its stormwater plan to avoid any modification to the DOT drainage pipe.**

#### **Section XI.C.8 Development and Performance Standards:**

- a. Access and traffic impacts: We note the following relative to the submitted design:
  1. The project proposes three curb cuts with one from each abutting roadways; Route 150, Summit Avenue and Beacon Street. The access drive from Beacon Street is designated as an emergency access and is to be gated. The design configuration for this portion of the

site containing 76 housing units would have one public access route from Route 150. The Board will need to consider if the design as proposed is acceptable.

- **The access drive to Beacon Street has been revised to be a full service driveway accommodating 2-way traffic, as depicted in the revised Overall Site Plan submitted to the Board on January 28, 2016. This modification is warranted by the reduction in the number of units from 136 to 100 and removal of the internal loop road presented in the 2013 plan. As discussed in the 2010 and 2016 traffic reports submitted to the Board, adequate site distances are provided at all proposed site-driveway intersections and the proposed project will have no significant impact on overall traffic safety or operations.**
2. The proposed entrance from Route 150 includes an island that separates the traffic entering and exiting the site. The width of the entire curb cut including the island, travel lanes is approximately 30 feet and exceeds the 24 feet maximum at the ROW with Route 150 per XI.C.8.a.3 of the Bylaws. We note that each lane in and out is dimensioned as 12 feet on the site plan sheet C-201. The design as shown would require a revision the current Mass DOT permit with the increased width indicated. The raised island may require changes to be acceptable to Mass DOT. The Applicant is requesting a waiver to width requirement at this this driveway. The Board should review the design and consider the waiver request.

Separately, the proposed emergency access drive from Beacon Street and the proposed driveway on Summit Avenue does not exceed 24 feet.

- **This access drive to Route 150 is in the same location and consistent with the plan previously approved by the Board and MassDOT. A waiver for this entrance design has been requested – as noted in Section VII of the submission cover letter by Attorney Roelofs dated October 19, 2015. See also TEPP LLC’s response to this comment in its January 28, 2016 supplemental traffic memorandum.**
3. The roadway sight distance plans were not included in the project plan submission. We are concerned that the proposed roadway intersection on Summit Avenue may require more improvements that indicated on the submitted design to achieve proper sight distance. We recommend the Applicant provide an intersection sight distance plan with certification from a licensed professional engineer that proper and safe all season sight distance is achieved upon completion of the site improvements for both roadways. The plans should specify all work needed to achieve the sight distance for proper construction.
    - **As discussed by TEPP LLC in its January 28, 2016 supplemental traffic memorandum, adequate site distances have been confirmed at each of the site drives. If the Board deems it necessary, intersection-sight-distance plans could be provided if deemed necessary.**
  4. The proposed roadway design does provide curbing for the entire site in accordance with the Section 7.09.G of the Amesbury Subdivision Regulations. In addition, the site design proposed to decrease the separation between the proposed sidewalks and

roadway from 6 feet to 3 feet that is contrary to the intent of Section 7.09.H the Amesbury Subdivision Regulations and Section XI.C.8.a.5 of the bylaws. In addition, the design indicates a shoulder for pedestrians is to be constructed along a portion of the entrance driveway with no separation or curbing from vehicles. Curbing and appropriate separation from vehicular traffic are generally key components to promoting a safer circulation of pedestrians as recommended in section XI.C.7.a.2 of the bylaws. We recommend the design be revised to provide curbing along all portions of the roadway and the minimum separation for sidewalks consistent with the Subdivision Regulations and Bylaws or as acceptable to the Board. The Applicant is requesting a waiver to reduce the sidewalk separation to 3 feet and to eliminate most of the curbing along the roadways.

- **The applicant is in the process of preparing revised site layout details. These comments will be addressed once the revised plans are finalized. An updated list of any waivers associated with the revised plans will also be provided.**
5. The proposed design indicates a sidewalk will be constructed along Summit Avenue from the northerly development area ending at to Route 150. In addition, a sidewalk is proposed along the main site driveway of the easterly development area ending at Route 150. Both of these two sidewalks end at Route 150 and are not connected along Route 150 to provide complete circulation between the two development areas. We recommend a sidewalk along Route 150 be provided to connect the two development areas consistent with the intent of Section XI.C.8.a.7 of the Bylaws. In addition, we recommend a sidewalk along the entrance drive to the mailboxes and potential school bus stop at Route 150 be provided. Also, we recommend that cross walk be provided at the Route 150 driveway. We recommend the Applicant discuss the proposed project sidewalks with the Board and revise the plans acceptable to the Board.
    - **The Board and staff have expressed concern about safety, constructability and maintenance of the sidewalk previously depicted along Summit Avenue, and also of the alternative sidewalk location depicted in the revised Overall Site Plan dated January 28, 2016 through the Riverfront Area. Therefore, the applicant is now proposing to eliminate a connecting sidewalk, but to preserve the connecting walking trails.**
  6. The proposed roadway design for the easterly portion of the site, shown on sheet C-201, does not provide a cul-de-sac prior to emergency access drive that is necessary to provide a safe turn around and means to accommodate the anticipated delivery vehicles such as propane, oil, Fed Ex, UPS, etc. in accordance with Section IX.C.8.a.11 of the bylaws and Section 7.09.D.4 of the Subdivision Regulations. We recommend the Applicant revise the roadway design accordingly.
    - **The cul-de-sacs have been revised to accommodate a SU-30 vehicle as recommended. Turning templates with this truck movement were submitted to the Board on January 28, 2016.**
  7. The proposed project roadway design included two separate cul-de-sacs with interior pavement radii of 16 feet, a pavement width of 24 feet in the cul-de-sac and outside pavement radius of 40 feet that do not comply with Section 7.09.D.4 of the Subdivision Regulations. The design would not accommodated a SU 30 vehicle (with a turning radius of 42 feet) such as propane, oil, Fed Ex, UPS, etc. in accordance with Section

IX.C.8.a.11 of the bylaws. In addition, the design may not be adequate for Emergency and Fire vehicles. We recommend the Applicant revise the roadway cul-de-sac design consistent with the Subdivision Regulations. The Applicant is requesting a waiver to the cul-de-sac requirements.

- **The cul-de-sacs have been revised to accommodate a SU-30 vehicle as recommended. Turning templates with this truck movement were submitted to the Board on January 28, 2016.**

b. Parking: We recommend the Applicant clarify the following:

1. The proposed residential use requires 1.5 spaces per dwelling unit in accordance with Section VIII of the Bylaws. However, the application information implies 3 to 4 spaces are provided for each unit that includes garage and outside spaces. We note that the plans do not include any information relative to the minimum parking requirements or address the actual number of spaces intended for each unit as would be anticipated and requested by the Board. The Applicant should revise the site plan notes accordingly to clarify compliance with the bylaws.

- **All units have been revised to have 2 side-by-side garage spaces – exceeding the 1.5 spaces required by the Bylaw. In addition, most units have driveways that can accommodate 1-2 additional vehicles and the revised plans include 13 visitor parking spaces – although the applicant is not taking credit for those additional spaces in its parking space compliance calculations. A parking calculation has been added to Sheets C-201 and C-202, as follows:**  
**Required = 100 units x 1.5 spaces per unit = 150 spaces required.**  
**Proposed = 100 units x 2 spaces per unit = 200 spaces + 13 visitor spaces**  
**=213 proposed**

**This will be shown on the revised plans once the layout has been finalized.**

2. Please note that several units, such as 32, 33, 44, 52, 77, 98 and 99 do not appear to have a minimum 18 feet from the sidewalk or roadway pavement to the unit to be considered as outside parking space within the driveway area shown. We note that the design does not have spaces that could be utilized or designated for visitors as typically recommend by the City. The Applicant should indicate and label all outside parking spaces on the layout plans for clarity and to confirm the parking area is adequately sized.

- **All units are provided with 2 side-by-side garage spaces and no outside parking within the driveways is being counted. Visitor parking spaces have been added to Sheets C-201 and C-202. This will be shown on the revised plans once the layout has been finalized.**

3. The location of parking spaces in the driveways appears to impact visibility of cars to access (back into) the roadway that is not allowed by section VIII.G.12 of the Bylaws. The proposed driveways shown are stacked together at the buildings and it appears that visibility would be obstructed with cars in each of the driveways. The short driveways do not provide a means to turn around when exiting the garage and face roadway traffic. We recommend the Board review and consider if parking spaces in the driveways should be allowed under this design. We recommend the Applicant

discuss the proposed site parking with the Board and revise the design as necessary acceptable to the Board.

- **These concerns are not warranted for this project. The project roadways will be private, low volume roads with local traffic only. Backing from the proposed driveways onto these roads does not present a legitimate concern.**

d. Landscaping: We recommend the Applicant address the following:

1. The landscape plans submitted are not prepared by a registered landscape architect as required by Section XI.C.5h of the bylaws. The Applicant should revise the plans accordingly.
  - **The plans have been prepared and submitted under the 2005 bylaw and no registered landscape architect is required under the 2005 bylaw.**
2. The roadway design does not appear to provide the minimum tree planting in accordance with section 7.09.I of the subdivision regulations. The Applicant should revise the plans accordingly.
  - **The proposed buildings and configurations, as recently reviewed by the Design Review Committee, do not lend themselves to strict compliance with the tree planting requirements in all locations. The plans have been designed to meet this requirement to the greatest extent practical and the applicant is requesting a waiver for this requirement. Additional landscaping details will also be presented to the Board shortly.**
3. The project plans do not include details indicating the appropriate methods to install/construct the landscaping as described in the subdivision regulations. The Applicant should revise the plan set accordingly.
  - **Landscape planting details have been added to the plans. This will be shown on the revised plans once the layout has been finalized.**
4. The utility plans indicate several transformers are to be placed on the site but landscaping in accordance with section XI.C.8.c.5 does not appear to be provided. The Applicant should review and revise the design accordingly.
  - **The plans have been prepared and submitted under the 2005 bylaw and there is no specific landscaping required around transformers.**
5. The site design includes several retaining walls with several 6 foot tiered wall locations. The design indicates a 4 foot chain link fence is proposed along the upper most walls and provision to limit access to the other walls in the series is indicated on sheet C-202, but is missing from sheet C-201. The design on sheet C-201 indicates only one fence would be placed along the proposed tiered retaining walls. The Applicant should review with the Building Department and confirm if additional fencing along the ends should be provided to minimize access to the other walls. In addition, it appears a fence is needed along the retaining wall connected to unit 4 and at the wall between units 8 and 9. We recommend the design be revised to include additional provisions to limit access to the walls

acceptable to the Board and Building Department. In addition, we recommend that the Applicant note the top and toe elevations of each wall on the grading plan for clarity and proper construction.

- **Additional fencing around the proposed walls and top and bottom of wall elevations has been added to the plans. This will be shown on the revised plans once the layout has been finalized. Other potential revisions to the retaining walls are also being considered based on input from Stantec and City staff.**
6. The project details include a small block wall and a separate chain link fence detail, but a detail to clarify the appropriate location of the fence along the wall with dimensions is not provided for proper construction. We note the several of the six foot high walls are tiered and understand that the Building Department requires retaining walls over four feet be designed by a professional engineer. Please update the plan set accordingly.
    - **The proposed walls will be a proprietary system. As with typical procurement and construction of these systems, the contractor will supply a final wall design from the manufacturer, stamped by a professional engineer, prior to construction. This submittal will be provided to the building department prior to construction and can be addressed through a condition in the Site Plan Approval.**
  7. The roadway design shown on sheet C-201 includes placement of the guardrail along the top of one of the 6 foot tiered retaining walls. We recommend the Applicant provide a detail to indicate the location of the guardrail adjacent to the tiered retaining wall and calculations supporting that the wall is adequately designed to address the adjacent guardrail and potential impacts along this curved section of the roadway.
    - **A typical wall/guardrail/fence location detail has been added to the plans. This will be shown on the revised plans once the layout has been finalized.**
  8. The site design intent shown on sheet C-201 is to have pedestrians along a portion of the roadway pavement north of unit 4 and along a portion of the site with several 6 foot tiered retaining walls. The design notes only a guardrail is to be provided, but a standard guardrail does not provide the appropriate protection from the 6 foot wall drop off. The Applicant should review and revise the design to provide an appropriate design for pedestrians acceptable to the Board.
    - **A typical wall/guardrail/fence location detail has been added to the plans. Additionally, the pedestrian shoulder described has been eliminated from the plans. This will be shown on the revised plans once the layout has been finalized.**
  9. The landscaping plans do not address maintenance in accordance with Section XI.C.8.c.6 of the bylaws. The Applicant should update the plans accordingly.
    - **Note 13 has been added to Sheets C-501 and C-502 indicating maintenance in accordance with Section XI.C.8.c.6. This will be shown on the revised plans once the layout has been finalized.**
- e. Site Plan and Architectural Design: We recommend the Applicant address the following;

1. The submitted application information included the building plans and renderings, but the plans are not included in the project plan set, are not endorsed by a registered architect, are at the appropriate scale or include all information noted in the bylaws. The Applicant should revise the plan set accordingly to include the building plans in accordance with the bylaws and acceptable to the Board.
    - **More detailed architectural plans, prepared by a registered architect, have been submitted and updated plans are being prepared in response to comments provided at two meetings with the Design Review Committee.**
  2. We note that several units, such as 32, 33, 44, 52, 77, 98 and 99 do not appear to be 20 feet from the sidewalk or roadway pavement and could be considered within the front setback. We note that several other units such as 16, 17 and 50 could have potential additions (dashed lines) that would place the builds closer to the roadway. No further review was conducted as related to the site plan building layout. We recommend the Applicant discuss the proposed project design building layout with the Board. The Applicant should revise acceptable to the Board.
    - **The applicant has engaged in discussions regarding the site/building layout with the Design Review Committee and will present a revised plan shortly.**
  3. We note that most of the building separations on the plans are less than 30 feet and recommend the Applicant confirm that appropriate building separation is provided with the Fire Department.
    - **The proposed building separation distances are consistent with those previously reviewed and deemed appropriate by the board (and other reviewing City officials).**
- f. Stormwater runoff: We recommend the Applicant clarify the following:
1. The stormwater design proposes to connect to Mass DOT 's existing 18" drain pipe outlet within the Route 150 right of way and redirect the runoff into a piping system on-site adjacent to Summit Avenue and discharge at the limits of and within the 200 riverfront area associated with a tributary stream to Bailey's Pond. The design indicates that another 18" pipe along the route under Summit Avenue would also be connected to the proposed system. The stormwater management report identifies four outlets drain onto the site and notes that "*High volumes through these culverts have caused some significant erosion at these outfalls*". However, the analysis does not address these culvert flows onto the site or if the proposed system is adequately designed. The Applicant should revise the design and report to address the following:
    - a. Provide documentation that Mass DOT has agreed to the proposed relocation of the drain system within Route 150. This should include the location/alignment of the proposed piping system (under retaining walls?) and any associated access and/or maintenance easements requested/required for the pipe and outlet.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**

- b. Provide documentation that Mass DOT/Department of Public Works has agreed to the proposed connection to and relocation of the proposed drain system as related to the 18" pipe under Summit Avenue. This should include the location/alignment of the proposed piping system (under retaining walls?) and any associated access and/or maintenance easements requested/required for the pipe and outlet.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  - c. Provide analysis indicating the current flows from these culverts to the site and impacts/flows to Bailey Pond.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  - d. Provide analysis that the proposed system is adequately sized to handle the 100 year storm event. The calculations should be included for each storm event in the report.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  - e. Provide outlet protection calculations for sizing the stone apron at the proposed outlet.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  - f. Address proposed downstream flow impacts directed to the proposed sewer pump station acceptable to the Department of Public Works.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  - g. Address proposed impacts to Bailey's Pond and abutters.
    - **As demonstrated in the submitted stormwater management study, the post-development rate and volume of runoff from the site to the pond is expected to decrease as a result of the project.**
2. The submitted analysis is based upon rainfall data that does not represent the known regional rainfall increases documented for the 2, 10, 25 and 100 year storms based upon the NOAA Atlas 14 precipitation data. The Applicant should update the analysis accordingly.
- **The stormwater analysis submitted used the commonly accepted (and required for projects under the jurisdiction of the Wetlands Protection Act per Volume 1, page 5 of the Stormwater Standards) Soil Conservation Service (now NRCS) rainfall data published in Appendix B of the SCS Technical Release 55 Manual. These are also the same rainfall data previously reviewed and approved by the**

**Board and its previous peer review consultant. Copies of these charts are enclosed.**

3. The stormwater report and site design indicate 10 infiltration basins/areas are to be created for the project of various sizes and with various outlet devices. We recommend a typical cross section detail of the various basins and various outlet devices be provided in the plan set for proper construction.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
4. The pond analysis at pond 2-2 does not address the catch basin outlet device with a rim of 39.0 and pipe outlet. The Applicant should revise the analysis according.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
5. Ponds 1-7 and 1-8 note rectangular outlet devices that are not indicated on the grading plans. The Applicant should indicate the devices on the grading plan for proper construction.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
6. The analysis for ponds 2-1, 1-5, 1-2 and 1-5 do not address the catch basin outlet device or the pipe. The Applicant should revise the analysis according.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
7. The 25-year post development analysis indicate at Ponds DMH P2-3, DMH P1-1, DMH P1-6, barrel controls the discharge indicating the pipe size is not adequate for the 25-year design storm. The Applicant should revise the analysis according to provide proper pipe sizing for the 25-year storm.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
8. The report does not include any calculations for the stone apron sizing in the plan set. The Applicant should revise the report to include the analysis according.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
9. The site design indicates a compact design with sidewalks, numerous driveways and proposed multifamily dwellings in close proximity to the proposed roadways that concentrates the runoff to the roadways that are most not curbed. We believe that this “country drainage” design noted by the Applicant is not appropriate for the site design presented. We are concerned that the roadway edges and the narrow separations from sidewalks (three feet) would undermine the roadways without curbing. We recommend

that the roadways be curbed entirely in accordance with the Subdivision Rules and Regulations. The curbing also provides a separation measure between vehicular traffic and pedestrians utilizing the sidewalks. We recommend the Applicant revise the analysis accordingly.

- **Slope granite curbing has been added along the entire perimeter of the roadway. This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
10. A cursory review of the drainage system information indicates several catch basins such as P1-10, P1-11, P1-15, P1-16, P1-18, etc., do not provide the minimum 3 feet of cover over the drain pipe as required per section 8.04.A.1 of the Subdivision Rules and Regulations. In addition, several drain manholes do not provide the minimum pipe cover in accordance with the regulations. The Applicant should carefully review the entire drainage system design and revise as necessary to provide the minimum cover require by the regulations and acceptable to the Department of Public Works.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
11. The proposed drainage system is noted to be HDPE that does not comply with section 8.04.A.1 of the Subdivision Rules and Regulations requiring concrete pipe. The Applicant should revise the design accordingly.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
12. The site grading plan does not include the finish floor elevations to adequately review the proposed grading design as related to the proposed buildings. The Applicant should revise the design accordingly.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
13. The proposed grading design along the roadway adjacent to units 1-4 appears to indicate some of the roadway drainage could be directed to the buildings, which is not recommended. This also appears to occur near units 52-54, and 82-84. It is also unclear what the grading intent is in the vicinity of units 100-93 and 80-77. The Applicant should provide additional spot elevation for clarity and proper construction.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
14. The location of FES P1-7 at elevation 45.9 would appear to be above the existing ground elevation of 44 on sheet C-302. On addition, DMH P1-11 with a rim of 52.0 is 4 feet above elevation 48.0 and the 18" pipe into the DMH at elevation 46.2 appears to have less than a foot of cover with a portion of the proposed pipe south of the DMH placed at elevation 46 indicating that no cover is provided for the pipe. Please carefully review the proposed drain system layout to ensure the proposed design is appropriate and in compliance with the regulations.

- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
15. The Applicant should review and update the drain manhole labels on the drainage plan to DMH vs DHM for clarity and consistency with the stormwater report.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
16. The grading plan does not include any design information such as spot elevations for the proposed sidewalk construction along Summit Avenue. The design appears to impact existing catch basins, require relocation of guardrail and possibly some shoulder widening. We note portions of the existing grading appear to be at 2H:1V and may require a pedestrian rail. The Applicant should coordinate the proposed sidewalk design with the Department of Public Works and include appropriate details in the plan set such as a typical section of the sidewalk with the guardrail location and slope grading for proper construction.
- **As discussed above, due to safety, construction and maintenance issues, this sidewalk has been removed from the plan.**
17. A detail for a double grate catch basin should be included in the plan set by the Applicant.
- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
- f. Erosion Control: We recommend the Applicant clarify the following:
1. Erosion control configuration for the site shown on sheets C-301 and C-302, but appears incomplete. For example, construction entrances and the erosion control matting areas indicated in the details on sheet C-601 are missing along with staging and stock pile areas typically associated with construction. With the two different areas, it would likely be constructed in phases, but phasing is not noted for the project. We note the seed planting on sheet C-601 is not consistent with the notes on the landscape plan, which should be consistent. We recommend that separate plans related to erosion control be prepared that include, construction entrances, erosion control matting, staging and stock pile areas, phasing, temporary facilities such as construction trailer, portable toilets, dumpster, etc. the seeding notes of the landscape plan and erosion control should be updated accordingly to be consistent.
  - **The erosion control details provided are general in nature and preparation of the more specific construction logistics plan described above is premature. The site will require filing for coverage under the NPDES Stormwater General Permit and the preparation of a site specific Stormwater Pollution Prevention Plan prior to construction. This is done once a site contractor is selected so that input from the contractor as to their proposed means and methods can be incorporated. This issue can also be appropriately addressed in a condition incorporated into the Board's decision.**

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2. We note construction is proposed along Summit Avenue but the plans do not include any erosion control measures. We recommend the Applicant carefully review the project design and provide/include all appropriate measures necessary for the project.
    - **This sidewalk has been removed from the plan.**
  3. The proposed design includes construction of a trail along Bailey's Pond. We note that the trail is to be constructed from the emergency access drive and is located along a steep portion of the site with nearly a 30 foot grade change in 150 feet. What measures will be implemented to prevent trail erosion in this area? Please clarify and note accordingly on the plans.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  4. The grading shown on sheet C-301 indicates a 130 foot long slope a 3H:1V with an elevation from 86 to 42 without any grade breaks and benches or erosion control fabrics to minimize erosion potential and concentrated flows. This slope has potential for erosion with sandy soil conditions noted in the submitted information. We recommend that the Applicant updated the slope design be revised to provide grade breaks and benching or provide an appropriate erosion control matting design to minimize the erosion potential of this area.
    - **The slope has been revised to provide grade breaks and benching as recommended. This will be shown on the revised plans once the layout has been finalized.**
- g. Water Quality: We recommend the Applicant clarify the following:
1. The project design proposes to utilize drywells as one of the measures to provide groundwater recharge as indicated by the detail provided on sheet C-604. However, it is unclear where these are to be used. Please properly label on the drainage plan for proper construction.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
  2. We note the design includes infiltration within the detention basin areas and proposes 4 foot deep sump catch basins. The catch basin detail appears to imply that an outlet hood is to be used but the information is unclear. We recommend the catch basin detail be updated for clarify and design intent including information on the hood for proper construction. The measures noted above are consistent with the water quality performance standards outlined in the bylaw.
    - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
- h. Hazardous Materials and Explosive Materials: The submitted information does not include or address this performance standard and it is unknown if it is applicable. Will oil or propane systems be used for the units? We recommend the Applicant provide a note on the site plan or

supporting documentation for the project file that demonstrates compliance of this standard acceptable to the Fire Department and Planning Board.

- **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
- i. Lighting: We recommend the Applicant clarify the following:
1. Light poles are indicated on the utility and landscape plans, but the utility line to serve each pole is missing. Please update the utility plan accordingly.
  2. The light pole detail indicates the proposed pole height is 22 feet and exceeds the 16 foot maximum per XI.C.i.2 of the bylaws. Please revise the detail accordingly.
  3. A photometric plan was not provided per XI.C.i.6 of the bylaws. We recommend the Applicant provide a photometric plan indicating the proposed lighting levels. The plan should to indicate compliance with XI.C.8.i of the Bylaws is achieved.
- **This comment will be fully addressed once the project layout has been finalized.**
- j. Environmental Performance Standards: The application submittal did not include a general environmental impact report per Section XI.C. 6.c of Bylaws or information relative to meeting the performance standard of Section XI.C.8.j. We recommend the Applicant prepare and provide the required information and include an explanation how the project has met the development and performance standards of the Bylaws for review and consideration of the Planning Board and for the project file.
- **A narrative documenting compliance with Section XI.C.8.j is enclosed. An ENF was previously filed and a MEPA Certificate was received, as discussed above.**
- k. Noise: The submission noted that the “no commercial or industrial activities are proposed”. We recommend the Applicant provide a note on the layout plan indicating the project will comply with Section XI.C.8.k of the Bylaws or other notes acceptable to Board.
- **A note has been added to Sheets C-201 and C-202. This will be shown on the revised plans once the layout has been finalized.**
- l. Wetlands: The project site is located along Bailey’s Pond with an on-site stream that discharges into Bailey’s Pond entering the site from a culvert under Summit Avenue. In addition, an isolated on-site wetland area is indicated on the plans. The project design includes impacts to the 100 foot buffer to Bailey’s Pond, impacts to the 200 riverfront buffer of the existing stream, impacts adjacent to the isolated wetland and impacts to the stream and adjacent wetlands for construction of utilities under the stream to serve the site. An order of conditions for the proposed wetland and buffer impacts is needed for the project as proposed. We recommend the Applicant obtain an order of conditions for the project and incorporate the necessary measures of the order of conditions in the plan set to address this performance standard.
- **The Conservation Commission issued an Order of Conditions for the project in 2013, approving the wetlands delineation and all then-proposed work outside of the Riverfront Area. The applicant has recently submitted a Notice of Intent for a new Order of Conditions for this current project design and the associated public hearing is ongoing.**

m. Utilities: We recommend the Applicant clarify the following:

1. The project design indicated the site would be served by public sewer. The layout includes a sewer pump station, but sewer pump discharges directly to an existing sewer manhole on Beacon Street that is not recommended. We recommend that the design be revised to provide a new sewer manhole for receipt of the site sewer pump discharge that would flow by gravity into the existing manhole at this location. We recommend the Applicant discuss the proposed sewer pump design with the Department of Public Works and update the design as necessary acceptable to the Department.
  - **The proposed design of the pump station and connection to the municipal system is consistent with what the Board previously approved in its 2013 decision. The applicant will review the design with the Department of Public Works.**
2. A cursory review of the sewer design was conducted and we note that the sewer design inverts indicates the proposed sewer pipe at SMH P1-1 and SMH P1-2 will have less than 4 feet of cover. In addition, the sewer inverts at SMH P1-3 indicate the sewer pipe will have less than 5 feet of cover and do not provide the minimum 5 feet of cover under pavement as required by sections 7.07 and 8.09.4 of the Subdivision Regulations. Separately, a review of the inverts and design slopes of the proposed drain pipe from CB P-17 to DMH-P1-7 would appear to conflict with the proposed sewer line. In addition the inverts and design slopes of the proposed drain pipe from CB P-15 to DMH-P1-7 would appear to conflict with another proposed sewer line. As such, no further review of the sewer design was conducted. We recommend the Applicant carefully review the proposed sewer and drainage design and revise as necessary acceptable to the Department of Public Works. We recommend that a plan and profile of the proposed sewer system indicating all crossings be included within the project plan set.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
3. The design indicates the site will be served by public water with connections at Route 150, Beacon Street and Summit Avenue. The Applicant should verify the proposed connection locations are acceptable to the Department of Public Works and that adequate pressure and capacity is available. The Applicant should indicate the pavement sawcut limits associated with the connections for proper construction. The Applicant should obtain any permits for the proposed water service from the Department of Public Works. In addition, the Applicant should obtain a permit/permission for the proposed work in Route 150 from Mass DOT.
  - **The locations of connection to the municipal water system have not changed from the previously approved plan. Additionally, the associated work within Route 150 has been approved by Mass DOT with the curb cut permit it issued in 2014.**

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4. The plans indicate underground electric and communication utility connections to serve the site will be from Beacon Street for the easterly development area and from Summit Avenue for the northerly development area. We recommend the Applicant obtain and provide letters from each utility provider indicating the proposed service location is acceptable and service is available for the Planning Board's file.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
5. The plans do not address how the project will handle refuse/trash as noted in XI.C.5.f. of the bylaws. The Applicant should clarify and note accordingly on the site plan.
  - **All trash will be collected curbside within the development by a private disposal company contracted with the condominium association. A note to this affect has been added to Sheets C-201 and C-202. This will be shown on the revised plans once the layout has been finalized.**
6. The size and types of the existing water lines should be noted on the existing conditions and utility plans. In addition, the size and type of drain pipes along Summit Avenue should be indicated on the existing conditions plan. The Applicant should update the plans accordingly.
  - **This comment will be fully addressed once the project layout has been finalized and the drainage and utility systems revised accordingly.**
7. We recommend the Applicant update the plans and application information as necessary to obtain the sewer and water utility connections acceptable to the Department of Public Works.
  - **The proposed design of water and sewer systems and connection to the municipal systems is consistent with what was previously approved. The applicant will review the design with the Department of Public Works.**
- n. Roadways and Sidewalks: We recommend the Applicant clarify the following:
  1. The proposed paved sidewalk indicated by the detail on sheet C-602 does not comply with section 8.05 the Amesbury Subdivision Regulations requiring a concrete sidewalk. The Applicant should revise the detail in compliance with the regulations and note the sidewalks are concrete on the site plan.
    - **All proposed sidewalks along the roadways have been revised to be concrete. This will be shown on the revised plans once the layout has been finalized.**
  2. The site design indicates a mailbox area to serve the easterly site will be placed on Route 150, but no improvements are indicated in this area. It seems appropriate that the boxes should be placed along the entrance drive with a pull off. Please verify and confirm that the mailbox location shown meets approval of Mass DOT and post master. In addition the Applicant should verify the proposed mailbox location to serve the northerly development is appropriate and acceptable to the DPW and postmaster.

- **The site mailbox locations have been revised. This will be shown on the revised plans once the layout has been finalized.**
3. The design indicates a sidewalk is to be constructed along Summit Avenue. We recommend the sidewalk be designed with curbing to separate pedestrians from vehicular traffic acceptable to the Department of Public Works. The Applicant should update the plan set to include appropriate design and details for proper construction in this area acceptable to Department of Public Works.
- **This sidewalk has been removed from the plan in light of safety, construction and maintenance issues, as discussed above.**
4. The site design does not provide sidewalks on both sides of the roadway per section 7.09.H of the Amesbury Subdivision Regulations. We recommend that a sidewalk versus a pedestrian shoulder be provided along the main site drive of the easterly development area and that the sidewalk continue to Route 150 and to the potential school bus stop area. In addition, we recommend that appropriate cross walks with accessible ramps be provided along Route 150 and at the roadway intersection opposite unit #74. The Applicant notes a waiver is requested to provide a sidewalk along one side of the proposed drives (private roadways) in some locations. We recommend that the Applicant discuss the proposed waiver request and sidewalk locations with the Board. The Applicant should revise the design acceptable to the Board or in compliance with the regulations.
- **The sidewalk design and locations have been revised per discussion with City staff and the Design Review Committee. This will be shown on the revised plans once the layout has been finalized.**
5. The Applicant submission notes that a waiver for 200 foot centerline radius of the roadway design is requested. However, the plans do not include any roadway design or geometry information. It appears that this waiver may apply to more than one location, but it is unknown. We recommend that the Applicant revise the plan set to provide the roadway horizontal and vertical design for review and comparison relative to the roadway design standards of the City of Amesbury and AASHTO. The information should include stationing for the roadways. No further review of the roadways or sidewalks was performed at this time.
- **Additional roadway design information has been added to the plans. This will be shown on the revised plans once the layout has been finalized.**
- o. Marina or Docking Facilities: The project design does not indicate any proposed marina or docking facilities and this performance standard does not appear to apply to this application.
- p. Specific Design and Construction Standards: We recommend the Applicant clarify the following:
1. Please provide roadway names and unit address acceptable to the Board and Fire Department.

- **This comment will be fully addressed once the project layout has been finalized.**
2. Please note the roadways (on site drives) are to be private. The Applicant should provide notes on the plans acceptable to the City.
    - **This note has been added to the Sheets C-201 and C-202. This will be shown on the revised plans once the layout has been finalized.**
  3. Recommend the access trail be updated to provide a connection to the sidewalk along the northerly development area. This could be located in the utility construction area south of unit 77.
    - **This connection has been added to the plans. This will be shown on the revised plans once the layout has been finalized.**
  4. The project proposed a trail adjacent to Bailey's Pond, but details for the trail construction are missing from the plans set including any associated grading. Should other amenities along the trail be provided such as benches or informational signs? An easement for use by the public appears necessary. The Applicant should discuss the trail design and public access with the Board and should update the plans and application information acceptable to the Board.
    - **This comment will be fully addressed once the project layout has been finalized.**

**Other information for Planning Board Consideration:**

1. The City tax maps indicate there are three separate lots in this area with only lot 50 map 88 and lot 1 map 98 labeled. It appears there is another unlabeled lot between these two labeled lots as displayed on tax map 87. The development for the easterly area would appear to be upon both the unlabeled lot and lot 1. We recommend that Applicant clarify if there is an additional lot and if a lot consolidation plan that combines the existing lots into one lot that allows the proposed development is needed to meet the setback requirements of the Bylaws.
  - **The project parcel consists of two lots, Map 88 Lot 50 which is 10.57 acres and Map 87 Lot 1 which is 13.94 acres totaling 24.51 acres. Any lot consolidation, if required, will take place after the project is approved.**
2. A special permit may be required under section XI.A and/or IX.B of bylaws. The Applicant should review the project soil volumes and the requirements under section XI.A and/or IX.B of bylaws and submit an application for a special permit if applicable. We recommend that the Applicant provide information on the proposed soil volumes for the Planning Board's project file.
  - **This special permit application will be filed once the project details are finalized.**
3. It is our understanding that the Applicant had requested an immediate review and meeting relative to this major modification design and we understand the Applicant has requested a meeting for January 21, 2016. At the City's request, Stantec has conducted an expedited review

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of the major elements of the submitted project design needed to meet the Applicant's request for review comments and meeting. Clarification and/or information may arise from this meeting that may need further comments.

- **No Comment**

4. We understand that the Applicant has recently submitted additional information to the City related to the project that was not included with this review and further comments on the additional plans and in.

- **No Comment**

We look forward to discussing the plan changes and these comments with the Planning Board at the next hearing. If you have any questions, please feel free to contact me at your earliest convenience.

Sincerely,

OAK CONSULTING GROUP, LLC



Sean P. Malone, P.E.  
Vice President

SPM/

Enclosures

**ENCLOSURE A**

Revised Plans

Village at Bailey's Pond  
Amesbury, Massachusetts

**ENCLOSURE B**

Enclosure B - Subdivision Plan by Cammet Engineering

Village at Bailey's Pond  
Amesbury, Massachusetts

**ENCLOSURE C**

Enclosure C – Turning Movement Diagrams

Village at Bailey's Pond  
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**ENCLOSURE D**

Enclosure D –TR-55 Rainfall Charts and Rip Rap Calculations

Village at Bailey's Pond  
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**ENCLOSURE E**

Enclosure E –Environment Performance Standards Narrative

Village at Bailey's Pond  
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