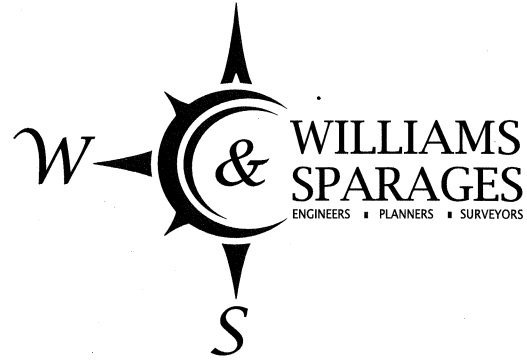


Project No. NREA-0057

May 1, 2019

North Reading Community Planning Commission  
Town Hall  
235 North Street  
North Reading, MA 01864



Subject: Responses to Peer Review - Grand Legacy Subdivision  
Cobblestone Drive (77 Elm Street), North Reading, MA

Dear Community Planning Commission members,

The purpose of this letter is to address comments received from Design Consultants, Inc. (DCI) in a letter dated March 20, 2019 for the Road A (77 Elm Street) filing. The DCI comments are shown below in italics and, our responses are in the bold text that follows. As noted above, the Applicant proposes to name the subdivision "Grand Legacy" and replaced Road A with Cobblestone Drive.

#### *Chapter 350 Subdivision of Land*

##### *§350-13. Definitive Plan*

1. *B. Contents (2)(i) – This section requires that all easements requires that easement purpose be stated.*

**All existing and proposed easements are labeled on the definitive plan, sheet 2.**

2. *B. Contents (2)(1) – This section requires that all elevations are to be referred to US Coast and Geodetic Survey. The current standard is North American Vertical Datum of 1988 (NAVD 88). The elevations on the Plans are on an assumed datum. A note on Sheet 4 of 8 – Definitive Plan & Profile Road A indicates that the site is on an assumed Datum, and provides and adjustment to NAVD88. Recommendation: DCI recommends that the Plans be updated to NAVD88, so in the future, accurate information will be available in the event maintenance is required.*

**The elevations on the plans have been converted to NAVD88.**

##### *§350-14. Streets*

1. *E. Dead End Streets 3 – The Applicant has request [sic] a waiver from this Section which requires that dead end streets be no more than 500- feet long without a looped water line. The street length is 538.90-feet. It would be possible to loop the waterline by extending it 300± feet to Fairview Street. It appears that the extension would be in the buffer zone of an isolated wetland and may require rock excavation. However, based on our review, it appears that the additional 38.90-feet of roadway is needed to meet the minimum lot dimensional and area requirements. The waiver request does not provide any justification and appears to be based on not constructing an additional 300± feet of water line to provide the required loop.*

**See revised plans showing water line looped to Fairview Street.**

**§350-25. C. Drainage**

1. *(5) The applicant has requested a waiver from the requirement the [sic] reinforced concrete pipe (RCP) be granted. In lieu of RCP, the Applicant is requesting the use of HDPE, Sch. 40 PVC or ductile iron. DCI recommends that dual wall HDPE pipe conforming to AASHTO M294 Type S or Type SP be used for pipes 12-inches or greater in interior diameter, and that ductile iron pipe be used for diameters less than 12-inches.*

**Agreed. See note 9 added to the revised plan & profile, sheet 4.**

2. *(7) Standard Design for drainage. (b) Closed system – conduit drainage (1) – The Engineer has not calculated design capacities documenting that the stormwater collection system can handle the 25-year storm.*

**The system has been designed with the 100-year storm capacity and we have added the 25-year storm results the revised report.**

3. *(7) Standard Design for drainage. (d) – The Engineer has not demonstrated the discharge velocities from outlets will not cause erosion or scour.*

**See attached stone sizing chart in Section 2, 1.0 for discharge velocities from the system which demonstrate that they will not cause erosion or scour.**

4. *(7) Standard Design for drainage. (f) – SWMA-1, SWMA-2 and SWMA-3 discharge flow through the spillway for the 25-year storm event. These SWMA's should be designed to meet the intent of this requirement.*

**It should be noted that SWMA 1 is not equipped with a spillway, it's only outlet is the proposed 12" HDPE standpipe with 6" orifice leading to a double-walled HDPE culvert which then discharges up-gradient of SWMA 2.**

**SWMA 2 does not have an outlet pipe and therefore utilizes the spillway to discharge for the 25-year event which is typical for a Low Impact Design.**

**SWMA 3 is a subsurface system and since there is a limited amount of space, the system was designed to store and infiltrate the 2- and 5-year storm and begin to discharge in the 10-year storm event.**

**SWMA 4 & SWMA 5 do not discharge over their spillways for any event up to the 100-year storm.**

**SWMA 6 is designed to capture and infiltrate the 2-year storm without any discharge over the spillway. The system will start to discharge during the 5-year storm event. It should be noted that this basin only accepts runoff from the back yards and woods of lots 4, 5 & 6.**

§350-25. D. 260

1. *As there are roadway cuts up to 16 feet on this project the Engineer should evaluate the need for roadway sub-drains on this project. Test pits and/or borings should be completed to document the estimated seasonal high groundwater table. In the event that sub-drains are required the drainage system will need to include flows from the sub-drains.*

**See test pits that were included in Appendix N of the report.**

§350-27. Curbs and Berms

1. *Sheet 5 of 8 shows curbing through the driveway cuts. Also, the topographical lines in the driveway cuts are indicative of curbing. The Engineer should revise the drawings to reflect the driveways. At least two driveways are shown over 20-feet in width. These width [sic] should be reduced to minimize run-off.*

**Agreed. See revised plans.**

§350-32. Streetlights

1. *Street light locations are not shown.*

**The typical procedure for North Reading is that the electric layout and street light locations are provided by Reading Municipal Light Department and then added to the definitive plans at a later date. See note 8 on the plans.**

§350-33. Maintenance of improvements

2. *The Operation and Maintenance Plan indicates that 77 Elm Street LLC will be responsible for the stormwater system maintenance. While the catch basins will be in the street and become the Town's responsibility, it is recommended that a homeowner's association be formed to maintain stormwater infrastructure outside of the easements. That being said, the oil/water separator connected to SWMA-3 should be moved out of the right of way and into the drainage easement.*

**As stated in the Long-Term Pollution Prevention Plan, 77 Elm Street LLC shall assume full responsibility for the long-term operation and maintenance of the stormwater management system until such time as the road is accepted as a public way. No homeowner's association is proposed.**

**There is not enough space to move into the easement. We see no issue with leaving the oil/water separator as shown, it is simply a component of the drainage system similar to the drain manholes and catch basins which also lie within the right of way.**

Schedule A

1. *The detail on Sheet 4 of 8 should be modified to indicate that drainage pipe will be dual walled HDPE.*

See revised typical cross section detail showing dual walled HDPE for the drainage pipe.

2. *The Engineer should indicate were [sic] the pipe cover is less than 3-feet and provide calculations documenting the cover is adequate.*

We have denoted on the roadway profile where the cover is less than 3' and provided a specification of dual wall HDPE bearing capacity, no additional calculations are required. See attached Technical Note from ADS showing minimum cover in traffic applications.

#### *Schedule F*

1. *The Engineer should provide calculations indicating the stormwater drainage system pipes are designed for a 25-year storm, and the minimum velocity in the pipes is greater than 5 feet per second for the 5-year event and less than 25-feet per second for the 25-year event.*

The system has been designed to accommodate the 100-year event, see pipe velocities for the 5- and 25-year storm events from HydroCAD printout.

#### *Schedule G*

1. *Provide a detail on the drawing that conforms to the Town of North Reading Standard as shown in Schedule G.*

A water service detail was provided on detail sheet 2 of 3, however, we have modified it slightly to match the requirements set forth in Schedule G. as requested.

## STORMWATER MANAGEMENT RULES AND REGULATIONS

### *Section 4 – Stormwater Management Permit*

#### *G. Operation and Maintenance Plan*

*The Operation and Maintenance Plan requires easements to be “sufficient in location and extent to carry out the required maintenance”. Stormwater Management Area No. 2 (SWMA-2) is located in the southwest portion of the Subdivision. A 20-foot wide drainage easement is provided along the property line between Lot Nos. 5 and 6 which contains a 12-inch storm drain. A retaining wall is located 130± feet from the cul-de-sac property line with a manhole set back slightly behind the wall. The storm drain exits through the wall. At this location the wall is at least 20-feet tall. There is no access through a drainage easement to access the pipe at the base of the wall, or SWMA-2. The Engineer should provide access for a vehicle to SWMA-2 in order to facilitate maintenance and inspections.*

It was always intended to utilize the existing 20-foot-wide drainage easement that crosses lots 4, 5 & 6 in a northerly direction as access to the basin, see revised plans.

**There is also a possibility of adding an access easement across the back of Lot 7 but we prefer to leave a buffer from the existing houses located on Elm Street.**

*In addition, Vol. 2 Ch. 2 of Massachusetts Stormwater Handbook (SW Handbook) requires access in the basin design. The area at the top of the basin must provide impeded vehicular access around the entire basin perimeter. The access area shall be no less than 15'. The easements and property lines shown do not provide this minimum of 15-feet of access around the infiltration basins. The Engineer should provide the required access for maintenance vehicles around SWMA-1, SWMA-2, SWMA-4 and SWMA-5.*

**There is sufficient room to reach SWAMA 2 & SWMA 6 from the existing 20' wide drainage easement and the drainage easement that is proposed as a part of the subdivision at the rear of lots 5, 6 & 7. There is also sufficient room to reach the remaining basins SWMA 1 as its in the center of the circle, SWMA 3 as it is just off the roadway, and SWMA 4 & SWMA 5 each have 20' wide drainage easements to them from the roadway as well. Since the basins are rather small in size, they can be reached with the bucket of an excavator, or, have materials removed by hand with a wheel-barrow, if necessary. As mentioned above, there is a possible 15' wide access to SWMA 2 from the east, across the rear of Lot 7 but we prefer to keep the area as a buffer zone to the houses on Elm Street.**

#### *DPW Site Plan Review Checklist*

*The Engineer has provided a plan called Topographic Road A (Plan) which attempts to show all the information required by the following Stormwater Permit requirements. This plan contains a lot of information, is difficult to read and does not meet the Plan requirements of the Checklist.*

#### 4. Existing Condition Plan

*Existing Conditions Plan not provided. Elevations area not referenced to NAVD 88. The plan should be provided separately and updated so that all elevations area in NAVD 88.*

**We have created a separate topographic plan showing the existing condition on NAVD 88.**

*The Plan is not tied into the Massachusetts State Plan [sic] Coordinate System.*

**We will provide coordinates on the final plan.**

#### 5. Demolition and Erosion Control Plan

*A Demolition and Erosion Control Plan has not been provided. The Engineer should provide the Demolition and Erosion Control Plan as required.*

*Anti-tracking BMP (i.e. stabilized construction entrance) are not shown.*

**The Demolition and Erosion Control Plan will be provided in the Stormwater Pollution Prevention Plan (SWPPP) along with a detail and location for a construction entrance prior to the start of construction.**

#### 6. Construction Layout Plan

*A Construction Layout Plan has not been provided. The Engineer should provide the Construction Layout Plan as required.*

**A Construction Layout Plan will be provided in the SWPPP at a later date.**

*There is no sign schedule.*

**We propose 1 stop sign and 1 street sign mounted on the same pole.**

*There are no pavement markings. It appears a minimum a [sic] a cross walk and stop line are required.*

**See revised plans with cross walk and stop line provided.**

*Snow storage areas are not included.*

**Snow is going to be stockpiled along the sides of the road in the grass strip. Individual home owners will stockpile their snow along the sides of the driveway as is typical with all homes in the Town of North Reading.**

#### 7. Grading and Drainage Plan

*The Topographic Road Plan appears to have been prepared to meet the requirements of the Grading and Drainage Plan.*

**No response required.**

*Stockpile areas not shown.*

**The stockpile areas will be shown on the Demolition and Erosion Control Plan to be provided in the SWPPP at a later date.**

#### 8. Utility Plans

*A utility plan has not been provided. The Engineer should provide the Utility Plan as required.*

**All of the proposed utility locations are shown on the topographic plan as well as the plan & profile. This comment refers to the DPW Site Plan Checklist. Typically, we would provide a separate plan just for utilities were this a Site Plan filing, however, in this case we are following the Subdivision of Land requirements and the necessary information has been provided.**

*Water services are not shown*

**We have added water service locations to the plans; however, these are subject to change during construction.**

*Electric, cable and phone are not shown.*

**These features are shown on the typical road cross section on the plan & profile below the proposed sidewalk, however, it is up to the service provider to lay out the final location which will be picked up in the as built or contractor's ties.**

*Transformer locations area not shown.*

**As mentioned above, the electric layout and transformer locations are provided by Reading Municipal Light Department and then added to the definitive plans at a later date. See note 8 on the plans.**

#### 9. Landscape Plans

*A Landscape plan has not been provided. The Engineer should provide the Landscape Plan.*

**We would provide a separate plan for landscaping if this was a Site Plan filing, however, in this case we are following the Subdivision of Land requirements which only requires the location of street trees and the grass plot.**

**We have included a planting detail for Deciduous Trees which include method and materials for the installation as required in § 350-13 on page 29 under (d) Aesthetics.**

**Further landscaping on the lots will be left up to the individual homeowner(s) to decide.**

#### *Appendix C – Stormwater Management Plan*

##### E. Stormwater Report

###### **1. Peak Flow Attenuation**

- (a) The Engineer has not verified the capacity or structural condition of the Town's drain to allow the proposed drainage.**

**See attached capacity analysis of the existing 24-inch diameter reinforced concrete pipe located on the north-side of Elm Street.**

- (b) During development conditions have not been evaluated.**

**As we have performed a pre and post construction comparative analysis, we would like to discuss the necessity of this requirement with the board as this is typically controlled with the SWPPP.**

- (g) The Stormwater Management Plan does not evaluate the 5-year and 50-year storm events as required by the Subdivision Regulations.**

**We have added the 5-year and 50-year storm events to the analysis.**

*(h) The HydroCAD analysis does not use the peak rainfall as modified by the Cornell Atlas.*

We have re-analyzed the HydroCAD model with the Cornell Atlas peak rainfall amounts. It should be noted that this Atlas has not been officially adopted by Mass DEP to replace TP-40 to the best of our knowledge.

*(k) The infiltration flows should not be subtracted from the post development flow.*

We respectfully disagree with this comment; it is standard practice to take the results of the observation holes and use the soil texture to approximate the design infiltration rate in order to more accurately model the performance of the stormwater management area.

2. *Recharge*

*(a) Test pits are not shown in any of the five stormwater recharge areas. The regulations require three (3) test pits per recharge area.*

The test pits were shown on the proposed condition watershed map in the locations of the proposed stormwater management areas. We have added them to the topographic sheet as well to stand out more. The standard in the SW Handbook is 3 test pits per 5,000 s.f. of area. As you can see from the drawings, the stormwater management areas for this project are much smaller than that so we have provided a minimum of 2 test pits per system with the exception of the center cul-de-sac which we provided only 1. We have done this in the past with no negative feedback from DEP or the Town.

It should be noted that SWMA 6 has been added since the original design but we would be willing to accept a condition that a confirmatory test pit be conducted in the middle as it is a small basin.

*(b) Seasonal high groundwater and bedrock depths are not shown.*

Test pit logs in the proposed stormwater management areas were included in the stormwater report in Appendix N.

*(c) The soil type and saturated hydraulic conductivity have not been determined.*

A soil textural analysis was performed in the field by a Licensed Soil Evaluator in lieu of laboratory testing. The resulting texture was then compared to Table 2.3.3. 1982 Rawls Rates for the design infiltration rate in inches per hour to be used in the HydroCAD modeling of the stormwater management area. This method is allowed in the Massachusetts Stormwater Handbook.

(1) The three tests [sic] pits have not been performed

See response above

- (2) Laboratory soil textural analysis has not been performed

**As mentioned above, a soil textural analysis was performed in the field by an approved Soil Evaluator in lieu of laboratory testing pursuant to the Stormwater Handbook.**

- (f) *The hydraulic profiles have not been determined.*

**See HydroCAD report.**

- (g) *Roof runoff has not been recharged for all the buildings.*

**All roof areas will be infiltrated into separate recharge systems, see revised plans.**

- (h) *Test pits locations have not been provided.*

**See responses above.**

3. *Water Quality*

1. *BMP Design*

- (1) *Proposed SWMA-1 has no pretreatment. The infiltration trench shown is not a pre-treatment device for an infiltration basin.*

**We respectfully disagree with this comment; we have utilized infiltration trenches as pretreatment from driveways and roadways with great success due to a good operation and maintenance plan. The Town of North Reading has also recently approved two (2) subdivisions using this same method. We are utilizing a low impact development technique for the small area of pavement tributary to the cul-de-sac by reducing the amount of pavement as well as eliminating the need for an additional deep sump catch basin.**

- (2) *SWMA-1, SWMA-2, SWMA-4 and SWMA-5 are infiltration basins. The SW Handbook requires that "After the basin floor is shaped, place soil additives on the basin floor to amend the soil. The soil additives shall include compost, properly aged to kill any seed stock contained within the compost. Do not put biosolids in the compost. Mix native soils that were excavated from the A or B horizons to create the basin with the compost, and then scarify the native materials and compost into the parent material using a chisel plow or rotary device to a depth of 12 inches. Immediately after constructing the basin, stabilize its bottom and side slopes with a dense turf or water-tolerant grass. Use low-maintenance, rapidly germinating grasses, such as fescues. The selected grasses must be capable of surviving in both wet and dry conditions. Do not use sod, which can prevent roots from directly contacting the underlying soil. During the first two months, inspect the newly established vegetation several times to determine if any remedial*

*actions (e.g. reseeding, irrigating) are necessary". These requirements should be added to the drawings.*

**We will be treating the bottom of the basins with a minimum of four (4) inches of loam and seed as has been recently approved by the North Reading CPC.**

**We have a construction period pollution prevention plan as well as long-term pollution prevention plan with inspection forms and frequency of inspections for the stormwater management areas.**

- (3) *The SW Handbook requires that each infiltration basin should have a monitoring well.*

**The Handbook recommends that 1 monitoring well be installed for every 5,000 s.f. of basin. As mentioned above, the stormwater management areas for this project are less than one half of this size and it is our position that due to the small size of the basins, monitoring wells are not warranted. We are requiring inspection ports for the sub-surface infiltration structures in compliance with the manufacturer's recommendation.**

2. *Hydraulic Profiles are not provided*

**See above response.**

4. *General Design & Plan Requirements*

- (f) *The 6-inch overflow pipe shall be a minimum of 10-inches in diameter.*

**The 6-inch overflow pipe has been replaced with a 12" diameter pipe, see revised plans.**

- (j) *See previous comment*

**See previous response**

- (l) *Provide structural calculations for pipes with less than 4-feet of cover. All pipes are located in the roadway or drainage easements shall be designed for HS-20 loading*

**Agreed, see attached manufacturers specifications.**

- (m) *See previous comment*

**See previous response**

- (n) *Provide calculations that demonstrate the piping has been designed for the 25-year storm.*

See HydroCAD analysis of the pipe network.

F. Plans

1. 2. Plan Notes – General Notes and Erosion Control and Dewatering Notes that are typical for Sub-Division Plans are missing.

**This will be provided in the SWPPP.**

2. 3. Nonstructural Storm Water Management Strategies – The Applicant and its Engineer have not discussed nonstructural management strategies or Low Impact Development (LID)/Green Infrastructure in the Stormwater Report or other documents. The proposed project appears to disturb 90% of the site. Significant earthmoving with cuts up to 18-feet and fills over 20-feet. No attempt was made to meet this item, or the LID requirements in other places.

**The design of the upper portion of the roadway, around the cul-de-sac uses Low Impact Development techniques that we have had recently approved by the Commission. We are showing a proposed disturbance of approximately 6.4 acres on a 7.88-acre parcel, or, 80.6%. We have tried to balance the cuts and fills on the site to the maximum extent practicable to avoid additional import or export of material from the premises.**

*Appendix D – Erosion and Sediment Control Plan*

1. *In general, the erosion and sediment control consist of a silt fence around the entire site. There is no stabilized construction entrance, provisions for stockpile protection and stabilization have not been provided, and there is no provision to prevent erosion at all.  
The Engineer should provide a Stormwater Pollution Prevention Plan as required by Appendix D, which not only addressed the US EPA's Construction General Permit requirements, but also includes all 21 guidelines of Appendix D.*

**The main erosion and sediment control will be Filtrexx Silt Soxx (or approved equal) backed with Siltfence. See detail on sheet 7. There is a full Construction Period Pollution Prevention Plan & Erosion and Sedimentation Control plan found in Section 6 of the submitted Stormwater Report. A SWPPP will be provided in accordance with the EPA CGP requirements.**

*Appendix E – Operation and Maintenance Plan*

A. Operation and Maintenance Plan Requirements

1. (4.) *An estimated operations and maintenance budget and anticipated source of funding is not included.*

Based on our experience with similar projects, we estimate that the typical annual expenditure for the inspection, operation and maintenance of the stormwater system is approximately \$2,000.

2. (5.) *The maintenance agreement is not provided. All items from (a) to (e) should be included as well as which entity (not the Town) will be provided once the sub-division is developed. Please refer in detail to Paragraphs B. Stormwater Management Easements and C. BMPs serving multiple lots or properties. The maintenance agreement should also contain the process to implement the items required by Paragraphs D. Changes to Operation and Maintenance Plans, E. Annual Report Submittal, and E. Records.*

In the Long-Term Operation & Maintenance Plan, it states that 77 Elm Street LLC is responsible for the system until such time that the road is accepted as a public way.

All pertinent information has been included in the Operation and Maintenance Plan including frequency of inspections, what to look for, remedies, forms, a place for notes, etc.

## Drawings

*This portion of the review attempts not to repeat items contained in other comments.*

1. *Sheet 4 – The first pipe from SWMA-1 should be a minimum of 12-inches in diameter. Due to the lack of calculations evaluating the proposed pipe network the minimum size of this pipe cannot be justified.*

**See revised plan and HydroCAD report.**

2. *Sheet 4 – A stop line and crosswalk should be provided at the intersection with Elm Street.*

**Agreed, see revised plans.**

3. *Sheet 5 – The retaining walls are over 4-feet, in locations up to 20-feet tall. A design by a Professional Engineer experienced in retaining wall design should be required. This retaining walls [sic] will also require building permits from the Building Inspector.*

**We are experienced in retaining wall design and will be filing retaining wall designs for building permits with the Building Inspector at a later date once a retaining wall type has been selected, i.e. reinforced concrete, modular block, etc.**

4. *Sheet 5 – Infiltration systems are located behind the building on Lot No. 6. This systems [sic] are within the zone of influence or the retaining wall. The infiltrated stormwater is likely to add water pressure and additional lateral earth pressure from saturated soils behind the wall. It is recommended that the infiltration systems be moved.*

**The retaining walls will be equipped with drains to alleviate any additional hydrostatic or lateral earth pressure. Topographically, the locations of the recharge systems are the most feasible and they will be located in an area of fill where we can control the quality of the material being placed for the bed of the system.**

5. *Sheet 5 – Water services area not shown.*

**Agreed, see revised plans.**

6. *Sheet 5 – Electrical, cable and communications conduit, pull boxes and transformers not shown.*

**See previous response.**

7. *Sheet 5 – The apparent swale from the SWMA-1 outfall to SWMA-2 directs water away from SWMA-2.*

**See revised plan, there will be an 8' wide stone swale leading discharge directly into the basin.**

8. *Sheet 5 – Test pit locations not provided for SWMAs.*

**See previous response.**

9. *Sheet 5 – The scale of the SWMAs makes the details difficult to read. It is suggested that the SWMAs be shown at a large scale to facilitate review.*

**See additional details for SWMAs on sheet 10.**

10. *Sheet 6 – Town Clerk's and Engineer's Certifications missing.*

**The Town Clerk's certifications are shown on the plans. We have spoken with the Town Planner; Danielle McKnight, and we are both uncertain of what Engineer's Certifications are missing.**

11. *Detail Sheets – A spillway detail is not provided*

**See added detail.**

12. *Detail Sheets – A level spreader detail is provided. Where will it be used?*

**It is not being used and the detail has been removed from the plans.**

13. *Detail Sheets – A detail for the wheel chair ramp is not provided.*

**See added detail.**

14. *Detail Sheets – It is recommended that pipe joints and bends be mechanical joints.*

**We assume that you are referring to the proposed water main; see typical fire hydrant connection and thrust block details which show mechanical joints.**

15. *Detail Sheets – The cultic [sic] detail for SWMA-3 shows 18-inches of stone underneath the chambers. This conflicts with the HydroCAD model.*

**We are accounting for 6 inches of stone in the HydroCAD model and on the plans, however, the Cultec Detail did show 12 inches of stone which we have revised to 6 inches.**

16. *Detail Sheets – Manhole risers on all three openings of the oil/water separators should be shown to facilitate maintenance.*

**Agreed, see revised detail.**

17. *Detail Sheets – The inspection port detail should not be optional.*

**Agreed, see revised detail.**

#### *HydroCAD Analysis/Stormwater Standards*

1. *Time of Concentration – According to the MA DEP’s “Hydrology Handbook for Conservation Commissioners” March 2002, page 4-20, the length of sheet flow is seldom greater than 50 feet.*

**We have re-run the HydroCAD analysis with a sheet flow length maximum of 50 feet.**

2. *Pipes are not included in the model. Pipe calculations are required for the 25-year storm event.*

**See pipe analysis included in the revised Stormwater Report.**

3. *SWMA-2 flows to a wetland. This wetland should be another design point.*

**We have re-named Link 1L to “Flow towards wetlands” in the revised Stormwater Report.**

4. *Infiltration basins should be modeled with a CN of 98, as they become a pond with inflow, and infiltration is accounted for by exfiltration.*

**We would agree with this comment if these were constructed stormwater wetlands that were set with bottoms at or near the groundwater table, however, these ponds will only hold water for a short period of time, i.e. less than 72 hours.**

5. *As previously mentioned, rainfall intensities from the Cornell Atlas should be utilized. Currently the SWMAs are grossly undersized.*

See revised Stormwater Report which utilizes the Cornell Atlas rainfall numbers. We have re-designed the basins and have removed additional impervious areas, i.e. roof areas and select paved driveway to reduce the amount of runoff tributary with the ponds.

6. *Stormwater Standard 3 – Absolutely no documentation has been provided that this standard has been met. The Engineer should review the requirements for documenting compliance in Volume 3 of the SW Handbook, and provided [sic] the required information.*

The information that you are referring to for Standard 3 was provided in Section 2 – Stormwater Compliance Calculations of the Stormwater Report.

7. *Time span needs to be increased for SWMA-2 and SWMA-3.*

We are currently utilizing a time span of 40 hours for the entire project. It is not possible to increase the time span for only these two structures in HydroCAD to the best of our knowledge.

8. *The outlet culvert from SWMA-3 does not match the inverts on the drawings. The outlet on the plan is 0.5 feet lower than that shown on the drawings, which will result in significantly more runoff to Elm Street drainage system.*

See revised plans.

We look forward to presenting the Revised Definitive Plan and peer review responses to the Community Planning Commission at the May 21, 2019 continued public hearing.

Very truly yours,



Peter M. Blaisdell, Jr., P.E., P.L.S.  
Project Engineer

Enclosures

cc: Anthony Gravallese, 77 Elm Street LLC  
Attorney Jill Mann, Mann & Mann P.C.