



January 24, 2011

Town of Seekonk, Massachusetts  
Conservation Commission and Planning Board  
100 Peck Street  
Seekonk, MA 02771

Re: Tall Pines Peer Review  
Tall Pines Conservation Subdivision  
Massachusetts Department of Environmental Protection (MassDEP) File Number SE069-0703

Dear Members of the Conservation Commission and Planning Board:

On behalf of the Town of Seekonk Conservation Commission (the "Commission") and Town of Seekonk Planning Board (the "Board"), Woodard & Curran has completed an initial technical and regulatory review of the proposed site improvements of the above referenced project for compliance the Massachusetts Wetlands Regulations 310 CMR 10.00 Wetland Protection Act, Town of Seekonk Conservation Commission General Wetlands Protection By-Laws and Regulations, Planning Board Rules and Regulations Governing the Subdivision of Land in Seekonk, Massachusetts, and Conservation Subdivision Design Zoning By-Law (Section 25). Woodard & Curran's review included the project plans, drainage calculations, and Notice of Intent submitted and signed with date December 1, 2010 for the proposed site development.

The following is a summary of the documentation reviewed by Woodard & Curran and our findings and recommendations.

## **DOCUMENTS REVIEWED**

Woodard & Curran obtained and reviewed the following documentation relative to this matter:

- Project plans entitled "Definitive Subdivision Plan of –Tall Pines– Conservation Subdivision in Seekonk, Massachusetts" prepared by SITEC, Inc. dated December 1, 2010.
- Report entitled "Drainage Report for "Tall Pines" in Seekonk, MA" prepared by SITEC, Inc. dated November 22, 2010.
- Notice of Intent Application – WPA Form 3 with associated attachments signed and dated on December 1, 2010.

Our comments from the review of these plans, reports and reference materials are presented as follows: Massachusetts Wetlands Regulations 310 CMR 10.00 Wetland Protection Act, Town of Seekonk Conservation Commission General Wetlands Protection By-Laws and Regulations, Planning Board Rules and Regulations Governing the Subdivision of Land in Seekonk, Massachusetts, and Conservation Subdivision Design Zoning By-Law (Section 25) followed by the Conclusion. **Woodard & Curran comments and recommendations are highlighted in bold.**

### **Project Summary**

The Applicant, *Stone Gate Builders Inc.*, currently proposes to develop a 14-lot conservation residential subdivision located the intersection of Brook Street and Newman Avenue in Seekonk, Massachusetts. The parcel is comprised of 18.1 acres of land in Seekonk, Massachusetts and 6.9 acres of land in Pawtucket, Rhode Island. All of the proposed work is to be constructed within the section of parcel located in Seekonk. The project consists of the construction of approximately 907+/- lineal feet of a cul-



de-sac roadway including stormwater management facilities, stream crossing, and wetland replication and enhancement areas. The project is proposing alteration of a stream bank, construction within State and Local Bordering Vegetated Wetlands (BVW), Land Under Water Bodies, Bordering Land Subject to Flooding (BLSF), and within the 200-foot Riparian zone of a Riverfront Area.

### **Massachusetts Wetlands Regulations 310 CMR 10.00 Wetland Protection Act**

Woodard & Curran reviewed application submittal for completeness, accuracy, and compliance with the performance standards set by the Massachusetts Wetlands Regulations 310 CMR 10.00 Wetland Protection Act (WPA). Woodard & Curran offers the following comments relative to the submission:

#### **1. Notice of Intent – WPA Form 3**

- A. Section B. 2(d). The proposed plans indicate that construction of the stream crossing will require filling within the floodplain as indicated in the planset. The applicant has not checked the box indicating that there will be a net fill within the floodplain. Due to the fill, compensatory storage allocation is required to offset the loss of flood storage within the floodplain.

**The applicant should check the box in this section and provide the required calculations of storage lost and compensatory flood storage replaced.**

- B. Section B. 2(f)(5). The applicant has not provided an alternatives pursuant to WPA section 10.58(4).

**The applicant, as also noted by the MADEP review, should provide an alternatives analysis to prove that there are no practicable and substantially equivalent economic alternatives to the proposed project with less impact to the resource area.**

- C. Section C. 6. The applicant has omitted the section which states whether the project is subject to the provisions of the MassDEP Stormwater Management Standards.

**The applicant should provide a check in the corresponding box for the proper completion of the application.**

- D. Section D.3. The applicant has checked the box identifying the method for the delineation of the bordering vegetated wetlands. The applicant has also provided a statement on the plans regarding the delineation of the wetland line.

**The applicant should inspect and re-establish the wetland flags in the field prior to construction in the case that any have deteriorated and fallen.**

#### **2. Massachusetts Department of Environmental Protection Stormwater Management Standards**

Woodard & Curran has reviewed the project for compliance with the Massachusetts Stormwater Management Standards (MADEP Standards). Chapter 2, Volume 2 of the MADEP Standards outlines specific structural BMP specifications and design guidelines that must be utilized for the design of Stormwater Management Systems. The following summary highlights elements of the proposed BMP's that should be re-examined, and in some cases modified, by the Applicant to ensure compliance:

##### **A. Drainage Report**

1. The applicant has submitted the report entitled "Drainage Report for 'Tall Pines' in Seekonk, MA" to satisfy the requirement of the MADEP Standards. The applicant has omitted a Checklist for Stormwater Report from the Drainage Report.

**The applicant should provide the required Checklist for Stormwater Report which has been completed and stamped by a Registered Professional Engineer.**



2. The applicant has provided Total Suspended Solids (TSS) removal calculations in the Drainage Report. The applicant has utilized a 70% TSS removal efficiency for “Water Quality Swale”. The plans do not indicate that this type of Best Management Practice (BMP) is to be utilized on site.

**The applicant should provide TSS removal worksheets as required by the MADEP Standards for each treatment train process on-site, i.e. a TSS removal worksheet for each discharge point. Removal Worksheets are required to document the TSS removal from the treatment train process prior to discharge to the resource area.**

B. Hydrologic Model

1. The applicant is using a time of concentration for various Subcatchments of less than six (6) minutes for pre-development and post-development conditions.

**The applicant should consider revising the hydrologic models using a minimum of 0.1 hours as prescribed by TR-55 methodology (6 minutes) as the time of concentration.**

2. The sum of the existing site subcatchment areas equals 11.09 acres. The sum of the proposed site subcatchment areas equals 10.54 acres. In order to properly review pre-development peak discharge rates versus post-development peak discharge rates the total watershed areas must represent each other.

**The applicant should update the hydrologic model such that the pre-development area match the post-development area.**

C. Subsurface Infiltration Structures:

1. The setback for subsurface infiltration systems from surface waters is 50 (fifty) feet as stated in Table RR in Chapter 1 of the MADEP Standards. The term “surface waters” as defined in 10.04 of 310 CMR 10.00, Wetland Protection Act is “all waters other than ground water within the jurisdiction of the Commonwealth including, without limitation, rivers, streams, lakes, ponds, springs, impoundments, estuaries, wetlands, and coastal waters”. The two northern most subsurface infiltration structures encroach within 50 feet of the resource area.

**The applicant should provide the 50’ setback to the subsurface infiltration system from the resource area as required by the MADEP Standards.**

2. The applicant has performed soil evaluations on site only two of which are located within the extents of the southern most subsurface infiltration basin.

**The MADEP Standards state:**

*Volume 2, Chapter 2: Page 88*

*Table IB.1 – Site Criteria for Infiltration Basins*

*“4. One soil sample for every 5,000 ft of basin area is recommended, with a minimum of three samples for each infiltration basin. Soil samples should be taken at the actual location of the proposed infiltration basin so that any localized soil conditions are detected.”*

*Volume 2, Chapter 2: Page 89*

*“Carefully evaluate sites before planning infiltration basins, including investigating soils, depth to bedrock, and depth to water table.”*

*Volume 2, Chapter 2: Page 90*



*“MassDEP requires that boring be at least 20 feet deep or extend to the depth of the limiting layer.”*

**Therefore, the applicant should comply with the MADEP Standards and perform the soil evaluations with and witnessed by Woodard & Curran or a representative of the Town of Seekonk. It is our understanding that this information is vital to the function of the basin and conformance with the regulations.**

3. The proposed stormwater best management practice relies on infiltration into the underlying soils for proper functioning. Ensuring that the A and B horizons and fill material which tend to be more hydraulically restrictive than the C horizon, as well as other unsuitable measures, are removed is important to the proper functioning of the infiltration basin.

**Recommendation: W&C recommends the following:**

- **The applicant revise the details for the subsurface infiltration structures to provide a provision for an overdig to remove the A and B soil horizons as well as other unsuitable materials in the event they are encountered below the proposed bottom of the subsurface infiltration system.**
- **The applicant revise the detail for the subsurface infiltration structures to clearly identify to the contractor that the soils under these systems should not be compacted.**
- **As a condition of approval, the excavation and installation be inspected by the Engineer.**

**As a condition of approval, a report by the Engineer certifying the basin was installed in accordance with the plans is provided to the Commission and Planning Board.**

4. The applicant has demonstrated in the hydrologic model an infiltration rate of 0.011416 feet per minute (8.22 inches per hour). This infiltration rate is considered “rapid infiltration” and requires at a minimum 44% TSS removal prior to discharge to the subsurface infiltration structures.

**The applicant should provide a TSS Removal Worksheet for each treatment train process proposed within the stormwater management system.**

**D. Retention Basin:**

1. The applicant is proposing a Retention Basin as part of the proposed stormwater management system. The applicant has designed the Retention Basin such that there is no outlet structure which would imply the applicant intends to infiltrate the stormwater runoff being discharged to the basin. Also, the basin has been modeled to have an infiltrative capacity.

**The applicant should clarify the intended use of the basin as Woodard & Curran is unable to properly evaluate the basin as currently proposed. The plans indicate that the intended use of the basin is to be a retention basin but in the hydrologic model the basin was modeled to have an infiltration capacity. The MADEP Standards have separate and particular standards for each different Best Management Practice (BMP). The applicant should identify and design the basin according to all requirements such as soil evaluation and setbacks according to the MADEP Standards.**

**E. Proprietary Separators – Stormceptor**



1. The applicant states in the Developed Conditions section of the Drainage Report that “Stormceptor 450i units will be used to pre-treat the runoff for sediment removal prior to infiltration”.

**The applicant should utilize Massachusetts Strategic Envirotechnology Program (STEP) Fact Sheet Number 4 as well as manufacturer’s design guidelines and provide the appropriate TSS removal efficiency for each Stormceptor unit. Woodard & Curran recommends that the applicant communicate with the Seekonk Department of Public works in order to confirm that the proper operations and maintenance equipment is available.**

### 3. Stormwater Standards Compliance

Woodard & Curran has reviewed the project with respect to compliance with the MassDEP Stormwater Management Standards. Chapter 1, Volume 3 of The Stormwater Management Handbook outlines specific calculations, and other information, that must be submitted with each drainage report to document compliance with the Standards. The following summary highlights elements of the proposed project pertaining to stormwater management that should be re-examined, and in some cases modified, by the Applicant to ensure compliance.

#### Standard 1

*No new stormwater conveyances (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.*

**Until the applicant has addressed the comments regarding TSS removal efficiency, Woodard & Curran can not confirm that this standard has been met.**

#### Standard 2

*Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates. This Standard may be waived for discharges to land subject to coastal storm flowage as defined in 310 CMR 10.04.*

**Until the applicant has addressed the comments regarding the hydrologic model, Woodard & Curran can not confirm that this standard has been met.**

#### Standard 3

*Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater BMPs, and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil type. This Standard is met when the stormwater management system is designed to infiltrate the required volume as determined in accordance with the Massachusetts Stormwater Handbook.*

**Stormwater Recharge is dependent on the proper functioning of the proposed infiltration systems. Woodard & Curran has made comments relative to the BMPs being utilized to infiltrate stormwater. Woodard & Curran cannot confirm that this standard has been met until the requested information is provided.**

#### Standard 4

*Standard #4 – Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of TSS. It is presumed that this standard is met when:*

- a. *Suitable practices for source control and pollution prevention are identified in a long-term pollution prevention plan, and thereafter are implemented and maintained;*



- b. *Structural stormwater BMPs practices are sized to capture the required water quality volume determined in accordance with the Massachusetts Stormwater Handbook; and*
- c. *Pretreatment is provided in accordance with the Massachusetts Stormwater Handbook*

The applicant has provided Water Quality Volume calculations to demonstrate compliance with the MADEP Stormwater standards. However, until the applicant has addressed the comments regarding TSS removal efficiency, Woodard & Curran can not confirm that this standard has been met.

#### Standard 5

*For land uses with higher potential loads, source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.*

**This standard is not applicable.**

#### Standard 6

*Stormwater discharges within the Zone II or Interim Wellhead Protection Area of a public water supply and stormwater discharges near or to any other critical area require the use of the specific source control and pollution prevention measures and the specific structural stormwater best management practices determined by the Department to be suitable for managing discharges to such areas, as provided in the Massachusetts Stormwater Handbook.*

**This standard is not applicable.**

#### Standard 7

*A redevelopment project is required to meet the following Stormwater Management Standards only to the maximum extent practicable: Standard 2, Standard 3, and the pretreatment and structural stormwater best management practice requirements of Standards 4, 5, and 6. Existing Stormwater discharges shall comply with Standard 1 only to the maximum extent practicable.*

**This standard is not applicable.**

#### Standard 8

*A plan to control construction-related impacts, including erosion, sedimentation, and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.*

**The applicant references in the Drainage Report Appendix A in order to meet Standard 8. Appendix A has not been attached to the Report. Until, the applicant can provide the documentation to demonstrate compliance with Standard 8, Woodard & Curran can not confirm that this standard has been met.**

#### Standard 9

*A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.*

**Woodard & Curran cannot confirm that Standard #9 has been met. The MADEP Standards set forth specific maintenance criteria regarding each BMP. Woodard & Curran has noted the following:**



- a. The applicant states that the catch basins and Stormceptors are to be inspected twice times per year. The MADEP Standards state that catch basins are to be inspected four times per year. The applicant should update the Operation and Maintenance Plan to conform to the MASWMS.
- b. The applicant should separate the Stormceptor maintenance schedule and provide the specific manufacturer operation and maintenance schedule.

#### Standard 10

*All illicit discharges to the stormwater management system are prohibited.*

The applicant has provided a statement stating that “There are no existing or proposed illicit discharges located on site.” The applicant should provide a document to be signed by the engineer and the property owner to comply with the MADEP Standards. The applicant should also revise the Drainage Report to indicate the associated Standard as Standard 10 is referred as “Stormwater Standard No. 8 – Illicit Discharges”. Woodard & Curran can not confirm that Standard #10 has been met.

#### Town of Seekonk Conservation Commission General Wetlands Protection By-Laws and Regulations

Woodard & Curran reviewed application submittal for completeness, accuracy, and compliance with the performance standards set by the Seekonk Conservation Commission General Wetlands Protection By-Laws and Regulations (CCBLR). Woodard & Curran offers the following comments relative to the submission:

##### A. Conservation Commission By-Laws

1. Section 7: The By-Laws state: “In the review of areas within 200 feet of rivers and streams, no permit issued hereunder shall permit any activities unless the applicant, in addition to meeting the otherwise applicable requirements of this bylaw, has proved by a preponderance of the evidence that (1) there is no practicable alternative to the proposed property use, overall project purpose (e.g. residential, institutional, commercial, or industrial purpose), logistics, existing technology, costs of the alternatives, and overall project costs.”

**As stated previously to comply with section 10.54 of the WPA as well as the Town of Seekonk Conservation Commission By-Laws, the applicant should provide an alternatives analysis with the Notice of Intent package.**

##### B. Conservation Commission Regulations

1. Section 2.2.2.1 Buffer Zone: Notwithstanding any of the above, the placement of impervious surface in the Buffer Zone is limited to the greater of:
  - a) 25% of the Buffer Zone; or
  - b) The percentage of the Buffer zone covered by previously-placed impervious surface suite to activity allowed at the time it was placed.

**The applicant should provide a calculation of impervious area within the buffer zone in order to demonstrate compliance with the regulations.**

2. Section 2.2.2.3 Bank: ...activities affecting a bank shall comply with the performance standards identified in 310 CMR 10.54 (4)(a)1-5.

310 CMR 10.54 (4) ... any proposed work on a Bank shall not impair the following:

- (5) ...that cumulatively alter(s) up to 10% or 50 feet (whichever is less) of the length of the bank...



**In order to demonstrate compliance with the WPA, the applicant should provide a calculation demonstrating that the total bank disturbance is less than 10% of the total bank located on-site.**

3. Section 2.2.2.4 Wetland: e) provisions are made for monitoring replicated wetland areas for a period of not less than 2 years.

**The applicant should include in the Operation and Maintenance Plan a provision to inspect the wetland replication area to ensure compliance with the regulations.**

- 4.2.2.2.5 Land Under Waterbodies and Watercourses: comply with the performance standards identified in 310 CMR 10.56(4) and any amendments thereof;

310 CMR 10.56(4) states: ... any proposed work within Land Under Water Bodies and Waterways shall not impair the following:

(1) The water carrying capacity within the defined channel, which is provided by said land in conjunction with the banks;

(4) ...that (cumulatively) alter(s) up to 10% or 5,000 square feet (whichever is less) of land in this resource area...

**The applicant should provide calculations per the “Massachusetts River and Stream Crossing Standards” which set forth channel width criteria to ensure that the stream crossing will not constrict the flow of the stream. Also, the applicant should provide a calculation to demonstrate compliance with 310 CMR 10.56 that the disturbance for the construction of the stream crossing will alter less than 10% of the total Land Under Water Bodies.**

- 5.2.2.2.6 Land Subject to Flooding (bordering and isolated) ...any activity within land subject to flooding shall:

a) comply with the performance standards identified in 310 CMR 10.57 (4)(a-b) and any amendments thereof

310 CMR 10.57(4) states:

(a)(1) Compensatory storage shall be provided for all flood storage volume that will be lost as the result of a proposed project within Bordering Land Subject to Flooding, when in the judgment of the issuing authority said loss will cause an increase of will contribute incrementally to an increase in the horizontal extent and level of flood waters during peak flows.

**The applicant should provide on the plans as well as an elevation foot by foot calculation to demonstrate that the proposed flood storage loss within the floodplain will be compensated by the proposed development.**

### **Planning Board Rules and Regulations Governing the Subdivision of Land in Seekonk, Massachusetts**

Woodard & Curran has reviewed the application submittal for completeness, accuracy, and compliance with the performance standards set by the Planning Board Rules and Regulations Governing the Subdivision of Land in Seekonk (PBRR). Upon review, the applicant has demonstrated that the proposed “Definitive Subdivision Plan of Tall Pines A Conservation Subdivision in Seekonk Massachusetts” is in compliance with the Planning Board Rules and Regulations.

### **Conservation Subdivision Design Zoning By-Law (Section 25)**



Woodard & Curran reviewed application submittal for completeness, accuracy, and compliance with the performance standards set by the Conservation Subdivision Design Zoning By-Law (Section 25) (S25). Upon review, the applicant has demonstrated that the proposed "Definitive Subdivision Plan of Tall Pines A Conservation Subdivision in Seekonk Massachusetts" is in compliance with the performance standards set by the Conservation Subdivision Design Zoning By-Law (Section 25).

### **General Engineering Practice**

Woodard & Curran reviewed the application submittal in regards to general engineering practices. Woodard & Curran offers the following comments relative to the submission:

1. The applicant is proposing to construct a new stream crossing in order to access the upland area for the proposed subdivision. Woodard & Curran recommends the following:

**a) Due to the unavoidable impacts to the resource area caused by the construction of the stream crossing, the applicant should submit an application to the Army Corps of Engineers in order to obtain the appropriate permit.**

**b) The applicant should provide the appropriate documentation and calculations to demonstrate compliance with the Massachusetts River and Stream Crossing Guidelines.**

2. The Conservation Commission has stated that the favorable stream crossing would be the previously proposed open bottom arch structure.

**The applicant should provide a statement as to the reason why the design of the stream crossing was changed and demonstrate the hardship, if any, of providing the open bottom structure versus the currently proposed box culvert crossing. It was stated by the Commission that the open bottom structure is preferable to the currently proposed box culvert as it would entail less resource area impacts for construction.**

3. In regards to the floodplain delineation, the applicant has stated in the planset the shown flood plain was obtained from "Flood Zone information taken from Nation Flood Insurance Program Map entitled "Flood Insurance Rate Map, Town of Seekonk, Massachusetts, Bristol County, Panel 5, Community Panel No. 250063 0005" and revised Sept. 5, 1979." Woodard & Curran has researched the Federal Emergency Management agency website and found that the most recent Flood Insurance Rate Map of the area has an effective date of July 7, 2009.

**Woodard & Curran recommends that the applicant utilize to most recent FEMA FIRM maps for the determination of the floodplain as well as floodplain data to determine the corresponding flood elevation.**



**Conclusion & Recommendations**

Due to the outstanding comments, Woodard & Curran cannot recommend a positive approval for the proposed project at this time. We will continue to work with the Applicant, the Conservation Commission and the Planning Board to resolve these outstanding comments. If you have any questions regarding this review please feel free to contact our office at 401-273-1007.

Sincerely,

WOODARD & CURRAN INC.

A handwritten signature in black ink, appearing to read "Brian M. Dunn".

Brian M. Dunn  
Senior Project Manager

A handwritten signature in black ink, appearing to read "Filipe Cravo".

Filipe Cravo, P.E.  
Project Engineer

BMD/fjc  
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