



October 13, 2015

Ms. Susan E. Affleck-Childs
Medway Planning and Economic Development Coordinator
Medway Town Hall
155 Village Street
Medway, MA 02053

RE: Salmon Health and Retirement Community – ARCPUD Subdivision
Village Street, Medway, Ma. 02053

Dear Ms. Affleck-Childs:

On behalf of our clients, Salmon Health and Retirement and Dario Designs, Inc., Coneco Engineers & Scientists, Inc. (Coneco) is pleased to submit revised ARCPUD Special Permit Site Plans and supporting documentation for the proposed ARCPUD development located off of Village Street. These documents address the comments contained within the peer review letter from Tetra Tech, on behalf of the Planning and Economic Development Board, Town of Medway, dated August 5, 2015.

The following section contains our responses to the comments contained in the aforementioned August 5, 2015 letter. As an aid to the reader the comments are included in *italicized* text followed by Coneco responses in plain text.

Conformance with Planning Board Rules and Regulations for the Review and Approval of Land Subdivisions (Chapter 100):

- 1) *It appears labeling of the profiles is incorrect. The profiles appear to be drawn correctly; however, the vertical scale reads 1"=40' instead of 1"=4'. (Ch. 100 §5.6.3)*

The scale label has been corrected; see the Plan and Profiles (Sheets C36-C41).

- 2) *The name for the project on the proposed Plans is not consistent with "The Willows" title which has been used for the project recently. All material should reflect the permanent name of the project. (Ch. 100 §5.7.3)*

The project name is correctly labeled on all Plans as Salmon Health and Retirement Community.

- 3) *The applicant has not shown existing trees (12 in. dia.) on the existing conditions plan. This information is utilized in determining the extent of disturbance to the land and to help the board better understand the magnitude of tree removal on-site. (Ch. 100 §5.7.6)*

All existing (non-pine) trees with 24" diameter and larger have been shown on the Existing Conditions Plans (Sheets C4-C9) and Site Layout Plans (Sheets C16-C21) for discussion purposes.

4) *The zoning district is not shown on the Plans. (Ch. 100 §5.7.13)*

A Zoning Table has been added to the Key Sheet (C3) with dimensional requirements.

5) *Building setbacks are not shown on the Plans. (Ch. 100 §5.7.14)*

The 50' building setback has been added to the Site Layout Plans (Sheets C16-C21).

6) *A waiver list is not shown on the cover sheet of the Plans. (Ch. 100 §5.7.16)*

Requested waivers have been added to the Cover Sheet.

7) *The applicant has not provided the notation that the Plans are subject to a covenant to be recorded with the Plans. (Ch. 100 §5.7.18)*

The notation has been added to the Notes & Legend Plan (Sheet C1).

8) *The applicant has not provided invert information for the infiltration trenches associated with the drain infrastructure. (Ch. 100 §5.7.23.c)*

An infiltration trench summary table has been updated on the Drainage & Foundation Schedule (Sheet C28).

9) *The applicant has not provided an O & M Plan on the Plans. (Ch. 100 §5.7.23.e)*

The Operation and Maintenance Plan and Maintenance Checklist has been added to Sheet 10 of 10, Construction Details (Sheet C60).

10) *A typical cross-section of the proposed roadways has not been provided. (Ch. 100 §5.7.25)*

A roadway cross section has been added to Sheet 9 of 10, Construction Details (Sheet C59).

11) *The applicant has not provided street name signs on the Plans. Stop signs have been provided but no mention of street name signage. It is recommended the applicant also place a note on the plan to coordinate signage installation with Medway DPS prior to construction. Also, confirmation of approval of street names have not been provided. (Ch. 100 §5.7.27)*

Signage symbol locations have been updated on the Site Layout Plans as well as Medway DPS notation (Note 5), (Sheets C16-C21); see Architectural Plan Set for signage details. Street names have been approved previously.

Conformance with Planning Board Rules and Regulations for Review and Approval of ARCPUD Plans and Issuance of ARCPUD Special Permits (Chapter 300):

- 12) *It appears labeling of the profiles is incorrect. The profiles appear to be drawn correctly; however, the vertical scale reads 1"=40' instead of 1"=4'. (Ch. 300 §303-4. A.8)*

The scale label has been corrected; see the Plan and Profiles (Sheets C36-C41).

- 13) *The applicant has not provided a locus map detailing street configuration, major land uses, major natural features and zoning district boundaries within 2,000 feet of the boundary of the site at a minimum scale of 1"=800'. (Ch. 300 §303-4.A.9)*

A Locus Map (8 ½" x 11") has been provided with the supplemental information.

- 14) *A list of waivers has not been supplied on the Plans. (Ch. 300 §303-6.N)*

Requested waivers have been added to the Cover Sheet.

The following items were found to be not in conformance with the MA DEP Storm Water Management Standards, Town of Medway Stormwater Design Standards (Chapter 100 Section 7.7) or requiring additional information as it relates to site drainage facilities:

- 15) *The applicant should update the HydroCAD report pond descriptions to correspond to the descriptions on the Grading and Drainage Sheets (i.e. update description for Pond MF to Infiltration Trench 1).*

Descriptions have been coordinated with the Grading & Drainage Plans (Sheets C22-C27) and the Stormwater Report/HydroCAD (Appendix B).

- 16) *The applicant should show test pit locations on the Grading and Drainage Sheets for ease of reviewing the proposed drainage.*

Test pit locations have been added to the Grading & Drainage Plans (Sheets C22-C27). Test pit data/logs are located in the Stormwater Report (Appendix H).

- 17) *Runoff rates and volumes must be detained on-site for the two (2), ten (10), twenty-five (25), and one hundred (100) years storm events. For ease of review, please include a comparison table for runoff volumes in Appendix C of the Stormwater Management Report. (Ch. 100 §7.7.2.g)*

Table 2 of the Stormwater Report (Stormwater Management Standards Review) has been updated and includes both runoff rates and volumes).

- 18) *All drain pipes except sub-drains shall be Class IV reinforced concrete pipe as required by the regulations. Utilities Note #7 on sheet C1 states that "Utility pipe materials shall be as follows unless otherwise notes on the plan: storm drainage*

pipes shall be double wall, smooth interior high density polyethylene (HDPE)”. However, TT has no objection to the pipe specified for the project. (Ch. 100 §7.7.4.b)

A waiver request from this requirement has been added to the Cover Sheet.

19) *The applicant has not provided foundation perimeter drains on the Plans. (Ch. 100 §7.7.4.d)*

A waiver request from this requirement has been added to the Cover Sheet.

20) *On sheet C17, infiltration trench adjacent to Unit 50 on Lilac Path is not labeled.*

The infiltration trench label has been added to the Grading & Drainage Plan (Sheet C24).

21) *On sheet C19, infiltration trench adjacent to Unit 27 on Willow Pond Circle is not labeled.*

The infiltration trench label has been added to the Grading & Drainage Plan (Sheet C25).

22) *The applicant should confirm the areas for all subcatchments. The existing conditions HydroCAD report has a total area of 57.491 acres. The proposed conditions HydroCAD report has a total area of 50.981 acres (2,220,716 sf) and the proposed Unit Infiltration Systems HydroCAD report has a total area of 3.261 acres. There is a 3.249 acre decrease under the proposed conditions. However, the outer subcatchment boundary on Figures 7 and 8 appear to be identical.*

Subcatchment areas have been updated accordingly. Stormwater Report – Volume II has been added and includes each proposed residential cottage. The previous discrepancy was a result of modeling one each of the three unit styles and their associated recharge calculation.

23) *The applicant should update the Charles River subcatchment data on Figure 7 to match the data in the existing HydroCAD report.*

Figures 7 & 8 have been updated and no longer include specific data, only subcatchment labels are now depicted on those figures.

24) *The applicant should update the Charles River, Intermediate Roadway, Main Campus, and Pond Drive subcatchment data on Figure 8 to match the data in the proposed HydroCAD report.*

Figures 7 & 8 have been updated and no longer include specific data, only subcatchment labels are now depicted on those figures.

25) *The applicant should confirm that all infiltration BMPs have a minimum separation from seasonal high groundwater of at least two (2) feet. If the separation is less than*

four (4) feet, provide a mounding analysis per Volume 3, Chapter 1, pages 28-29 of the 2008 Massachusetts Stormwater Handbook.

All infiltration BMP's have minimum separation as required. See infiltration trench summary table (Sheet C28) and test pit data, Grading & Drainage Plans (Sheets C22-C27) and test pit data/logs located in the Stormwater Report (Appendix H).

26) *The applicant should confirm that all proposed infiltration BMP's are able to drain fully within 72 hours. The calculations included in Appendix C of the Stormwater Management Report includes a general calculation, however, a calculation should be included for each infiltration BMP.*

Drawdown calculations for all BMP's have been added to the Stormwater Report (Appendix C).

27) *The Stormwater Management Report indicates that "a total of 85,057 cubic feet is provided on the site in just the underground infiltration systems". The applicant should confirm this number against the HydroCAD report.*

See comment 22 for initial explanation, all cottages were not included original. See Stormwater System Management Overview – Standard 3 for further detailed descriptions.

28) *The applicant should confirm the saturated hydraulic conductivity (rawls rate) for all infiltration BMPs. The proposed HydroCAD report utilizes an exfiltration value of 2.41 inches/hour which corresponds to loamy sand, HSG A but the Drawdown calculations utilize an exfiltration value of 1.0 inches/hour which corresponds to sandy loam, HSG B.*

The Rawls rate of 2.41 inches/hour for infiltration BMP's was utilized based on preliminary on site soils testing. The Rawls rate of 2.41 inches/hour is now incorporated into the drawdown calculations within the Stormwater Report (Appendix C).

29) *Per Volume 1, Chapter 1, page 11 of the 2008 Massachusetts Stormwater Handbook Infiltration Basins & Infiltration Trenches provide 80% TSS removal provided it is combined with adequate pretreatment such as a sediment forebay, vegetated filter strip, grass channel, or a water quality swale prior to infiltration. The TSS removal calculations in Table 4 of the Stormwater Management Report accounts for Infiltration BMPs having a TSS removal rate of 80% however Infiltration Basins 1, 2, and 3 do not have adequate pretreatment.*

Forebays have been added to Basins 1 & 3 on the Grading & Drainage Plans (Sheets C22-C27) and the Stormwater Report, Table 4, Standard 4, Stormwater Management System Overview has been updated.

30) *The Charles River (segment ID MA72-04) is listed as an impaired water. If a TMDL exists that indicates a need to reduce pollutants other than TSS please provide documentation showing that the proposed BMPs are consistent with the TMDL.*

There is no EPA permit or action required for this project at this time. There is also no point source discharge and all runoff inclusive of the 100 year storm event will infiltrate on site.

- 31) *The applicant should confirm that all proposed Stormceptor units are capable of treating the water quality volume. Refer to the following MassDEP document, “Standard Method to Convert Required Water Quality Volume to a Discharge Rate for Sizing Flow Based on Manufactured Proprietary Stormwater Treatment Practices” which is located at the following webpage:*
<http://www.mass.gov/eea/agencies/massdep/water/regulations/stormwater-policies-guidance.html>

Calculations have been provided within the Stormwater Report, Appendix C.

- 32) *Inverts of all proposed Stormceptor units should be confirmed by the applicant. On sheet C21, the invert into the unit is equal to the invert out for all the units, however this does not correspond to the Inlet and Outlet Pipe Invert Elevations Differences listed in the Stormceptor Design Notes in Appendix I of the Stormwater Management Report.*

In speaking with the manufacturer, inverts can match without jeopardizing the effectiveness of the units. If required, the design can be modified to incorporate a drop as outlined within the Stormceptor Design Notes.

- 33) *The applicant should update the inverts for all infiltration trenches in the HydroCAD report to correspond to the inverts listed in the Infiltration Trench Summary Table on sheet C21. For example on sheet C21 Infiltration Trench 1 has a bottom of trench elevation of 175.21 and a bottom culvec elevation of 176.21. However, in the HydroCAD report the elevations are 0.00 and 1.00.*

All invert elevations now correspond as shown on the Drainage & Foundation Schedule Plan (Sheet C28) and Stormwater Report – Volume II.

- 34) *Per Volume 2, Chapter 2, page 91 of the 2008 Massachusetts Stormwater Handbook Basins 1, 2 and 3 shall have a 15 foot vehicle access around the entire basin perimeter.*

Vehicle access has been provided as required for Basins 1 & 3, see Grading & Drainage Plans (Sheets C24 & C27).

- 35) *Per Volume 2, Chapter 2, page 91 of the 2008 Massachusetts Stormwater Handbook Basins 1, 2 and 3 shall have a drawdown device to draw the basin down for maintenance purposes.*

A drawdown device has been added to Sheet 5 of 10, Construction Details, Outlet Control Structures.

- 36) *The inlets to Basins 1, 2, and 3 are submerged during the 25-year storm event. The applicant should confirm that the storm drain pipe networks into the basins have sufficient freeboard available to accommodate the tailwater condition.*

The peak elevation of the 25 year storm event does not exceed the elevation of any proposed structures. See Grading & Drainage Plans (Sheets C22-C27) and the Stormwater Report (Appendix B).

37) *The intent of Basin 2 is unclear as shown on the Plans. It appears Cultec infiltration chambers are placed below an at-grade detention basin. This condition may cause issues with maintenance of both BMP's and may also cause increases in earthwork at this location. It is recommended the applicant research options to provide one BMP or the other at this location.*

Basin 2 has been re-designed to function as a subsurface infiltration facility only, see Grading & Drainage Plans (Sheets C26 & C27).

38) *The applicant to confirm the berm elevation of Basin 1. On sheet C17 the berm elevation is 180.0 however in the HydroCAD report the berm elevation is 181.0.*

The berm elevation is 180.0 however utilizing an elevation of 181.0 in HydroCAD allows the user to determine an exact 100 year storm event elevation. See Stormwater Report, Appendix B.

39) *The applicant has not provided a minimum of one foot of freeboard in Basin 2.*

Basin 2 has been re-designed to function as a subsurface infiltration facility only.

40) *The applicant should confirm the berm elevation of Basin 3. On sheet C20 the berm elevation is 179.0, however, in the HydroCAD report the berm elevation is 180.0.*

The berm elevation is 179.0 however utilizing an elevation of 180.0 in HydroCAD allows the user to determine an exact 100 year storm event elevation. See Stormwater Report, Appendix B.

41) *The applicant should confirm invert of FES-2. On sheet C17 the invert of FES-2 is 173.50, however, in the HydroCAD report the invert is 176.50.*

Elevations have been coordinated; see Grading & Drainage Plan (Sheet C24), and Stormwater Report, Appendix B.

42) *The applicant should confirm invert of FES-4. On sheet C19 the invert of FES-4 is 166.5, however, in the HydroCAD report the invert is 173.5.*

Basin 2 has been re-designed to function as a subsurface infiltration facility only and now contains a headwall as opposed to the original flared end section.

43) *The applicant should confirm invert of FES-6. On sheet C20 the invert of FES-6 is 166.5, however, in the HydroCAD report the invert is 173.50.*

Elevations have been coordinated; see Grading & Drainage Plan (Sheet C27), and Stormwater Report, Appendix B.

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- 44) *Runoff from the abutting side streets (Nipmuc Street and Iroquios Street) flows to the west towards the wetlands in the Existing Condition. On sheet C18 the proposed grading on the eastern side of the roadway appears to be creating a low spot. The applicant should confirm that the proposed grading will not impact the abutting side streets.*

A double grated catch basin has been added to this area and drains across Waterside Run towards the existing wetlands, see Grading & Drainage Plan (Sheet C25).

- 45) *It appears that existing runoff from adjacent properties near Naumkeag Street discharges to Basin 3. However, the subcatchment for Basin 3 does not include any area from the adjacent properties. The applicant should confirm Basin 3 has adequate storage to mitigate runoff from the adjacent properties.*

A proposed swale has been depicted to bypass Basin 3 and does not impact the abutting properties, see Grading & Drainage Plan (Sheet C27).

- 46) *Many of the proposed infiltration trenches are located on or near slopes. The applicant should confirm that there will be no break-out from the infiltration trenches.*

Infiltration trenches have been relocated where required, see Grading & Drainage Plans (Sheets C22-C27). Where determined, impermeable barriers can be added to ensure breakout does not occur.

- 47) *Per Volume 1, Chapter 1, page 9 of the 2008 Massachusetts Stormwater Handbook, the following information should be added to the Long Term Pollution Prevention Plan:*

- a) Maintenance of lawns, gardens and other landscaped areas;*
- b) Pet waste management;*
- c) Proper management of deicing chemicals and snow;*
- d) If a Total Maximum Daily Load (TMDL) has been developed that indicates that use of fertilizers containing nutrients must be reduced, a Nutrient Management Plan shall be included in the Long Term Pollution Prevention Plan.*

Additional information has been added to the LTPPP as required, this Plan will be further developed prior to construction and the establishment of property management, see Appendix D of the Stormwater Report.

- 48) *The following information has not been provided in the Operation and Maintenance Plan:*

- a) Plan showing the location of all the stormwater BMPs and maintenance access areas;*
- b) Description and delineation of public safety features*
- c) Estimated operation and maintenance budget;*
- d) Maintenance schedule for the surface infiltration basins (i.e. Basins 1, 2, and 3);*
- e) Maintenance schedule for the Cultec infiltration trenches.*

Additional information has been added to the O & M plan, see Appendix F of the Stormwater Report. The proposed roadway will be private and not a municipal roadway. Existing permitting plans will be utilized for maintenance purposes.

- 49) *The Stormwater Management System Operation & Maintenance Checklist has a typo at the bottom of the page (i.e. Appendix I).*

Appendix I within the Stormwater Report has been corrected.

The following items were found to be not in conformance with the Town of Medway Water/Sewer Rules and Regulations:

- 50) *The Applicant shall add note "Plumbers and drain layers of established reputation and experience will be licensed by the Board as Drain Layers authorized to perform work." (Article 111-2)*

The notation has been added to the Notes & Legend Plan (Sheet C1).

The following items were found to be not in conformance with good engineering practice or requiring additional information:

- 51) *It does not appear the applicant has included detectable warning panels for ADA ramps throughout the site.*

ADA warning panels are only required along train platforms and recommends against them in other areas due to maintenance and safety concerns.

- 52) *Vertical granite curbing has not been provided on the plans for the main entrance as shown on Sheet C9.*

Curbing types have been labelled appropriately; see Site Layout Plan (Sheet C16).

- 53) *The applicant has not provided concrete encasement of vertical concrete curb as shown on the "Vertical Concrete Curb (VCC)" detail on Sheet C53.*

Concrete curb installation does not require concrete encasement in applications such as this, furthermore, the cost to add this feature would be cost prohibitive given the proposed roadway lengths.

- 54) *Sidewalk throughout the site terminates at Village Street at both entrances. Provisions for a crosswalk to the northern side of Village Street should be shown to provide connectivity with existing sidewalk infrastructure on Village Street.*

Crosswalks have been added to access points with appropriate signage, see Site Layout Plans (C16 & C17), see Sheet 1 of 10, Construction Details (Sheet C51), for signage details.

- 55) *The applicant has not provided a retaining wall detail.*

Retaining wall design(s) will be completed prior to construction by a licensed structural engineer. As an aid during permitting, Crossing Elevation Plans have been provided that detail the proposed wetland crossings (Sheets C42 & C43).

56) *The applicant should provide more detail on the construction sequencing plan. It is expected this project will be constructed in a phased approach and the plan should reflect that. The applicant should also provide a SWPPP and copy of the NPDES Construction General Permit.*

A SWPPP will be completed and submitted for Town review prior to construction. Construction will not be phased, only cottages will be constructed in a phased manner depending upon sales.

57) *The applicant has not provided Finish Floor Elevations (FFE) for the proposed buildings on site. This information is necessary to determine if further grading will be required around the buildings. There is concern that additional grading will be required to install the buildings and encroach on nearby wetlands.*

An updated foundation schedule has been provided on the Drainage & Foundation Schedule Plan (Sheet C28).

58) *A lighting report has been provided. However, details of the lighting are not shown on the Plans.*

Photometric Plans have been provided (Sheets C45-C50) and lighting details have been added to Sheet 10 of 10, Construction Details (Sheet C60).

59) *The applicant has not provided a fire truck turning diagram throughout the site. Coordination between the applicant and the fire chief should be provided to confirm proper fire safety is achieved.*

Coordination has been completed with the fire department and they have reviewed the Plans accordingly.

60) *The applicant has not provided a table providing compensatory storage at each elevation of altered floodplain.*

See the Wetland Replication Plan (Sheet C44) for compensatory storage calculations.

61) *The applicant has not provided detail on the landscape plan regarding plantings within the wetland replication area.*

See the Wetland Replication Plan (Sheet C44) for proposed plantings.

62) *The plans reference the riverfront area as a buffer. Riverfront area is considered a resource area under the MassDEP Wetlands/Rivers Protection Act.*

The word “buffer” has been removed from those labels.

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- 63) *The applicant has not provided a detail of the proposed walking paths. Additional to the detail, there is concern that there is no grading shown for the paths which would further impact the surrounding wetland. It should also be noted that it is expected the paths within the wetland area will be greater in area than 5,000 s.f. Coordination between the applicant and MassDEP should be provided if the paths are acceptable to the state.*

A detail has been provided of the walking paths; see Sheet 8 of 10, Construction Details (Sheet C55). There is no alteration of existing grades proposed. Utilization of existing pathways and grade will be implemented. Paths will be field determined (with Conservation Commission) as well to avoid conflicts with existing trees and environmentally sensitive areas.

- 64) *The applicant should provide correspondence with the utility company responsible for the cross-country sewer located in the southern portion of the site. Construction is proposed within the sewer easement.*

Correspondence with the Charles River Pollution Control District has been provided.

- 65) *The applicant has not provided the sewer main on the plan and profile. It is unclear if the site buildings will be serviced by sewer or septic systems.*

The proposed sewer main has been added to the Plan and Profiles (Sheets C36-C41).

- 66) *The water main appears to be closer than 10-feet to the sewer adjacent to the southeast corner of the proposed campus building. DPS should advise on the treatment of this condition.*

Coordination will occur with Medway DPS prior to construction.

- 67) *The water/gas main appear to be above grade at the cross culvert as shown on Sheet C29. There is concern the water main could freeze during the winter months.*

The proposed water main will be insulated as required; see the Plan and Profiles (Sheets C36 & C41).

- 68) *There are many high points in the water main shown. Air release valves are recommended to be installed at high points to release air which may be trapped in the water main.*

A notation has been added to the Notes & Legend Plan (Sheet C1).

- 69) *Gate valves are not shown on the Plans. Water main should be installed per the water/sewer rules and regulations.*

Gate valves have been added to the Utility Layout Plans (Sheets C29-C34).

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- 70) *Detail of the proposed water main connection in Village Street should be detailed. The town requires controlled density fill be used as a backfill material under pavement in all rights-of-way.*

A notation has been added to the Notes & Legend Plan (Sheet C1).

If there are any additional questions or comments or should the Planning and Economic Development Board require any additional information please do not hesitate to contact me at 508-697-3191 extension 110 or at soates@coneco.com.

Very truly yours,
Coneco Engineers & Scientists



Shane M. Oates
Senior Project Manager - Engineering