Professional Services Corporation, PC

Engineering Review of Site Plan for

The Lanterns at Warren Woods

466 Chestnut Street

Ashland, MA

August 21, 2015

Engineer/Surveyor
Vanasse Hangen Brustlin, VHB
101 Walnut Street, PO Box 9151
Watertown, MA 02471

Owner
Cloverland Properties, LLC
45 Forest Street
Sudbury, MA 01776

Applicant
Pichuick Development Corp
c/o The Green Company
46 Glen Ave
Newton Centre, MA 02459

Location
Off the Eliot Street and Chestnut Street intersection.

Zoning Districts
Residence RA; Office Commerce CO

Content
Site Plan set -33 sheets;
Stormwater Runoff Analysis

Assessors' Reference
Map 24, Lot 12, 92

INTRODUCTION

Professional Services Corporation (PSC) reviewed the "*The Lanterns at Warren Woods – 466 Chestnut Street Ashland, Massachusetts"* Site Plan and Special Permit application prepared by VHB, Watertown, Massachusetts and dated July 1, 2015. The project is proposed on a parcel identified as assessors Map 24, Lots 12 and 92 in the Residence A and Office Commerce CO districts. The parcel contains 39.00 acres of partially developed land at the intersection of Chestnut Street and Eliot Street with frontage on both streets. The site was formerly the location of Ashland Town Hall, a pre-school and other town facilities, all of which have been previously razed. An existing farmhouse, presently used as the 4-H house lies within the southerly portion of the locus. The town-owned 'Warren Woods' is near the project to the south.

The proposed project consists of ninety-three (93) two-bedroom single family detached homes, supporting roadway and infrastructure to be developed as an age-restricted Senior Residential Community Special Permit use, pursuant to Section 282-7.2 of the Bylaw. The units will be generally clustered into 18 groupings of between three and six homes each to be served by three roadways and a system of fourteen spur driveways. Primary access will be derived from Chestnut Street and a secondary emergency access is proposed from Eliot Street, a scenic way.

Five open space parcels of 17.42 acres that qualify toward the open space are proposed around the project perimeter and in the southwest and southeast corners of the locus, encompassing three Bordering Vegetated Wetlands (BVW), buffers and uplands. One of the BVW areas contains two Certified Vernal Pools. Portions of the open space are to be deeded to the town by means of a conservation restriction.

Utilities, including water, sewer, gas, telephone and electric service will be extended into the site from Chestnut Street and Eliot Street. An 8-inch water service will be looped through the project with connections to existing water mains in both streets.

The stormwater management system proposes separate underground facilities to separately accommodate roof runoff. The remainder of the project flows are to be collected in a conventional closed system and directed to four stormwater management areas and then off-site.

Per review of the *Flood Insurance Rate Map (FIRM),* Community Panel 25027C0900E, the project is located in FEMA Zone X, in an area of minimal flooding.

BASIS OF REVIEW

Our evaluation is based upon review of the following:

A. Review of the site plan entitled "*Site Plans Special Permit – The Lanterns at Warren Woods, 466 Chestnut Street Ashland, MA*" prepared by Vanasse Hangen Brustlin (VHB), Watertown, Massachusetts, dated July 1, 2015 and consisting of thirty-three (33) drawing sheets.

B. Review of Stormwater Permit Application including review of "*Stormwater Management Report - The Lanterns at Warren Woods 466 Chestnut Street Ashland, MA*" dated July, 2015 prepared by VHB, Watertown, MA.

C. Review of "*Special Permit Application – The Lanterns at Warren Woods, 466 Chestnut Street Supplemental Landscape and Architectural Information Package"* prepared by CBA Landscape Architects, Cambridge, MA and dated July 1, 2015.

D. Review of "*Supplement to Application for Special Permit"* and *"Application for Special Permit under 282.7.2" and "Application for Scenic Road Permit Chapter 249-15",* dated July 2, 2015 as prepared by Jerry C. Effrin, Esq. and addressed to the Ashland Planning Board.

E. Review of the *Flood Insurance Rate Map (FIRM),* Community Panel 25027C0900E, issed July 4, 2011.

F. Review of the *Zoning Map* of the Town of Ashland, Massachusetts as revised.

G. Review of the *Code of the Town of Ashland, Massachusetts* as amended.

H. Review of the *Zoning By-laws of the Town of Ashland, Massachusetts* as amended.

I. A field reconnaissance of the property.

GENERAL

1. Please verify that the Senior Residential Community is a currently approved use both in the Residence A district, as well as the Office Commerce CO district. Chapter 282, Section 3.0 'Table of Principal Use Regulations', §7.2.2, §7.2.5.).

2. In the CO district, the minimum required building separation is 20 feet. (Section 4.1.2.8). Within the building clusters, the plans generally provide only 12 to 14 feet between each unit.

3. A detail of the project entrance signage, shown schematically on Sheet L-1 should be provided. The signage design and sizing should comply with Section 5.3.

4. The landscape plan, Sheet L-1 should include a schedule of specific species, caliper and heights, and should identify proposed locations of each. Section 5.4.5 should be referenced for general standards.

5. A Site Alteration Special Permit may be required from the Planning Board, pursuant to Section 5.8.2, and §5.8.3.1 for earthwork associated with the portion of the project in the CO District.

6. The supplemental narrative indicates that the developer has agreed to transfer a significant portion of the open space to the town, by means of a conservation restriction. It is not clear whether this only includes the wetland resource areas, or the entirety of the open space parcels.

SPECIAL RESIDENTIAL REGULATIONS

7. Open space areas are required to maintain at least 20 feet of handicapped accessible frontage on each right-of-way and internal roadway. The grading and/or layout plan should specify the accessible locations proposed along Chestnut Street, Road 'B' and Eliot Street. (Chapter 282, Section 7.2.6.4.c). A handicap space should be provided in the four parking spaces adjacent to Unit 42 (Sheet C-4.1)

8. Within a Senior Residential Community, individual dwellings need not be located "…within the separate lot framework associated with the definitions of the terms 'Lot,' 'Lot Area,' 'Lot

Coverage,' 'Lot Frontage,' and 'Yard'…listed in Section 10" of the Bylaw. However, Section 7.2 of the Zoning Bylaw establishes layout requirements for the development that can best be evaluated "…as if the included dwellings/structures were to be provided on separate lots." A geometric "Proof Plan" should be provided, showing the roadways within right-of-ways, and the dwellings within lot lines. The proof plan should demonstrate the following:

a. Each dwelling unit lot area contains no slopes greater than 25 percent (§7.2.6.1).

b. Each dwelling unit is required to have one (1) exterior paved parking space. (§7.2.7.2) The plan should show that the exterior space is sufficiently outside the adjacent street layout.

c. Single dwelling unit lot sizes shall be eight thousand (8,000) square feet minimum. (§7.2.7.2.a).

d. The positioning of buildings shall be staggered a minimum of ten (10) feet along each right-of-way, while maintaining setback requirements. (§7.2.7.5).

e. Front yards shall be twenty (20) feet minimum; rear yards shall be thirty (30) feet minimum and side yard separation of abutting dwellings/structures shall be twenty (20) feet minimum. (§7.2.10.1)

f. Dwelling Lot Coverage (density) – twenty five (25%) percent maximum. (§7.2.10.2)

g. Floor Area Ratio is 0.5 maximum (per proof lot). (§7.2.10.4)

h. An inventory of additional parking, equal to 20% of that which is provided for the dwelling units should be calculated. (§7.2.10.6)

i. Rights-of-way shall meet widths required for a lane (40 feet) and shall adhere to radius of curvature (100-foot centerline radius), grades, etc. required under Section 344-12 for a lane. (§7.2.10.10,)

j. The "Proof Plan" should also depict "Open space Parcels" totaling at least 30 percent of the overall development (excluding most wetlands and stormwater basins) (§7.4.6 4a) (§7.4.6 4b) (§7.2.8 2).

9. Upon submission of a conformant Proof Plan, the open space calculation should be resubmitted. Section 7.2.7.1 specifies a maximum average of five (5) dwelling units per acre *of such land dedicated to dwelling unit building lots*. The calculation provided on Sheet C-2 based this maximum on the entirety of the locus, after subtraction of only the wetland areas. (39.00 acres – 3.03 acres, or 35.97 buildable acres). Within the SRC, the project is required to set aside 30% of the uplands as open space, so the open space should not be included as 'land dedicated to dwelling unit building lots' as referenced. It appears that the permissible number of units should be 126, rather than 179. The project currently proposes 93 units, which is compliant to §7.2.7.1.

RULES AND REGULATIONS - The project is subject to the Subdivision Rules and Regulations (Chap 282, §7.2.5.1)

10. Reserve strips prohibiting access to streets are not permitted, except where deemed to be in the public interest. The required 30-foot buffer around the SRC, which is indicated as Open Space parcel OS-C acts a de-facto reserve strip that would eliminate the potential access to the Mount View Drive and Prospect Heights roadways. (§344-12.A.(4) and §282-7.2.10.9).

11. The required pavement width for a Lane is twenty-six (26) feet, exclusive of curbing. The project provides twenty-two (22) feet for Roads A,B and C, and twenty (20) feet for each of the fourteen driveways. (344-20.H.(1)).

12. The intersection to intersection offsets required under §344-12.A.(5) and (9) are one-hundred-twenty-five (125) feet for opposite intersections and three hundred fifty (350) feet for parallel intersections. If the fourteen driveways within the project are considered to be intersections, then relief would be required from both offset requirements.

13. The Rules and Regulations (344-12.C and D) specify centerline grades of between 0.5% and 12% for Lanes, leveling areas at intersections (3% maximum for the first 75'), vertical curves

at breaks in grade exceeding 2%, and 150-foot sight distances for Lanes. Typically this information would be provided on roadway profiles which were not included in the plan set. Roadway profiles should be provided for Roads A-C, and should include both the proposed centerline vertical geometry and utilities.

14. The pavement cross-section depths are generally consistent with the Rules and Regulations. A note should be added to the detail requiring up to an inch of leveling course between the bituminous binder and top courses, to be installed if required. (344-20 E)

15. The sidewalk construction depths should be detailed on Sheet C-9.1 as specified under 344-22.B and C.

16. Typically the town does not allow sideslopes to exceed 3:1 horizontal to vertical adjacent to roadway rights-of-way. There appears to be two locations in the project (Road A near Unit 1, and Road C near Unit 93) that exceed this requirement. (344-28.A.)

17. A guard rail should be provided on the outside of the curve between Road B and Unit 93.

18. By virtue of the required Site Plan Review, soil disturbance of 10,000 square feet, and development of 5 or more acres, the project is subject to the provisions of the Ashland Stormwater Management Bylaw.

19. The DEP Checklist for the Stormwater Report should be signed and sealed by the engineer.

20. Roofwater is considered to be 'clean' runoff. The design currently provides free discharge of roofwater to the closed drain system. To more closely approximate existing stormwater conditions, where recharge occurs more uniformly throughout the site, roofwater should be separately collected and infiltrated near each unit. (343-8.1.5) The stormwater narrative indicates that roofwater will be collected in a network of perforated pipes and recharge trenches. If not fully designed, a representative detail should be provided.

21. Earth Removal/Fill Calculations have been submitted for the project in Appendix F. The calculations indicate that the project earthwork nearly balances and will require the importation of 205 CY of fill above and beyond 12,000 cu-yds of gravel that will be required

for building and infrastructure work. The calculations indicate that the project should not result in a net export of material. Chap 343, §7.6.13.

22. The source and description of imported gravel should be provided. The number of expected truckloads and delivery route should be provided in narrative form (if not already addressed in the separately submitted traffic study).

23. Regular street sweeping of Chestnut Street should be included in the Erosion and Sedimentation Control Measures notes found in Appendix E of the Stormwater report.

24. Pairs of catchbasins are required at intervals not to exceed 300 feet on continuous roadway grades. The system is compliant except for the two pairs of catchbasins on Road C which are approximately 320 feet apart. (344-14.C)

25. Catchbasins CB-A13 and CB-A14 are at a profile sag point on Road B and should be upgraded to double grate structures. Similarly, CB-C6 and CB-C7 in Drive 11 and CB C2 and CB C3 in Drive 13 should be upgraded to double grate structures. (344-14.C)

26. Cascade grates should be specified for catchbasin structures located on steeper grades, such as CB-A9 and CB-A10 on Road A, near the project entrance.

27. Note 2.C. on drawing sheet C-6.2 indicates that the stormwater management pipes will be constructed of either RCP or HDPE. Section 344-23.B.(4) requires RCP pipes. The plan should specify RCP for the storm drain system.

28. The conveyance calculations provided for the 25-year event utilize an interior Manning's (pipe roughness) coefficient of n=0.012 for the pipe flows, which corresponds to HDPE pipe design. If concrete pipes are required by the town, then the three large discharge pipes extending to the basin behind Drive 2 will be undersized for the 25-year storm. The remainder of the drain system appears sufficient for either HDPE or concrete design.

29. The 12-inch diameter stormwater pipes between CB-B3, CB-B4 and DMH-B3 are very shallow (14" cover) and should be provided with at least 2 feet of cover as required by the town. Similarly, the 12-inch pipe between CB-C1 and DMH-C1, the 15-inch pipe between

DMH-B3 and DMH-B2 and the 12-inch pipes between CB-A9, CB-A10 and DMH-A8 have shallow cover and should be redesigned. (344-23.B.(4).)

30. The perforated subdrain in the stormwater management basin off Road B (near Units 69-71) is constructed below the measured high groundwater level found in Test Pit 13. The invert should be adjusted if necessary, so that this basin does not continuously wick groundwater into the outlet pipe.

31. Similarly, the perforated subdrain elevation should be checked for the basin at the end of Drive 11. The subdrain is three feet below the Test Pit 17 and 18 groundwater elevations.

32. The town requires that all concrete pipe with less than 3-feet of fill should be specified as RCP Class 5 pipe, which would include several additional pipes in the design.

33. Section 344-14.E prohibits volumetric increases of runoff off the site. According to Table 6 on page 19 of the narrative, both the central and eastern wetland locations along the Eliot Street property line will experience volumetric increases under the design events. The Eliot Street property line will experience approximately 30% more volume under the four modeled design storms.

34. The area of alteration exceeds 1 acre, therefore an EPA NPDES Construction General Permit will be required. This would require the preparation and submission of a Stormwater Pollution Prevention Plan (SWPPP).

TRAFFIC AND SITE PARKING

35. Please indicate whether the project will be served by a central mail facility. If not located in the Amenity Building, the mail facility should be identified on the plan and provided with a suitable pullout or parking area.

36. The project is to be built in four phases as indicated on Sheet C-3. The first and second phases will involve completion Road ‘A’ and a portion of Road ‘B’. There is concern that after completion of phase 2, but prior to the construction of Phase 3, units 28 through 33 will be reliant upon an approximately 1,150 foot long dead end access off Chestnut Street.

Although this is a temporary condition, permanent dead-end lengths of more than 800 feet are prohibited by the town.

37. Given the relative density of the project, snow storage may be an issue, particularly after larger events. Dedicated snow storage locations should be provided on the drawings that preclude the use of shared parking areas.

38. The plans do not provide details for traffic or directional signage. If required, a Not A Thru Street sign should be provided at the Road A entrance.

UTILITIES

39. The project proposes to connect to the existing town water system. To offset costs borne by the Town, Section 249.12 specifies that water main extensions through private property and private ways are to be made on the basis of agreement to repay the town over a twenty (20) year period, if applicable.

40. The project proposes to connect to the existing town sewer system. The applicant is required to submit the design to the DPW that conforms to §326-11. The project will generate in excess of 20,460 GPD from the dwellings, plus flows from the amenity building, if sewered. The applicant should document the status of the connection permits to the existing sewer system (§326-10.B, §326-10.F.)

41. Determine whether the DPW Water and Sewer Division will require a master meter with backflow devices. The location of the meter pit should be indicated on the drawings and coordinated to minimize tree clearance.

42. The applicant should confer with the Fire Department and provide documentation from the Department indicating their concurrence that the building access, water pressure and volume, alarms, and other fire protection related matters are deemed safe and acceptable.

43. Because the sewer connection from the facility is new, the DPW should be consulted regarding their policy regarding inflow and infiltration elimination

44. The age, condition and materials of the existing water main should be provided on the drawings. The proposed pipe material (DIP CL-52) and connection technique should be reviewed with the DPW Water and Sewer Division.

45. Fire flow calculations should be provided for the project that demonstrate compliance with Insurance Services Office (ISO) fire flow guidelines while maintaining a residual pressure of 20 pounds per square inch (psi). Static pressure should be 60 psi desirable with a minimum 35 psi.

46. The water service to the project is indicated at both Chestnut Street and Eliot Street with a tapping sleeve and single gate valve. For a project of this size, three full diameter gate valves are recommended at connections to the municipal water system.

LANDSCAPING, LIGHTING AND SECURITY

47. The Landscape Design Narrative includes Acer Saccharum (Sugar Maples) in the inventory of proposed street trees. This species is susceptible to damage from road salt, and should be substituted with a more suitable alternative.

48. A watering and maintenance schedule for the site landscaping should be provided in the specifications on the landscape plan when submitted. A 2-year guarantee should be provided for all plants. (344-29.B.)

49. All dead trees or shrubs should be replaced within one growing season as a condition of approval.

50. The plans do not provide any details for the project sign and possible illumination.

51. The Landscape Design plan should identify any perimeter specimen plantings to be preserved if possible.

52. A certification should be provided that the design is compliant with the provisions of the Massachusetts Architectural Access Board and Federal ADA requirements.