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January 26, 2022

Ms. Karen Sherman, Town Planner
Holliston Planning Board
703 Washington Street
Holliston, MA 01746

RE: Peer Review of Definitive Open Space Residential Subdivision & Stormwater Management Design Constitution Village, LLC, "Garnet Lane" off of Old Cart Path, Holliston, MA

Dear Karen,

McClure Engineering, Inc. (McClure) performed a review of the plans and supporting documentation for the "Garnet Lane" Open Space Residential Development located off of Old Cart Path, Holliston, MA (Site). The Site consists of 5.33 acres including a new roadway off of Old Cart Path, 4 residential house lots, utilities, stormwater design, and 3.23 acres of open space.

McClure is in receipt of the following documents:

- Definitive Open Space Subdivision Application, Stormwater and Land Disturbance Permit Application, cover letter, and supporting documentation for Open Space Residential Development titled "Garnet Lane", date December 2, 2021, prepared by Guerriere & Halnon, Inc. (GHI)
- Constitution Village, LLC Application for Open Space Residential Development Memorandum prepared by Angela Conforti, Esq.
- "Definitive Open Space Residential Subdivision Plan for Garnet Lane" date December 2, 2021, prepared by Guerriere & Halnon, Inc. (GHI)
- Stormwater Report titled "Stormwater Report, Garnet Lane, Holliston, MA" date December 2, 2021, prepared by Guerriere & Halnon, Inc. (GHI)

The Plans and Stormwater Report were reviewed for conformance with the Town of Holliston Planning Board Rules and Regulations Relating to the Subdivision of Land, Regulations for Stormwater Management and Land Disturbance, Open Space Residential Development Zoning Bylaws, general stormwater compliance with MassDEP Stormwater Management Standards, and good engineering practice. McClure conducted a site visit on January 14, 2022, to observe existing site and stormwater runoff conditions.

McClure offers the following comments regarding the documents reviewed:

Application Review Comments

1. The abutter list provided in the application does not appear to include parcels 14-5-2.1 or 14-5-2.2. McClure respectfully defers to the Planning Board.

Initial Site Visit Comments

1. Only one of the two existing catch basins at the proposed entrance of Garnet Lane is currently visible. The eastern catch basin is completely covered and likely full of debris, limiting the ability of the structure to function as designed. The plans do indicate that the structure will be cleaned as part of the construction as shown on the plans (as well as relocated). McClure is unsure of who is responsible for maintenance of these particular catch basins, but recommends the structure be cleaned prior to work associated with Garnet Lane.

2. In review of aerial photography, it appears there were minor land disturbance activities on the site around 2015. The areas appear stable at this point in time. McClure recommends that the pre-development stormwater model be representative of the site prior to any and all land disturbance.

Holliston Subdivision Rules and Regulations Comments

1. McClure reviewed the plans for conformance with §4.3.1 of the Subdivision Rules and Regulations. The plans do not appear to meet the regulations for the following:
    a. §4.3.1.e – Plans shall contain the proposed limits of clearing and natural vegetation.
    b. §4.3.1.k – Plans shall contain the locations of all existing trees within the proposed right of ways that are at least 14" diameter in breast height. (See section §5.5.5.2)
    c. §4.3.1.q – Plans shall contain the existing centerline profile for existing streets shown for at least one hundred feet each side of the intersection of streets.
    d. §4.3.1.x – Plans shall contain the proposed schedule of construction.

2. The plans do not appear to show compliance with §4.3.2 of the regulations which requires a minimum of two test pits to determine subsurface soil data within the proposed road alignment.

3. Per §5.1.1.1, all subdivisions should be designed to reduce the volume of cut and fill, area of vegetative disturbance (especially within 200' of wetlands), and number of mature trees removed. The plans indicate the roadway and house lots will require a large amount of fill to be brought to the site, resulting in land disturbance of over 3 acres. It is assumed the fill for the roadway is based on the requirement of §5.2.1.a of a maximum 2% slope within 150' of an intersection, which also states that consideration can be given to the existing infrastructure to provide safe access to and from the subdivision. McClure respectfully defers to the Board to determine if the 2% maximum intersection approach slope is of greater value than the possible reduction of fill and vegetative disturbance to the site if the approach slope was increased/approach distance decreased.

4. §5.2.1.i indicates the proposed street shall conform to minimum sight distance requirements of the Transportation and Traffic Engineering Handbook. Although it is likely there is no issue with sight distance at the proposed road location, no information on sight distance appears to be provided. McClure respectfully defers to the Planning Board.

5. The proposed roadway as designed will require a large amount of fill to be constructed per the plans (10'+/- at end of cul-de-sac), therefore suitable back-fill material for subgrade is necessary and should be specified on the design plans in conformance with §5.2.5.2.d.

6. The plans should specify the gravel base to conform to Section M1.01.0 Type C of the MassDOT standard specifications per §5.2.5.3.b.

7. The plans should specify the bituminous concrete courses per §5.2.5.4.a.

8. The plans currently specify vertical granite curbing to be type VA-4. The plans should be revised to indicate a type VA-3 curb per §5.2.5.5.

9. Information should be provided indicating that the proposed drainage system (pipes and swales) conforms to the minimum and maximum allowable velocities per §5.3.4.

10. The plans should be revised to specify structure frames and covers per §5.3.6.

11. The plans should be revised to show proposed locations of underground electric utilities, and associated equipment per §5.4.4.

12. The plans should be revised to include details on the proposed sidewalk conforming to §5.5.1.

13. The plans should be revised to include details on the proposed monuments conforming to §5.5.2.

14. The plans should be revised to include details on the proposed street sign conforming to §5.5.3.

15. The plans should be revised to show trees greater than 14" in diameter at breast height which shall be removed within the proposed right-of-way per §5.5.5.2. (See section §4.3.1.k)

16. The plans include a tree planting detail, however the detail is not legible. The detail should be reviewed to ensure conformance with §5.5.5.3. Proposed species of trees should also be included on the plans.

17. The proposed street appears to be classified as a Local Residential Street. Table 1, which indicates required roadway dimensions, was reviewed. The roadway is proposed at 24' wide, however it appears the street could be revised to 20 wide, which would slightly reduce the impervious surfaces associated with the roadway. The required green strip is 8', however the plans indicate a proposed green strip of 7.5'. The road could also likely be classified as a Rural Residential Lane per §5.2.2.a. McClure respectfully defers to the Planning Board.

Holliston Open Space Residential Development Zoning Bylaw Comments

1. McClure has reviewed the response to findings memorandum prepared by Angela Conforti, Esq. and respectfully defers to the Planning Board to determine if the proposal conforms to the purpose of OSRD development as stated in §V-H.1.

2. McClure has reviewed the application, plans, and response to Preliminary Subdivision Findings for conformance with §V-H.4 of the Holliston Zoning Bylaws. The project appears to meet the density, intensity, and open space regulations of the Bylaw. McClure respectfully defers to the Planning Board.

3. As noted prior, the plans indicate a large amount of fill is proposed to be brought to the site to construct the OSRD roadway and home sites. Section V-H.6.A.3 encourages the placement of structures and roadways to preserve existing topography and minimize the amount of tree cutting and general disturbance to the landscape. It is assumed the proposed grading and fill is due to the maximum intersection approach grade. McClure respectfully defers to the Planning Board.

Holliston Regulations for Stormwater Management and Land Disturbance Comments

1. The plans should be revised to include profiles of drainage swales per §11.4.3.1.1.

2. Erosion control and construction notes and details are in the plan set, but are scattered across multiple sheets. McClure recommends an additional sheet be added to the plan set consolidating all notes and details to address §11.4.4, Erosion Control Plan.

3. As noted in the Stormwater Management Report, the project will require a SWPPP per the EPA NPDES General Construction Permit. The SWPPP is required to be submitted per §11.4.4.1. The Stormwater Management Report indicates the SWPPP will be submitted prior to construction activities begin. McClure respectfully defers to the Planning Board.

4. The plans should be revised to include locations and descriptions of trees with a caliper of 12" diameter breast height or larger conforming to §11.4.4.c.2.

5. The plans should be revised to include volumes and nature of proposed soils materials per §11.4.4.e.

6. The plans should be revised to include the square feet of land area to be disturbed per §11.4.4.g.

7. The plans should be revised to include descriptions of controls to reduce pollutants from construction waste, spill prevention, equipment cleaning, equipment fueling and maintenance, chemical storage, construction phases, etc. in conformance with §11.4.4.n through §11.4.4.r.

8. The O&M should be revised to include the following:

    a. The signature of the owner (§.11.5.2.2.e.)
    b. Indicate logs must be kept for 3 years (§.11.5.2.2.g.1.)
    c. Indicate the logs are to be made available to the Planning Board (§.11.5.2.2.g.2.)
    d. Indicate the Planning Board is allowed to inspect BMPs (§.11.5.2.2.g.3.)

9. The O&M should be revised to include information on future changes to the plan per §11.5.3.

10. The O&M should be revised to include information on annual certification to the Board by the responsible party per §11.5.4.

11. The applicant should comment on whether LID site planning and design was considered per §11.10.1 and 2. McClure respectfully defers to the Planning Board.

12. The plans should be revised to indicate a 6" minimum depth of loam in all areas to be seeded per §11.10.1.7. Plans currently indicate 4" of loam.

13. The plan should be revised to indicate disturbed areas are to be stabilized no more than 14 days after construction activities have temporarily or permanently ceased per §11.10.2.2.f. Plans currently indicate 30 days (General Erosion Control Notes #14).

14. The plan should be revised to indicate re-vegetation is to take place no more than 7 days after final grading per §11.10.2.3.

15. The plans should be revised to indicate stabilization techniques for the portion of Lot 1 where side slopes exceed 10' in height per §11.10.2.6.

16. The Stormwater Model should be revised to use rainfall data for the site from NOAA Atlas 14 for the 2, 10, 25, 50, and 100 year storms per §11.11.2.a. In review of the Altas 14 rainfall data, only the 100 year storm rainfall appears to meet the intensity requirement.

Stormwater Management Report Comments

1. Standard 1 - Computations to Show That Discharge Does Not Cause Scour or Erosion and Standard 2 - Peak Rate Attenuation. It appears McClure received an incomplete report as there is no project narrative and the report does not address MA Stormwater Standards 1 and 2. From review of the rest of the report and HydroCAD calculations, it appears Standards 1 and 2 would be met, however, as noted, the rainfall data needs to be updated.

2. Standard 3 - Ground Water Recharge Volume. Appears to be met. From review of the on-site soil test pit data on the plans, it appears one of the test pits in the area of the proposed infiltration basin (DTH-1) identified a subsoil of loam. Soil logs for DTH-1 and DTH-2 appear to be missing from the report so McClure could not confirm if the plan is correct. If the subsoil of the test pit is in fact loam, the Rawls Rate used should be revised (0.52 in/hr) to model infiltration and determine the drawdown rate as it is more conservative than sandy loam. The mounding analysis should also be revised to incorporate the hydraulic conductivity, specific yield, and infiltration rate for loam. Draw down calculations on the sediment forebay should also be provided as it is also required to completely drain within 72 hours and it does not appear a filter berm to the infiltration basin is proposed.

3. Standard 4 - Water Quality Volume. Appears to be met. Total Phosphorus removal required by the Holliston Regulations for Stormwater Management and Land Disturbance appears to be met. Grassed channels are being used to achieve the required TSS removal rate of 90%, however McClure is unable to determine if the grassed channels as designed meet the requirements of the MassDEP Stormwater Handbook for grassed channels as no information on the residence time or velocity within the channels was provided. Grassed channels require a flow velocity of less than 1 feet per second and a residence time of at least 9 minutes for the water quality volume to provide 50% TSS removal. If the channels do not meet the criteria above, they would be considered drainage conveyance channels and receive no credit for TSS removal.

4. Standard 5 - Land Uses with Higher Potential Pollutant Loads. Appears to be met.

5. Standard 6 - Critical Areas. The proposed infiltration basin is not located in a critical area but does discharge stormwater which is not infiltrated into the ground to wetlands associated with Dopping Brook, which eventually flows into a Zone II Wellhead Protection Area approximately 1,700' from the site. This area is considered a critical area. The water quality volume does use a water quality depth of 1" and meets the requirement for discharge to a critical area and, therefore, Standard 6 is met, however the report should be revised to reflect this. 44% pretreatment is not necessary as the proposed ground water recharge is located outside of the critical area.

6. Standard 7 – Redevelopment. Appears to be met.

7. Standard 8 - Construction Period Controls. The report indicates a Construction Period Pollution Control Plan is included in Appendix 6 of the report, however only a construction period inspection log is provided. As noted previously McClure recommends an Erosion Control Plan be added to the plan set to address §11.4.4 of the Holliston Regulations for Stormwater Management and Land Disturbance. The Erosion Control Plan would also address and meet the requirements of Standard 8. A SWPPP, which is required by the EPA NPDES Construction General Permit for the project will also satisfy the requirements for Standard 8.

8. Standard 9 - Operation and Maintenance Plan. An O&M is included in the report and appears to meet the requirements of Standard 9, however the O&M should be revised to address previous comments as well as adding inspection and maintenance tasks associated with the infiltration basin. The O&M only appears the address the inspection frequency of the basin.

9. Standard 10 – Illicit Discharges to Drainage System. Appears to be met as a signed illicit discharge compliance statement is provided.

10. The stormwater checklist should be revised to include a mounding analysis, discharge to a Zone II critical area, and revision to Standard 5 as the project is not covered by the NPDES Multi-Sector General Permit.

11. As noted previously, it appears there were minor land disturbance activities on the site around 2015. McClure recommends that the pre-development stormwater model be representative of the site prior to any and all land disturbance.

12. McClure recommends the addition of grassed channels to the HydroCAD model to ensure proper sizing and velocities. This would also help determine if the channels may be considered to be grassed channels for TSS removal calculations.

13. McClure recommends the addition of the proposed catch basin to the HydroCAD model to ensure proper sizing of piping, or providing additional calculations.

14. Subcatchment P-2 should be revised to model the proposed infiltration basin and sediment forebay as impervious surface/water surface. The gravel access road to the proposed basin should also be added.

15. Subcatchment P-3 should be revised as it appears a large portion of the basin berm is located within this subcatchment, and the basin berm will not be wooded.

16. The rip-rap slope adjacent to Lot 1 and Old Cart Path should be added to both the pre-development and post-development models.

17. The surface area and storage of the basin for elevation 284.50 appears to be inaccurate. The surface area should be greater than that of lower elevations.

18. As noted prior, the infiltration rate of the proposed basin in the HydroCAD Model should be revised.

19. As noted prior, soil logs for DTH-1 and DTH-2 should be added to the report.

Plan Review and General Engineering Comments

1. A memorandum regarding Jennings Road was provided by Angela Conforti, Esq. The memo states that the roadway was discontinued and the fee interest of the road vests in the abutting properties to the center line of the former street, free of any easement, and therefore would be owned by Constitution Village, LLC and Fafard Real Estate and Development Corporation. The plans show the Jennings Road right-of-way (although noted discontinued) and show that the property is owned now or formerly by the Town of Holliston. The plans should be revised to reflect the information as provided in the memo provided by Angela Conforti, Esq.

2. The proposed drainage easement appears to be shown on the existing conditions plan and should be removed.

3. Information on who conducted the survey, when the survey was conducted, and the survey datum should be added to the existing conditions plan.

4. Information on who conducted the wetland delineation and when the wetland delineation was performed should be added to the existing conditions plan.

5. The existing conditions plan should likely also be stamped and signed by a PLS.

6. Metes and bounds of the proposed drainage easements should be added to the Lotting Plan.

7. It is not clear if the property boundaries of the registered land parcel are changing or if the parcel is just being added to the proposed open space as a separate parcel. A drainage easement over the registered land is also being proposed. Any changes to the registered land boundaries will require the petition and approval of the Land Court. Any encumbrances over the registered land property will require notification to the Land Court. McClure is not certain if the Board can act on the application until the Land Court approvals (if necessary) are completed, and recommends additional information be provided by the Applicant on what requirements are necessary for the Land Court due to the registered portion of the property, and what effect that may have on the application time frame. McClure respectfully defers to the Planning Board.

8. Proposed clearing limits should be added to the plans. Proposed erosion control barrier should be extended west around the infiltration basin along the limit of clearing.

9. A construction detail should be added for the sidewalk ramp/ADA warning strip.

10. The size and type of water line should be added to the Grading and Utilities Plan. The existing conditions and roadway profile indicate an existing 12" stub and a proposed 8" main. The water main tie in detail indicates an existing 8" valve. A reducer will be necessary if the existing valve is 12".

11. The plans should be revised to indicate the proper dimensions of the proposed rip rap outfalls as indicated in the Stormwater Report.

12. A construction detail should be added for the proposed 10' wide gravel access road to the proposed basin.

13. The grading plan should indicate the width and depth of the proposed grass channels.

14. It appears that the grading as shown indicates a high point between the grass channels and the sediment forebay (berm at 285.50 is going around forebay). The 285 contour should be revised to tie into the existing 285 elevation.

15. The emergency spillway elevation is labeled at 284.50. The HydroCAD calculations indicate a spillway elevation of 284.42. The plans and details should be revised.

16. The outlet invert of the basin outlet pipes is labeled as 280.75. The HydroCAD calculations indicate an elevation of 280.50. The plans and details should be revised.

17. The HydroCAD calculations indicate (2) 12" and (1) 15" outlet pipes. The plans indicate (1) 12" and (1) 15" outlet pipes. The plans and details should be revised.

18. The label for the outlet of the 12" RCP from the proposed double catch basin is cut off on sheet 6 and should be revised. The length of pipe should also be indicated.

19. According to the test pit data, estimated seasonal high groundwater is approximately 2.5'. It appears the western half of the proposed infiltration basin and the western half of the sediment forebay will be within 2' of groundwater.

20. Text size and scale of multiple construction details should be revised. Multiple details are not legible.

21. It does not appear that the roof drain infiltration chamber detail is applicable, unless recharge chambers are to be added to the plans and stormwater calculations.

22. The flared end section detail indicates a rip rap apron size of 10'x 20'. Proposed rip rap apron sizes should be added to the plans based on the calculations in the stormwater report.

23. The infiltration basin detail should include a monitoring well and drawdown device per the MassDEP Stormwater Handbook. Details should be provided on the impervious barrier within the basin berm. Details should be provided on the sediment forebay berm, it is unclear if the berm will be a solid berm and spillway or filter berm to allow for dewatering. The forebay must be able to dewater within 72 hours of a storm event.

24. McClure respectfully defers to the Planning Board regarding whether or not fencing should be provided around the proposed basin.

In general, McClure takes no exception to the proposal or the design, however there are a number of minor inconsistencies in the plans and the reports, and a number of items which are missing or do not appear to meet Town regulations as written.

Upon review, please feel free to contact the undersigned with any questions or comments at 508.248.2005.

Sincerely,

Peter C. Engle, P.E.
Senior Engineer

cc: Robert J. Duff, P.E., Senior Project Manager, Guerriere & Halnon, Inc., 333 West Street, P.O. Box 235, Milford, MA 01757-0235