

March 8, 2023

Martha L. Taylor, Town Planner
Town of Newbury
12 Kent Way
Byfield, MA 01922

By Electronic Submittal

**Subject: Fields Way – Definitive Subdivision
170 Orchard Street
Peer Review Response**

Dear Ms. Taylor:

On behalf of the Applicant, the Estate of Lewis Bulgaris, this letter addresses 30th peer review comments by Joseph J. Serwatka, P.E. Updated plans and supporting material are enclosed. Mr. Serwatka's comments (*in italics*) and our responses follow.

Existing Conditions Plans, Sheet C-2 and C-3 :

1. *NAVD 88 benchmarks should be placed on the plans per 117-18.B(1)(H). Note 7 on sheet C-2 states that "topographic detail based on USGS 2011 LIDAR". The engineer/surveyor should comment on the accuracy of the USGS data and whether the benchmarks are tied into it. The topography depicted should also be supplemented with spot grades, especially at the front of the site.*

Response: The USGS LiDAR, spot grades, and benchmarks are all on the North American Vertical Datum of 1988 (NAVD 88). LiDAR was used to describe some open land topography. On-site measurements are consistent with the LiDAR data. Additional benchmarks and spot grades were added to the revised plans.

2. *The plans should address the requirements of 117-18.B(11) relative to property line information, monumentation, and surveyor's certification.*

Response: The surveyor's certification was added to sheet C-4. Bearings, distances, and existing monumentation are shown on the plans.

3. *The plans should address the requirements of 117-18.B(13) relative to buildings within 100 feet of property limits, as this may apply to dwellings off Pearson Drive. Individual tree dimensions appear to be provided, but they are not identified, and the 200' riverfront area is depicted in an approximate manner only.*

Response: Nearby structures were added to the plans. The Riverfront areas shown on the plans were established in 2017 and confirmed in 2022 by the Newbury Conservation Commission.

4. *The plans should address the requirements of 117-18.B(17) relative to the location of all permanent monuments.*

Response: The existing conditions plans (C-2 and C-3) show known existing monuments. The lotting plan (C-4) shows proposed monument locations (nine stone bounds).

5. *The plans should depict the existing septic systems and water services on lots 42 and 44, as accurately as possible.*

Response: Record septic system locations for #168 and #172 Orchard Street were added to the plans.

6. *It may be necessary to have a land surveyor stamp and signature on these plans to address the monumentation and surveyor's certification mentioned above.*

Response: Sheets C-2 and C-3 were stamped by the project surveyor, Vernon LeBlanc, PLS, LeBlanc Survey Associates.

7. *Any soil testing locations, especially for stormwater BMPs, should be depicted on the plans, as would be typical.*

Response: Soil testing locations for the proposed septic systems are shown on sheet C-6. Soil testing locations related to the stormwater BMPs were added to sheet C-7. The attached 2017 Forge Village Soil Exploration Study provides additional soil characterization.

8. *The existing stone wall along the easterly property line of lot 42 should be depicted to determine whether it will be affected by the proposed roadway development.*

Response: The stonewall was added to the plans.

Lotting Plan I & II, Sheets C-4 & C-5 :

1. *The proposed right-of-way widths should be shown on the plan. There appear to be at least two different widths.*

Response: Right-of-way widths are shown on C-6 and were added to sheet C-4.

2. *Stone bounds should also be proposed at the entrance of the proposed right-of-way.*

Response: Two additional stone bounds were added at the entrance.

3. *Note 6 states that "the error of property line closure is less than 1 in 12,000" does not appear to address the requirements of 117-18.B(11) which requires a closure certification.*

Response: The closure certification was added to sheet C-4.

Site Layout & Utilities Plan, Sheet C-6 :

1. *There are 2 existing driveways (#168 and #172) within 20' of each side of the proposed roadway entrance. The plan states that the driveway entrance for #168 will be removed and new access will be provided from the proposed roadway. This should be detailed on the plan so that the board and homeowner know what will be approved and expected. No driveway revisions are shown for #172. The board may want the applicant to work with the homeowner to see if new access could be provided.*

Response: The revised plans provide access to #168 from Fields Way. The driveway for #172 will not be modified.

2. *The proposed water services for lots 3 and 4 are about 300' and 500' respectively. In order to reduce the number of fittings, the engineer may want to consider plastic pipe, if that is allowed by the water department.*

Response: The fire department has requested an additional fire hydrant at the end of the proposed common driveway. The 8" dia. CLDI water main will extend to the end of the common driveway. Water services for Lot 3 and 4 will be approximately 80-ft long each and will be either 1" type-k copper or high-density polyethylene rated at 200 psi, per Byfield Water District requirements.

3. *The septic system for lot 4 is proposed to be located behind the house on lot 2. Lot 2 will have an easement over the area for "landscape and limited use". Thus situation is odd and likely inconvenient for both homeowners. The board may want the engineer to address whether additional soil/perc testing could be conducted to locate the system behind the house on lot 4.*

Response: Approximately 30 test pits were excavated on Lot 4. Additional soil testing may be conducted at a later date.

4. *There are several "brush/woods line" labels that appear to be out of place on the plan. The engineer should correct this.*

Response: The brush/woods line was corrected on sheet C-6.

5. *A sidewalk is not shown, and a waiver has been requested. The board may want to know whether there may be a school bus stop at the entrance, which would make a sidewalk more desirable.*

Response: No response necessary.

Site Grading & Drainage Plan, Sheet C-7 :

1. *The plan labels "match street grade" at Orchard Street, but spot grades in Orchard Street should be provided to determine what the grade. There is also a 1-2 foot grade drop across the entrance that should be addressed by proposed spot grades.*

Response: Additional spot grades were added to sheet C-7.

2. *The area drain and infiltration trench elevations do not work with the existing grades as shown. The area drain rim elevations of 51.0 ft. are located in an area where the existing grade is about 53 feet, yet no proposed grading/contours are shown around the rims. The stone infiltration trench detail, which appears to be the "drainage swale cross section" on sheet C-10 would need a swale grade of about 51 feet to work with the detail and area drain, yet grade is shown as 54 feet. Further, the proposed driveway for lot 44 will likely pass over this swale, but that is not shown or graded. Also, TSS removal is not addressed for this BMP, and soil/groundwater data has not been provided for the infiltration trenches. The engineer should address these issues.*

Response: The grading along the roadway edge was adjusted and additional detail provided. The proposed drainage swale follows the slope of the road. The bottom of swale elevation varies from approximately elevation 54.5' to 51.0' (approximately 3% slope over 115-feet.) Two 1,000-gallon drywells were added; the bottom of the drywells is at approximately elevation 49.4. The ESHWT in the vicinity of the drywells is approximately 48.0. A clay dam is proposed just downstream of each drywell to minimize lateral movement. Access to house no. 168 was added off Fields Way and is shown on the revised plans. Soils in this area generally consist of coarse sand (see enclosed soil logs.) See Details I & II, Sheets C-9 & C-10, #1, regarding TSS removal.

3. *The proposed roadway contours should connect to existing contours on either side of the roadway.*

Response: The proposed grading along the edge of the road was clarified.

4. *The board may want all proposed site grading to be shown to determine how drainage patterns will be affected. The houses on lot 1 and 2 have finish floor elevations of 62.0 feet where the existing grade is 54 feet, yet very little grading is depicted to achieve this grade change. Also, the septic systems are likely to be mounded above existing grade, so proposed grading should be shown.*

Response: Due to shallow groundwater, building floors will be elevated. More detailed grading is now shown around the proposed residences and septic systems. On-lot grading is preliminary.

5. *The pocket wetland needs two 54 foot contours to define the berm, but only one is shown. The policy also requires 15' wide access along the berm to the outlet/emergency spillway. Thus should be shown on the plan.*

Response: More detailed grading is shown around the proposed pocket wetland. Spillway access is provided at the northwest edge of the pocket wetland.

6. *The engineer should demonstrate that the outlet inverts of 50.5 feet work with the existing topography by providing spot grades to the edge of wetlands.*

Response: Additional spot grades were added.

7. *The plan labels both "bit. berm" and sloped granite curbing in the area of catchbasins 1 and 2. This should be corrected.*

Response: The proposed curbing in that area will be sloped granite.

8. *The plan should note whether the proposed roadway will be private or town-owned/maintained. The Operation & Maintenance Plan lists the owner as Bulgari, but lists both the homeowners and a homeowners association as the parties responsible for maintenance of the BMPs. Thus confusion should be addressed by the engineer.*

Response: The proposed roadway is intended to be private. A Homeowners' Association will be responsible for BMP maintenance.

9. *The regulations require 12" minimum drainpipe size, but the plan proposes 10" pipes.*

Response: The proposed drain pipes were increased in size to a minimum of 12" diameter per the Town regulations.

10. *The plan shows four 10" culverts just off the roadway/common driveway that could be prone to clogging by snow/debris. The locations may also have to be adjusted if proposed lot/septic grading is shown as recommended above. The engineer should address this.*

Response: The pipe locations and elevations were checked and are acceptable.

11. *Soil testing and groundwater data should be provided in the area of the proposed pocket wetland, as required*

Response: Soil tests conducted in the vicinity of the proposed pocket wetland indicate coarse sand and shallow groundwater. See enclosed soil logs.

12. *The Board may want the engineer to demonstrate that adequate sight distance is available at the proposed roadway entrance on Orchard Street.*

Response: Sight distance was evaluated for both the northbound and southbound directions on Orchard Street. Based on the 30-mph speed limit, a stopping sight distance of 200-ft is recommended per AASHTO. An SSD of approximately 700-ft is provided in the southbound direction and 500-ft in the northbound direction.

Profiles & Cross-Sections, Sheet C-8 :

1. *A roadway section should be provided for the cul-de-sac so that the site contractor is aware of the superelevation of the roadway.*

Response: A roadway cross-section for the cul-de-sac was added to C-8.

2. *The roadway and common driveway base label of "12" th. Dense graded crushed stone" should be revised to conform to, and reference, the town requirement.*

Response: The note was revised to "12-in compacted gravel base in two 6-in lifts" per the regulations.

Details I & II, Sheets C-9 & C-10 :

1. *As noted previously, the "Drainage Swale Cross Section" does not appear to work with the grades, no TSS removal calculations are provided, and soils/groundwater information must be submitted to verify the design assumptions.*

Response: The TSS requirement for most of the site is met based on LID credits and the constructed stormwater wetland (see SWM Report Section 2.4 and Attachment B). SWM guidelines assign 80% TSS removal credit to infiltration trenches.

Due to topographic constraints, narrow lot width and shallow groundwater table at the Fields Way / Orchard Street intersection, further collection and treatment of stormwater runoff from the roadway entrance is not practicable. Consistent with Stormwater Management Guidelines, TSS requirements in this portion of the site are met to the maximum extent practicable.

Soil logs are enclosed.

2. *The engineer should verify that the "pocket wetland" detail matches the Policy requirements including micropool depth, trash rack, etc.*

Response: The proposed pocket wetland design adheres to Stormwater Management Standards. The bottom elevations of the micropool and low marsh areas were lowered by 6-inches. A trash rack was added to the outlets.

Stormwater Management Report :

1. *The "Existing Subcatchment Plan" depicts a ridge along the northerly property line so that the site receives no runoff from the Pearson Drive subdivision. The assumption that the site does not receive any runoff from abutting lot 44 is not backed up by the topography. It appears that at least a portion of lot 44 sheds runoff onto the front of the site at Orchard Street. The engineer should account for this, and provide additional topography to address the remainder of lot 44.*

Response: Additional topography was added for lot 44. A culvert will convey runoff from the east side of Fields Way to the wetland on the west. The culvert was increased in size from 10" to 12" per the Town regulations and has enough capacity to accommodate flow from the 100-year design storm.

2. *Page 3 of the "Checklist for Stormwater Report" lists credit 2 and 3 for LID site design credit requests, both of which must be verified by on-site soil testing. The required soil testing has not been submitted as part of the report. The engineer should address this.*

Response: Soils at the site generally consist of varying depths of sand underlain by more restrictive loam and silt-loam layers below. See enclosed soil logs.

3. *Page 4 of the checklist lists "soil analysis provided" for standard 3 relative to recharge. The report does not appear to contain the required soil analysis. The engineer should address this.*

Response: See enclosed soil logs. The required recharge volume is met and exceeded via LID Credits (see Section 2.3 of the SWM Report).

4. *Page 5 of the checklist states that the treatment BMPs are "within soils with a rapid infiltration rate". As noted above, the required soils analysis has not been included in the report.*

Response: See enclosed soil logs. Soil tests in the vicinity of the BMPs generally indicate fine loamy sand over coarse sand, as described in the Stormwater Report.

5. *Page 8 of the checklist states that legal instruments and easement deed have been submitted for maintenance of the BMPs. The report does not appear to contain these items.*

Response: A draft Homeowners Association Maintenance Agreement is enclosed.

6. *The TSS removal calculation worksheet does not account for the first 150 feet of the proposed roadway. The engineer should address this.*

Response: See response to Details I & II, Sheets C-9 & C-10, #1.

7. *The report includes sheet DR-3, Qualifying Pervious Areas, which must be verified with soils analysis. The engineer should address this.*

Response: See enclosed soil logs.

8. *The "proposed subcatchment plan" assumes that runoff from the rear of lots 2 and 3, and most of lot 1, will flow to the 10" culvert to the left of the lot 1 driveway. The engineer should demonstrate this by providing all proposed site grading, including septic systems. The engineer should discuss whether this will preclude homeowners from making grade alterations, installing fences, pools, etc., which may affect runoff patterns.*

Response: More detailed preliminary grading is shown around the proposed residences and septic systems. Due to site topography, runoff in the buildable areas is generally toward the common driveway and Fields Way. Installation of typical homes, septic systems, pools, and fences is not expected to alter this general flow pattern.

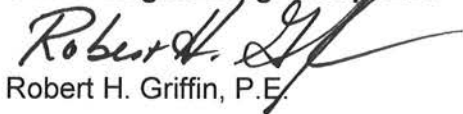
9. *The analysis places the bottom of the stone infiltration trenches at elevation 49.0 feet, or about 5 feet below existing grade. With an average seasonal groundwater of 36", the trenches are well within the watertable, which is not allowed by the policy. The engineer should provide the required soil data in the area of the trenches, and revise them accordingly.*

Response: See response to Site Grading & Drainage Plan, Sheet C-7, #2.

Should you have any questions or require any additional information, please do not hesitate to contact the undersigned.

Very truly yours,

Griffin Engineering Group, LLC



Robert H. Griffin, P.E.

Cc: M. McNiff

Enclosures: Revised Plan Set;
Test Pit Logs
Additional Soil Testing Logs;
Forge Village Soil Exploration Study;
Draft HOA Maintenance Agreement.