



County of Albemarle
Department of Community Development
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Project: West Glen
Plan preparer: Mike Myers, Dominion Engineering [172 S. Pantops Drive
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Owner or rep.: Crozet Development Solutions LLC
1215 E. Market Street, Suite B / Charlottesville, VA 22902-5512
Plan received date: 10 Feb 2016
(Rev. 1) April 6, 2016
Date of comments: 27 Feb 2016; revised 11-Mar 2016
(Rev. 1) May 6, 2016
Reviewer: John Anderson
Project Coordinator: Rachel Falkenstein

Cc: Amelia McCulley/Elaine Echols/Ron Higgins
Albemarle County Community Development

SP201600003

Abbreviations:

BFE – base flood elevation (100-yr flood elevation)

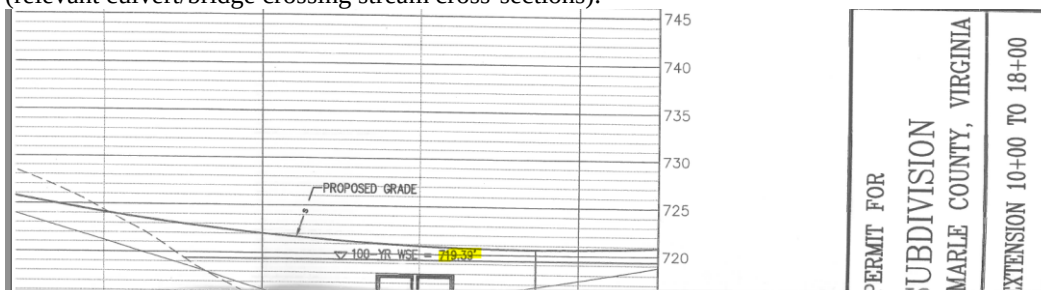
FIRM – flood insurance rate map

FIS – flood insurance study

Comments 2, 3, 16 revised. (11-Mar)

Engineering comments:

1. **Attached** FEMA Firmette (Map Panel 51003C0229D) shows Zone AE base elevation at FIS cross-section 'I' is 715±. Ref. SP5. SP7 Cling Lane Extended Profile shows 100-yr WSE = 719.39'. This, if accurate, represents rise in BFE at proposed 12'W × 8'H double box culvert, Road Sta. = 17+48.73. FIS is assumed accurate, and includes Jarmans Gap Road, SR 691. This proposal if advanced in current form would require FEMA Conditional Letter of Map Revision/Fill. [CLOMR-F; Ch. 18-Sec. 30.3.10.A.3.] [Plan / below] **(Rev. 1) Addressed.** Ref. Sheet SP8: Proposed 10'W × 10' H triple box culvert (countersunk). Sheet 11, Existing /Proposed Modeled conditions show 'No Rise' in BFE at stream cross-sections I, H2, H1, H (relevant culvert/bridge crossing stream cross-sections).



2. Proposed fill in floodplain is problematic. 18-30.3.13.A.1.: "Fill is prohibited in the regulatory floodway regardless of whether the owner demonstrates that the fill will not result in any increase in the water surface elevation of the base flood." Reviewer spoke with Applicant (Mike Myers) 10-Feb regarding data tables in Flood Study Information Booklet d. 19-Jan 2016, but overlooked ordinance prohibition against fill within the floodway. Code appears to eliminate option of fill within the floodway at any point along the project

corridor, and this point was re-emphasized in follow-up conversation with M. Myers, 24-Feb. A site visit is scheduled for 4-March. Fill within floodway is impermissible. Engineering cannot support design. **(11-Mar 2016)** After discussion with Zoning, earthen placement required to construct a culvert/bridge is deemed accessory, not fill. A culvert within floodway is viewed eligible for special permit [18-30.3.11]. Questions concerning rise/no-rise of BFE at points along stream corridor remain, and inform Engineering recommendation relative to design. Application indicates rise in BFE [18-30.3.13.A.1]. Engineering evaluates if “Owner demonstrates in a floodplain impact plan that the proposed encroachment will not result in any increase in the water surface elevation of the base flood within the county during the occurrence of the base flood discharge.” We have not received hydraulic/hydrologic analysis that demonstrates no-rise with this design. Note: Encroachment that would increase the water surface elevation may be allowed with Conditional Letter of Map Revision (CLOMR), but requires Floodplain Administrator endorsement. There is insufficient data to merit endorsement [18-30.3.13.A.2.]. Special Permit under this approach (CLOMR) requires FEMA approval/acceptance prior to issuance of SP. **(Rev. 1) Addressed.** Applicant should obtain FEMA-Approved CLOMR-F as condition of SP. Applicant response letter, 6-Apr 2016: “Fill in the floodway fringe associated with Cross Section G1 and G2 results in a 0.2’ to 0.5 rise in BFE. See HEC-RAS model and Sheet SP11 of the plans.” Engineering accepts values /statement as accurate.

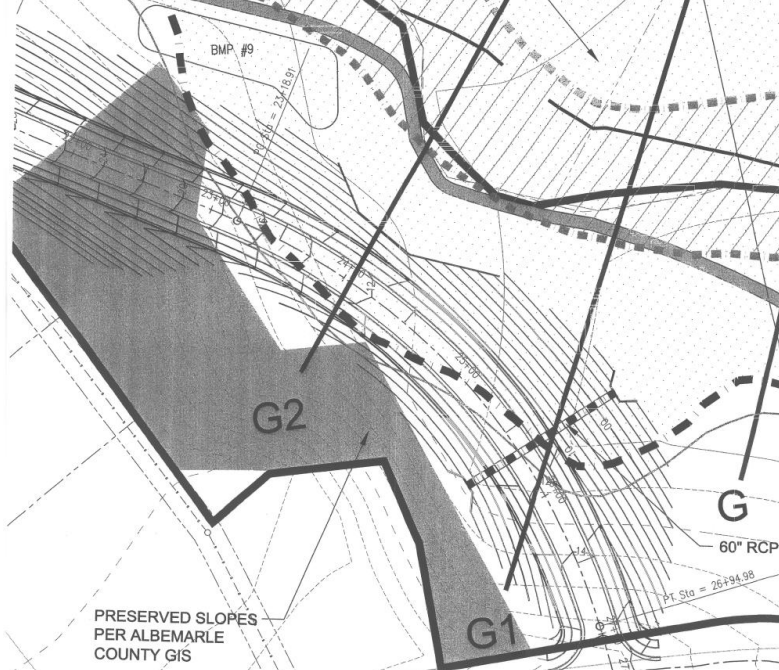
3. Letter d. 18 Jan 2016 included with flood study information booklet: “There will be a maximum fill of approximately 12’. A double 12’W × 8’H Box Culvert at approximate station 17+50 is proposed to convey the base flood without overtopping the road and with no net rise in the base flood elevation.” Fill is prohibited within the floodway, regardless of BFE rise. Also, FEMA FIRM Map panel, when compared with design, indicates rise approaching 4.40’ at proposed crossing. [this portion of comment not withdrawn; this statement remains relevant / 11-Mar 2016] A bridge crossing that avoids fill within floodway appears the only viable alternative. Mike Myers, Dominion Engineering, questions apparent inconsistency between ordinance sections 18-30.3.11 and 30.3.13. **(11-Mar 2016) Comment withdrawn.**

Bridges, ferries and culverts not serving single-family dwellings	SP	SP
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4. Title/SP2 –Design scale, *regional context map/parcel map* (1”=1,000’ & 1”=400’) are inconsistent; check map scale (1”=800’?). Also: Title *vicinity map* scale, 1”=500’ matches neither of the other two scales. **(Rev. 1) Addressed.**
5. SP3 –Provide ADT estimate used as basis of road section pavement design, since typical road section provided (else, eliminate typical road section). **(Rev. 1) Addressed.**
6. SP4-SP8 –Show WPO stream buffer in addition to floodplain/steep slopes zoning overlays. SP Application presents development (proposed Lots) as well as floodplain road crossing information. Stream buffers should be shown on these *special use permit* plan sheets in order to respond to questions or identify issues relating to proposed development within stream buffers. Action or recommendation on SP Application may err if stream buffers, or limits on development within stream buffers, are not considered at this time. Ref. peach/salmon, GIS images, below: **(Rev. 1) Addressed.** [images removed]
7. SP3 /Note: Engineering review does *not* consider or evaluate site overview development road design, geometry, or details for Lots or streets (Road A, Road B) presented on sheet SP3; these development features should be reviewed with subdivision/road application/s. Engineering SP review comments consider *special use permit* information presented on *other* sheets. **(Rev. 1) Acknowledged.**
8. SP5 –BMP #7 and 9 are < 50’ from Powell’s Creek. Increase distance to 50’ Min. “Mitigation to 50 feet is allowed in Crozet now.” [11/11/2015 5:11 PM email –E. Echols to F. Stoner] **(Rev. 1) Addressed.**
9. Provide proposed trail details (located within floodplain/floodway); plan/profile. [18-30.3.11] **(Rev. 1) Addressed.** Applicant: ‘20’ trail easement for trail construction by others.’
10. SP6 –Provide footbridge schematic. **(Rev. 1) Addressed.** Applicant: ‘Construction by others.’
11. SP4/BMP #3 –If this SWM facility proposed location requires *fill*, it is impermissible. **(Rev. 1) Acknowledged.**
12. SP4 –Confirm no grading, no fill, no rise in BFE at Lots 51, 52, 53. **(Rev. 1) Acknowledged.**
13. SP6 –Label retaining wall proposed for connector alignment (fill section) south of Powell’s Creek. Label TW/BW, if known. **(Rev. 1) Applicant 6-Apr 2016 response acknowledged**: “A note has been added to provide retaining wall dimensions with road plans. Additional topography will need to be performed to design that section for roadway.” Caution: CLOMR-F approval pertains. ROAD Plans, when submitted, should include confirmation of HEC-RAS modeling data for stream cross sections G2, G1; should confirm no increase beyond BFE proposed in data table, Sheet SP11 (Rise =0.2’-0.5’). Recommend SP condition: “Retaining Wall to be designed with Final Road Plans. Powells Creek water surface base flood elevations

(BFE) may not exceed proposed tabulated W. S. Elev (ft.) data, stream cross sections: G2, G1, SP201600003, Sheet SP11.”

14. SP5/SP6 –Provide (H&H analysis) cross-section upstream of connector floodway fringe/retaining wall. Evaluate effect of proposed (floodway fringe) fill required to construct roadway embankment/retaining wall. [Plan excerpt, below] **(Rev. 1) Addressed.** –Also, see #2, 13, above.



15. SP8 –Design proposes limited (perhaps unavoidable) impact to preserved steep slopes, which appear eligible for review/approval under 18-30.7.4.b.1.c. **(Rev. 1) Addressed.** Grading revised to minimize impact to preserved slopes due to road construction.

c. *Necessary public facilities.* Public facilities necessary to allow the use of the lot, provided that the lot does not contain adequate land area outside of the preserved slopes to locate the public facilities and one or more of the following exist: (i) the land disturbing activity avoids impacts on other protected resources such as stream buffers or floodplain; (ii) the alignment of the public facilities is consistent with the alignment of public facilities depicted or described in the comprehensive plan; (iii) **the disturbance is necessary to provide interconnection** required by the Code or the applicable regulations of other public entities; or (iv) prohibiting the facilities from being located on preserved slopes will cause an unnecessary hardship. To the extent that public facilities are established on preserved slopes, the preserved slopes should be preserved to the maximum extent practicable consistent with the intent and purpose of this overlay district,

16. SP10 – Development and proposed improvements shown on Conceptual Mitigation Plan (SP10) appear inconsistent with Albemarle County development policy which permits grading necessary to permanently locate SWM facilities within the landward 50-ft of stream buffers, within Crozet Development Area. This policy does not as of this date permit hardscape development (roads, decks, residential structures) to be located within the landward 50-ft of stream buffers. [Plan excerpt, below] **(11-Mar 2016)** After staff review, the street (**image below**) may be viewed necessary infrastructure to allow reasonable use of *created* lots, yet this design destroys stream buffer. Alternative designs that preserve stream buffer are available. Engineering recommends against proposed design. Ordinance requires any new building site be located outside of the 100-ft stream buffer. A number of building sites do *not* meet this condition [Sec. 17-604.A.]. **(Rev. 1) Not addressed.** SP4 appears to show the same building sites located within 100-ft stream buffer.



Please contact John Anderson, PE/CFM, if any questions.
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Thank you

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