



June 1, 2023

Paint Brush Hills Metropolitan District
9985 Towner Avenue
Falcon, CO 80831

RE: Drainage Letter for Paint Brush Hills Metropolitan District’s Pump House 6 within Paint Brush Hills Filing 12 Tract A and 14 Tract B

To Whom It May Concern:

The Paint Brush Hills Metropolitan District (PBHMD) is located in Peyton, Colorado in unincorporated El Paso County. This drainage conformance letter pertains to the PBHMD project called the Pump House 6 Site Development Plan (Site) and is located southeast of the intersection of Keynes Drive and Kingsbury Drive and is west of Rockingham Drive and Keating Drive within the Paint Brush Hills Filing No. 14. The Site is located in the NW ¼, Section 25, Township 12 South, Range 65 West of the 6th PM, County of El Paso, State of Colorado.

add: EDARP File Number SF05038

The Site was previously studied for drainage improvements as a part of the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13) which was prepared in October 2005 and with the latest revision date of June 2008. This site includes a small area in the northern portion of the Paint Brush Hills Filing 12, Tract A and Tract B of the Paint Brush Hills Filing No. 14. In general, the Site drains north-east to south-west toward the detention pond in Tract A. This area is within sub-basins “XX2” and “ZZ” of the Filing No. 13 Final Drainage Report.

Detention Pond "C"

The Filing No. 13 Phase 2 site is planned for a single-family home development with over 550 homes (in the 2,000+ square foot range), a 10-acre elementary school site, a 6-acre community commercial site and 44 acres of trails and open space. The Filing 13 site has provided for regional detention and water quality for the overall site development.

The PBHMD Pump House 6 Site Development Plan (22’ x 40’) within the single-family development with its respective gravel access driveway out to Keynes Drive. This is in conformance to the proposed drainage concept for sub basin “XX2” and “ZZ” of the Filing 13 Final Drainage Report. The area of imperviousness for the site is the well house roof at 880 SF and gravel driveway at 6,283 SF, for a total of 7,163 SF of imperviousness. Sub-basin XX2 is 5.72-acres in size with a $C_5=0.35$ and $C_{100}=0.45$ per the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13). Sub-basin ZZ is 7.01-acres with a $C_5=0.30$ and $C_{100}=0.40$ per the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13). The flow rates from each sub-basin are shown in the following table per the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13). The addition of the Well #12 Site within sub-basins XX2 and ZZ does not change the areas from the original Final Drainage Report but changes the runoff coefficients to $C_5=0.02$ and $C_{100}=0.44$ and $C_5=0.02$ and $C_{100}=0.44$, respectively. The flow rates with the addition of the Well #12 site within the sub-basin are shown in the table on the following page.

Discuss drainage calcs from F14 (SF2024) and Pond C modifications. Basin ZZ (SF05038) and/or Basin N (SF2024) did not account for impervious areas proposed. Provide calculations for increased flows to ensure Pond C can handle the increased impervious area.

Adding Well #12 would typically increase the runoff coefficient, not decrease. Add narrative discussing the change.

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Justify the decrease from 0.35/0.30 to 0.02. The 100-yr coefficient does not change in this magnitude.

Sub-Basin	Area (acres)	C ₅	C ₁₀₀	Q ₅ (cfs)	Q ₁₀₀ (cfs)
XX2	5.72	0.35	0.45	7 cfs	16 cfs
ZZ	7.01	0.30	0.40	6 cfs	13 cfs
Total (FDS Filing No 13)	12.73			13 cfs	29 cfs
XX2	5.72	0.02	0.44	0.3	14.4
ZZ	7.01	0.02	0.44	0.2	13.5
Total (proposed)	12.73			0.5	27.9

The time of concentration used in both calculations were from the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13). The changes in methodology from the Final Drainage Report for Paint Brush Hills – Phase 2 (Filing No. 13) to 2021 results in decrease of 12.5-cfs for the 5-year storm event and 1.1-cfs for the 100-year storm event.

Due to the minimal amount of imperviousness created by the proposed Pump House 6 and associated access drive, which were planned for with the development of the Paint Brush Hills Filing No. 14, it will not have any adverse drainage effects on any of the adjacent property and will not require any additional detention or water quality facilities.

If you have any questions or concerns with drainage concepts associated with this proposed construction, please contact me at 303-293-8107.

Sincerely,



Discuss proposed swale in drainage text and where the swale outfalls. Provide sizing calcs.

Gary E. Welp, P.E., CFM

Attachments