



## HYDROLOGY/FHAD MODEL COMMENTS MEETING MINUTES

Brantner Gulch MDP and FHAD  
Monday, November 16, 2020  
1:00 pm via Microsoft Teams

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The meeting was held to discuss hydrology and FHAD modeling questions. This summary is intended to reflect the key points raised, issues for further consideration, and action items resulting from the discussions. The non-bold items comprised the meeting agenda. The items in bold resulted from the discussions.

### Comment Discussion Items

- 1) Should the FHAD or MDP include modeling upstream of Quebec Street on Pheasants Run Tributary since it is now piped?
  - a) Information from Jim: “For R203, we can provide the calculations/drainage report for the full length 54-inch pipe system. It included headwater/surcharge conditions for the upstream/north side of 136<sup>th</sup> Avenue. Significant overlot grading has occurred where the channel had been, additional grading will occur with build out of the commercial site. If the 500-year flow spills, we will want to incorporate the latest “as-built” contours into the FHAD model before publishing it. The conditions along 136<sup>th</sup> Avenue have also changed since the 2014 topo was flown, so the upper reaches of some basins may be altered. Also, the developer has agreed to raise 134<sup>th</sup> Avenue so that the low point in the street, approximately 200-feet west of the Quebec centerline, is above the calculated HGL in the 54-inch system where the soon to be enlarged detention basin that serves the new subdivision (including the proposed commercial) joins the system. A 500-year flow placing a higher surcharge on the system upstream of 136<sup>th</sup> Avenue would likely still push flow out of the system in this location, with the overflow running into Quebec, before spilling to the east at the Quebec sump, south of 134<sup>th</sup> Avenue.”
  - b) **It was determined that hydraulic modeling upstream of Quebec Street will not be needed. The HEC-RAS model will be trimmed to start immediately downstream of Quebec Street.**
- 2) Should the detention basin upstream of 140<sup>th</sup> on Horizon Tributary be included in the baseline hydrology model?
  - a) **The undetained 100-year discharge of Subbasin H11 is 21 cubic feet per second (cfs). When the detention basin is functioning, flows are routed to the next downstream detention basin; however, if the outlet structure were**

**clogged, the detention basin would overtop into 140<sup>th</sup> Avenue near the intersection, and then continue down Holly Street, bypassing the next downstream detention basin. It was determined that the detention basin will not be added to the baseline hydrology, and that the SWMM routing will continue to be based on the overflow path when the detention basin overtops, assuming the outlet is clogged.**

- 3) Jim noted the inadvertent detention occurring in Horizon Tributary, more specifically: "At DP H110 (Holly Street north of 136<sup>th</sup> Avenue) we may now effectively have detention when Basin H312 is releasing higher flows. H312 is controlled above the 5-year event by a 42-inch orifice. The culvert under Holly Street is 48-inch RCP, and all of Subbasin H10 (as well as H13 and H14) is routed to the upstream side of the crossing. When we widened Holly Street in 2019, we did not dig up a 20-foot deep culvert to construct what the previous masterplan had recommended. Minor events will likely pass through unattenuated. Whether or not this is worth modeling attenuation of "major" events is the question."

**a) It was determined that the inadvertent detention will not be included in the baseline hydrology. Formalizing detention in this location will be evaluated in the alternatives analysis if the reach could benefit from additional detention.**

- 4) Should the detention basin upstream of 136<sup>th</sup> on South Platte Tributary 6 be included in the baseline hydrology model?

a) Information from Jim: "I had brought up possibly modeling detention at S124, north of 136th Avenue. The as-built grading for this subdivision has pushed the divide between subbasin F05 and S24 right up to Syracuse Street on many of the intersecting streets, increasing the basin size to where the detention at DP S124 may merit consideration. This will decrease peak flows in both reach S224 and F205."

**b) The subbasin boundary was double checked and follows the development plan in this area. It was determined that the detention basin will not be included in the baseline hydrology since it has less than 130 tributary acres.**

- 5) Other

**a) The detention basin upstream of Washington Center Parkway was discussed. Dave will investigate whether the inlet and storm drain system capacities can be included in the hydraulic analysis for the 100-year and 500-year spills out of the detention basin. The MDP will include alternatives to prevent the spill and provide freeboard in this detention basin.**

**Action Items:**

**MHFD:**

- 1. Discuss whether the storm drain system can be counted for the 100-year and 500-year spills downstream of Washington Center Parkway.**

**Please contact Olsson at 303-237-2072 with changes or questions regarding these meeting minutes. These minutes will be considered final unless comments are received within seven days of distribution. Although comments will be incorporated, as appropriate, only major revisions will be redistributed.**

**Minutes prepared by: Amy Gabor**

**cc: Attendees, Russell Nelson, Pam Acre, File**