

Dan Holloway

To: Davidson, Tim
Subject: FW: initial comments__Kingsbury__drainage report

Tim,

I answered your questions below in red lettering. Let me know if you have further questions or need additional information.

Dan

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From: Davidson, Tim
Sent: Friday, June 24, 2011 2:34 PM
To: Hoetmer, Larry
Cc: Lindebak, Scott
Subject: initial comments__Kingsbury__drainage report

Larry,

I have some initial comments for the drainage report for Kingsbury:

- Water quality calculations and design is only conceptual at this time? **Yes. The intent of the project at this time is mass grading to allow the mining operations to place overburden material in the proper location and mine to the limits of the proposed lake.**
- It should have an overall, single grading plan. There was a series of rough maps of proposed and existing contour lines of sections of the site with basins drawn, but that was about it. **Included.**
- The grading plan should have spot elevations on the path since it will be obstructing drainage; flow elevations on the culverts and roadways; elevations on ditches, and pool elevations. **Added see plan. However, elevations are based on rough mass grading operations.**
- There should be 2, global, overall maps of the basin boundaries, 1 pre & 1 post, with: **Comparisons between pre and post conditions are inconsequential since post development will contain all runoff on-site within the proposed groundwater lake – with no surface outlet. Therefore runoff currently leaving the site will be redirected into the proposed lake. Also, drainage patterns on site will be completely changed.**
 - Time of Concentration paths – **added to map**
 - Labels for the respective basins used in modeling. **See map of existing drainage areas.**
 - Structures and detention areas clearly noted. **Labels have been added to the map.**
 - Drainage arrows – **added to the map**
- I was surprised that the time of concentration values were the same for all of the storm events. I figure with deeper water in the channel, it'll flow faster, and Tc would be less with bigger rains. – **The time of concentration was calculated for the 100-year event. Longer times could be calculated for less depth of flow for more frequent events (1-50 year storms). Therefore, flow calculations are conservative for these events, and they would not appear to make a significant difference in the analysis. Also, with the**

longer time of concentration (2.5 hours) and with the level terrain, the time of concentration for the 500-year event would appear to be within an acceptable range of the 100 year event.

- I was expecting a diagram of the routing that was used in the modeling – which basins converge to which detention areas? Drainage areas are show on the grading and drainage plan. Most areas are only routed to the proposed lake with no outlet.
- Was detention considered (existing) on the upstream side of Hoover via the restriction of the culverts under Hoover? No. Design was based on the “worst case scenario” in case the existing drainage structures were replaced with future road improvement projects. The detention on the other side of Hoover Road increases the storm event that can be handled with our drainage system/BMP.
- I did not understand what the different 100-yr elevations represented in the table in Appendix A. Why are there different elevations? Lake elevations are shown based on normal pool elevations in the lake before the 100-yr event and possible high pool elevations in the lake before the 100-yr event.
- As soon as they have an idea of easements, reserves, etc., that should be on the grading and drainage plans. This plan is for mass grading operations – see the first question. Easements will be dedicated as final projects and grading proceed.

I am probably picking apart the flood detention portion of it too much as it I thought this pond can more than handle what will come to it with respect to flooding. Still, I do not think the report has enough detail with respect to the grading and the drainage plan, and it would be good to have more confidence in the runoff numbers when they get around to analyzing water quality.

Thanks,

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