

May 2, 2019

Mr. Hector Soto Jr. Planning Division Manager Lee's Summit 220 SE Green Street Lee's Summit, MO 64063

# RE: Lee's Summit Medical Center - New Medical Office Building Comment Response Letter Lee's Summit, Missouri

Dear Mr. Soto:

Please consider this submittal as a formal response to comments received for the above referenced project. Below, please find a summary of how each comment has been addressed.

## Engineering Review

### **Gene Williams**

- 1) There is concern about the flat slope in the bottom of the detention basin. Even though call-outs of 2% slope are shown, they do not agree with the contour elevation call-outs. Calculations are provided using the "PONDs) software showing this may be feasible (i.e., to allow a flat-bottom detention basin), but please be aware that it will be a condition of approval of this Final Development Plan that all stormwater in the bottom of the detention basin be eliminated within the timeframe specified in the report. If it is shown that it is not eliminated within 72 hours as specified in the report, it is likely the project will not be granted Final Acceptance, and a re-design will be required.
  - Sheets C6.2 & C6.4 have been corrected to provide a 2% slope across the pond bottom. As discussed with Mr. Williams, the bioretention area has also been relocated to along the bottom of the pond berm.
- 2) As discussed above, 2% call-outs are shown on the grading plan shown on Sheet C6.2. However, this does not agree with the elevation call-outs on the contours for a majority of the basin bottom.
  - Sheets C6.2 & C6.4 have been revised accordingly (and mentioned in Comment Response #1 above).
- 3) The bottom of the retaining wall elevation is shown at 992.0 throughout the entire basin, but this call-out does not agree with the 993 contour call-out shown in the southeast corner of the basin. According to the contour call-outs, the bottom of the wall should be higher than 993.
  - Sheets C6.2 & C6.4 have been revised accordingly. The slope of the pond bottom is now correctly reflected in the bottom of wall callouts.
- 4) No information other than length and width of the "Bio Retention Area" was provided on Sheet C6.2 or L1.2 or L2.0. A thickness is required. The note "1" gravel 3" depth in lieu of mulch" is not sufficient, and we do not support this substitution. In addition, it is not a "mulch" mix. According to Sheet L2.0, the mixture is not mulch, but rather, a planting soil with a specific mixture of sand, silt, organic matter, etc. It should match what is shown in the stormwater report, which according to Appendix VII is 3.0 feet? Finally, please remove the overstrike error on this note. It is obscured by traffic arrows, and not legible.
  - A note has been added to sheet C6.2 indicating that the bioretention depth is 36". This note also references sheets L1.2 & L2.0 for the planting and soil mix detailing of the bioretention area. Specifically, see Detail

#5 and Note #15 on sheet L2.0. Gravel is only proposed for the top 1" of the 3' deep bioretention area. This is to prevent scouring and because a mulch application would float away.

- 5) <u>Sheet C6.4:</u> The outlet control structure has been redesigned. However, it now appears to show two (2) "goosenecks" with no corresponding detail concerning their construction (e.g., length, materials, elevation of the bottom of the gooseneck, etc.). Recommended that a separate detail be provided showing these design details.
  - The outlet structure design has been tweaked again based on the revisions to the pond bottom elevation / sloping. The method for preventing debris discharge has also been revised to a more conventional trash screen that will also be less likely to clog. The trash screen is proposed as a ConTech StormRax (or approved equal).
- 6) <u>Sheet C6.4</u>: The outlet structure has now been redesigned. However, the plan view shows what appears to be a grated top, rather than a manhole frame and lid. Please reconcile this discrepancy.
  - The grated top detail has been removed and replaced with a manhole frame and lid.
- 7) <u>Sheet C6.4</u>: The lower gooseneck appears to be placed where it will affect the routing calculations (i.e., it appears to be installed just above the apron shown in the isometric view). However, without any elevation call-outs, or dimensions showing the distance between the bottom of the gooseneck and the top of the apron, it is impossible to determine what, if any, affect this constriction would have on the routing calculations. Please reconcile.
  - The gooseneck has been removed and replaced with a more conventional trash screen (as referenced in Comment Response #5 above). See sheet C6.4 for more information.
- 8) <u>Sheet C6.4:</u> The elevation call-out for the apron shown in the isometric view does not agree with the elevation call-out on the contour lines shown on the grading plan shown on Sheet C6.2. According to Sheet C6.2, the elevation is between 992 and 993. Sheet C6.4 calls-out an elevation of 991.0. Please reconcile.
  - The concrete apron has been removed since the bio retention area was relocated to the northwest side of the pond, at the toe of the berm slope. Please refer to sheets C6.2 & C6.4 for more information.
- 9) <u>Sheet C6.4:</u> Two (2) 4 inch were added to outlet structure K2. However, no profile view was provided. Since this is an integral part of the dam, a profile view is required showing pipe material, slope, length, etc. As shown, there are no dimensions provided anywhere on the plans, nor any slope call-outs.
  - The referenced pipe is designed as a flat system, like a conventional underdrain. As such, a single cross section (as provided on sheet C6.4) conveys the design intent and dimensional constraints. Refer to sheet C6.4 for more information.
- 10) <u>Sheet C6.4:</u> "Pond Cross-Section": The 100 year nominal stage is shown at 999.6. Above this, there is a dashed line with an elevation call-out of 999.6 (i.e., it is exactly the same call-out). This does not make sense (i.e., how can the dashed line shown above the lower line be the same?).
  - The cross sections on sheet C6.4 have been revised. Based on the updated pond modelling (due to the changes in the bottom of pond elevations / sloping), the 100-year nominal stage is now 1000' (and 6" of freeboard is provided up to 1000.5').
- 11) <u>Sheet C6.4:</u> "Pond Cross-Section": It appears the top of the dam has been changed, and is now shown at 999.6. However, this does not agree with the grading plan shown on Sheet C6.2. Sheet C6.2 shows the elevation of the top of the dam being at least 1000 feet. In other words, it appears no significant changes were made to the grading plan on Sheet C6.2 since the last submittal.
  - Sheets C6.2 and C6.4 have been updated per the current pond design. The top of dam (i.e emergency overflow weir) is now 1000.5'.
- 12) <u>Sheet C6.4:</u> It appears the "Pond Cross-Section" top dimension has been changed. It is now shown extending past the top of the dam (i.e., the 4 foot width at the top of the dam call-out is shown extending past the top of the dam). It appears this is a drafting error?
  - This was a drafting error and has been corrected. Please refer to sheet C6.4 for more information.

- 13) <u>Sheet C6.4:</u> "Pond Cross-Sections": If the top of the dam is planned to be 999.6, why is there additional fill shown at an elevation of 1001.0 on the cross-section above this point? According to your design, it would appear this doesn't make sense. According to your drawings, the retaining wall is set at the higher elevation?
  - The grading and cross sections on sheets C6.2 and C6.4 have been updated accordingly. The top of dam is proposed as 1000.5'.
- 14) The "Drainage Design Summary" dated Apr. 10, 2019 appears to show the 100 year nominal water surface elevation at the top of the dam, which is not allowed. A minimum of 0.5 feet of freeboard is required from this nominal condition, and the top of the dam. It appears no freeboard was provided at all. We will not support any "waiver" or "design exception" to this rule. We had discussed reducing the freeboard requirement to perhaps 0.7 feet for the clogged condition/zero available storage, but not the freeboard between the nominal condition and the top of the dam.
  - The drainage design summary and sheets C6.2 & C6.4 have been updated. The 100-year nominal water surface elevation is now 1000', and 6" of freeboard has been provided with a top of dam elevation of 1000.5'. Furthermore, the 100-year emergency floodway stage (the clogged condition) is 1000.8'. Freeboard of at least 0.7' is provided along the entirety of the back of the pond / wall. The minimum elevation along the wall is proposed as 1001.5'.
- 15) Recommend that a thorough review of Sheet C6.4 be conducted. It appears that little effort was conducted to ensure the plans make sense both from a constructability standpoint, but also whether the design is supported by the calculations and statements provided in the stormwater report.
  - Sheet C6.4 has been reviewed and updated accordingly.
- 16) Engineer's Estimate of Probable Construction Costs: It appears the following unit prices were low based on previous estimates: 1) curb and gutter, 2) 8 inch PVC sanitary line, 3) sanitary manholes, 4) water lines (all). In addition, the estimate appeared to be missing the following items: 1) relocation of the existing backflow vaults, or new backflow vaults, 2) erosion and sediment control devices and measures, 3) final restoration, including seeding, sodding, fertilizer, mulch, and topsoil, 4) detention basin outlet structure, 5) 4 inch HDPE dam drainage line, 6) sand drain, 7) bioretention cell
  - Please refer to the revised Engineer's Estimate of Probable Construction Costs.

## Fire Review

#### Jim Eden

- 1) All issues pertaining to life safety and property protection from the hazards of fire, explosion or dangerous conditions in new and existing buildings, structures and premises, and to the safety to fire fighters and emergency responders during emergency operations, shall be in accordance with the 2018 International Fire Code
  - This is understood

Should you have any questions, please feel free to contact me via e-mail (<u>ghuddleston@smeinc.com</u>) or phone (407-975-1273).

Sincerely,

S&ME, INC.

M, TE

George Huddleston, PE Area Manager- Healthcare