ANDERSON ENGINEERING
EMPLOYEE OWNED

February 2, 2018

Gene Williams, P.E., Senior Staff Engineer
220 SE Green Street
Lee's Summit, Missouri 64063

**Re: The Grove – Mass Grading and Stormwater (PL2017110)**

Dear Mr. Gene Williams:

Anderson Engineering has received your comments dated September 28, 2017 and have the following responses:

Engineering Review

1. The plans call for the grading in the "cut-off" channel to be shown on separate plans for 16th Street Improvements. In our opinion, this is not a logical placement of the plans for regrading and providing adequate drainage (i.e., within the 16th Street Improvements Project). The 16th Street Improvement Project is related to the widening of 16th Street, and not re-grading outside the right of way. In addition, we are still awaiting a resubmittal of the 16th Street Improvement Plans, and these plans do not currently include any plans for managing the drainage within the "cut-off" channel. Please include the grading and drainage plans for the "cut-off" channel within the Mass Grading and Stormwater Plans.
The ditch along the north edge of SE 16th Street will be regraded as part of the SE 16th Street Improvements as it is triggered by the widening of SE 16th Street. It should be noted that said regrading will take place within the SE 16th Street right-of-way. The SE 16th Street Improvement plans will be submitted subsequent to this Mass Grading and Stormwater plan set. It is safe to assume that work proposed in the two abovementioned plan sets (Mass Grading & Stormwater and SE 16th Street Improvements) will be completed simultaneously.

2. Sheet C5.2: The profile view of the storm lines show what appear to be a single 42" PPP. Isn't the pipe system going to consist of three (3) 42" pipes? If so, please specify.
Additional profile sheets C5.2 and C5.4 have been added to clarify. Each of the three pipes are show on separate profiles. All pipe sections are 42" with the exception of the last sections of the west and east lines directly upstream of the outlet. These sections are 48" downstream of the last junction box.

3. Sheet C5.2: The plan view still calls-out the installation of an RCB rather than three (3) 42" PPPs. Please review these errors and correct as appropriate.
All call outs have been revised to show the appropriate size PPP. Refer to the response to comment 3 above for explanation of proposed PPP sizes.

4. Sheet C5.2: "Refer to 16th Street Improvement Plans for Blockout Elevation from East and West". Please see previous comment related to this note. In our opinion, these plans should incorporate this design, since it is integral to the design of the junction boxes.

Please refer to the response to comment 1. The flowline elevations requiring construction of blockouts on abovementioned junction boxes have been included on plan and profiles found on sheets C5.2 and C5.4. It should be noted that all storm structure shop drawings must be approved by the Engineer prior to fabrication of said storm structures and that these shop drawings will not be approved by the Engineer without consideration of the blockouts from the SE 16th Street storm pipes.

5. Sheet C5.2: Please call-out the retention pond outlet structure as "private", extending to the downstream junction box. The junction box shall be considered public, and all other aspects of the system upstream of this point shall be considered "private".
Notes have been added to the profiles on sheets C5.2, C5.3, and C5.4 to denote public and private storm structures.

6. Sheet C7.2: Pedestrian guardrail is shown. Why is there a need for a pedestrian guardrail at this crossing? We do not see the necessity of providing this guardrail. It should also be noted that this particular design does not appear to meet City design standards for guardrail.
The guardrail detail has been changed to show a 4' Ameristar steel fence detail.

7. Sheet C7.2: Pavement trench repair detail appears to show two (2) 48" pipes, and one (1) 42" pipe. Please reconcile with the other sheets, which appear to show three (3) 42" PPPs.
Please refer to the response to comment 2. The center pipe is 42" and the outer pipes are 48" at the point at which the pipes cross beneath the street pavement section.

8. A profile view of the relocated water line is required. The profile view should show the water line being DIP with restrained joints at the stream crossing, a minimum of 42" below the natural streambed, extending twenty (20) feet beyond the streambank, utility crossings such as sanitary sewer, and concrete encasement within the stream crossing. Gate valves shall be provided at each end of the stream crossing, so the section can be isolated for repair. The valves shall be easily accessible and not prone to flooding.
The water line profile view has been added on sheet C6.1 and the concrete encasement length has been extended 20' beyond the streambed on both sides of the streambed. Additional notes have been added to clarify the gate valve locations, minimum separate distances and the sanitary sewer crossing location.

9. Sheet C7.2: The pavement trench repair detail should be revised to reflect our collector street standard for pavement replacement. This will require the use of geogrid or subgrade stabilization on top of 95% compacted subgrade, granular base, and a base and surface course of asphaltic concrete. If KCMMB concrete mix is used in lieu of asphalt, then please see the collector street standards listed in the Design and Construction Manual, Table LS-3.
A note has been added to refer to the permanent asphalt section detail on sheet C7.3 which has been updated to conform to city standards.

10. Sheet C7.3: A permanent asphalt section is shown, but it is not clear where this is used. In general, this detail is not sufficient because it only shows a 2" surface course over a granular sub-base.
The permanent asphalt section detail shown on sheet C7.3 will be used in the pavement trench repair detailed on sheet C7.2 where it is now referenced. The detail has been updated to meet City standard referenced in comment 9 above.

11. Sheet 7.4: Calculations should be provided for the energy dissipation (rip rap) proposed for the project. These calculations should be based on a recognized system for the design of the rip rap. The resulting dimensions for the rip rap should be based on these methods.
Riprap sizing calculations have been provided with this submittal based on equations published in the Third Edition of Hydraulic Design of Energy Dissipaters for Culverts and Channels.

12. A revised cost estimate should be prepared for the work necessary to complete the project.
Revised cost estimates have been submitted with this plan set.

13. All necessary easements should be prepared and executed prior to approval of these plans. The easements should be on forms provided by the City. An exhibit is required for each easement. Prior to execution of the easement(s), please provide the City with a courtesy review copy. Following a short review (typically a day), you will be responsible for executing the easement, and recordation at the Jackson County Recorder of Deeds.
It is understood that the city expects all required easements in place prior to construction of these plans. As of the date of these plans all easements have been agreed to in principal with all stakeholders. Final recording and execution of all easements is currently underway and may not be complete at time of city review of these plans. We ask the city understand that no improvements will be placed on any property without proper easements or other required entitlements regardless of City approval of the Mass Grading Plans.

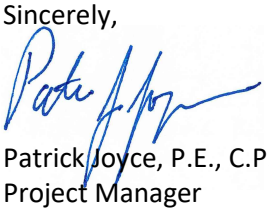
In order to calculate the Engineering Plan Review and Inspection Fee, a sealed Engineer's Opinion of Probable Construction Costs shall accompany your final submittal copies. The itemized estimate (material and installation) shall be sufficiently broken down and shall include the following items, as applicable.

- Public infrastructure, both onsite and offsite.
- Private street construction, including parking lots and driveways.
- Sidewalks located within the right-of-way.
- ADA accessible ramps.
- Sanitary sewer manholes and piping between manholes, including private mains.
- Connection of the building sanitary sewer stub to the public main.
- Waterlines larger than 2 inches in diameter, valves, hydrants, and backflow pre
- outside the building.
- Stormwater piping greater than 6 inches in diameter, structures, and detention /
- public or private.
- Water quality features installed to meet the 40-hour extended duration detention
- Grading for detention / retention ponds.
- Grading to establish proper site drainage.
- Utility infrastructure adjustments to finished grade (i.e. manhole lids, water valves,
- Erosion and sediment control devices required for construction.
- Re-vegetation and other post-construction erosion and sediment control activities.

Acknowledged. See the attached Engineer's Estimate.

If you have any further questions, feel free to contact me at 816-777-0400 or by email at pjoyce@andersonengineeringinc.com.

Sincerely,



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