LEE'S SUMMIT
MISSOURI

PUBLIC WORKS ENGINEERING DIVISION

Date: Tuesday, July 10, 2018

To:
GEORGE BUTLER ASSOCIATES INC
Clint Loumaster, P.E.
Email: cloumaster@GBATEAM.COM
Fax #: (913) 577-8306

From: Gene Williams, P.E.
Senior Staff Engineer

Application Number:	PL2018074
Application Type:	Engineering Plan Review
Application Name:	The Grove - Mass Grading and Stormwater Plans

The Development Services Department received plans for this project on July 2, 2018. We have completed our review and offer the following comments listed below.

- Resubmit three (3) full size sets of plans (no larger than 24"x36") folded to 8-½"x11", one (1) comment response letter, and one (1) digital copy following the electronic plan submittal guides as stated below.
- Revised plans will be reviewed within five (5) business days of the date received.

Engineering Review

1. Please refer to comment #10 of the applicant letter dated June 19, 2018. The response to comments appears to be directed toward the stilling basin design at the end of the triple culvert, rather than the outlet of the 5x5 RCB beneath Summit St. We saw no changes were made to the design, and are concerned about the effect that a 5x5 box culvert will have at the discharge point, when installed at a slope greater than 4%. This will be flowing supercritical, and a simple MoDOT Type 3 ditch liner is in our opinion not sufficient to manage the energy at the end of this RCB. There may be intervals where the normal pool elevation is lower than normal, and we do not feel the MoDOT Type 3 ditch liner is adequate to absorb the energy of the stormwater discharge. Is there a way to lower the slope of this box culvert to eliminate this concern? What is the rip rap size, and where is the geotextile fabric needed? If you are going to specify "MoDOT Type 3 Ditch Liner", you will need to provide a detail of this feature in the plans, and provide a reference to this detail on the plan view. Finally, what is the proposed grading at the beginning of this box culvert (i.e., near station 2+47)? As shown, it is difficult to determine what the proposed grading will be in this area.

2. Please refer to comment #12 of the previous applicant letter. A "MoDOT Type 3 Ditch Liner" is specified, but no such detail is provided in the plans. Geotextile filter fabric was not shown, and must be shown as per City of Lee's Summit requirements. Rip rap size was not specified, and referencing the size in the stormwater report is not sufficient since contractors and inspectors do not read these reports. Finally, MoDOT Type 3 Ditch Liners do not appear to meet the requirements shown on Sheet C4.2. This appears more in line with a MoDOT Type 4 Ditch Liner than a Type 3 Ditch Liner.

3. Please refer to comment #16 of the previous applicant letter. Please label the 100 year hydraulic grade line as "clogged condition of primary outlet works - 100 year hydraulic grade line" or equivalent language. In addition, the following questions should be answered prior to consideration of your request to allow for non-gravity flow for the 100 year, clogged condition event: 1) what is the hydraulic grade line within the triple PPP culvert for the un-clogged condition (please show graphically on the profile view, with appropriate notes such as "100 year hydraulic grade line with primary outlet works functioning normally", or equivalent language), 2) are all conditions set forth in Section 5606.3 "Pressure Flow" met, such as the condition that watertight joints capable of withstanding the internal surcharge pressure are being used, appropriate energy losses for bends, transitions, manholes, junction boxes, inlets, and outlets used in the computation of the HGL, and Bernouli's equation was used in the computations?

Traffic Review

1. Provide the advisory speed signs for the TTC on the shoo-fly based on the horizontal radii. The contractor should not be required to assess the appropriate speed from an EPG reference.

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 preventer with vault, if outside the building.
- Stormwater piping greater than 6 inches in diameter, structures, and detention / retention facilities - public or private.
- Water quality features installed to meet the 40-hour extended duration detention requirements.
- Grading for detention / retention ponds.
- Grading to establish proper site drainage.
- Utility infrastructure adjustments to finished grade (i.e. manhole lids, water valves, etc.).
- Erosion and sediment control devices required for construction.
- Re-vegetation and other post-construction erosion and sediment control activities.

Electronic Plans for Resubmittal

Development engineering plan resubmittals shall include an electronic copy of the documents as well as the required number of paper copies.

Electronic copies shall be provided on CD in the following formats

- Plats – All plats shall be provided in Tagged Image Format File (TIFF) Group 4 compression.
- Engineered Civil Plans – All engineered civil plans shall be provided in Tagged Image Format File (TIFF) Group 4 compression. All sheets shall be individually saved and titled with the sheet title.

- Architectural and other plan drawings – Architectural and other plan drawings, such as site electrical and landscaping, shall be provided in Portable Document Format (PDF).
- Studies – Studies, such as stormwater and traffic, shall be provided in Portable Document Format (PDF).
- It is requested that each plan sheet be a maximum of 2MB.

Please contact me if you have any questions or comments.

Sincerely,

Original Signed

Gene Williams, P.E.
Senior Staff Engineer
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cc: Development Engineering Project File