

DEVELOPMENT SERVICES

Date: Wednesday, April 10, 2019

To:

SCHLAGEL & ASSOCIATES Email: SCHLAGEL & ASSOCIATES Fax #: (913) 492-8400

 From:
 Gene Williams, P.E.

 Senior Staff Engineer

 Application Number:
 PL2019078

 Application Type:
 Engineering Plan Review

 Application Name:
 Winterset Valley 13th Plat - Street, Storm, MDP, and ESC

The Development Services Department received plans for this project on Mar. 19, 2019. 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 ten (10) business days of the date received.

Engineering Review

- 1. Why was the pre-versus-post development methodology used, rather than the flat release rates? It was our understanding that the temporary measure in the previous phase could utilize that methodology on a temporary basis. However, that was never implemented, as permission was granted from the adjacent property owner for un-detained release. It is our position that the new standards (i.e., flat-release rates and 40 hour extended detention) be provided.
- 2. The "Final Stormwater Management Plan" dated Mar. 15, 2019 (hereinafter referred to as the stormwater study) was missing the 2 and 10 year events.
- 3. The stormwater study discusses the curve numbers for the existing condition, but the existing condition should have been made based on the conditions prior to any development. As shown, it appears the existing condition curve numbers were derived for conditions as they currently exist, which was not the intent. When the City agreed to allow the detention basin to be constructed later in the 13th phase (i.e., this phase), it was our understanding that "existing conditions" would mean the conditions that existed prior to any development. Based on this rationale, many of the time of concentration calculations for the existing condition should be re-evaluated based on the "previously existing conditions", as well as curve numbers, peak flows, etc.

- 4. Page 2-3 of the stormwater report discusses the Corps of Engineers review, but makes no further comment concerning the need for USACE permitting. Will a USACE permit be required?
- 5. Page 3-1 of the stormwater report discusses the un-detained 4.34 acre drainage area, with no further information, rationale, or request for waiver for the un-detained release. Please expand, and discuss the rationale behind this request.
- 6. Existing peak flow rates for the 100 year event are presented on page 2-2 of the report. However, the figure of 262 cfs for the 100 year event does not appear to agree with the results contained within the appendix, which appear to show a pre-development peak flow rate of approximately 200 cfs.
- 7. Page 2-2 of the stormwater report shows an existing time of concentration of 21.4 minutes. This appears to be low. Also, the paragraph above Table 2-1 discusses the 10 year and 100 year design storms being presented, but the 100 year event appears to be the only event presented. Finally, the same paragraph discusses a Table 2-2, which was not presented in the report.
- 8. Table 2-2 of the stormwater report shows an existing condition curve number that is exactly the same as the post-development condition. We do not agree with this conclusion. As previsouly discussed in this comment letter, the existing condition should reflect the conditions that existed prior to any development on the project site. The existing condition would therefore, be a pre-development condition rather than an existing condition.
- 9. Where in the stormwater report was the MARC worksheet provided for sizing the orifices within the outlet structure?
- 10. Where in the stormwater report is the emergency spillway system addressed? There are various options available, but it is preferred that the emergency spillway be incorporated into the primary outlet works rather than over the road. When calculating the 100% clogged, zero available storage condition, the emergency spillway is NOT considered clogged if an overflow weir is constructed separate from the system of orifices and weirs which are part of the primary outlet works. This may help you in the redesign.
- 11. The stormwater report must discuss the allowable release rates, preferably in table format, along with a discussion of the primary outlet works, the emergency spillway, also in the preferred table format. It should present the flowline elevations of all orifices, weirs, spillways, 100 year water surface elevations for the nominal and clogged condition/zero available storage. As presented in the stormwater report, there is no discussion of these critical items. An appendix is shown, but we are not familiar with this particular software, and without a clear understanding of where each element is shown within the appendix, it is impossible to determine what is being proposed.
- 12. The soil map in the appendix presents a soil group 10120, but it does not appear to have been accounted

in the area of interest table.

- 13. Timesteps within the appendix appear to show 6 minutes. It is our understanding that timesteps should be approximately 0.1333 times the time of concentration, in order to provide accurate results. Given a 20 minute time of concentration, this equates to approximately 2.5 minutes, not 6 minutes.
- 14. What is the purpose of the depth versus discharge curve shown on Page 5, 18-230 PROP ANALYSIS for the 100 year event at REACH 2PR: PROP STREAM, which shows discharge from 0 to 700,000 cfs? This would appear to be irrelevant information given the scale. If it is still desired to present this information, please use an x-axis which is relevant to the situation. There are several examples of this type of curve presented elsewhere in the appendix, and given the scale, it does not appear useful since a flow of 500,000 cfs is on the order of the Mississippi River.
- 15. Sheet 7, General Layout: ADA-accessible ramps are not shown correctly. The City policy for ADA-accessible ramps at the end of cul-de-sacs has changed over the last two years, and our current policy is to terminate the ADA-accessible ramp in a straight line, into the cul-de-sac bulb. There are two (2) ADA-accessible ramps on this project, and both should terminate at a location near the northeast corner of Lot 1478, and the southwest corner of Lot 1481. Please revise this sheet, and any subsequent sheets as appropriate.
- 16. Master Drainage Plan (All Sheets): The 100 year water surface elevation must be shown, preferably in graphic format (e.g., areal extent boundary), along with an elevation call-out.
- 17. Master Drainage Plan: It would appear that a swale should be designated along the rear of Lot 1483, in addition to the swale called-out downstream of this location.
- 18. MBOEs must be called-out for each lot. There are several lots that are missing an MBOE.
- 19. Many of the lots are missing the finish grade. Even if no work is being done in the form of re-grading, the finish grade needs to be called-out. It can be as simple as stating "EX Grade = Finish Grade", or equivalent language.
- 20. The swale above Line 200 would appear to be a designated emergency overflow swale. Please designate this important distinction on the Master Drainage Plan.
- 21. Please label the detention basin. As presented, it is merely shown as Tract D12, Winterset Valley 12th Plat.
- 22. All Areas With Rip Rap: A specific call-out is needed rather than a table for the instructions to the contractor and inspector concerning the rip rap sizing, type, geofabric, dimensions, and thickness. The table may be helpful, but a specific call-out is needed for each area.

- 23. Sheet 14: The plans were missing the ADA-accessible ramp details, and are also missing a comprehensive listing of which sidewalks will be constructed during home construction, which will be constructed with the road improvements (i.e. along common area tracts, unplatted property), and ADA-accessible ramps (which are required to be constructed with the road improvements). Please see the 11 bullet-point items contained within Section 5304.8 of the Design and Construction Manual. These items must be included in the design details for each ADA-accessible ramp.
- 24. The plans were missing the ADA-accessible route details across intersections under stop control. In addition, the profile view of the roadway sections must be updated to clearly-show the locations of these stop-controlled intersections. Please use the City of Lee's Summit design standards (i.e., 1.5% cross-slope, 7.5% running slope) as a design standard rather than PROWAG.
- 25. Storm Profiles: The hydraulic grade line for the design storm event was missing. Ensure the hydraulic grade line for the design storm is at or below the crown of the pipe.
- 26. A stormwater calculation sheet was missing. Normally, this is in the form of a table.
- 27. Sheet 17: This sheet has numerous issues, including a call-out for a scour basin which does not exist. Although we agree a scour basin, or other energy dissipation measure, be installed to manage the supercritical flow at this location, details of the design must be presented in a clear fashion, and include relevant references on this sheet.
- 28. Sheet 17: The 100 year water surface elevation called-out on this sheet does not match what is shown in the stormwater report.
- 29. Sheet 17: The MARC Manual recommends either an orifice, perforated riser, or v-notch weir to provide 40 hour extended detention. How will you provide 40 hour extended detention with a single weir opening as shown on this sheet?
- 30. Sheet 17: Based on comments related to the stormwater report, no further review will be completed until a revised stormwater report has been submitted and approved. Since it is unclear where and how the emergency spillway will be placed, it is difficult to provide additional comment.
- 31. General Comment on Outlet Structure: We will not allow a reference to the structural details such as "See City of Lee's Summit Storm Inlet Standard Detail (STM-2) for Wall Sections, Concrete and Reinforcement". This needs to be a specific design rather than a generic design based on an irrelevant structure.
- 32. The rock checks or similar as shown on the esp-construction phase (sheet 3) should be added to the pre-clearing phase (sheet 2), specifically the checks near the lowest point of site discharge.

- 33. Has a SWPPP been submitted for this project?
- 34. Please see the water line plan review comments. It appears the storm sewer was designed without any regard to the placement of water mains. In general, placement of water mains above storm lines is preferred, and it appears in certain instances this can be achieved.
- 35. When determining the hydraulic grade line within the storm lines, please ensure the hydraulic grade line within the detention basin is properly accounted in the calculations.

Traffic Review

1. The proposed islands in the cul-de-sac(s) should be removed or moved to a location within the cul-de-sac and re-designed for the accommodation of traffic to circulate the bulb (a SU truck and P vehicle) similar to the islands within the adjacent cul-de-sac(s) of Winterset Valley (e.g. Audubon Ln).

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

All Planning application and 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 in the following formats

• Plats – All plats shall be provided in multi-page Portable Document Format (PDF).

- Engineered Civil Plans All engineered civil plans shall be provided in mulit-page Portable Document Format (PDF).
- Studies Studies, such as stormwater and traffic, shall be provided in Portable Document Format (PDF).

Please contact me if you have any questions or comments.

Sincerely,

Original Signed

Gene Williams, P.E. Senior Staff Engineer (816) 969-1223 Gene.Williams@cityofls.net

cc: Development Engineering Project File