CFS ENGINEERS

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March 22, 2021

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City of Lee's Summit
Development Services
220 SE Green Street
Lee's Summit, Missouri 64063

Attn: Shannon McGuire, Planner

Re:
Application Number: PL20211059
Application Type: Residential Preliminary Development Planning
Application Name: Summit Point 2nd Plat (Phase II)
Location: 510 NE Chipman road, Lee's Summit, MO 64063
Response to March 8, 2021 Comments

Shannon,

Below are responses to your comments dated March 8, 2021. We are resubmitting revised plans with this response letter.

Analysis of Residential Preliminary Development Plan:
Planning Review Shannon McGuire Planner Corrections
(816) 969-1237 Shannon.McGuire@cityofls.net

1. Please show the location of all oil and gas wells, whether active, inactive, or capped. A visual inspection of the property will not provide adequate assurance a well or former well is not present on the property. Please cite an official source to ensure no wells are present. *A review of the spreadsheet located at https://dnr.mo.gov/geology/geosrv/ogc/ogc-permits reveals that there are no oil and/or gas permits issued on this property.*

2. Please provide building elevations with the proposed exterior materials and the building height labeled. Please provide this information for each building type you are proposing. *See revised sheets A200, A201, A202, A203, A204, A205 and A207 that show each of the 6 apartment buildings and the proposed clubhouse. Proposed materials have been labeled. In addition, proposed slab drops have been shown to match Civil grading. For your convenience, the buildings are as follows:*

A200 = Building Type C1-2
A201 = Building Type C1-1
A202 = Building Type A2-1
A203 = Building Type A2-2
A204 = Building Type A2-3
A205 = Building Type B1-1
A207 = Clubhouse

In addition, 1 3D color rendering of building A2-2 is attached to show proposed colors and materials.

3. Please provide a narrative statement that requests and explains the justification for modifications of the applicable zoning district regulations (parking reduction & density). *See attached letter of request.*

4. The preliminary plat show lot lines that would appear to go through proposed buildings (A2-3, B1-1 & A2-2). This will not be allowed. *This line is not a property line it is an existing tract line that will be consolidated with the plat. We have changed the line type so that it is not so predominant.*

5. Buildings must be setback from a lot line a minimum of 10'. Building B1-1 appears to have a 0' setback from the property line on the south side of the building. Please update the plat boundaries to meet the UDO required setback. If you wish to seek a modification for this please provide a written request and justification for such. *See attached letter of request.*

6. CG-1 concrete curbing required around all parking areas and access drives in office, commercial and industrial districts. Temporary asphalt curbs may be used in areas to be expanded only as shown and approved on the development plan. Please label the propose curb type and provide standard details for the curbing. *The curb types have been called-out on the plans and details provided.*

7. Please provide details for the proposed ADA parking signs, stalls and aisles. Additionally, as proposed it does not appear you are proposing to provide any van accessible stalls. Please ensure all accessible parking comply with the requirements of the federal Americans with Disabilities Act. *Details for ADA parking have been added and comply with federal requirements.*

8. The elevation sheets depicting the trash enclosure seems to shoe wooden gates. Wood in not an approved material. Sheet A108 has the gates labeled as metal. Please update the sheets to be consistent with what is being proposed. *See revised sheet A108 the gate will be made with galvanized steel plate and tube as shown and will be painted to match one of the building colors. No wood is being proposed for the door or any other part of the trash enclosure.*

9. Please provide a north arrow with the vicinity map. *North arrow added.*

10. If any signs are proposed they must comply with the sign requirements as outlined in the sign section of the ordinance and will be reviewed under separate application. *Each building will have address/unit signage and will comply with the City of Lee's Summit adopted sign ordinance. We will submit this as a separate review once the details have been further developed.*

11. Will the entrances into the shared breezeways be gated/secured for access by the residents only or will they be open to the public? *Revised elevations show solid/secure fiberglass full lite doors at each breezeway that will only allow access by the residents and invited guests. The breezeways are designed to be enclosed and will not be traditional "open breezeways".*

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

1. The preliminary stormwater study states the backwater from the stream will have minimal impact on the discharge from the detention basins. If placing detention basins within the stream buffer, they need to be placed such that the storage volume is calculated from the 100 year water surface elevation or higher. That volume should be subtracted from the available storage to account for the stream backing up within the basins. *The stormwater detention system has been reconfigured into a single detention basin on the northeast corner of the site. The 100-year WSEL's in the Tributary P3 to Prairie Lee Lake were calculated and the bottom of the detention basin was set above the corresponding elevation.*

3. Manual calculations of the base flood elevations along the rear of the property are required. Although it appears 100 year water surface elevation calculations are discussed within the stormwater report, it must be discussed in the context of an official manual calculation of the base flood elevations to comply with FEMA and the City Floodplain Ordinance. In all instances where base flood elevations are missing from the FIRM, the engineer is responsible for making an official determination of the base flood elevations along selected points, with concurrence from the City. This should be specifically discussed within the stormwater report. Finally, a map should be prepared showing these limits in relation to a topographic survey. This becomes the horizontal areal limit of the floodplain with concurrence from the City. *CFS made a HEC-RAS model of the creek and calculated the 100-year WSEL's along the north side of the Summit Point project. Discussion of the HEC-RAS model set-up along with print-outs of the summary tables and diagrams have also been included in the revised study. Digital copies of the HEC-RAS model will be sent to the City for their review and analysis.*

4. The limits of the floodplain are shown in an approximate basis (appear to be based on the FEMA flood map), but do not make sense when comparing to existing contours. It will be necessary to determine the base flood elevations along selected points using a manual calculation method discussed above, and then superimpose the limits of the floodplain onto the plan view with elevations of the existing grade, with the existing contours controlling the limits of the floodplain. *CFS will show the approximate limits of 100-year WSEL based on the HEC-RAS results and the current GIS contour data to clarify the approximate limits of the floodplain.*

5. The results of the above floodplain delineation will determine whether a floodplain development permit is required for grading work within the floodplain. If grading is performed within the limits of the actual floodplain (i.e. based on the as-surveyed limits), it will be necessary to demonstrate "no net gain" in fill, due to the lack of an established floodway. *CFS designed the grading limits to avoid encroaching into the limits of the 100-year floodplain.*

6. The stormwater report states that a 1 inch orifice will be used to regulate the 40 hour extended detention. Our experience shows that reliance on a 1 inch orifice is not a practical solution to providing extended detention. Clogging will be an issue after every rain event. A more elaborate design is required to manage the 40 hour extended detention requirement, and prevent clogging. *With the consolidation of the proposed stormwater detention system into a single basin, the outlet orifice, designed to slowly release the Water Quality Volume from the 1.37"/24-hour rainfall, was re-sized at 2-1/4". Copies of the Water Quality Volume calculations and the outlet orifice sizing have been included in the revised study.*

8. The stormwater report states that the FEMA floodplain boundaries shown on the FIRM are accurate when compared to the actual topography. We respectfully disagree. Although the FIRM map is somewhat accurate, the results of the topographic survey should be superimposed upon the base flood elevation map (i.e., to be created by the engineer) described earlier. This will define the limits of the 100 year floodplain. *As responded to above under comment #4, CFS will show the approximate limits of 100-year WSEL based on the HEC-RAS results and the current GIS contour data to clarify the approximate limits of the floodplain.*

9. The stormwater report states that the development will not negatively impact any downstream drainage system. This is not completely accurate since adherence to our stormwater requirements in terms of detention will result in a greater volume of stormwater discharged from the site, although released at a lower rate. In other words, total energy will increase, but at a lower power level at the point of discharge. The purpose of the stormwater report is to demonstrate compliance with City requirements for floodplain development, detention, impact to downstream systems, etc. The purpose is not to demonstrate "no impact", because that is not an accurate statement. This issue has come up in prior public hearings, so this should be clear. *The detention calculations were revised so that the 2-10-100 year total site release rates were all less than the City's allowable release rates. The report was revised to clarify that the peak release rate would not exceed the allowable rates:*
50%/2-yr storm, Q=0.5 cfs/acre
10%/10-yr storm, Q=2.0 cfs/acre
1%/100-yr storm, Q=3.0 cfs/acre

10. A pre-development (i.e., existing conditions) drainage map is required, showing the points of interest (i.e., the points where sheet flow converge to concentrated flow). *A Pre-Development Conditions Drainage Map has been added to the study and calculations detailing how the time of calculations were determined has also been included in the PondPack calculations output data.*

11. The proposed conditions drainage map does not show any points of interest described above, where sheet flow drainage converges to concentrated flow. It should be shown with the points of interest so a comparison can be made with the existing conditions drainage area map. Allowables should be calculated for each point of interest. If intervening land (i.e., land owned by someone other than the developer) exists between one point of interest and another, an increase in the allowable for one point of interest with a subsequent decrease in the next point of interest may be prohibited. Since Phase II of the development is located directly to the north of the original Phase-I development, there is a small amount of off-site drainage that flows into the proposed on-site storm sewer system and into the proposed detention basin. There is no other off-site drainage area contributing to the Phase-II site. Phase I had a total area of 6.49 acres of which only 4.21 acres contributed to the Phase II detention system. Phase-II had a total area of 7.21 acres of which 5.53 acres drains into the detention basin and the remaining 1.68 acres is released undetained. With the relatively small areas, minimal five minute times of concentration were assumed for some of the drainage basins. Time of concentration calculations were also included in the stream flow calculations for Tributary P3 to Prairie Lee Lake.

12. None of the allowable release rates will be achieved as evidenced by the allowable versus proposed conditions table. Waivers to our allowable release rates will not be supported by staff due to downstream flooding concerns. *The detention system for the site was redesigned and the 2-10-100 year outflow rates now comply with the City's allowable release rate requirements, and there will be no need for a waiver request.*

13. Please label all existing interior water lines as "to be designated private". This would include the water lines that are contained within easements to be vacated under separate application. *The existing interior water lines have been labeled as "to be designated private."*

15. Please label all existing interior sanitary lines as "to be designated private". This would include the sanitary lines that are contained within easements to be vacated under separate application. *The existing interior sanitary lines have been labeled as "to be designated private."*

16. The 100 year water surface elevation within the detention basins must be shown in numeric format and graphic format on the plan view. A minimum of 20 feet is required between this water surface elevation, and any property line or building. A min. 2.0 feet of freeboard between this elevation and the lowest opening in the buildings (i.e., the lowest floor in this case). This should be based on the clogged condition, zero available storage elevation within the basins. *The revised detention calculations had a 100-year WSEL of 1000.50' inside the proposed detention basin, and a label denoting the elevation along with high-lighting the corresponding contour has been added to the plans. The FF Elevation of the adjacent building is 1005'.*

17. The plan views for the detention basins are missing the location of the outlet structures, emergency spillways, and points of discharge presumably towards the creek. The locations of the discharge points into the creek must not adversely affect downstream or adjacent property owners (i.e., the discharge points must be pulled-back sufficiently far from any property lines allow for the installation of energy dissipation measures wholly within the limits of the applicants property). *The outlet structure location and details have been added to the revised plans.*

18. On the grading plan, please show the existing elevations for the contours. It is difficult to determine what is being proposed near the detention basins, and to what extent these basins are being constructed in a cut situation as opposed to a fill situation. This may have a bearing on the requirements for an emergency spillway if the basins are constructed solely in a cut situation. *The Plans and Drainage Maps have been revised.*

20. A separate plan sheet should be provided showing the stream buffer limits for the entire project (including the west buffer along the smaller tributary), along with all buildings, parking lots, detention basins, and amenities superimposed upon the background.
The stream buffer sheet must show:
1) the ordinary high water mark,
2) the dimensions of the buffer in relation to the ordinary high water mark, and
3) the stream buffer. *A separate plan sheet for the stream buffer limits has been added to the plans.*

21. The west detention basin appears to show a bottom elevation well below the existing receiving elevation within the creek, with essentially no dam other than a short 3 foot berm to protect it from the stream channel. Although the City can consider placement of these basins within stream buffers, the basin should have a positive benefit to the creek rather than a negative impact. As shown and in consideration of the grading shown with very little protection from the existing stream, this will require a waiver to the Design and Construction Manual. A stream assessment would be required to obtain this waiver. In addition, the placement of this basin in the location shown will in our opinion lead to rechannelization of the stream, and will likely require the acquisition of a USACE permit for rechannelization of a jurisdictional stream. *The west detention basin has been removed from the site. The eastern detention basin was enlarged to provide detention storage for the Phase-II development.*

23. Wouldn't the triple 48 inch culvert at Swann Circle be the controlling factor for determination of the 100 year base flood elevation for this site? It appears this was not taken into account, but unclear since the results of the HEC-RAS setup were not included in the preliminary stormwater report. If using HEC-RAS to make the estimate for base flood elevation within this flood zone with no base flood elevations determined, the results of the HEC-RAS model run and setup sheets must be included within the report. It would also be beneficial for the City to obtain the raw data files. *CFS' surveyors shot elevations on the culverts and the road and found that the culvert flowlines were 986.91', 987.20' and 987.26'. The top of road was approximately 994.07'. The HEC-RAS model was revised to include these culverts and determine the back-water effect extending upstream to the northeast corner of the Phase-II site.*

24. Page 8 of the preliminary stormwater report states that the northeast corner of the site has a flowline elevation within the creek of 998.35. This does not appear to make sense when comparing to GIS, the computed 100 year water surface elevation at this location, or the grading plan. Was this a typographical error? *The creek flowline should be ten feet lower at 988.35', and the grading plan has been corrected.*

25. It appears the lowest floor elevations for the north buildings might be too low if comparing to the 100 year clogged condition/zero available storage (these were not provided since no discussion of the emergency spillway was provided). Please check to confirm. This requirement also applies to the base flood elevations within the regulatory floodplain, so the higher elevation would govern if higher. *The FF Elevations of the two north buildings was set at 1005'. The peak 100-year WSEL in the detention basin was 1000.50', and the emergency overflow spillway was sized for a peak WSEL of 1002.01'. The building elevations should have a 3 ft elevation buffer above the detention basin under peak clogged conditions.*

26. The west basin appears to be a large depression within the buffer zone. It will actually act as a catalyst to changing the existing creek channel. Staff cannot support such a basin, with no provision for drainage, and an increased likelihood of stream re-channelization. As we discussed during the pre-application meeting, we can support basins within the buffer zone, provided they have a positive effect on the stream. In our opinion, this basin (as designed) will have a severe negative impact on the stream in terms of stability of the existing channel, and will also increase the likelihood of long-term property damage to the apartment building immediately adjacent to this depression. *The west detention basin has been eliminated and the proposed buildings are outside of the stream buffer zone.*

27. A field inspection revealed what would appear to be the development of a secondary channel split in the process of developing in the vicinity of the west basin. This is evidence the ordinary high water mark is further south than calculated. There may be the need to re-evaluate the location of the stream buffer in this area. *A field inspection was conducted with CFS and City Staff. The stream buffer was modified based on this meeting.*

28. If the stream buffer was measured from the wrong point, this may affect the feasibility of bldg. A2-2. From our calculations, the stream buffer limits would be well into the footprint of Bldg. A2-2. *See plan of revised stream buffer this is outside of the proposed building footprints.*

Fire Department Comment

2. ***IFC 903.3.7 – Fire Department Connections. The location of the fire department connections shall be approved by the fire code official. Connections shall be a 4 inch Storz type fitting and located within 100 feet of a fire hydrant, or as approved by the code official. Revised sheets A104, A105 and A106 show the proposed locations of the fire sprinkler closets on each building type A, B and C. These are approximate locations at this time and will be finalized to stay within 100 feet of the fire hydrants on site (re:Civil)***

Respectfully,

Cook Flatt & Strobel Engineers, P.A.

Lance W. Scott, P.E.
Vice President