LEE'S SUMMIT
MISSOURI

PLANNING AND DEVELOPMENT

Commercial Final Development Plan
Applicant's Letter

Date: Thursday, April 19, 2018

To:

Applicant: WSKF ARCHITECTS INC	Email: RKUHL@WSKFARCH.COM Fax #: (816) 300-4102
Engineer: Bartlett & West	Email: darron.ammann@bartwest.com Fax #: <NO FAX NUMBER>
Property Owner: PREMIERLIFE REAL ESTATE HOLDING	Email: Fax #: <NO FAX NUMBER>

From: Shannon McGuire, Planner

Re:

Application Number:	PL2018022
Application Type:	Commercial Final Development Plan
Application Name:	LEE'S SUMMIT FIRE STATION #3
Location:	

Electronic Plans for Resubmittal

Beginning Monday, May 23, 2016, 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 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 Staff with any questions or concerns.

Excise Tax

On April 1, 1998, an excise tax on new development for road construction went into effect. This tax is levied based on the type of development and trips generated. If you require additional information about this development cost, as well as other permit costs and related fees, please contact the Development Services Department at (816) 969-1200.

Review Status:

Revisions Required: One or more departments have unresolved issues regarding this development application. See comments below to determine the required revisions and resubmit to the Development Services Department. Resubmit six (6) full size sets of plans (no larger than 24"x36") folded to 8-½"x11", four (4) copies of the comment response letter, and one (1) digital copy following the electronic plan submittal guides as stated above. Revised plans will be reviewed within five (5) business days of the date received.

Required Corrections:

Planning Review	Shannon McGuire (816) 969-1237	Planner Shannon.McGuire@cityofls.net	Corrections

1. Staff agrees and supports the modification request to allow for the existing fencing on the property line to satisfy the fencing requirement for the required high impact buffer. The vegetation for the low impact screening is still required and must be shown on the plans. See the table below for the required number plantings.

	Option A	Option B	Option C
Shade Tree	10.8	5.4	7.2
Ornamental Tree	7.2	10.8	7.2
Evergreen Tree	10.8	10.8	7.2
Shrubs	10.8	10.8	27

Existing trees and/or shrubs that are to be retained to satisfy the these requirements shall meet the following standards and be identified on the plans.

- Evergreen trees shall be at least six feet in height.
- Deciduous trees shall be a minimum of a 2 inch caliper.
- Trees shall be free from mechanical injuries, insect infestations and disease.

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

1. The "Micro Storm Water Drainage Study" dated Apr. 10, 2018 (hereinafter referred to as "the detention study) appears to contain discrepancies in the calculation of the drainage area for "Watershed B" on Exhibit 1 "Existing Conditions". Our analysis shows that at least two (2) points of interest (i.e., where sheet flow transitions to concentrated flow) exist for Watershed B (i.e., near the southwest corner of the property (possibly off-site), and another at the southeast corner of the property). In other words, it appears that "Watershed B" should be broken-up into two (2) watersheds (i.e., Watershed B and Watershed C?), and points of interest shown and labeled on the exhibits.

2. The detention study defines Watershed A as 0.69 acres, but it appears no point of interest was defined where sheet flow transitions to concentrated flow. Without a defined point of interest, it is not possible to assign a drainage area to Watershed A. It appears that a portion of Watershed A drains to a point that is off-site of the development. As such, a credit is allowed for the existing storm drainage to that point of interest when calculating the allowable release rate.

3. Since the watersheds were not defined with clearly-defined points of interest (i.e., where sheet flow transitions to concentrated flow), calculation of allowable release rates at those points of interest after development will not be justifiable.

4. It appears soil group B was used for Sharpsburg-Urban land complex with 2 to 5 percent slope. Shouldn't this be soil group D? The report would indicate this is soil group D?

5. Page 6 of the detention study states that "...the 20 foot wide grass lined weir to the east will act as the secondary emergency overflow for events in excess of the 100 year storm". Are you implying that the grated top and 15" RCP pipe is capable of managing the 100 year event, assuming 100% clogging of the primary outlet works (i.e., the perforated riser orifices)? This is a requirement of the Design and Construction Manual.

6. It is unclear from the report whether additional orifices or weirs were utilized in the routing calculations. The plans only call for the installation of a perforated riser, and therefore, it would appear this is constitutes the entire primary outlet works. According to the detention study, the grated top is the emergency spillway, and as such, and should have been designed to only manage the 100 year event assuming 100% clogging of the primary outlet works (i.e., the perforated riser). It is not intended to act as a component of the primary outlet works, unless a different emergency spillway system is selected.

7. A minimum of one (1) foot of freeboard is required in the detention basin, as measured from the highest water level (including calculations of 100% clogging of the primary outlet works), and the lowest point on the dam. It does not appear this is achieved.

8. The plans show the 100 year water surface elevation is 974.0. The rim elevation of the outlet structure is shown as 973.6, which is 0.4 feet lower than the 100 year water surface elevaton. If using the top of the outlet structure (i.e., the grated top) for the emergency spillway, the crest must be set at a minium of 0.5 feet higher than the 100 year water surface elevation.

9. It appears there is a lack of understanding concerning the requirements for an adequate emergency spillway. Please review Section 5608 (4) F for requirements. Given the proximity to residential dwellings adjacent to this detention basin, the consequences for making uninformed design decisions can be significant.

10. What is the 100 year water surface elevation within the detention basin assuming 100% clogging of the primary outlet works? Please see above comment concerning this issue.

11. Page 4 of the detention study under "Proposed Conditions" should discuss the primary outlet works (i.e., the system of perforated riser, and other orifices, weirs, etc.) included in the detention basin outlet structure. The appendices provide no such information, and according to the drawing on Sheet C9.0, the perforated riser is the only component of the primary outlet works, with the grated top comprising the emergency spillway (as stated elsewhere in the report). Is this really how the outlet structure was designed? Typically, the perforated riser is incorporated to manage the 40 hour extended detention requirement, with larger orifices or weirs to manage the larger storm events. Will the pond drain within 40 hours? If not, then additional orifices or weirs would appear prudent.

12. The waiver request should be revised following the submission of a revised detention study.

13. Sheet C4.0: It appears the dimensions are missing on the ADA-accessible ramps on the west commercial entrance. For instance, spot elevations are called-out, but it is not clear where these elevations are located in relation to the gutter line.

14. Commercial entrances still do not show KCMMB mix concrete. We see that KCMMB mix is specified for the parking lot, but not the commerical entrances/ADA accessible ramps.

15. Please see comment #9 of the previous applicant letter. A backflow vault and backflow assembly near the property line appears warranted due to the distance being greater than 50 feet from the building to the water main. The revised plan does not show a backflow vault.

16. A plan and profile of the proposed sanitary sewer connection was requested in the previous applicant letter. Internal discussions have lead to the decision that this line be private. The plan view on Sheet C5.0 only extends to the property line, and no profile view is shown. Please provide a plan and profile for the entire length of this private sanitary sewer service line.

17. Regarding the emergency spillway design, if an earthen spillway is being proposed for the emergency spillway, then there are certain design criteria that must be followed. These criteria are located in Section 5608 (4) F of the Design and Construction Manual. A calculation of the 100% clogged primary outlet works condition 100 year water surface elevation must be performed, and adequate freeboard provided within the emergency spillway. To quote the Design and Construction Manual, "...the emergency spillway shall be designed to pass the 1% storm with 1 foot of freeboard from the design stage to the top of the dam, assuming zero available storage in the basin and zero flow through the primary outlet". In other words, assuming 100% clogging of the primary outlet works and assuming zero available storage.

18. The grading plan still does not show labels for key contour elevations. It is difficult to determine the drainage flow patterns without elevation labels. It is not necessary to label all of the contours, but there must be a way to ascertain where a contour lies within a range of elevations. It is impossible given the lack of these labels.

19. The off-site grading shown on Sheet C9.0 shows what appears to be an additional earthen spillway, but the contours (unlabeled) do not appear to make sense. They are merely shown as a bold line, with no existing conour tie-in points. and it is difficult to determine the potential adverse impacts where it discharges towards the southeast portion of the site. Any details for an emergency spillway system must be clear, logical, and show how it will be constructed.

20. Do the rip rap calculations include the assumption that the pipe is flowing supercritical? It does not appear likely that the pipe will be flowing subcritical, and therefore, the velocity calculations will be much higher. At the slope shown, it appears the rip rap will not serve its intended purpose. It appears that additional measures should be explored for energy dissipation.

21. A table is shown on page 7 of the detention study. This table presents the results of several pipes (i.e., P-1, P-2, and P-3), with no explanation or diagram showing what they represent. Are these the pipes downstream of the detention basin? Where is the discussion within the report describing that the downstream connection point is capable of managing the 100 year event? What design storm was utilized in the preparation of this table?

22. Sheet C5.0: The "future sanitary sewer" service shown on the plans does not reference the standard detail for sanitary sewer services, nor is there a standard detail included in the details section of the plans. This must be included in the plans, since there are specific references to the placement of tracer wire from the main, to the tracer wire box. Please include the standard detail (located online), and show the location of the tracer wire box on the plan view.

23. Several standard details are included in the plans, but many are not being used on this project. Please eliminate extraneous details, such as: 1) air release assembly, 2) trenching plate detail, 3) trenching/patching detail. We will, however, require the inclusion of the private sanitary sewer service detail.

24. Sheet C9.0: A hydraulic grade line is shown, but no design storm is given. Please show the design storm. If unable to manage the 100 year event, then suitable overflow routes must be established.

25. Sheet C9.0: The placement of ladder rungs offset from the grated orifice on the top of the outlet structure will not allow access. They are too far away from the grated orifice centerline to be of use to a person.

26. Sheet C9.0: Sanitary line conflict has not been resolved. Plan and profile view of the private sanitary sewer must be provided.

27. Sheet C9.0: The entire sheet has serious QA/QC issues. For instance, the profile view for the storm line is labeled "Outlet Structure Profile". A 12" HDPE is called-out on the "Outlet Structure Section", contradicting the plan view showing a 15" RCP. Design storm for the hydraulic grade line representation is not shown. Area Inlet 4 is called-out on the section view as "Outlet Structure Section", which is contradictory and confusing. A note is provided on the "Outlet Structure Plan" stating "...half cup pipe with top cage", with no other design details, material call-outs, "cage" details, etc. Material call-outs are missing for the "Outlet Structure", nor is are any steel reinforcement details shown. Ladder shown in the section view does not appear in the plan view, showing where they are to be installed. Rip rap call-out on this sheet contradicts that which is shown elsewhere in the plans, and within the calculations. Bolt-down structure does not appear to be bolted down in the section view, but rather, a frame appears to be embedded within the top. The storm line should be clearly labeled as "PRIVATE".

28. Please show the location of the water meter. It should be located within an easement or right of way, outside the limits of sidewalk.

29. Off-site utility easements shall be required prior to approval of the FDP. This includes private sanitary, and private storm drainage system.

30. The end sections of the storm lines entering the detention basin do not appear to show the inclusion of a toe wall. In addition, why is the discharge point so close to the outlet structure? Normal engineering practice is to place the inlet as far as practical from the outlet structure, to allow for greater efficiency in the removal of the first flush, and hence, greater water quality.

31. Sheet C6.0: The temporary sediment basin lacks construction details and notes. For instance, wouldn't it be prudent to include notes stating "contractor to install detention basin outlet structure, piping, and perform rough grading of the detention basin" or similar language? From the plans shown, it is not clear when, what, and where things are to occur. Finally, where is the final restoration plan?

32. Sheet C9.0: The existing junction box which is being utilized for the tie-in does not appear to be drawn correctly. If the flow line (south) elevation is 948.40, then why is the bottom of the box shown at 953? Also, it appears the private storm line is coming into the existing box at a skewed angle. This is not allowed. It appears a more suitable route for the private line must be established if utilizing this existing junction box.

33. The Engineer's Estimate of Probable Construction Costs appeared low for the following items, based on similar projects with similar scope: 1) detention pond outlet structure. In additon, the following items appear to be missing: 1) MoDOT Type 5 aggregate base, including the area one (1) foot beyond the back of curb, 2) final restoration, including seeding, sodding, fertilizer, mulch, and topsoil, 3) backflow vault and backflow assembly. Please keep in mind that Development Services Engineering does not charge a fee for the review and inspection of water meter vaults, pipes 6 inches or less in diameter including fittings, landscaping, or interior sidewalks (i.e., sidewalks within the project, not within right of way).

Fire Review	Jim Eden (816) 969-1303	Assistant Chief Jim.Eden@cityofls.net	Complete

1. IFC 903.3.7 - Fire department connections. The location of 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.

The location of the FDC on the building is typically shown on the site or utility plan.

Traffic Review	Michael Park (816) 969-1820	City Traffic Engineer Michael.Park@cityofls.net	No Comments