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July 1, 2014

Mr. Bob Needham, Chair
Development Review Commission
City of Lake Oswego
PO Box 369
Lake Oswego, OR 97034-0369

Dear Chair Needham and Members of the Commission:

This office represents the Applicant. This letter constitutes the Applicant's response for the second open record period. It is timely submitted before the closure of the second open record period, July 1, 2014 at 5:00 PM.

As stated in the Applicant's letter for the first open record period, dated June 27, 2014, the Applicant agrees with the staff report, the recommendation for approval, and the recommended conditions of approval.

I. Response to Testimony by Gary Willihnganz, Board Member, Forest Highlands Neighborhood Association ("FHNA").

Mr. Willihnganz's emailed comments, dated June 27, enclosed a memorandum from KPFF consulting engineers, which reviewed and commented on the Applicant's Storm Drainage Master Plan ("Storm Drainage Master Plan"). This "peer review" recommended several additional items, which, in KPFF's view, should be included in the Applicant's Storm Drainage Master Plan. The Applicant's consulting engineers have analyzed KPFF's recommendations and provided a response, which is enclosed in this letter as **Exhibit 1**.

The Applicant appreciates the FHNA's interest in ensuring that the proposed development will be served by adequate storm drainage facilities. The City's Engineering Staff have recommended several conditions of approval to ensure that adequate storm drainage facilities will be constructed. These conditions require a substantial amount of additional storm water improvements and individual storm water disposal plans for each lot. See Condition B.2., Staff Report LU 14-0031 at 24. As explained in **Exhibit 1**, the Applicant's Storm Drainage Master

EXHIBIT F-12
LU 14-0031

Plan, as proposed and with conditions of approval, ensures that the proposed development will have storm drainage facilities that meet or exceed the City's requirements.

Mr. Willihnganz also submitted other comments expressing a "keen interest" in street lighting, landscape planting, roadway speed attenuation, and neighborhood walk/bike path safety. It is the Applicant's understanding that these comments do not express specific concerns with the proposed development and do not address specific approval criteria. City staff determined that the Application meets all applicable approval criteria, as proposed and with conditions of approval (see Staff Report LU 14-0031), including the following:

- LOC 50.06.004.1–Landscapeing.
- LOC 50.06.004.3–Lighting.
- LOC 50.06.006.3.b–Drainage.
- LOC 50.06.008–Utilities.

Landscape buffering for single family homes, "roadway speed attenuation," and "neighborhood walk/bike safety," are not elements of the applicable criteria referenced above. The DRC can find that the Application meets all applicable criteria, as proposed and with conditions of approval.

Nevertheless, most Mr. Willihnganz's concerns were addressed in the Development Agreement (Ord. 2642, LU 14-0021) as follows:

- Section 2.5 Landscape Buffers. Developer will design and install a landscape buffer on the boundary of the property, adjacent to Knaus Road and Goodall Road to buffer the view of the property from adjacent streets and homes.
- Section 3.3.2. New street lights shall be (a) located only at street intersections...; (b) limited to a total of three (3) within the development; (c) providence style lamp on visco pole using LED lights, and (d) designed and operated consistent with LOC 50.06.004.3.b.v. No "cobra" light fixtures shall be used on said street lights.
- Section 3.3.1. Pedestrian pathways shall be designed to match pathways on the south side of Knaus Road in the vicinity of the property.
- Section 3.3. Streets within the development shall be developed consistent with the City Engineer's Policy Memorandum entitled "Guidelines and Standards for New Streets and Frontage Improvements in the Urbanizing Rural Fringe and Transition Neighborhoods."

The Applicant has worked hard to ensure that the concerns of the FHNA, including those above, were addressed in the Development Agreement and proposed Master Plan.

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II. Conclusion

For these reasons, as well as those expressed in the Applicant's first open record response, the Applicant respectfully requests that the DRC approve the Application with the recommended conditions of approval, as modified.

Very truly yours,



Michael C. Robinson

MCR:rsr
Enclosures

cc: Mr. Jesse Nemecek (via email) (w/ encls.)
Mr. Andrew Tull (via email) (w/ encls.)
Mr. Walt Knapp (via email) (w/ encls.)
Ms. Debra Andreades (via email) (w/ encls.)
Mr. Chris Robinson (via email) (w/ encls.)
Mr. Garrett Stephenson (via email) w/ encls.)



July 1, 2014

To: Gary Willihnganz
Forest Heights Neighborhood Association

Josh Lighthipe, PE
KPFF Consulting Engineers

The Highlands Master Plan - Response to the Summary of Storm Drainage Master Plan Peer Review and Comments

Dear Gary,

3J Consulting, Inc. appreciates the concerns, comments, and recommendations regarding the proposed stormwater design for The Highlands. This letter hereto has been prepared in order to respond to KPFF's Josh Lightpipe's comments and recommendations dated June 27, 2014.

KPFF's Recommendations	3J's Response
<p>1.1 Verify the sizing methodology for the detention facilities actually stores the necessary volumes without overtopping while releasing at a viable rate as the tank storage depth increases.</p>	<p>Although we believe some infiltration is probable and would be good for groundwater, we have decided to model the new system more conservatively without infiltration due to the concerns of Mr. Lightpipe, the Lake Oswego Development Review Commission, and Mr. Willihnganz. The storage facilities for each lot will be modified to include an impermeable liner, or clay liner depending upon the soil conditions encountered at the time of construction. The liner will eliminate any infiltration capability. Each lot will detain rather than retain the runoff from the impervious areas on each lot and release the 50-year post-developed runoff at or below the 10-year pre-developed rates to the public storm line within the ROW, strictly following the City's <i>Surface Water Management Design Workbook</i>. Per Section 3.4 of the Workbook, the detention volume calculations used the City's "Detention Volume Worksheet" which follows the Rational Method. This sizing methodology follows the City's detention sizing requirements.</p>
<p>1.2.1 Use the SBUH or some other more typically accepted method for storm water modeling for determining maximum allowable storm water release rate and sizing of the detention galley.</p>	<p>We appreciate Mr. Lightpipe's comments regarding the methodology used to calculate detention volumes and release rates; however, adhering to the City's code is the required approach.</p>
<p>1.2.2 Model the pre and post development flows for the 2 and 5 year storm events to see if those flows will exceed the existing rates.</p>	<p>Although this is not a requirement of the City's, it is agreed that the downstream open channel drainageways are more susceptible to erosion</p>

	from higher than normal flows. We will provide analysis to determine what the release rates will be during the 2 and 5 year storm events and compare with the rational method results.
1.3.1 Indicate zones on the final master plan for approximate locations of each infiltration gallery and rain garden.	The preferred location of the storm facilities for each lot will be shown on the preliminary site plan. The preferred locations will be between the public right-of-way roads and the homes. Also, each lot will be required to submit a storm water disposal plan prior to the issuance of any grading or building permit to construct any structure on any lot per Condition B2 of the Master Plan approval.
1.3.2 Locations of the zones ideally should be placed where they would align with the existing general flow patterns of the pre-developed site to reduce the possibility of new groundwater springs popping up where they didn't exist before.	Locations of the zones will be placed where they would align with the existing general flow patterns of the pre-developed site as appropriate. Mitigation measures will be considered for any zone not placed in historical areas.
1.4.1, 1.4.2 & 1.4.3 Provide deeper geotechnical boring logs to determine if a more impermeable layer lies just below the shallower boring tests.	Impermeable/clay liners will be provided in each of the detention facilities as well as the rain gardens. Therefore, the presence of a deeper impermeable layer need not be explored.
2.1 Provide a sediment trap, such as a Snout® type product on the proposed sedimentation manhole on SW Knaus Road.	A Snout® type product will be included in the sedimentation manhole to reduce oils and floating debris from discharging downstream.
2.2 Periodic maintenance by the City of Lake Oswego to remove sediment, oil and floatable debris from the new sedimentation manhole will be necessary. Recommend cleaning and inspection 3-4 times per year.	We agree with this recommendation.
2.3 Lessening the pitch of the outfall from the new sedimentation manhole into the existing drainage channel south of SW Knaus Road is unnecessary as long as the sediment trap per recommendation 2.1 is installed.	We will take that into account in the final design of this infrastructure improvement.
2.4 Adding additional rip-rap rock protection in the immediate area of the new proposed outfall is recommended to ensure the flow energy is fully dissipated.	Additional rip-rap will be added. The sizing will follow the Federal Highway Administrations HEC-14 "Hydraulic Design of Energy Dissipators for Culverts and Channels".
3. Additional Recommended Downstream Improvements.	We will review and address all required downstream improvements per City code.



July 1, 2014

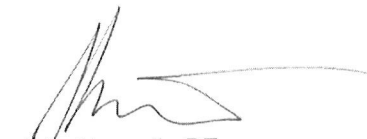
The Highlands – Response to the Summary of Storm Drainage Master Plan Peer Review and Comments

We appreciate the concerns that you have for the proposed development; they are our concerns as well. We are confident that the final stormwater management system design for the proposed development will meet your expectations.

Sincerely,



Kathleen Freeman, PE
Water Resources Project Manager
3J Consulting, Inc.



John Howorth, PE
Principal Engineer
3J Consulting, Inc.

copy: Gary Willihnganz, FHNA
Jesse Nemec, JT Smith Companies
Todd Knepper, City of Lake Oswego