



CITY OF KELOWNA

MEMORANDUM

Date: November 8, 2023 (R3)
File No.: Z21-0037
To: Suburban and Rural Planning (WM)
From: Development Engineering Manager (RO)
Subject: 1097 Dilworth Dr A1 to RM5, RM6

WORKS AND SERVICES REQUIREMENTS

The City's Development Engineering Branch has the following comments and requirements with regard to this Rezoning Amendment to redesignate the subject property from A1 Agriculture 1 to RM5 Medium Density Multiple Housing, RM6 High Rise Apartment Housing and P3 Parks and Open Space to accommodate a 649 unit residential development. The Development Engineering *Technologist* for this project is *Cindal McCabe* (cmccabe@kelowna.ca). The following Works and Services will be a requirement of this development.

1. GENERAL

- a) This proposed development may require the installation of centralized mail delivery equipment. Please contact Arif Bhatia, Delivery Planning Officer, Canada Post Corporation, 530 Gaston Avenue, Kelowna, BC, V1Y 2K0, (250) 859-0198, arif.bhatia@canadapost.ca to obtain further information and to determine suitable location(s) within the development.
- b) The following requirements are valid for two (2) years from the reference date of this memo, or until the application has been closed, whichever occurs first. The City of Kelowna reserves the rights to update/change some or all items in this memo once these time limits have been reached.
- c) The comments included in this Memo are those of the Development Engineering Branch of the City of Kelowna. As the subject property is within the 800-m Ministry of Transportation and Infrastructure (MoTI) HWY 97 buffer, this application is subject to the review, comments, and requirements of MoTI.

2. Domestic Water and Fire Protection

- a) Provide an adequately sized domestic water and fire protection system. The water system must be capable of supplying domestic and fire flow demands for the project in accordance with the Subdivision, Development & Servicing Bylaw. Provide water calculations for this property to confirm this. Ensure every building site is located at an elevation that ensures water pressure is within the bylaw pressure limits.
- b) The property is located within the City of Kelowna service area. Only one service will be permitted to the site. The applicant, at his cost, will arrange for the removal of the existing services and the installation of one new larger metered water service.

- c) The proposed 650-unit development is beyond the current Daon pump station capacity and MDD demand at Summit reservoir. Given the steep grades of your site, there will be significant challenges with maintaining bylaw max pressures unless a PRV is installed. A water modelling analysis is required.
 - i. *Analysis indicates the preferred water source for the development is through an expansion of the Summit Reservoir, in conjunction with a PRV for the lower site.*
 - ii. *The City is currently designing an expansion of the Summit Reservoir. The developer may wish to coordinate with this capital project, which is intended for construction in the Spring of 2024.*
- d) An approved backflow protection device must also be installed on site as required by the City Plumbing Regulation and Water Regulation bylaws.
- e) A water meter is mandatory for this development and must be installed inside a building on the water service inlet as required by the City Plumbing Regulation and Water Regulation bylaws. The developer or building contractor must purchase the meter from the City at the time of application for a building permit from the Inspection Services Department, and prepare the meter setter at their cost.

3. SANITARY SEWER SYSTEM

- f) The developer's consulting civil & mechanical engineers will determine the requirements of the proposed development and establish the service needs. The existing lot(s) are serviced with multiple sanitary services. Only one service per lot will be permitted for this development. If required, the applicant will arrange for the removal and disconnection of the existing service and the installation of one new larger service at the applicants' cost.

4. STORM DRAINAGE

- a) The property is located within the City of Kelowna drainage service area. The hillside areas of Kelowna are not suitable for groundwater recharge or disposal of on/offsite drainage via infiltration. Roof or site drainage for this subdivision must discharge directly to the City of Kelowna's storm system. The City will not permit infiltration to ground except for foundation drainage. Each lot shall require a storm system service connection.
- b) Provide the following drawings:
 - i. A detailed Lot Grading Plan (indicate on the Lot Grading Plan any slopes that are steeper than 30% and areas that have greater than 1.0 m of fill);
 - ii. A detailed Stormwater Management Plan for this subdivision; and,
 - iii. An Erosion and Sediment Control Plan is to be prepared by a Professional Engineer proficient in the field of erosion and sediment control. The plan is to be prepared as per section 3.14 of Schedule 4 of Bylaw 7900. If a line item for ESC is not included in the Engineer's cost estimate for off-site work, then an additional 3% will be added to the performance security based on the total off-site construction estimate.
- c) On-site detention systems are to be compliant with Bylaw 7900, Schedule 4, Section 3.11.1 *Detention Storage*.
- d) As per Bylaw 7900, Schedule 4, Section 3.1.3 *Climate Change*, the capacity of storm works will include an additional 15 percent (15%) upward adjustment, and applied to the rainfall intensity curve stage (IDF) in Section 3.7.2.
- e) Show details of dedications, rights-of-way, setbacks and non-disturbance areas on the lot Grading Plan.

- f) Register right of ways on private properties for all the storm water infrastructure carrying, conveying, detaining and/or retaining storm water that is generated from the public properties, public road right of ways, and golf course lands.
- g) Identify clearly on a contour map, or lot grading plan, all steep areas (>30 %). Provide cross sections for all steep areas at each property corner and at locations where there are significant changes in slope. Cross sections are to be perpendicular to the contour of the slope. Show the proposed property lines on the cross sections. Not all areas have a clear top of bank; and therefore, field reconnaissance by City staff and the applicant may be needed to verify a suitable location for property lines.
- h) If individual lot connections are required, ensure that payment of connection fees has been completed (please provide receipt).
- i) Where structures are designed or constructed below the proven high groundwater table, permanent groundwater pumping will not be permitted to discharge to the storm system. The City will approve designs that include provisions for eliminating groundwater penetration into the structure, while addressing buoyancy concerns. These design aspects must be reviewed and approved by the City Engineer.

5. **ROAD IMPROVEMENTS**

- a) *Dilworth Rd is classified as a Suburban Minor Arterial (3 Lane) and as a minimum must be upgraded to an XS-R65 standard from the Upper Access opposite Cascade PI to the Okanagan Rail Trail from CL to the SE limit of the ROW (uphill direction), including landscaped and irrigated boulevard with street trees. Upgrades from CL to the NW limit of the ROW (downhill direction) will be limited to directly attributable works necessary to accommodate the lower access intersection and must be made, where necessary, to be consistent with XS-R65 functional elements.*
 - i. *The uphill sidewalk between the upper access and lower access does not need to be provided if an adequate crosswalk is installed at Cascade PI, in accordance with the TAC Warrant and the recommendations of the Transportation Assessment.*
- b) Lower Road should intersect Dilworth Dr at 90 degrees and properly align with the access to the east. *The intersection is to be design as a protected left turn tee intersection, in accordance with analysis completed in the Transportation Assessment.*
- c) A three-dimensional sight line and stopping distance analysis will be required to support the proposed accesses to from lower Road and upper Road to Dilworth Dr Ensure the sight and stopping distances are considered as per Bylaw 7900 Schedule 4 and TAC guidelines.
- d) All strata accesses from public roadways are to be demarcated with concrete letdowns (as per SS-S7).
- e) Provide traffic control and street name signs where required. The City will install all signs and traffic control devices at the Developer's expense. The developer will sign a third-party work order and pay the cost of traffic sign installation prior to the registration of the subdivision.
- f) Grade the fronting road boulevards in accordance with the standard drawing. Major cut/fill slopes must start at the property lines.
- g) Landscaped boulevards, complete with underground irrigation, are required on proposed roadways. This will be included as a line item in the estimate for the Servicing Agreement performance security. Details and plant selection are to be approved by the City of Kelowna Parks department.

6. POWER AND TELECOMMUNICATION SERVICES

- a) Underground services will be required for all power and telecommunications to each lot in the proposed subdivision.
- b) Streetlights must be installed on all roads. All streetlighting designs are to be approved by the Development Engineering Branch at the same time as other "issued for construction" drawings.
- c) Make servicing applications to the respective Power and Telecommunication utility companies. The utility companies are required to obtain the City's approval before commencing construction.
- d) Before making application for approval of your subdivision plan, please make arrangements with Fortis for the pre-payment of applicable charges and tender a copy of their receipt with the subdivision application for final approval.
- e) Re-locate existing poles and utilities, where necessary. Remove aerial trespass (es).
- f) If any road dedication affects lands encumbered by a Utility right-of-way (such as Fortis Gas, etc.) please obtain the approval of the utility prior to application for final subdivision approval. Any works required by the utility as a consequence of the road dedication must be incorporated in the construction drawings submitted to the City's Development Manager.

7. GEOTECHNICAL STUDY

- a) Provide a geotechnical report prepared by a Professional Engineer competent in the field of hydro-geotechnical engineering to address the items below: NOTE: The City is relying on the Geotechnical Engineer's report to prevent any damage to property and/or injury to persons from occurring as a result of problems with soil slippage or soil instability related to this proposed subdivision.
- b) The Geotechnical reports must be submitted to the Development Services Department (Subdivision Approving officer) for distribution to the Development Engineering Branch and Inspection Services Division prior to submission of Engineering drawings or application for subdivision approval.
 - i. Area ground water characteristics, including any springs and overland surface drainage courses traversing the property. Identify any monitoring required.
 - ii. Site suitability for development.
 - iii. Site soil characteristics (i.e. fill areas, sulphate content, unsuitable soils such as organic material, etc.).
 - iv. Any special requirements for construction of roads, utilities and building structures.
 - v. Recommendations for items that should be included in a Restrictive Covenant.
 - vi. Recommendations for roof drains, perimeter drains and septic tank effluent on the site.
 - vii. Any items required in other sections of this document.
- c) If any blasting is proposed as part of this subdivision, a Soil Removal and Deposit Application must be made to the City for such works. The proposed blasting work is to comply with Amendment No. 1 to the Soil Removal and Deposit Regulation Bylaw No. 9612, specifically Section 6 PERMIT REQUIREMENTS – (k) and (g).

- d) Should any on-site retaining walls surpass the following limits, an Over Height Retaining Wall Permit will be required:

“Retaining walls on all lots, except those required as a condition of subdivision approval, must not exceed a height of 1.2 m measured from natural grade on the lower side, and must be constructed so that any retaining walls are spaced to provide a 1.2 m horizontal separation between tiers. The maximum number of tiers is two with a maximum total height of 2.4 m. Any multi-tier structure more than 2 tiers must be designed and constructed under the direction of a qualified professional engineer.”

The design of all retaining walls is to conform with Engineer & Geoscientists British Columbia's *Professional Practice Guidelines for Retaining Wall Design*. Submission requirements for the Over Height Retaining Wall Permit include Engineer of Record documents (Appendix A of *Retaining Wall Design Guideline*) and any necessary independent reviews (as per EGBC's *Documented Independent Review of Structural Designs*).

- e) Any modified slopes having a finished slope greater than 2H:V1 (50%) and an elevation change greater than 1.2 m must be installed under the direction of a qualified professional engineer.
- f) Any exposed natural rock surface on a lot that has the potential for materials to displace causing a hazardous condition, must be reviewed by a qualified professional engineer with the appropriate and measures undertaken as prescribed by the engineer. For adequate Rockfall Protection adjacent to walls and rock cuts, please consider BC MoTI Supplement to TAC Geometric Design Guide 440, page 440-8, which outlines a ditch bottom width depending on wall height. Sidewalks and utilities should be kept out of this protection area. Additional ROW may be required.

Where walls are on the high side, the City's preference is that the walls remain setback and on private property. Where the walls hold up a public road, the City's preference is that additional dedication be provided, and the walls be owned by the City. Please design any geogrids or tie-backs so that they do not encroach into the required road ROW.

8. ROAD DEDICATION/SUBDIVISION REQUIREMENTS

- a) The proposed development will trigger the subdivision and the creation of the necessary number of separate strata lots.
- b) COMC (*Clement Extension*) is to be dedicated to the City of Kelowna with A 30.0-m wide right of way The alignment of the dedication is parallel to the rail trail corridor.
- i) *Due to the proposed number of units, a second egress point to an emergency lane standard is required. Design for the Clement Extension has not yet been complete and may vary by as much as 6m from existing grade. Provisions for the emergency egress lane to tie-into the future roadway must be made on site to accommodate the potential range in vertical alignment.*
- c) A 6.0 m corner rounding will be required on corner lots of intersecting public roads.
- d) Provide all necessary Statutory Rights-of-Way for any utility corridors required, including those on proposed or existing City Lands and private lands.

9. DEVELOPMENT PERMIT AND SITE-RELATED ISSUES

- a) All retaining walls are to be contained within privately-owned lots.

10. OTHER ENGINEERING COMMENTS

- a) Clarify the proposed legal protections (e.g., no-build/no-disturb covenants) for the 2H:1V fill slopes outside of the proposed property lines.

11. DESIGN AND CONSTRUCTION

- a) Design, construction supervision and inspection of all off-site civil works and site servicing must be performed by a Consulting Civil Engineer and all such work is subject to the approval of the City Engineer. Drawings must conform to City standards and requirements.
- b) Engineering drawing submissions are to be in accordance with the City's "Engineering Drawing Submission Requirements" Policy. Please note the number of sets and drawings required for submissions.
- c) Quality Control and Assurance Plans must be provided in accordance with the Subdivision, Development & Servicing Bylaw No. 7900 (refer to Part 5 and Schedule 3).
- d) A "Consulting Engineering Confirmation Letter" (City document 'C') must be completed prior to submission of any designs.
- e) Before any construction related to the requirements of this subdivision application commences, design drawings prepared by a professional engineer must be submitted to the City's Works & Utilities Department. The design drawings must first be "Issued for Construction" by the City Engineer. On examination of design drawings, it may be determined that rights-of-way are required for current or future needs.

12. SERVICING AGREEMENTS FOR WORKS AND SERVICES

- a) A Servicing Agreement is required for all works and services on City lands in accordance with the Subdivision, Development & Servicing Bylaw No. 7900. The applicant's Engineer, prior to preparation of Servicing Agreements, must provide adequate drawings and estimates for the required works. The Servicing Agreement must be in the form as described in Schedule 2 of the bylaw.
- b) Part 3, "Security for Works and Services", of the Bylaw, describes the Bonding and Insurance requirements of the Owner. The liability limit is not to be less than \$5,000,000 and the City is to be named on the insurance policy as an additional insured.
- c) Should it be determined that any Park-related work be included under the scope of the Servicing Agreement, the Development Engineering Branch reserves the right to require a performance security for these works. Note: The Development Engineering Branch's Engineering and Inspection Fee will not include the scope of any Parks-related work.

13. CHARGES, FEES, AND SECURITIES

- a) Fees per the "Development Application Fees Bylaw" include:
 - i) Street/Traffic Sign Fees: at cost (to be determined after design).
 - ii) Survey Monument Fee: \$50.00 per newly created lot (GST exempt).
 - iii) Survey Monument, Replacement Fee: \$1,200.00 (GST exempt) – only if disturbed.
 - iv) Engineering and Inspection Fee: 3.5% of construction value (plus GST).


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Development Engineering Manager