

# **8734 Okanagan Landing Road, Vernon, BC**

## **Rezoning Application Report**



**Originally submitted: February 23, 2024  
Resubmitted under Bylaw 6000: May 5, 2025**

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Development Team Members**

## Contents

<b>1.</b>	<b>Development Application .....</b>	<b>1</b>
<b>2.</b>	<b>Property Description .....</b>	<b>1</b>
2.1	Description .....	1
2.2	Site Plans .....	2
2.3	State of Title Certificate .....	2
2.4	Site Disclosure Statement .....	3
2.5	Okanagan Landing Neighbourhood .....	3
<b>3.</b>	<b>Regulatory Context .....</b>	<b>4</b>
3.1	Official Community Plan .....	4
3.2	Zoning .....	4
3.3	Zoning Analysis .....	4
3.4	Development Permits .....	4
<b>4.</b>	<b>Development Vision .....</b>	<b>5</b>
4.1	Vision .....	5
4.2	Form of Development .....	6
<b>5.</b>	<b>Conceptual Layout and Community Benefits .....</b>	<b>6</b>
5.1	Conceptual Roads and Lot Layout .....	6
5.2	Local Community Benefits .....	6
<b>6.</b>	<b>Environmental Context .....</b>	<b>9</b>
6.1	Environmental Impact Assessment .....	9
6.2	RAPR Assessment .....	9
<b>7.</b>	<b>Geotechnical &amp; Hillside Context .....</b>	<b>10</b>
7.1	Soils Investigation .....	10
7.2	Hillside and Risk Assessment .....	11
<b>8.</b>	<b>Wildfire Plan and Covenant .....</b>	<b>13</b>
<b>9.</b>	<b>Stormwater Management .....</b>	<b>15</b>
<b>10.</b>	<b>Roads and Traffic Assessment .....</b>	<b>18</b>
10.1	Okanagan Landing Rd - Current Function .....	18
10.2	Harbour Heights Road - Current Function .....	18
10.3	Proposed Bench Row Rd to Eastside Rd Extension .....	19
10.4	Proposed Internal Local Roads .....	19
10.5	Proposed New Okanagan Landing Rd Intersection .....	20
10.6	Harbour Heights Rd – Recommendations .....	20
<b>11.</b>	<b>Infrastructure Servicing .....</b>	<b>21</b>
11.1	City- and GVW-owned Infrastructure .....	21
11.2	Shallow Utilities .....	22
<b>12.</b>	<b>Closure .....</b>	<b>22</b>

## **Appendices**

**Appendix A: Development Application Form for Rezoning**

**Appendix B: Site Plans**

**Appendix C: Land Title Certificate**

**Appendix D: Site Disclosure Statement**

**Appendix E: Conceptual Roads and Lots Layout**

**Appendix F: Environmental Impact Assessment**

**Appendix G: RAPR Assessment Report**

**Appendix H: Geotechnical & Hillside Study**

**Appendix I: Wildfire Assessment & Covenant**

**Appendix J: Stormwater Management**

**Appendix K: Traffic Data**

## 1. Development Application

This application is revised and submitted under Zoning Bylaw #6000 (2024). The content is generally the same as the application submitted under Bylaw #5000 in February 2024, other than updating the zoning designations to be consistent with Bylaw #6000.

In 2024, in response to the Province's 'Bill 44 - Housing Statutes (Residential Development) Amendment Act', the City of Vernon updated the Zoning Bylaw and its zoning designations. This application was in process and put on hold at that time, hence some of the supporting reports herein contain references to the prior zoning designations.

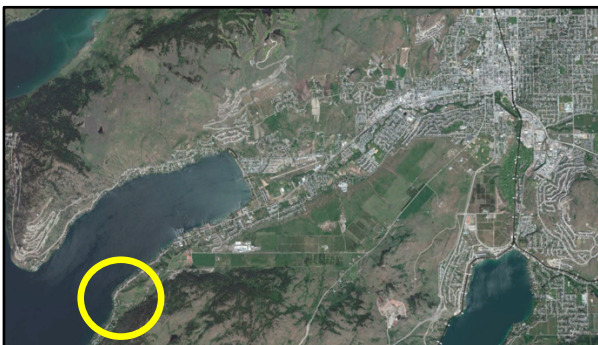
This application for rezoning follows a Pre-Application Meeting with staff from several City departments on February 2, 2023. The purposes of the meeting were to familiarize staff with the property, discuss community planning objectives and zoning options, and to review the Applicants' vision for the development. The resulting Development Application Form and Pre-Application Meeting Summary are contained in Appendix A. This application report and attachments fulfil the requirements set out in the Development Application Form.

## 2. Property Description

### 2.1 Description

The subject property is located on the east shore of Okanagan Lake about 9 km from city centre. The property slopes gently to the SW, transitioning from forest to grassland to lakefront.

Jurisdiction:	City of Vernon
Civic Address:	8734 Okanagan Landing Road, Vernon, BC V1H 1J7
P.I.D.:	029-373-379
Legal Description:	Rem Lot 1 Sec 14 Tp 13 ODYD Plan EPP37864, Exc Plan EPP130210
Area:	4.62 ha (11.4 ac)
ALR:	Non-ALR
OCP Designation:	RLD Residential Low Density
Current Zoning:	AGRS Agricultural & Rural: Small Block (Non-ALR)



**Property Location**

## **2.2 Site Plans**

Appendix B contains the following site plans:

- legal survey plans;
- orthophoto and topography; and
- sketch plan showing current lot features.

## **2.3 State of Title Certificate**

Appendix C contains a current title certificate.

### **Summary of Charges on Title**

Three Sec 219 Restrictive Covenants are registered on the title of the subject property (“the Lands”). A brief discussion follows each, indicating how the charges relate to this application.

**Covenant CA3899145** in favour of the City of Vernon. Provides a Road Reserve Area of 0.649 ha for a contemplated ‘Bench Row Road to Eastside Road Connector’ as set out in the OCP 25 Year Master Transportation Plan. Road Reserve area is shown on Plan EPP37865.

- > This area is generally undevelopable due to its steep slope, wildfire and potential rockfall hazard. It was intended by the City that that this covenant area would dedicated as Road with future subdivision of the Lands. However, City staff indicated during the pre-application meeting that the proposed Bench Row Rd to Eastside Rd Connector is unlikely to be included in an updated OCP and Transportation Plan. Alternatively then, the covenant could be discharged and the area could comprise large rear yards of a subdivision development, or potentially part of a park dedication given its proximity to Truman Dagnus Lockheed Park.

**Covenant CB1018546** in favour of the City of Vernon. Prohibits future subdivision of the Lands until a 20m wide public lake access is dedicated to the City. Dedication area is shown on Plan EPP130248.

- > This area can be designated as Lake Access either during subdivision of the Lands, or on notice by the City. Ideally, the lake access would provide a community amenity through lakeshore improvements and title transfer as part of the park dedication requirements for a future subdivision of the Lands.

**Covenant CB1018549** in favour of the City of Vernon. Prohibits future subdivision of the Lands until roads and drainage works fronting Lots 1 and 2 Plan EPP130210 (8724 and 8730 Okanagan Landing Road) as outlined in PLR SUB00831 are completed or security is provided.

- > These works would be designed and constructed concurrent with future improvements to Ok Landing Rd as part of subdivision of the Lands.

There are no other non-financial charges.

## **2.4 Site Disclosure Statement**

Appendix D contains a Site Disclosure Statement. The subject property has not been used for any Contaminated Sites Regulation Schedule 2 activities.

## **2.5 Okanagan Landing Neighbourhood**

The orthophoto in Appendix B illustrates the semi-rural nature of the property, and the linear form of development along the Okanagan Lake foreshore from the Vernon Yacht Club to Ellison Provincial Park. The linear form has developed over time as lakefront residential housing has followed the topographical constraints imposed by the lacustrine terrace immediately SE of the lakeshore, and steep rocky bluffs further SE of that. Two notable rural residential clusters or communities exist along this hillside landform - Harbour Heights and Sunset Properties.

The subject property is bounded as follows:

- on the west by Okanagan Lake and Ok Landing Rd, and by six low density MUS-zoned single family residential lakefront lots adjacent;
- on the east by forested, steep rocky bluffs and Truman Dagnus Lockheed Park;
- on the south by a single AGRS-zoned large rural residential lot; and
- on the north by the Harbour Heights Road MUS-zoned low density residential neighbourhood, with the rear yards of 10 lots adjacent.

The Okanagan Landing east shore area has a rural residential feel, with higher density redevelopment occurring moving NE to SW along the lakefront.

In the more immediate area of the subject property there are two relatively distinct neighbourhood styles:

- Lakefront Linear Neighbourhood - Along Ok Landing Rd itself, the residential development is quite linear, with most residences situated on the lake side of the road. Most residents have only two immediate neighbours, one on each side. Pedestrian and cycling use of Ok Landing Rd is quite limited due to the narrow shoulders and lack of sidewalks. Many of the properties are seasonal use summer 'second homes'.
- Harbour Heights Neighbourhood – The Harbour Heights subdivision was developed in the late 1960s under the jurisdiction of the BC Ministry of Highways. It is named after a small private boat harbour that once existed at 8719 Ok Landing Rd, just south of the Harbour Heights Rd intersection. Today, the neighbourhood consists of about 20 MUS-zoned single family residential properties, mostly occupied by permanent, year-round residents. Although Harbour Heights Rd is narrow and without shoulders or sidewalks, vehicle speeds and traffic volumes are low, hence the road is safe for local pedestrian use.

### **3. Regulatory Context**

#### **3.1 Official Community Plan**

Since at least 1994, i.e., when the area was amalgamated into the City of Vernon, community plans have designated the subject property as future residential low density.

Compliance with OCP objectives and specific Development Permit Areas is described later in this report.

#### **3.2 Zoning**

The property is currently mixed-zoned:

- the majority of the land is designated AGRS – Agricultural & Rural: Small Block (Non-ALR), and
- in 2023 the area nearest Okanagan Lake was designated as R6 – Lakeshore Residential, then in 2024 to MUS with adoption of Bylaw #6000.

At 4.6 ha, the property is legally non-compliant with the AGRS minimum lot size of 4.94 ha.

#### **3.3 Zoning Analysis**

The Zoning Analysis Table is attached in Appendix A. The table is completed to the extent possible at this stage of development, i.e., at the rezoning stage the lot layout and future building particulars have yet to be determined. To the Applicants' knowledge this application is in full compliance with the requirements of the Zoning Bylaw for the MUS designation.

#### **3.4 Development Permits**

This application responds to the development permit requirements in the OCP and as set out during the Pre-Application Meeting. Generally, the property is situated within the Hillside Residential & Agricultural Development District (OCP Map 14). The specific DP areas include:

- Fire Interface Area (Map 11, Interface Areas 2 & 3);
- Hillside Residential & Agricultural Area (Map 14);
- Environmental Management Area (Medium Status Conservation Value area, Map 15);
- Riparian Area / Flood Hazard Area (OCP Map Schedule FH1).

Response to these development objectives is described in later sections.

## 4. Development Vision

### 4.1 Vision

The high-level development goals are to:

- respect the natural surroundings, i.e., the lake, hillside and forest;
- build a ‘neighbourhood’, well-integrated with Harbour Heights, by providing a mix of housing types, local amenities, improving local infrastructure services, and to the extent practical to preserve existing lake views; and
- meet green development goals by fostering an environmentally friendly development and energy-efficient homes.

The development vision supports several of the OCP’s Guiding Principles, as follows:

<b>Guiding Principle</b>	<b>Supporting Development Concepts</b>
<b>Foster prosperity for people</b>	<ul style="list-style-type: none"> <li>- Encourage work-from-home situations.</li> <li>- Encourage an open, caring neighbourhood, with mixed-age mentoring opportunities.</li> </ul>
<b>Protect and preserve green spaces and sensitive areas</b>	<ul style="list-style-type: none"> <li>- Protect the upper forest area; possibly amalgamate part with the Park.</li> <li>- Provide animal pathways and their access to the lake.</li> <li>- Improve habitat at the lakefront.</li> <li>- ‘Firesmart’ the existing forest interface area.</li> </ul>
<b>Ensure housing meets the need of the whole community</b>	<ul style="list-style-type: none"> <li>- Encourage a variety of housing types, from ‘young family affordable’ to ‘luxury retirement’.</li> <li>- Look to match demand and gaps in existing inventory.</li> </ul>
<b>Create a culture of sustainability</b>	<ul style="list-style-type: none"> <li>- Encourage solar power and energy efficient homes.</li> <li>- Provide internal walkways and bikeways.</li> <li>- Encourage natural and FireSmart building materials and native planting.</li> </ul>
<b>Create strong, compact and complete neighbourhoods</b>	<ul style="list-style-type: none"> <li>- Encourage housing that is attractive to a range of ages.</li> <li>- Possibly incorporate a playground and community garden.</li> <li>- Incorporate linkages to the Harbour Hts neighbourhood.</li> </ul>
<b>Provide alternative transportation</b>	<ul style="list-style-type: none"> <li>- Provide connecting walking pathways to the lake, Harbour Heights and the Park.</li> <li>- Provide bike parking near the lake.</li> </ul>
<b>A youth-friendly city</b>	<ul style="list-style-type: none"> <li>- Provide lake access for swimming, small watercraft and paddleboards.</li> </ul>

## 4.2 Form of Development

The rezoning to MUS is proposed to facilitate development of residential development of the property. To illustrate this, we have provided a potential development layout showing a fee-simple subdivision with municipal roads, shown in Appendix E. The density shown is intended to be reflective and respectful of the adjacent Harbour Heights Rd residential subdivision; proposed lots are in the 600 to 1,000 m<sup>2</sup> range, with some larger lots in the steeper area.

The primary driver for a fee-simple arrangement is the need for a new public road connecting Ok Landing Rd to upper Harbour Heights Rd. The new public road would be used by properties outside the subject development's boundaries, in preference to use of the Harbour Heights Rd – Ok Landing Rd intersection.

All proposed roads and lots shown in the conceptual development layout conform to the City of Vernon Zoning and Subdivision Development Bylaws.

The following sections provide a conceptual development layout, and the assessments on which to create a more detailed development plan if needed as the application proceeds.

## 5. Conceptual Layout and Community Benefits

### 5.1 Conceptual Roads and Lot Layout

The subject site has road frontage on both Ok Landing Rd and Harbour Heights Rd. It is apparent from the Harbour Heights subdivision layout that from the 1960s the subdivision approving authority (then BC Ministry of Highways) foresaw future residential development of the subject lands and required a road connection to the subject lands.

Appendix E contains a conceptual layout for a future development. The final layout would be subject to City review, actual zoning designation and terms, and subdivision requirements.

This application has named the internal roads for ease of reference in this report. While it is recognized that the City has road naming authority, the road names herein, or similar, are encouraged as they reflect the historic harbour mentioned above, and to help integrate the new development with the existing Harbour Heights neighbourhood.

### 5.2 Local Community Benefits

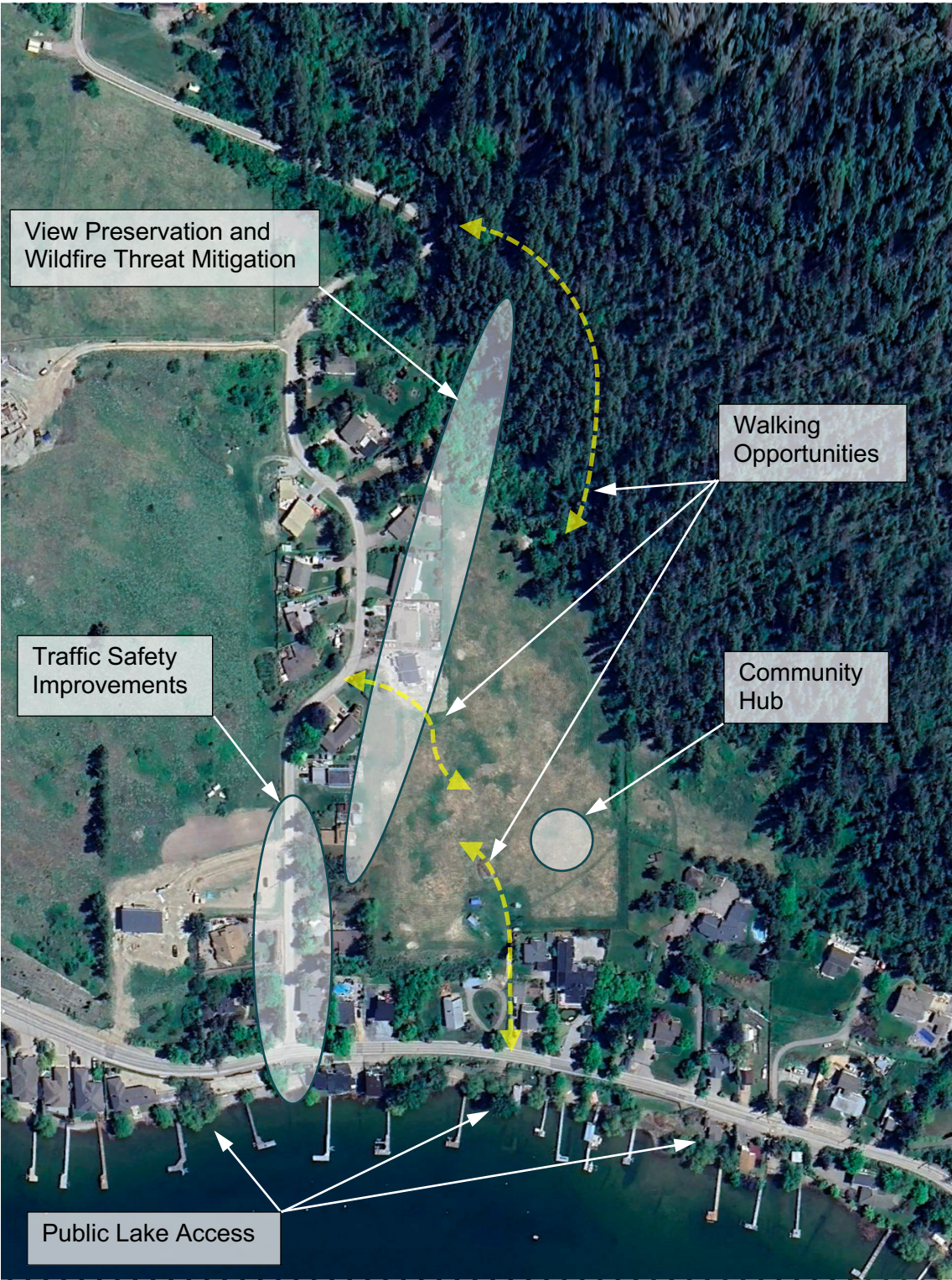
This development vision and concepts would provide a variety of community benefits.

- **Traffic Safety Improvements** – The proposed roads layout creates an alternative public road access to Ok Landing Rd for Harbour Heights Road traffic. Existing grades on lower Harbour Heights Rd are 20% or greater, ending in a steep tee intersection with poor intersection sight lines and sight distances at Ok Landing Rd. The current situation is unsafe, requires priority snow clearing attention, and the lack of intersection vertical transition presents access restrictions for heavy equipment and long loads.

- Road grades within the proposed development are maximum 12%, conforming with bylaw design requirements, and the design Ok Landing Rd intersection would be much safer than the existing situation. Refer to the road profiles in Appendix E. Traffic safety benefits are further discussed in the Traffic Assessment later in this report.
- **Preservation of Lake Views** – Preservation of existing lake views will be important to Harbour Heights Rd residents. As the subject land slopes away from the adjacent homes on Harbour Heights Rd, purposeful design of new roads, lots and buildings in the development area can maintain much of the lake views from the existing homes, particularly from second storey decks. A view analysis could be completed during subdivision design.
- **Lake Access Opportunity** – A new public lake access is proposed where the subject land meets Okanagan Lake. It is proposed that the lake access be designed and constructed as an integral part of future subdivision works. To respect existing neighbours' enjoyment of their properties it is proposed that the lake access be designed without a dock, and limitation to its capacity. This would supplement the existing nearby public lake accesses at 8697, 8797 and 8835 (boat launch) Ok Landing Rd.
- **Local Walking Opportunity** – There is an opportunity to provide walking paths on the perimeter of the upper forested area with future connection to Truman Dagnus Lockheed Park. It is recommended that these be designed and secured at the time of a future subdivision. Further, the new streets and intersections could be made pedestrian- and biking-friendly compared to existing Harbour Heights Rd and Ok Landing Rd conditions.
- **Wildfire Mitigation** – Proximity of the existing forest creates fire safety concerns for the Harbour Heights neighbourhood and City fire officials. Neighbours have expressed concerns about fire spread from the native grassland and forested areas. Implementing the recommendations of the Wildfire Threat Assessment & Mitigation Report (Appendix I) can help mitigate this risk.
- **A Community Hub** – The proposed development could include a local neighbourhood hub consisting of a small playground, covered shelter and community garden. The intent is to *build community*, and provide a safe place where young and old can meet, teach and play. As a future fee simple subdivision is proposed, this hub would best be a City-owned (park) asset, potentially situated on public road where proposed Lot 31 is shown.

The proposed local lake access, pathways and community hub amenities could form all or part of the future development's park dedication.

The figure on the next page illustrates how some of the development concepts shown in the above table could be implemented.



Local Community Benefits

## **6. Environmental Context**

### **6.1 Environmental Impact Assessment**

An Environmental Impact Assessment is contained in Appendix F (Western Water Associates Ltd., October 1, 2021).

The following key findings and recommendations relate to this application.

- a) The land is situated within a medium conservation status Environmental Management Area (EMA).
- b) The land comprises three distinct landforms: a riparian corridor, a mid-bench moderately sloped grassland area, and an upper steep forested area.
- c) The assessment scope includes waterbodies, fish habitat, vegetation and wildlife.
- d) Two waterbodies are of interest: Okanagan Lake, and a provincially mapped watercourse shown located NE to SW through the mid-bench area. This assessment concluded that the latter is in fact a shallow draw with no physical evidence of surface water, or vegetation or soils typical of a watercourse, hence the RAPR does not apply.
- e) Recommendations include detailed species at risk surveys prior to subdivision, a lakefront riparian planting plan, invasive plant control and spill management plans during any future construction phase.

### **6.2 RAPR Assessment**

A Riparian Areas Protection Regulation: Assessment Report is contained in Appendix G (Western Water Associates Ltd., July 21, 2022). As required, this assessment report has been reviewed and approved by the Province. It is noted that the foreshore area described in the RAPR Assessment has subsequently been subdivided, and the subject lands comprise only the southernmost 20 m of the 68 m of foreshore covered in the riparian assessment.

The following key findings and recommendations relate to this application.

- a) The entire 20 m wide land area west of Ok Landing Rd, and Ok Landing Rd itself, are situated within the riparian assessment area (RAA).
- b) There are some red-listed trees and shrubs present within the RAA.
- c) Floodplain and SPEA concerns are minimal as there is no development planned in the SPEA or floodplain areas.
- d) The foreshore is not located within the mapped area for shore spawning kokanee, nor identified as native mussel habitat.
- e) The foreshore is mapped as a red zone for foreshore plants.
- f) Future subdivision development should include a foreshore plant survey and mitigation plan, a sediment control plan, and intermittent environmental monitoring during construction of future upland roadworks.

## 7. Geotechnical & Hillside Context

A geotechnical, hillside development and risk assessment was completed. Refer to the Geotechnical Services Report for Future Subdivision (Tetra Tech Canada Inc., June 6, 2023) contained in Appendix H. The scope of work included three parts: a 'phase 1' addressing a two-lot residential subdivision adjacent to Okanagan Lake; 'phase 2' a proposed new house build on the subject lands; and 'phase 3' rezoning and subdivision of the 4.6 ha remainder parcel. The 'phase 3' investigations are relevant to this application. The results of the assessment are presented in two parts below, addressing the geotechnical/soils conditions and hillside/slope risk assessment, respectively.

### 7.1 Soils Investigation

The soils investigation consisted of twenty-one (21) test pits, excavated throughout the property as shown below.



#### Test Pit Locations

Key findings were:

- a) The surficial geology of the site is consistent with Geological Survey of Canada mapping: a veneer of lacustrine deposits generally less than 3 m thick consisting of silt with minor clay and sand; overlying morainal deposits consisting of till with minor sand, gravel and silt; overlying older, unconsolidated pre-Fraser glacial and non-glacial sediments (Tetra Tech report Sec 4.3).

- b) Soil stratigraphy generally consist of three layers (TT report Sec 4.3):
  - topsoil to a depth of 0.3 to 0.6 m; overlying
  - clay or silt with varying levels of plasticity and thickness; in some areas overlying
  - a dense to very dense silty sand and gravel till layer.
- c) No groundwater or surface water was encountered or observed (TT report Sec 4.4).
- d) Referring to the 'mapped watercourse' crossing the property, "the test pits located within and near the mapped watercourse ... did not exhibit any features that would normally be associated with a watercourse, such as stratified deposits or a significantly different soil profile." (TT report Sec 4.4).

The geotechnical report provides recommendations for engineering design and construction period activities, including:

- site preparation and material reuse;
- permanent cut and fill slopes and temporary excavations;
- slope setbacks and clearances;
- drainage and soil permeability;
- pavement design; and
- geotechnical construction monitoring.

In terms of drainage and permeability of the native soils and their suitability for on-lot and on-site infiltration, Tetra Tech estimated that the hydraulic conductivity ( $k$ ) of the native clay or silt soils is in the range of  $10^{-10}$  m/s to  $10^{-8}$  m/s (TT report Sec 8.4). Accordingly, on-site infiltration should be avoided due to the limited permeability of the clay soils.

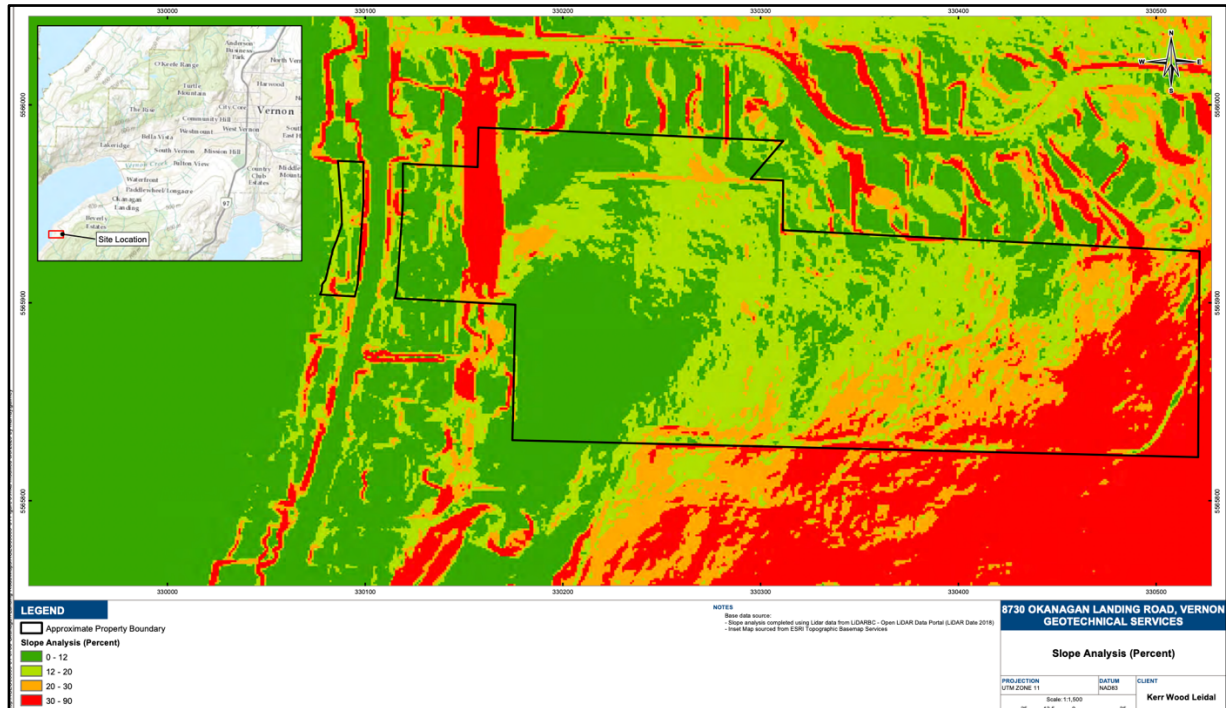
Other sections of the geotechnical report provide recommendations related to house building, such as bearing capacity, slabs-on-grade, excavations, slope setback and clearance, house roof leaders and other drainage and permeability considerations.

## **7.2 Hillside and Risk Assessment**

In terms of topography, Section 4.1 of the TT geotechnical report describes the property as having several distinct sloped areas from west to east:

- a relatively flat (0%-5% slope) lower bench nearest the lake;
- a separating short steep (~30%) lacustrine slope face;
- a grassy field (0% to 30%) for most of the property; and
- an upper treed forest land (5% to  $\geq 30\%$ ).

A Slope Analysis is contained as Figure 3 in the geotechnical report and is copied below.

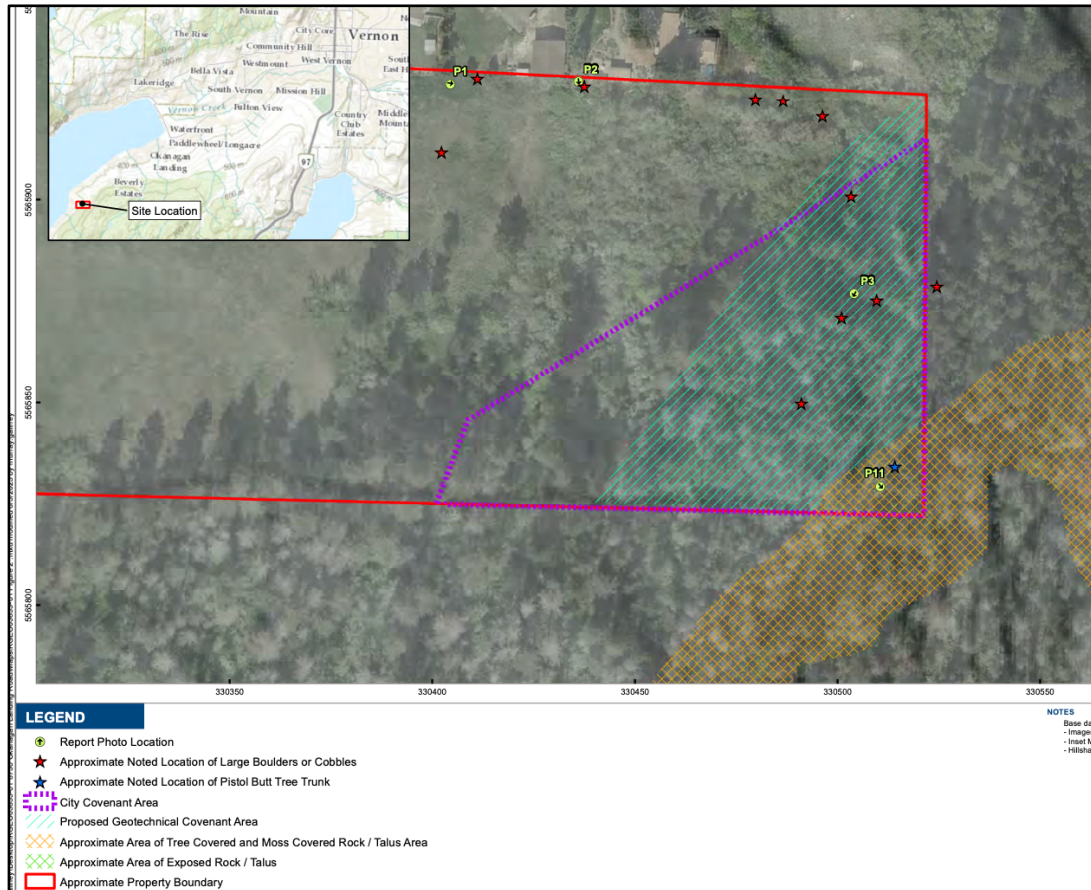


## Slope Analysis

Section 5 of the TT geotechnical report provides a Hillside Study as required in the City's Hillside Guidelines. In terms of potential geohazards, note is made of the steep rock face and talus slope area located within Truman Dagnus Lockheed Park, offsite and immediately east of the subject property.

Key findings were:

- Reference is made to the City road reserve no-build covenant area, as it relates to the same general area of rockfall hazard identified in the geotechnical report.
- There were no obvious signs or evidence of previous natural landslides in the area, or on the property, or on the talus slopes/rockfaces to the east of the property. Given site observations "the risk of natural landslide is considered to be very low to low" (from TT report Sec 5.0).
- A rockfall risk is identified within an area at the eastern part of the property (generally consistent with the City's road reserve covenant area), consisting of areas identified as Zones 1 to 3 representing increasing risk of rockfall hazard. Zone 3 is offsite, east of the subject property. It is recommended that a geotechnical no-build covenant area be established on the east part of the property, see Figure 2 in the geotechnical report and the excerpt copied below. It is further recommended that a more detailed geotechnical and rockfall hazard assessment be conducted to further identify the covenant area boundary and rockfall hazard mitigation recommendations. This more detailed assessment, to better delineate the covenant area and protective works, would be completed as part of a future subdivision design and approval.



## Hillside Study – Proposed Geotechnical Covenant Area

## 8. Wildfire Plan and Covenant

The subject property is located within the Fire Interface Area identified in the OCP (OCP Map 11, Interface Areas 2 & 3). Accordingly, a Wildfire Threat Assessment & Mitigation Report has been completed and is contained in Appendix I (Forsite Forest Management Specialists, November 6, 2023).

Portions of the property are situated within Fire Interface Area Zones 2 and 3 as follows:

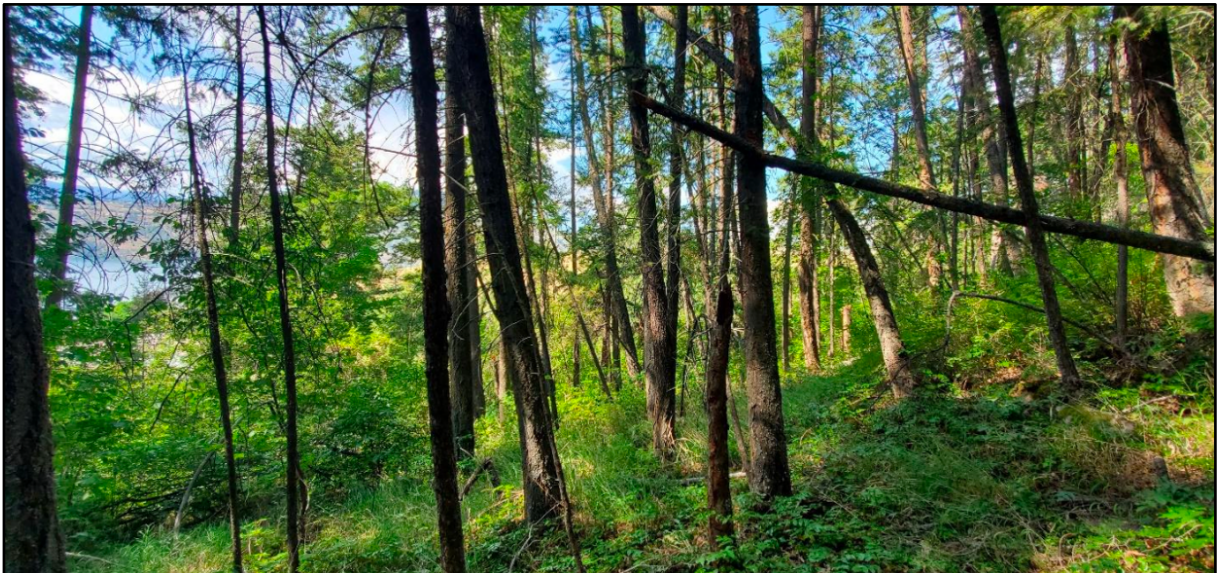
- Interface Area 2 - ~3.2 ha - lower elevation lakefront and mid-grassland area, with average slope of ~11% to the west; and
- Interface Area 3 – 1.3 ha upper elevation forested area, consisting of ~0.4 ha of small deciduous medium-height shrubs, ~0.9 ha of fir second growth forest and standing dead beetle kill.

The wildfire assessment also notes that the 0.9 ha second growth forested area includes the ~0.65 ha triangular area covenanted by the City for future road.

Photos from the wildfire assessment show the typical vegetation in the Zone 2 and 3 areas, as shown in the following photos.



**Typical Grassland Area (Area 2)**



**Typical Forested Area (Area 3)**



**Development would occur in the grassland (yellow) and forested (red) areas shown.**

The wildfire report provides specific recommendations for:

- a) subdivision area building sites - site preparation and construction;
- b) forest area - fuel hazard abatement; and
- c) a restrictive covenant on all lands – for buildings and structural materials, landscaping vegetation, setback clearing and treatment areas near the forest, and other best practices.

Appendix I contains a typical wildfire covenant, presently registered on the subject property, with similar to be registered on future property titles within the development area.

## **9. Stormwater Management**

As a hillside development, stormwater management (i.e., rainfall and snowmelt runoff, subsurface drainage and discharge to the receiving environment) are important development considerations.

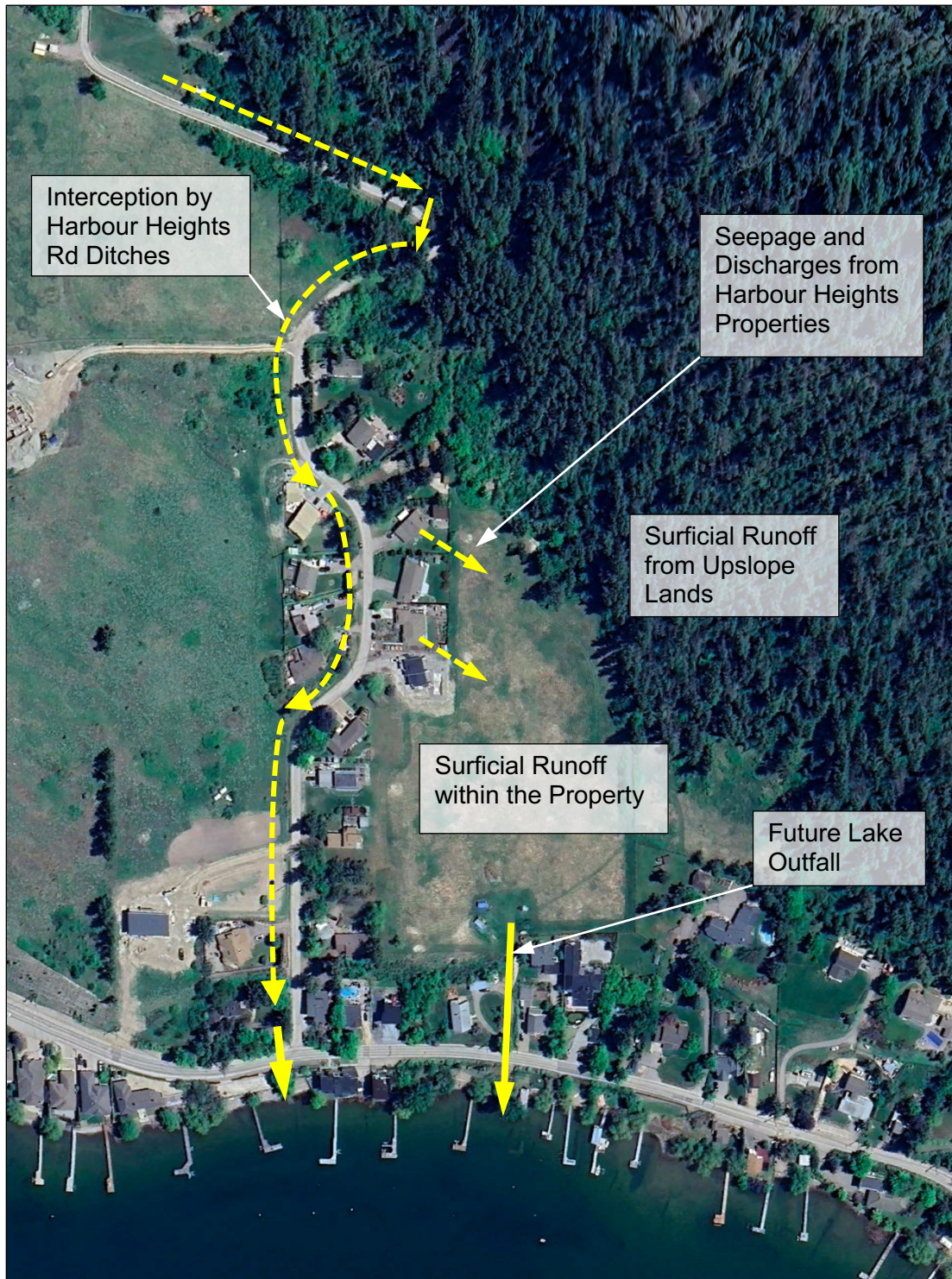
Surface water runoff collected by the upland offsite portion of the NE to SW draw crossing the property is largely intercepted by the Harbour Heights Rd ditches and diverted to an Okanagan Lake outfall. Other upslope surface and shallow subsurface water sources known on the property are shown in the following figure. Future subdivision infrastructure will intercept and direct runoff and shallow seepage to a new Okanagan Lake outfall.

The following points discuss the sources and how they would be addressed in a stormwater management plan and subdivision infrastructure design.

- Surficial Runoff from Upslope Lands – Appendix J contains topographical mapping showing the contributing surface watershed areas. The upslope lands are forested and stable with natural shrub and grass vegetation. There are no areas of concentrated runoff from the upslope lands to the property. Infrastructure works to intercept and collect this runoff should not be required.
- Seepage and Discharges from Harbour Heights Rd Properties – Experience on the property has shown that during extreme precipitation years (1997 and 2017 notably) there is shallow subsurface seepage crossing the rear boundaries of the adjacent Harbour Heights Rd properties. The source of this flow is likely the road ditch. Historically, some of the adjacent Harbour Heights residential properties direct piped water from impervious surfaces, basement sump pumps and hot tubs downslope across their rear property boundaries. A shallow capture and collection system should be considered along this boundary during subdivision design.
- Surficial Runoff within the Property – During future subdivision construction, stormwater management works should collect and capture surface runoff to prevent movement of sediments to the lake.

Future subdivision stormwater collection works would collect water from on-lot footing drains, impervious surfaces and local roads. A new outfall would be constructed under Ok Landing Rd to Okanagan Lake.

As mentioned in the Geotechnical Section 7.1 above, due to the impervious nature of the native clay and silt soils (very low infiltration rate, swelling), on-site stormwater infiltration should generally be avoided.



**Stormwater Runoff and Shallow Seepage Routes**

## 10. Roads and Traffic Assessment

This section discusses several road and traffic considerations and provides recommendations for future changes. Appendix K contains a figure showing existing speed limits and traffic calming measures on Ok Landing Rd, and a table showing traffic count data collected in February 2023.

### 10.1 Okanagan Landing Rd - Current Function

Near the proposed development this is a two-lane asphalt road with intermittent bike lanes on the asphalt shoulders. Drainage is by shallow ditches, occasional cross-culverts to lake outfalls. There is occasional street lighting. Longitudinal grades are quite flat. It is classified as a 'Collector Road' in the Master Transportation Plan. The figure in Appendix K shows the current speed limit signage and two local traffic calming measures. The posted speed limit in the vicinity of the development varies from 30 km/h to 50 km/h. *Traffic* sightlines along the road are generally acceptable, however, driver awareness of *pedestrians* crossing or walking along the road is poor in some areas.

A traffic count conducted in February 2023 (winter, mid-week) indicated *peak one-way* traffic volumes of 20 vehicles per 15-minute interval occurring between 7:30-8:30am and 4:30-6:00pm. Traffic consisted of work commuters, schoolchildren deliveries and resident mid-day routine trips to town, and construction-related vehicles. The summer traffic rate is estimated to be about double the February rate as seasonal summer residents arrive and school-related trips decrease. A 2025 summer traffic count is recommended to confirm this estimate and will be conducted during a July 2025 weekend. Results will be forwarded to the City.

### 10.2 Harbour Heights Road - Current Function

This is a dead end, two-lane simple asphalt road serving about 20 properties. Speed limit is 30 km/hr. Drainage is by ditches, with occasional driveway- and cross-culverts leading to a lake outfall. There is no street lighting except at the intersection with Ok Landing Rd. The road grade is steep – a longitudinal section taken using Google Earth Pro indicates 20% to 25% grade near the Ok Landing Rd intersection. It is classified as a 'Local Road' in the Master Transportation Plan. (The current City of Vernon bylaws limit longitudinal design grade to 12% for Local Roads.) Turning movements accessing and egressing Harbour Heights Rd are difficult for heavy vehicles and long/low loads as there is no level holding zone or vertical transition onto Harbour Heights Rd. This is evidenced by the deep gouging of the asphalt on Ok Landing Rd due to long/low loads scraping during entry and ascent.

Both the left and right sightlines are restricted for vehicles departing Harbour Heights Rd to Ok Landing Rd .

During the traffic count in February 2023 Harbour Heights Rd serviced 21 single-family residences, including 2 homes under construction (with related construction traffic).

The February 2023 traffic count (winter, mid-week) indicated *peak one-way* traffic volumes of 2 vehicles per 15-minute interval occurring between 7:30-8:30am and 4:00-5:30pm. The summer traffic rates are expected to be similar to that in winter.

Due to the steep grade of Harbour Heights Rd it requires priority winter plowing and sanding. Winter access and egress can be difficult for residents, waste management and emergency response vehicles.

### **10.3 Proposed Bench Row Rd to Eastside Rd Extension**

This proposed two-lane Collector Road is identified in the Master Transportation Plan (Section 6.2.2 Development-Led and -Funded Road Projects, Table 5, Figure 2). This extension has been seen by roads planners as a means to “provide an alternative route enabling a reduction in traffic on Ok Landing Rd”. According to City staff during the pre-application meeting however, recent investigations have questioned the physical feasibility, construction cost and its potential to facilitate urban sprawl.

It is this proposed future road that prompted the City to establish the road reserve no-build covenant on the upper easterly part of the subject property. It is recommended that the rezoning application consider two options – that the road reserve remains in place and the land is dedicated as City Road or Park, or that the road reserve is removed and the land used for residential rear yards, shared trail or nature reserve purposes.

### **10.4 Proposed Internal Local Roads**

The plan in Appendix E shows a simple, functional internal road design that provides the critical new connection between Ok Landing Rd and Harbour Heights Rd. This road (Harbour Wynd) has a design grade of 8% to 12% throughout, with flatter grades at intersections. For traffic safety, noise reduction and energy efficiency there would not be any stops between Ok Landing Rd and Harbour Heights Rd. The two cul-de-sac roads shown (Harbour Close and Harbour View) have grades up to 12% with flatter grades at the cul-de-sacs, with stop signs where they meet Harbour Wynd. As Local Roads, it is recommended that the speed limit is set at 30 km/hr, consistent with current traffic speed on Harbour Heights Rd.

There are two locations to consider providing road access to lands beyond:

- The road end of Harbour Close is shown to abut the common property line of two adjacent properties 8660 and 8680 Harbour Heights Rd. This would give these two properties relief from the steep section of Harbour Heights Rd should they wish to build driveways to the cul-de-sac, or these lot owners may wish to access Harbour Close for future subdivision of their lots. Sanitary sewer service could be made available to these adjacent lots.
- Road dedication could be made through to the large property on the south boundary (8778 Ok Landing Rd) via a southerly extension of Harbour Wynd through where proposed Lot 31 is shown. The only purpose for this access would be for future rezoning and subdivision development of 8778, however, the development feasibility of the parcel is not straightforward given the steep topography, and the vertical and

horizontal constraints imposed by the proposed Bench Row to Eastside Rd Extension (refer to the topographic mapping in Appendix B, and the slope analysis in the Geotechnical Report - Figure 3). The feasibility of development of 8778, and physical complexities of converging sidehill roads, should be assessed before requiring a road access to the south boundary.

## **10.5 Proposed New Okanagan Landing Rd Intersection**

The proposed new intersection would likely be a typical tee intersection, with substantially improved vehicle holding and vertical transition compared to the current Harbour Heights Rd intersection. Preliminary horizontal and vertical intersection design is shown in Appendix E. Recently a section of the development entrance Road 'A' (i.e., Harbour Wynd) was constructed to design grade, and it can be compared to Harbour Heights Rd. Two lake parking stalls dedicated to the lake access could be included at the intersection.

Given the traffic count data on Harbour Heights Rd, it is unlikely that a southbound left turn lane or road widening would be warranted on Okanagan Landing Rd. A preliminary estimate of summer peak traffic volume at this intersection on buildout indicates about 10 vehicles per 15-minute peak period, executing either southbound left turn in or westbound right turn out movements<sup>1</sup>. A proper traffic impact analysis would be completed as part of the subdivision design; however estimates herein indicate that a southbound left turn lane and right-out northbound widening are likely not warranted. For comparison, tee intersections with Ok Landing Rd at the Mandalay condos (7922 Ok Landing Rd ~ 28 units) and Sunset Properties (9200 block Ok Landing Rd at Kokanee Rd ~ 65 units) experience insignificant interruption of Ok Landing Rd through-traffic.

There is a requirement to complete Ok Landing Rd widening and drainage improvements along the 8724, 8730 and 8724 frontages upon subdivision of the subject lands.

Should the development proceed to subdivision, it is recommended that the City consider extending the limits of the 30 km/hr zone on Ok Landing Rd to Harbour Heights Rd.

## **10.6 Harbour Heights Rd – Recommendations**

At the February 2, 2023 Pre-Application Meeting, staff asked the Applicant to consider road and traffic safety improvements for Harbour Heights Rd. The Applicant has reviewed the situation, and discussed options with several residents with driveways accessing lower Harbour Heights Rd, as well as with a current City of Vernon snowplow operator.

There are essentially two options to relieve the current situation: regrade Harbour Heights Rd or close the lower portion of Harbour Heights Rd. It is likely not feasible, practical or cost-effective to regrade the Harbour Heights Rd intersection to flatten the longitudinal grade to

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<sup>1</sup> To approximate the peak summer intersection traffic: (February 2023 was 2 vehicles per 15 minute peak period at HHts Rd) x (17 HHts lots +35 new lots tributary to the new intersection) / (21 HHts lots) x (2 for summer increase) = a peak ~10 vehicles per 15 minute period.

anywhere near the bylaw grade of 12%. Closing the lower portion of the road removes road access to several existing properties.

The following options can be considered:

- a) Leave Harbour Heights Rd in operation as is, as there are 4 to 8 driveways accessing the lower part of the road without alternative access, and these properties need waste pickup, snowplowing and emergency services.
- b) In the future, encourage residents east of about 8660 to use the new Harbour Wynd to access Ok Landing Rd. Of the current 21 properties on Harbour Heights Rd, this would leave about 4 properties using the Ok Landing Rd – Harbour Heights Rd intersection, and about 17 using the new Harbour Wynd access.
- c) In the future, restrict heavy vehicles and long loads from entering Harbour Heights Rd.
- d) The City could work with the landowners (8690 and 8708) to improve the traffic sightlines or westbound right and left turns on to Ok Landing Rd by trimming or removing vegetation and other obstacles.

## **11. Infrastructure Servicing**

The development site is fully serviced on its Okanagan Landing Rd boundary. A future subdivision on the property would be serviced by municipal and private utilities in conformance with the Subdivision and Development Servicing Bylaw. The Ok Landing Rd area saw significant upgrades for water and sewer services following area annexation in 1994. This section describes the servicing approach.

### **11.1 City- and GVW-owned Infrastructure**

**Water Supply & Fire Protection** – A large diameter municipal trunk water main was installed in Ok Landing Rd in 1999. Record drawings indicate that the frontage section of water main is 350 mm (14”) diameter, pressure class 250 (psi) ductile iron pipe. The property is wholly located within the 431 m pressure zone (to be confirmed with GVW) which provides adequate water pressure and fireflow supply throughout a future subdivision development.

The water distribution system would tie into the water system in Harbour Heights Rd at the time of subdivision, providing an increased level of service for those properties.

**Sanitary Sewer** – Municipal sanitary sewer piping was installed in Ok Landing Rd in 2006. Record drawings indicate three mains on the frontage: 200 mm PVC, 250 mm PVC and a 75 mm polyethylene low pressure sewer forcemain. Connection details for a future subdivision would be determined at the design stage, however this will likely involve a traditional gravity system tying into one of the large sewer mains in Ok Landing Rd.

The sanitary sewer system could provide a gravity connection to service the upper Harbour Heights Rd properties. Other arrangements could be designed at the time of a future subdivision development.

**Stormwater** – As discussed in Section 9, future development would have a traditional stormwater collection system with a new outfall discharge to Okanagan Lake.

## **11.2 Shallow Utilities**

Contact has been made with BC Hydro, Fortis Gas, Telus and Shaw Cable. Each has confirmed adequate capacity to service a future subdivision with underground services.

## **12. Closure**

We trust that the information provided herein meets the needs of the City of Vernon, referral agencies and neighbouring property owners.

Respectfully submitted,

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