



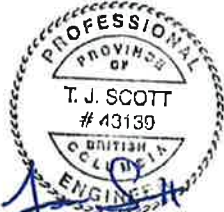
Respectfully submitted:

Greg Thompson

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Greg Thompson  
Senior Project Manager, Infrastructure

Reviewed By:



Trevor Scott, P.Eng  
Manager, Infrastructure Projects

2023-03-31  
PERMIT TO PRACTICE #1002911

Attachment 1: 2023 Newton Sewer Local Area Service Budget Sheet

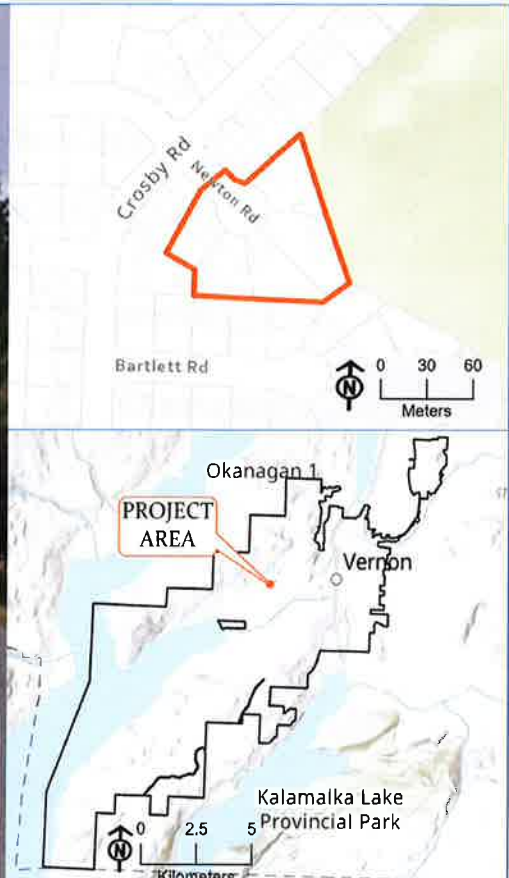
Attachment 2: Okanagan Landing Sanitary Sewer Servicing Process

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# NEWTON SEWER LOCAL AREA SERVICE

PROJECT #2023-18



**Total Capital Costs:** \$ 160,000  
**Operation and Maintenance Estimated Yearly Costs:** \$300

## Project Summary

Sanitary sewer service would be extended to five homes in Newton Road area of the Okanagan Landing through this local area service project. The project would include approximately 75 lineal meters of new 200 mm diameter sewer collector pipe, 100 mm diameter services to each property, manholes, restoration, and other related works. Petitioning is planned for late 2022/early 2023 and construction would follow in 2023, contingent upon councils approved of the project and support of area residents during the resident initiated petitioning process. \$70,000\* of the project cost is related to road restoration, with funding from the 1.9% infrastructure levy. The balance of project costs (\$90,000) would be recovered from owners by way of a local area service tax.

Extension of the City's sanitary sewer collection system to the remaining un-serviced areas in the Okanagan Landing Area is one of the key action items in the City's Liquid Waste Management Plan.

*\*Note: Project sheet revised March 2023 to correct road cost share of project - consistent with approved financial plan*



## THE CORPORATION OF THE CITY OF VERNON REPORT TO COUNCIL

**SUBMITTED BY:** Kim S. Dhillon, P.Eng.  
Manager, Infrastructure  
Greg Thompson  
Municipal Tech III, Infrastructure

**COUNCIL MEETING:** REG  COW  I/C   
**COUNCIL MEETING DATE:** June 8, 2020  
**REPORT DATE:** May 19, 2020  
**FILE:** 5340-09

**SUBJECT:** OKANAGAN LANDING SANITARY SEWER SERVICING PROCESS

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### PURPOSE:

To present Council with recommendations to extend sanitary sewer service to un-serviced areas of Okanagan Landing following the three recent petitioning processes where the property owners voted against extending sanitary services through a local area service process.

### RECOMMENDATION:

THAT Council endorse moving forward with the recommended servicing strategy (Option 2b) to provide sewer service to properties in the Okanagan Landing Sanitary Sewer Service Area #1 and Service Area #2 as described in the report titled "Okanagan Landing Sanitary Sewer Servicing Process", dated May 19, 2020 from the Manager, Infrastructure and Municipal Tech III, Infrastructure.

### ALTERNATIVES & IMPLICATIONS:

1. THAT Council endorse moving forward with sanitary sewer service provision to properties in the Okanagan Landing Sanitary Sewer Service Area #1 and Service Area #2 using option (*to be cited by Council*).

*Note: This would require Administration to evaluate the chosen option, and report back to Council on any implications.*

### ANALYSIS:

#### A. Committee Recommendations:

N/A

#### B. Rationale:

##### Background

1. The model for delivering infrastructure in the City of Vernon is that the capital expenditures for new infrastructure is recovered from the direct beneficiaries through taxes and/or fees. This is consistent with the cost recovery principle for installing new infrastructure within municipalities that is the widely accepted model for providing new municipal infrastructure across the Province.
2. Providing infrastructure to local service areas with no cost recovery mechanism would mean that all City of Vernon taxpayers would pay for improvements to a specific area, which is contrary to the well-established principle that the cost for municipal infrastructure improvements should be recovered from the direct beneficiaries of the improvements.

3. Extension of the City's sewer system typically occurs at the expense of the developer as part of the development process for new construction, or in the case of existing neighbourhoods, through the local service process. In all cases, the City sewer system is ultimately funded by those that benefit from its use and not through general taxes.
4. Development related servicing costs are typically factored into the sale of land or new homes. In some cases where development requires extension of the City sewer system beyond the land being developed, provincial legislation allows the developer to recover costs from benefitting owners at the time of connection to or use of the service provided. It should be noted that costs to service new neighbourhoods in greenfield (i.e. bare land) sites are typically lower than providing services to established neighbourhoods due to the additional road restoration and landscaping restoration costs.
5. In some cases, the City has funded sewer extensions to existing neighbourhoods using sewer reserves and recovered costs when owners connect to the new service. The City also applies for grants that are available for infrastructure improvements and advocates to the Province to have City of Vernon projects included in federal funding applications.
6. It is important to understand the different components of a municipal sewage collection system to consider the servicing options presented herein. Table 1 provides useful definitions for each component of a collection system. Figure 1 shows the typical components of a municipal sewage collection system at the neighbourhood scale.

<b>Component</b>	<b>Definition</b>
Service Connection	Service connections, sometimes called building sewers, connect the collector sewer to the property line. The property owner is responsible for the connection from the service connection (property line) to the home or business.
Collector sewer	Collector sewers form the first element of a wastewater collection system and are usually in local streets or special easements. They are used to collect wastewater from one or more service connections and convey it to a trunk sewer.
Trunk sewer	Trunk sewers are large sewers that are used to convey wastewater from local collector sewers to treatment and disposal facilities.

**Table 1: Definitions of sewage collection system components**

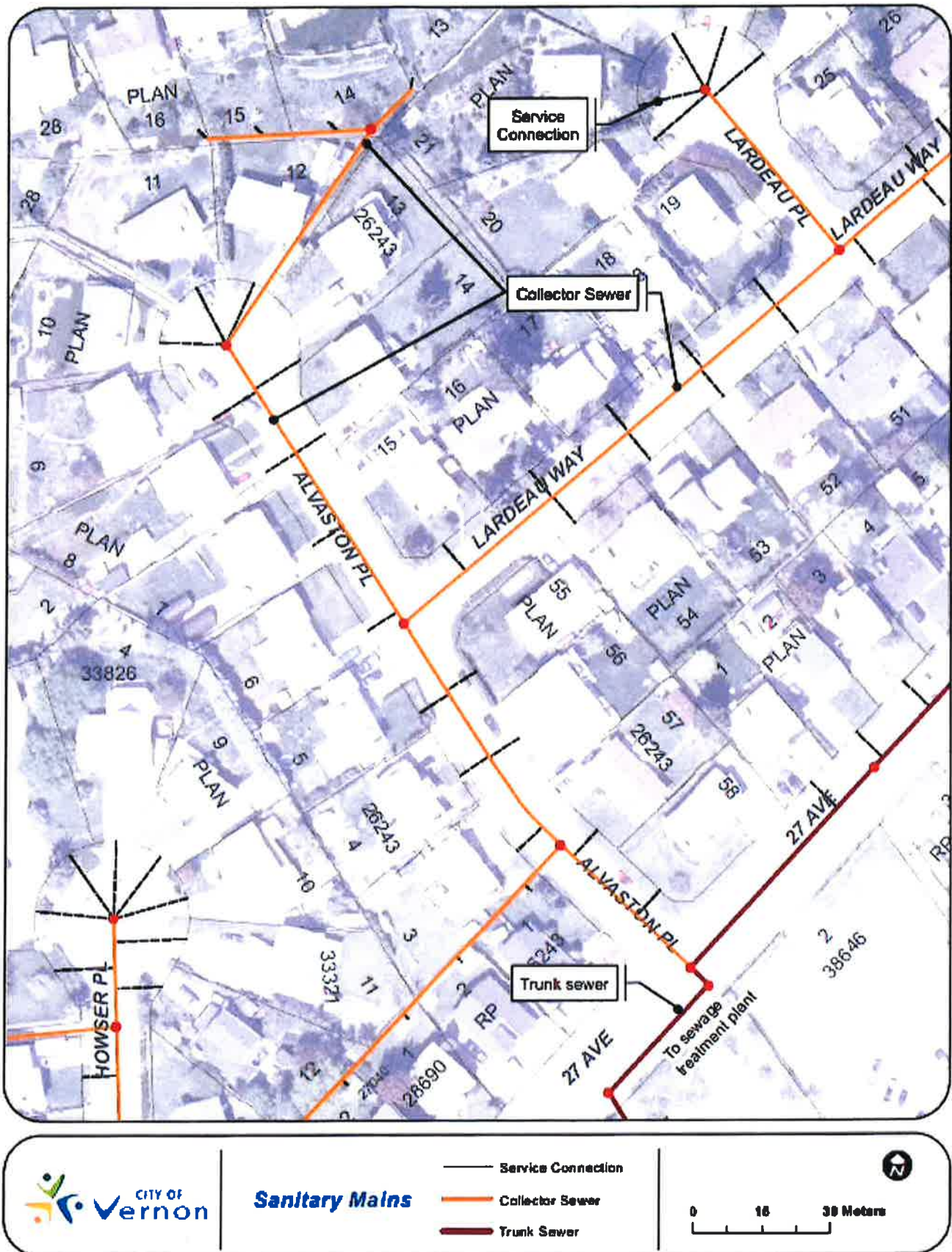
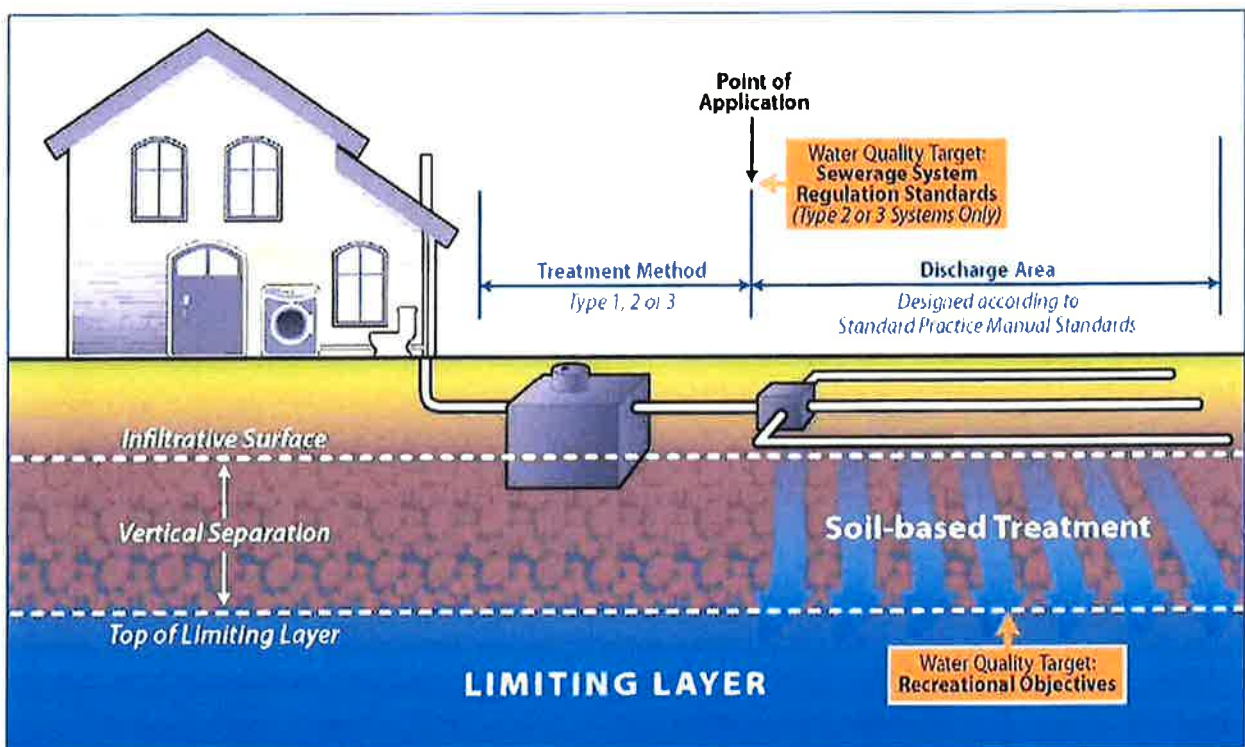


Figure 1: Diagram of components of a municipal sewage collection system

7. The Okanagan Landing Area was annexed to the City of Vernon in 1993. Prior to annexation, City sewer service was not available to property owners in the Okanagan Landing Area. The City's trunk sewer system was extended by local developers at their cost. In the case of existing un-serviced neighbourhoods, the City used a user-pay specified area process, which is similar to the local service process currently used, to extend City services to local neighbourhoods. The mechanism for this process is established under the *Community Charter (BC) - Division 5 — Local Service Taxes*.
8. Most of the un-serviced properties in the Okanagan Landing Area use on-site soil absorption sewage treatment systems, which disperse untreated residential sewage into the subsurface. These systems can take various forms such as absorption beds, single wide trench, and deep trench systems. The main components of these systems are a septic tank with an inner syphon chamber to settle the solid portion of the sewage. The liquid portion of the sewage is then syphoned off and dispersed through buried perforated pipes or a leaching pit. The configuration of the buried pipes should be assessed through design based on the subsurface soil profile and anticipated volume of sewage, among other factors. Regardless of the configuration, the principle of treatment is that solids settle in a septic tank to decompose naturally through anaerobic digestion aided by bacteria, and liquid effluent is treated through the layers of soil it passes through. Figure 2 shows a diagram of a typical residential on-site soil absorption sewage treatment system.



**Figure 2: Diagram of typical residential on-site soil absorption sewage treatment system**  
(Source: BC Centres for Disease Control)

9. The on-site soil absorption sewage treatment systems in the Okanagan Landing Area were installed at various dates. As the City is not involved in the permitting of septic systems, there is no confirmation that these systems were properly designed. On-site systems are optimal for less densely populated communities or individual households where: (1) the soil is permeable, (2) the ground water table is not too shallow, and (3) the site is suitably far away from any surface water source. In 2010, changes were made to the *Sewerage System Regulation (BC)* to enhance the system of on-site wastewater management in British Columbia to improve measures for preventing health hazards. The regulatory changes were followed with the Province issuing the *Sewerage System Standard Practice Manual Version 3* in 2014 to provide standard practices for the planning, installation, and maintenance of

sewerage systems on single parcels of land such that the systems will not create or contribute to a health hazard.

10. Based on the age of the un-serviced homes in the Okanagan Landing Area, Administration suspects that many of the homes use on-site sewage treatments systems that pre-date the 2010 changes in the *Sewerage System Regulation*. Recent water quality sampling work done by the City, as part of the stream health baseline study, shows that human source fecal bacteria are present in local ditches in the Okanagan Landing Area and that another indicator of septic waste, high isotope nitrogen, is also present.
11. Provincial legislation provides the authority for Interior Health to require property owners to repair failing on-site sewage treatment systems, however, the nature of treatment failure often makes it difficult to trace pollution to a specific property, unless complete failure has occurred and sewage is surfacing close to a failed on-site sewage treatment system. Interior Health does not conduct scheduled inspections of properties using on-site sewage treatment systems. Enforcement to address failed systems is a complaint-driven process.
12. Since 1993, the City's sanitary sewer system has been extended to most of the Okanagan Landing Area, primarily through development, and to a lesser degree local servicing projects initiated by owners in existing neighbourhoods. In 2017, some 3,800 metres of sanitary trunk sewer was extended up to the Cameo neighbourhood of the Okanagan Landing Area using a grant from the Clean Water and Wastewater Fund.
13. The cost of servicing existing neighbourhoods is much higher than servicing undeveloped areas as restoration of existing asphalt roads, boulevards, landscaping, and other utilities can often cost more than the sewer infrastructure necessary to provide service. The high capital cost of service creates a significant financial burden for owners. Even when the cost of service is amortized over 20 years or longer, many residents still see this as unaffordable.
14. Feedback from owners in the remaining un-serviced areas generally relates to financial issues and the high cost of service. Most residents would like to have service available; however, they typically want to keep using their on-site sewage treatment systems for as long as possible and connect when their on-site sewage treatment systems fail. The legislative requirements and timeframe for extending municipal sewer service typically forces owners with failing on-site sewage treatment systems to reconstruct their on-site sewage treatment system, if City sewer is not readily available for connection. Providing the City sewer infrastructure to neighbourhoods to allow connection when on-site sewage treatment systems fail is another recurring comment from area property owners.

#### Sanitary Servicing Considerations

15. The estimated cost to extend city sewer service to the remaining properties in Okanagan Landing Service Area #1 and #2 (refer to Attachment 1 maps) is approximately \$18 million. The cost estimate includes installation of the local collector sewers and the service connections from the collector sewer to the property line for all homes, repair of the sewer trench, and related surface restoration. The cost estimate assumes traditional open cut sewer construction methods would be used.
16. Recent success with Horizontal Directional Drilling (HDD) shows that it will be possible to install the collector sewer in several of the steeper hillside areas at a fraction of the cost of traditional open cut construction. The initial design should focus on areas where HDD could be used successfully and that open cut construction should be limited to installation of manholes and short connecting sections of pipe that cannot be installed using HDD. The staged servicing method using HDD was recently done in the Peters Road area and it allowed service to be provided to those in need at the lowest possible cost.



17. A percentage of the road works for extending sewer to un-serviced areas in the Okanagan Landing Area could be legitimately apportioned to the City's existing 1.9% infrastructure levy. This would reduce the calculation of the cost of sewer extension projects, and thus reduce the cost to property owners to connect. No adjustments to existing funding would be required; however, depending upon the extent of road works required, a higher amount of infrastructure budget may need to be directed toward road works within the 4-Year Rolling Capital Plan. If the servicing strategy of installing only the sewer collector pipe to as many areas possible using HDD was implemented, then the additional budget required for road works would be relatively small and could be absorbed within the existing funding constraints of the 4-Year Rolling Capital Plan.
18. Administration explored other methods of funding the capital cost of service, such as imposing an annual levy for properties using on-site sewage treatment systems and regulatory fees. Due to limitations in the legislation with respect to capital funding and cost recovery for services, as well as related case law, the only option without significant risk would be to impose a City-wide levy (tax) to help fund all or a portion of servicing related costs. This would be contrary to the principle of those who benefit paying for it.
19. Administration would continue to explore grant funding opportunities, such as the Clean Water and Wastewater Fund, to offset sewer extension project costs that property owners would have to pay.

#### Sanitary Sewer Servicing Options for the Okanagan Landing Area

20. **Option 1a: Local Service without Road Funding:** The City currently uses the local service provisions of the *Community Charter* to extend City sewer infrastructure and recover service related costs from owners. This method requires the majority of owners to not be against servicing in the specific service area being serviced and was the method used to service many of the existing homes adjacent to Okanagan Lake. A key benefit of this method is the capital cost of service can be financed using Municipal Finance Authority (MFA) borrowing and owners have the ability to amortize payment over time, if they prefer. Another benefit is the service levy is considered a tax, and, for those owners that qualify for the provincial tax deferral program, payment of the levy can be deferred through that assistance program. A key barrier to success of the local service option is that all owners must share in the cost of service as soon as it is made available. It is not possible for owners to defer payment of the capital cost until their on-site sewage treatment system fails, unless doing so under the provincial tax deferral program.

Under Option 1a all road works costs related to sewer extension projects would be calculated into the overall cost of the project.

21. **Option 1b: Local Service with Road Funding:** This option is the same as Option 1a with the exception that all road works costs related to sewer extension projects would not be calculated into the overall cost of the project. Road costs would be paid from other sources (e.g. 1.9% infrastructure levy). This would reduce the cost to property owners to connect. Road condition assessments show that most roads in the un-serviced areas of Okanagan Landing are in fair to poor condition.
22. **Option 2a: Municipal Fee without Road Funding:** The City also uses the municipal fee provisions of the *Community Charter* to fund the capital cost of providing sewer service to neighbourhoods. This method requires the City to finance the cost of service, and cost recovery is only possible when owners choose to connect to the service. A key benefit of this method is owners are not forced to connect to the sewer system and can defer connection (and payment) until their on-site sewage treatment system fails. Owners may be required to connect, if undergoing development or other activity which requires City sewer service. However, availability of sewer service typically is considered a benefit in those instances. The main drawback to the fee method is cost recovery would likely be delayed by many years. Due to the long term expected for cost recovery, it is not feasible to use City reserves to service all remaining neighbourhoods in the Okanagan Landing. It would be feasible, however, to use this method on a limited basis in order to service as many properties as possible prior to more widespread

on-site sewage treatment system failure. If this method is used, it is recommended that only the collector sewer and appurtenances be installed in areas where the cost of construction is relatively low. Construction of the actual service from each property to the collector pipe could be deferred until owners actually want to connect.

23. **Option 2b: Municipal Fee with Road Funding:** This option is the same as Option 2a with the exception that all road works costs related to sewer extension projects would not be calculated into the overall cost of the project. Road costs would be paid from other sources (e.g. 1.9% infrastructure levy). This would reduce the cost to property owners to connect.

Conclusion

24. Table 2 summarizes each servicing option:

Option	Pros	Cons
1a: Local Service without Road Funding	<ul style="list-style-type: none"> <li>• When LAS petitions are successful, a higher percentage of property owners connect earlier</li> <li>• Has a fairly certain cost recovery mechanism and timeline</li> <li>• Recovers the <b>highest</b> percentage of project costs for the City</li> </ul>	<ul style="list-style-type: none"> <li>• Method has failed the last three times used due to majority of property owners voting against</li> <li>• Results in <b>highest</b> hook-up costs for property owners</li> <li>• Hook-up costs can be inconsistent between neighbourhoods due to the neighbourhood's particular construction challenges</li> </ul>
1b: Local Service with Road Funding	<ul style="list-style-type: none"> <li>• Lowers some of the hook-up costs for property owners</li> <li>• Has a fairly certain cost recovery mechanism and timeline</li> </ul>	<ul style="list-style-type: none"> <li>• Still involves a petitioning process and does not guarantee success</li> <li>• Road work portion has the <b>highest</b> cost impact on available funds from the 1.9% levy</li> </ul>
2a: Municipal Fee without Road Funding	<ul style="list-style-type: none"> <li>• Results in lower hook-up costs for property owners</li> <li>• Does not involve a petitioning process</li> <li>• Grant funding could offset some costs</li> <li>• Road work portion would <b>not</b> use some of the available funds from the 1.9% levy</li> </ul>	<ul style="list-style-type: none"> <li>• Uncertain timelines for property owners to connect</li> <li>• Uncertain cost recovery timelines</li> </ul>
2b: Municipal Fee with Road Funding	<ul style="list-style-type: none"> <li>• Results in the <b>lowest</b> hook-up costs for property owners; therefore, likely <b>highest</b> amount of community support</li> <li>• Does not involve a petitioning process</li> <li>• Grant funding could offset some costs</li> </ul>	<ul style="list-style-type: none"> <li>• Road work portion would use some of the available funds from the 1.9% levy</li> <li>• Recovers the <b>lowest</b> percentage of project costs for the City</li> <li>• Uncertain timelines for property owners to connect</li> <li>• Uncertain cost recovery timelines</li> </ul>

**Table 2: Summary of options to provide sanitary service to the Okanagan Landing Area**

Recommended Servicing Strategy

25. It is recommended that the City use the municipal fee approach combined with City road funding (Options 2b) to make the City's sewer collection system available to as many un-serviced homes as possible in the Okanagan Landing Area. Capital costs would be minimized by installing only the collector sewer and not the service portion of work from the collector pipe to individual properties. Initially, only areas where the collector pipe could be installed using HDD would be serviced. Service connections from the collector sewer to the property line would be installed when owners request a service connection at the property owner's cost.
26. The initial capital cost of installing the collector sewer would be funded using Sanitary Sewer Collection Reserves with recovery by way of a fee bylaw in accordance with the Community Charter. Connection to the new sewer collector pipe would be voluntary due to the nature of the levy (fee and not tax). The City could charge interest on outstanding amounts, which ultimately would allow recovery of all servicing costs plus interest. As the initial capital cost for this option is much lower than other options, accrued interest would also be much lower. For those owners that choose to defer connection until their septic system fails, keeping accrued interest as low as possible is key to making service available at the lowest possible cost. The cost of installing services to individual properties would be recovered by way of the existing Fees and Charges Bylaw #3909 with payment occurring prior to service installation.
27. Not all existing un-serviced homes could be serviced using this strategy. Once the initial phase of servicing using HDD is completed, the servicing strategy could be re-assessed and service implemented to the remaining un-serviced areas using the recommended strategy, or one of the other methods discussed: Option 1a, 1b or 2a.
28. If Council supports moving forward with the recommended strategy, preliminary engineering would be completed to identify properties that could be serviced using the HDD method and the estimated cost of service for each neighbourhood. A recommended phasing plan and budget would then be presented to Council for consideration, along with any request for City road funding.

**C. Attachments:**

Attachment 1 - Okanagan Landing Sewer Service Area #1 and #2

**D. Council's Strategic Plan 2019 – 2022 Goals/Action Items:**

Supporting the recommended sanitary sewer servicing option, Option 2b, for the Okanagan Landing Area involves the following goals/action items in Council's Strategic Plan 2019 – 2022:

- Okanagan Landing sewer expansion program implementation
- Empower local residents with the ability to accept or reject sewer projects in the Okanagan Landing Area
- Increase the use of lining technology/trenchless technology for sanitary laterals to reduce the GHG from the large equipment used in the excavations and restorative works

**E. Relevant Policy/Bylaws/Resolutions:**

1. At its Regular Meeting of December 10, 2012, Council passed the following resolution:

“THAT Council receive the staff report dated November 27, 2012, and direct staff to move forward with the recommended Option #1 - sewer extension by way of municipal fee and local area service projects within 10 year time frame;

AND FURTHER, that Council authorize 2013 funding of \$10,000 from sanitary sewer collection reserves for legal consultation and other work necessary to develop policy and bylaws associated with Option #1 - sewer extension by way of municipal fee and local area service projects within 10 year time frame.”

2. At its Regular Meeting of May 8, 2017, Council passed the following resolution:

“THAT Council endorse moving forward with service provision to properties in Okanagan Landing Sanitary Sewer Service Area #1 and Service Area #2, as shown on Attachment 1 in the report titled Okanagan Landing Sewer Servicing Strategy and dated April 27, 2017, as submitted by the Municipal Design Tech III, by way of Council initiated local area service projects (subject to petition against) over an estimated ten year time frame;

AND FURTHER, that Council direct Administration to establish a fee bylaw for properties serviced by the Clean Water Wastewater Fund (CWWF) grant project, and for the rate to be set equal to the estimated average servicing cost for Okanagan Landing Service Area #1.”

3. At its Regular Meeting of April 23, 2018, Council adopted the following resolution:

“THAT Council receives the memorandum dated April 5, 2018 from the Manager, Legislative Services regarding the Dallas Willow Sewer Local Area Service Petition Results;

AND FURTHER, that Council directs Administration to provide a letter to the residents in the petition area advising that the sewer project will not proceed due to unsuccessful petition and providing options for proceeding in future.”

4. At its Regular Meeting of September 16, 2019, Council adopted the following resolution:

“THAT Council receives the memorandum dated September 9, 2019 from the Manager, Legislative Services regarding the Claremont Sewer Local Area Service Petition Results;

AND FURTHER, that Council directs Administration to provide a letter to the residents in the petition area advising that the sewer project will NOT proceed due to an unsuccessful petition and provide options for proceeding in the future.”

5. At its Regular Meeting of February 24, 2020, Council passed the following resolution:

“THAT Council receives the memorandum dated February 19, 2020 from the Manager, Legislative Services regarding the unsuccessful petition for the Cameo Sewer Local Area Service;

AND FURTHER, that Council directs Administration to provide a letter to all residents in the petition area advising that the sewer project will not proceed due to unsuccessful petition and providing options for proceeding in future."

6. At its Regular Meeting of February 24, 2020, Council adopted the following bylaw:

"THAT Bylaw #5795, "City of Vernon Sewer System Connection Amendment Bylaw Number 5795, 2020" – a bylaw to amend City of Vernon Sewer System Connection Bylaw Number 5089, 2007 be adopted."

**BUDGET/RESOURCE IMPLICATIONS:**

Resource requirements will be determined based on the specifics of implementation, and will be determined in conjunction with the annual capital planning process. If Council supports the recommended servicing strategy, preliminary engineering would be completed and a Council report submitted with costs, properties proposed to be serviced, and timeline for implementation. The 4-Year Rolling Capital Plan included future servicing areas and design can proceed within currently approved design budgets. Administration will continue to pursue federal and provincial grant programs to assist with project funding.

Prepared by:

Approved for submission to Council:

X

Signer 1

Greg Thompson  
Municipal Tech III, Infrastructure

Will Pearce, CAO

per:

Date: June 03/2020

X

Signer 2

Kirn S. Dhillon, P.Eng  
Manager, Infrastructure

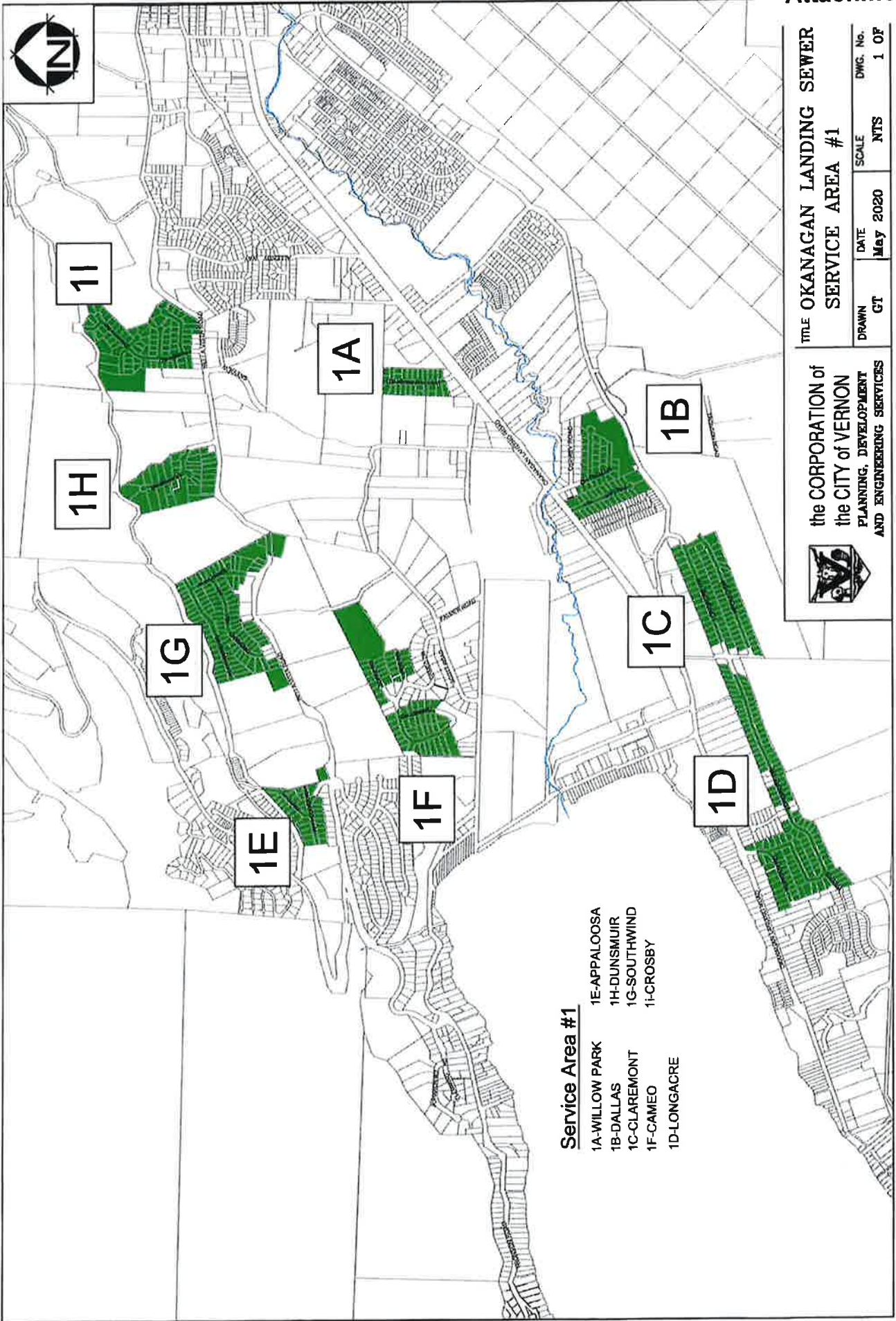
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Signer 3

Kim Flick, Director  
Community Infrastructure and Development


**REVIEWED WITH**

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| <input type="checkbox"/> Bylaw Compliance              | <input type="checkbox"/> Public Works/Airport | <input type="checkbox"/> Long Range Planning & Sustainability |
| <input type="checkbox"/> Real Estate                   | <input type="checkbox"/> Facilities           | <input type="checkbox"/> Building & Licensing                 |
| <input type="checkbox"/> RCMP                          | <input type="checkbox"/> Utilities            | <input type="checkbox"/> Engineering Development Services     |
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| <input type="checkbox"/> Human Resources               | <input type="checkbox"/> Parks                | <input type="checkbox"/> Transportation                       |
| <input checked="" type="checkbox"/> Financial Services |   | <input type="checkbox"/> Economic Development & Tourism       |
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**Service Area #1**

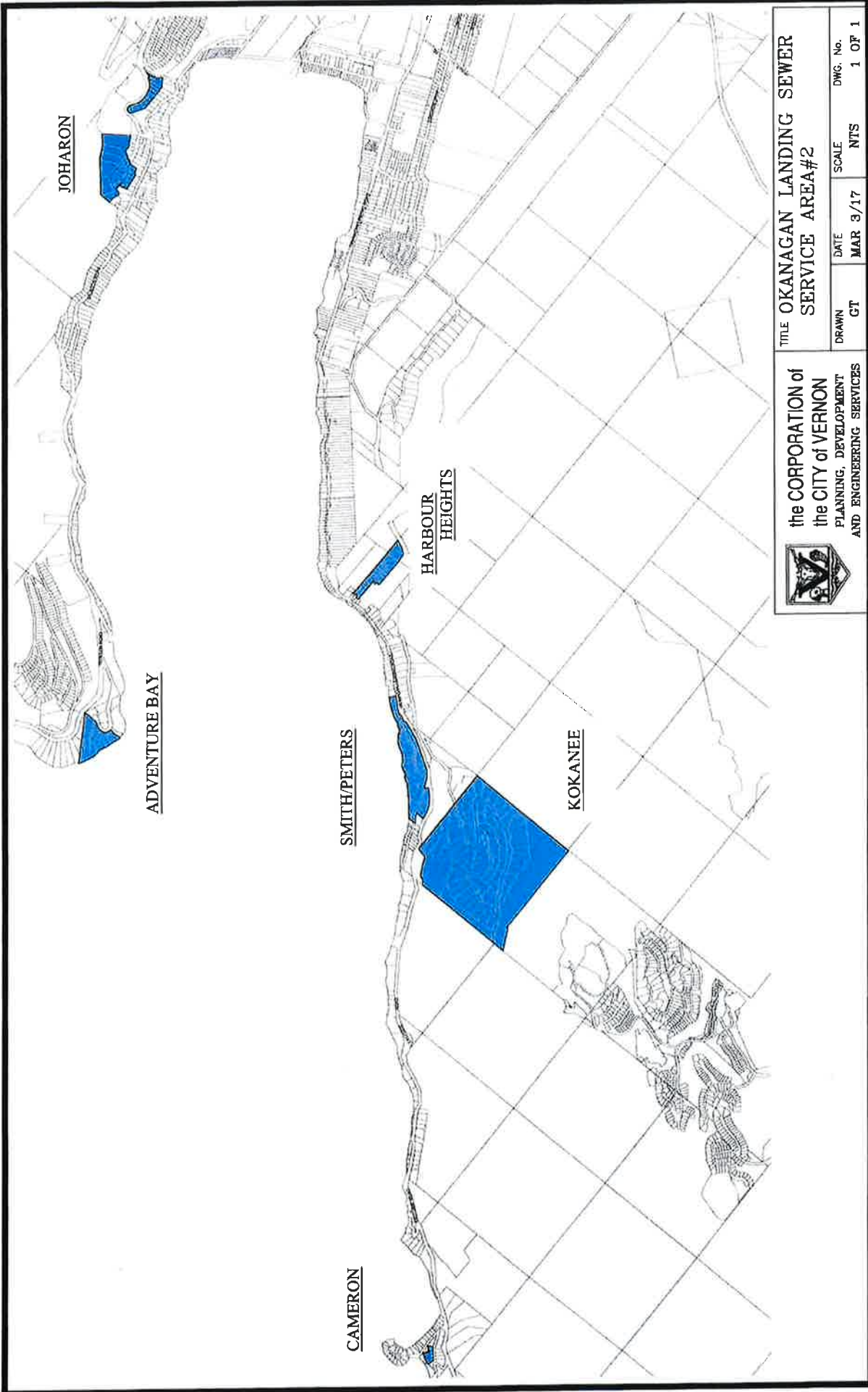
- 1A-WILLOW PARK
- 1B-DALLAS
- 1C-CLAREMONT
- 1F-CAMEO
- 1D-LONGACRE
- 1E-APPALOOSA
- 1H-DUNSMUIR
- 1G-SOUTHWIND
- 1I-CROSBY



the CORPORATION of  
the CITY of VERNON  
PLANNING, DEVELOPMENT  
AND ENGINEERING SERVICES

TITLE OKANAGAN LANDING SEWER  
SERVICE AREA #1

DRAWN	DATE	SCALE	DWG. No.
GT	May 2020	NTS	1 OF 1



		<b>TITLE OKANAGAN LANDING SEWER SERVICE AREA #2</b>	
the CORPORATION of the CITY of VERNON PLANNING, DEVELOPMENT AND ENGINEERING SERVICES	DRAWN GT	DATE MAR 3/17	SCALE NTS
		DWG. No. 1 OF 1	