Crown Isle
RESORT & GOLF COMMUNITY

Lannan Road Development (the site)
for Zoning Amendment Bylaw No. 2973
-
Preliminary Infrastructure Master Plan (PIMP)

2023 Airphoto from Google Maps

May 22, 2025

Revision 2

KOERS
& ASSOCIATES
ENGINEERING LTD.
Consulting Engineers

Parksville, BC

Date	Revision No.	Description
March 5, 2024	-	Draft Report to Client
March 11, 2024	-	For Review
March 14, 2024	-	Final Report
January 22, 2025	1	City Comments
May 22, 2025	2	City Comments

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May 22, 2025
9109-181-08

City of Courtenay
Development Services
830 Cliff Avenue
Courtenay, BC, V9N 2J7

Attention: **Marianne Wade**
Director of Development Services

Dear Sirs:

Re: Lannan Road Development (the site) for Zoning Amendment Bylaw No. 2973
Preliminary Infrastructure Master Plan (PIMP), Rev 2, Updated May 22, 2025

We are pleased to provide a pdf copy of our report entitled "**Lannan Road Development (the site) for Zoning Amendment Bylaw No. 2973, Preliminary Infrastructure Master Plan (PIMP), Revision 2**" dated May 22nd, 2025. This document is an updated version of the January 22, 2025 PIMP, which was revised to address the City's March 14, 2025 review comments. A copy of that review memo is included in Appendix D of this report.

At the City's request, the information contained in the "Street Hierarchy / Active Transportation Preliminary Master Plan" (SHATPMP) including McElhanney's Technical Memo, dated May 6, 2025, has in been incorporated into this revised PIMP as Appendix E. For ease of comparison, we have kept the same numbering system referenced in the City's March 14th, 2025 review letter.

Below is a summary of how each comment has been addressed:

I. While current plans for the Lannan development indicate approximately 230 units, both this PIMP and the appendix to this PIMP – McElhanney's Technical Memo for traffic – have addressed the Rezoning Bylaw density of 330 units.

II. It is our understanding that at an April 8, 2025 meeting between the City of Courtenay, MOTT, Silverado and McElhanney it was discussed that an updated TIA is not required for the Lannan development. It will be conducted at the time of the Town Centre and/or Local Area Plan stage of development. Appropriate growth rates / background traffic will be factored in at that stage.

III. The 330 DU are reflected in this PIMP update, see item I above.

IV. The proposed phasing is unchanged, the detailed design for each phase will rationalize the number of dwelling units for said phase.

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VI. Road hierarchy, cross-sections and all active transportation matters have been incorporated into this PIMP update.

VII. The McElhanney Technical Memo, which is an appendix to this PIMP update, states

"No additional road infrastructure (such as the extension of Royal Vista Way to Ryan Road) is required to support the traffic demand generated by the development. While the 2021 TIA assumed that the Royal Vista Way extension would be delivered by 2036, this was based on a projection of 100% build out of proposed commercial floor space and 62% buildout of proposed residential units by this date across the entirety of Crown Isle's lands. At present, there has been negligible movement towards these triggers."

We understand that the TIA update is not part of the Lannan development and will come later at the time of the Town Centre and the Local Area Plan applications, as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT.

VIII. The figures are updated and aligned, see Figure 3 in McElhanney Technical Memo.

IX. See response to VII.

X. The TIA update is not part of the Lannan development and will come later at the time of the Town Centre and the Local Area Plan applications, as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT.

XI. The previous technical traffic memos were developed to respond to localized areas that require additional analysis. For the Lannan development, the 2021 TIA and August 14, 2024 technical memo are relevant. This is outlined in the Background section of the McElhanney Technical Memo.

XII. We understand that the TIA update is not part of the Lannan development, and will come later as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT.

XIII. We understand that additional considerations will be addressed at the time of the TIA update. The TIA update is not part of the Lannan development and will come later at the time of the Town Centre and the Local Area Plan applications, as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT.

i. This is addressed this PIMP update.
ii. It is our understanding that the response time for the Lannan development was discussed at the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT, and work is not needed to address this comment.
iii. Additional road infrastructure, including dedicated left turn lanes at Royal Vista and Crown Isle Drive is not required to support the traffic demand

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generated by the Lannan development.

iv. It is our understanding that updates to the TIA future growth rate projections will be part of the full TIA revision as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT. The Lannan development uses the growth projections from the 2021 TIA, as discussed in the April 8, 2025 joint meeting with Silverado, the City of Courtenay and MOTT. See response to VII.

v. See response to VII.

vi. See response to VII.

XIV. See response to VII.

XV. The future alignment for Royal Vista Way is outlined in the 2022 OCP. Future works will indicate timing for detailed design of the intersections, see response to VII.

Below is a summary of how each PIMP review comment has been addressed.

XVI. Acknowledged, see pages 6 and 7 of this PIMP update.

XVII. This is addressed in the McElhanney Technical Memo.

XVIII. The McElhanney Technical Memo states "The existing road infrastructure is sufficient to accommodate the demand generated by the development." The intersections at Lannan Road/Anderton Road and Road A/Royal Vista Way are able to process new traffic without compromising level of service or inducing additional delay.

XIX. Section 5.1 has been revised to calculate the peak flow based on 330 units from the Lannan Site contributing to the Hudson trunk sewer. We understand that current sanitary modelling confirms the Hudson trunk has capacity for at least 9.4 L/s from the Lannan Lands.

XX. See item XIX.

XXI to XXII. See item XVII.

Item XXIII. Similar to Item XIX. The additional modelling for fire flow can be done during detailed design of Royal Vista Way so that the appropriate watermain size can be determined. The modelling, with the connection to the Atlas reservoir supply main, will confirm the available fire flow. The proposed buildings for MF 4 and MF 5 can be designed to fit within the available fire flow limits. Alternatively, if a higher fire flow is required, the developer of those buildings can determine and pay for any system upgrades required to increase the fire flow.

XXIV. See item XXIII.

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XXV. We understand that CVRD staff are taking active steps to rectify this item, and that operational adjustments are expected to improve the current situation. A specific phase that would trigger infrastructure upgrades to address this item has not been identified. Future subdivision or Development Approvals could be contingent on ensuring there is adequate water capacity to support that development.

XXVI. Acknowledged.

XXVII a. Acknowledged. To be determined during detailed design when the alignment has been determined.

Item XXVII b. The environmental considerations have been addressed in the second paragraph of Section 5 and in Section 1.3 of the Environmental Master Plan.

i. Acknowledged.
ii. Acknowledged.
iii. Acknowledged.
iv. A new meter does not need to be installed in a sanitary manhole at the Courtenay boundary because the trunk sewer routes back into the City of Courtenay before any new services are connected and there is already a meter located downstream at the CVRD boundary (Shown in Figure 4).

Further alignment and construction details to be determined during detailed design.

Based on a review of site conditions, an assessment of the development requirements and an evaluation of servicing options, we have presented a viable conceptual servicing design for the City to review and approve. We trust that this updated document is suitable to support the re-zoning application for this development. If you have any questions, or require further information to support this application, please contact our office at your earliest convenience.

Please call should you have any questions or need further clarification.

Yours truly,

KOERS & ASSOCIATES ENGINEERING LTD.

PROFESSIONAL ENGINEER
PROVINCE OF BRITISH COLUMBIA
R.J. HOFFMAN

Richard Cave, AScT., LEED Green Assoc.
Project Technologist
Permit to Practice Number 1001658

Rob Hoffman, P. Eng.
Project Manager

Crown Isle
RESORT & GOLF COMMUNITY

LANNAN ROAD DEVELOPMENT (THE SITE)
FOR ZONING AMENDMENT BYLAW No. 2973
PRELIMINARY INFRASTRUCTURE MASTER PLAN (PIMP)

Table of Contents

TABLES

FIGURES **After Page**

APPENDICES

1 OBJECTIVE

This Preliminary Infrastructure Master Plan (PIMP) is provided in support of the proposed rezoning of **Lot 1, Plan VIP76495, District Lot 206, Comox Land District**, a 16.8 ha (total) property located east of Britannia Way and west of Lannan Road. In the City of Courtenay staff report to council dated November 22, 2023 (Zoning Amendment Bylaw No. 2973), staff requested the following under the heading of "Conditions Prior to Adoption":

- "a Preliminary Infrastructure Master Plan (PIMP) is to be submitted and finalized," and
- "This Master Plan is to combine the relevant information from any previous servicing reports for the property and address City comments that have been provided."

We understand that this document will be included as a schedule in the Development Agreement.

The City included an exhaustive compilation of comments dating back to February 2019 in their summary document dated November 17, 2023. We note that many of the City's earlier comments have since been superseded by more recent staff comments. This PIMP document is provided to address these comments and supersedes the previously submitted Technical Memos 9109-181-TM #1, #2, and #3. After review of the March 14, 2024 PIMP, the City provided additional comments on June 5, 2024 (See Appendix C). In January 2025 a revised PIMP was submitted to the City, and additional review comments were provided by the City in their March 14th, 2025 review memo, which has been included in Appendix D. These comments have been addressed in this updated document.

The purpose of this updated PIMP is to provide an outline of the conceptual onsite and offsite servicing for this site, specifically:

- Road Network and Layout,
- Water System,
- Sanitary Sewer System,
- Shallow and other 3rd party utilities including,
    - Streetlighting,
    - Power and Communication (BC Hydro, Telus, Shaw Cable (Rogers) and Fortis BC),
    - Canada Post

This updated PIMP also includes commentary on the proposed development phasing as it relates to the construction of the infrastructure. As requested by the City, this revised PIMP also includes the traffic analysis technical memo prepared by McElhanney Ltd, which had been previously submitted as part of the Street Hierarchy/Active Transportation Plan. A copy of the McElhanney traffic analysis is included in Appendix E.

Detailed information on the proposed approach to Stormwater Management is provided in the accompanying report titled “Lannan Road Development (the site) for Zoning Amendment Bylaw No. 2973 Preliminary Stormwater Management Master Plan (PSMMP).

2 THE PROPERTY

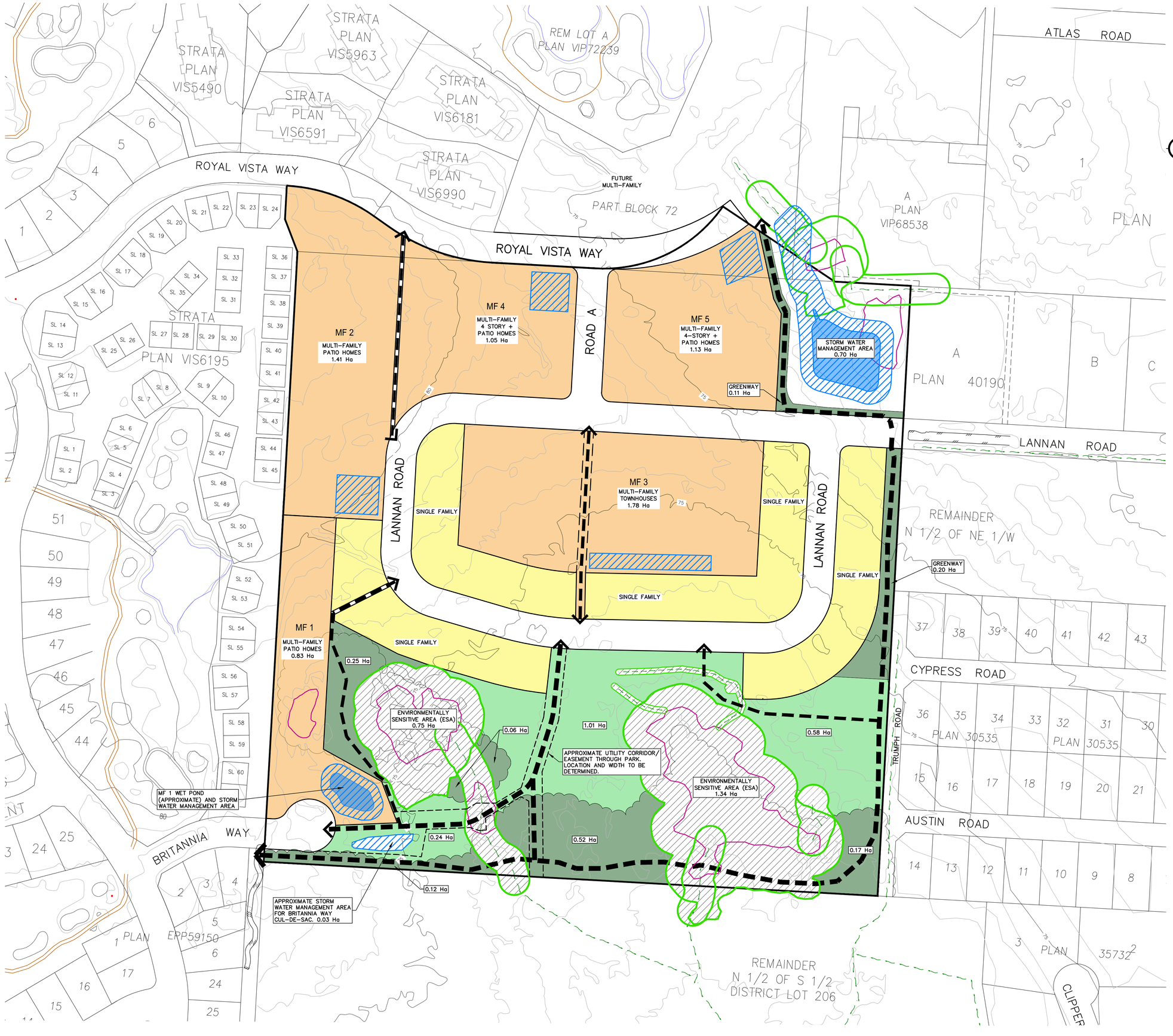
2.1 Location and Existing Topography

The property is 16.8 ha in size and is located southeast of the current endpoint of Royal Vista Way. The south and east property lines correspond with boundary between the City of Courtenay and the Comox Valley Regional District (CVRD), Electoral Area B.

The property is bisected by a local land ridge that runs in a west - southeast direction and is the drainage divide between the Brooklyn Creek catchment and the Little River catchment area.

Figure 1 shows the existing site topography and the preliminary development layout. This layout forms the basis of the preliminary servicing shown in this master plan.

Figure 2 shows the overall conceptual servicing for the development.



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RECORD OF REVISIONS

REV	DATE	BY	ENG	DESCRIPTION
1	11JUN24	RC		REVISED DEVELOPMENT BOUNDARY
2	21JAN25	RC		JANUARY 2025 PIMP
3	21MAY25	RC		MAY 2025 PIMP

- SINGLE FAMILY RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- PARK- WITHIN TREED AREAS / GREENWAY
- PARK- OUTSIDE TREED AREAS
- APPROXIMATE FUTURE STORM WATER MANAGEMENT AREAS
- PROPOSED GREENWAY/TRAIL
- BOUNDARY OF PROPOSED DEVELOPMENT
- APPROXIMATE EDGE OF EXISTING TREES/FOREST
- EXISTING WETLANDS, DRAINAGE
- WETLAND/DRAINAGE SETBACKS

1:1200 0 24 72

ISS	DATE	BY	ENG	DESCRIPTION

RECORD OF ISSUE

SEAL

PROJECT NO.	9109-181
DRAWN	RC
DESIGNED	
CHECKED	
APPROVED	
DATE	18JAN24
SCALE	1:1200

CLIENT

SILVERADO LAND CORPORATION

PROJECT

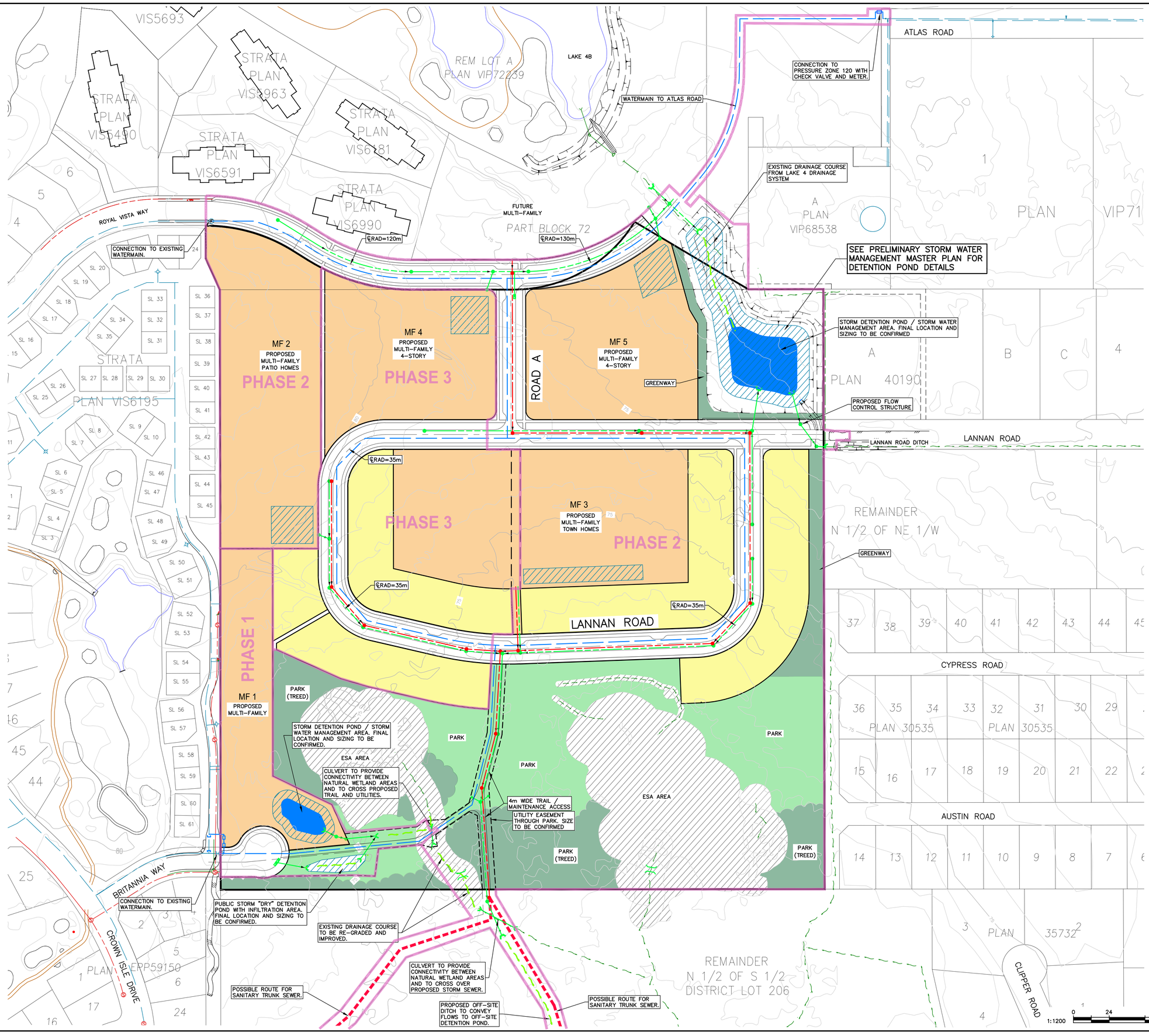
LANNAN ROAD DEVELOPMENT (THE SITE) FOR ZONING AMENDMENT BYLAW No. 2973

TITLE

PRELIMINARY INFRASTRUCTURE MASTER PLAN (PIMP)

CONCEPTUAL LAYOUT

DRAWING No.	REV.	SHEET
FIGURE 1	3	1/1



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RECORD OF REVISIONS

REV	DATE	BY	ENG	DESCRIPTION
1	21JAN25	RC	RH	JAN 2025 PIMP
2	21MAY25	RC	RH	MAY 2025 PIMP

NOTES:
1. THE CONTOURS SHOWN ARE APPROXIMATE, DERIVED FROM LIDAR DATA.
2. THE SERVICING CONFIGURATION SHOWN IS SUBJECT TO CHANGE.
3. THE LAYOUT SHOWN IS SUBJECT TO CHANGE.
4. SEE PRELIMINARY STORMWATER MANAGEMENT MASTER PLAN (PSMMP) FOR FURTHER DRAINAGE SYSTEM DETAILS.

LEGEND

- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED WATERMAIN
- PROPOSED ROAD
- PROPOSED SIDEWALK
- APPROXIMATE STORM DETENTION FACILITY
- SINGLE FAMILY RESIDENTIAL
- MULTI-FAMILY RESIDENTIAL
- NATURAL AREA / GREENWAY
- PARK- ACTIVE
- PROPOSED DEVELOPMENT PHASING BOUNDARY

1:1200 0 24 72

ISS	DATE	BY	ENG	DESCRIPTION

RECORD OF ISSUE

SEAL

PROJECT NO.	9109-181
DRAWN	RC
DESIGNED	RC
CHECKED	RH
APPROVED	
DATE	MARCH 2024
SCALE	1:1200

CLIENT

SILVERADO LAND CORPORATION

PROJECT

LANNAN ROAD DEVELOPMENT (THE SITE) FOR ZONING AMENDMENT BYLAW No. 2973

TITLE

PRELIMINARY INFRASTRUCTURE MASTER PLAN (PIMP)

CONCEPTUAL SERVICING PLAN

DRAWING No.	REV.	SHEET
FIGURE 2	2	1/1

File: 9109-181 PrelIm2.dwg Plot Time: May 21, 2025 - 8:08am User: rcove

3 CONCEPTUAL ROAD NETWORK and LAYOUT

The proposed roads, sidewalks, pedestrian trails and links are shown in **Figures 1 and 2**. The layout shows a mix of single family and multi-family development with a network of local roads accessing the development with connections to the existing sections of Royal Vista Way and Lannan Road. Britannia Way will be terminated with a cul-de-sac.

3.1 Road Classification

Lannan Road and the road labelled as Road A are classified as a Local Road - Alternative, while Royal Vista Way is a classified as a Residential Collector. **Figure 3** shows the proposed Local Road Section Alterative, CSSD.

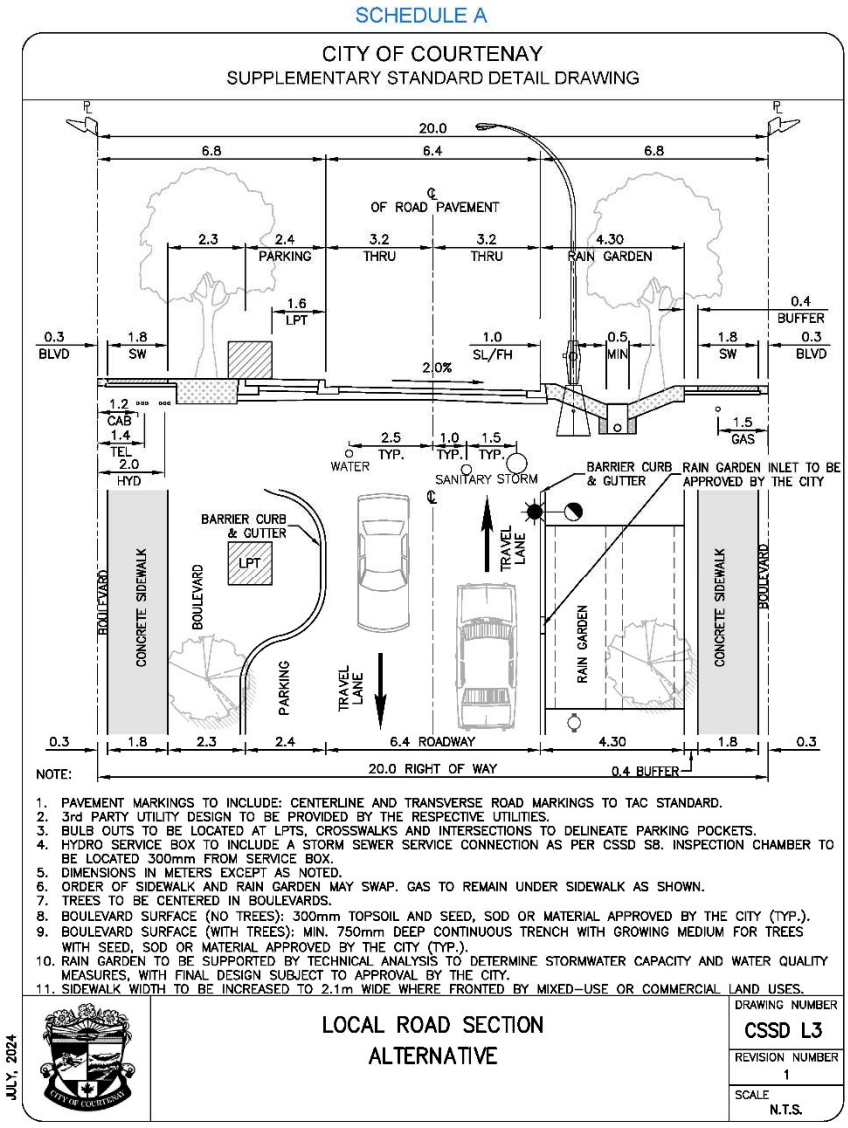


Figure 3 – Typical Road Section – Lannan Road and Road A

This new typical section has recently been adopted into Bylaw 2919. It provides a bio-swale on the low side (labelled as a "Rain Garden"), which will provide the infiltration facility required to meet the goals of the stormwater management system. This is discussed in detail in the accompanying PSMMP. It is important to note that the bio-swales do not run along the entire length of the roadways. These bio-swales will be located near the catch basins and strategically placed between driveways to avoid other utilities where possible. Please refer to the PSMMP for further details.

The Britannia Way cul-de-sac will follow CSSD R3. Although the cul-de-sac does not front any residential lots, a sidewalk on the north side is proposed to provide pedestrian connectivity to the proposed Park trail system. The local roads will have a minimum horizontal curve radius of 35 m, in accordance with Bylaw 2919 (2018).

Royal Vista Way will follow the City's "Collector Road Section, Residential - B" from Bylaw 2919, Drawing CSSD CRB which is shown for reference in **Figure 4**. The sidewalk widths will be increased to be consistent with the proposed local road sidewalk widths and to comply with the City's June 21, 2024 comments.

Curb bulb-outs are anticipated to be incorporated at the intersection with Road A, in accordance with Bylaw 2919 drawing CSSD R6. A mid-block pedestrian crossing is proposed where a pedestrian link from Lannan Road will connect to Royal Vista Way. Curb bulb-outs at this location will shorten the pedestrian crossing distance and increase pedestrian safety.

3.2 Active Transportation

The proposed Lannan Road Development will enhance public recreational spaces with new trails and the greenway along the eastern property boundary. The new greenway and trails will seamlessly connect both the road and trail network and create a linear corridor that will encourage low-carbon transportation choices with convenient, accessible and active ways to move through the neighbourhood as a pedestrian or cyclist. The greenway, as shown in the City of Courtenay Official Community Plan (OCP), the tree retention areas, the ESAs and the proposed bioswales in the innovative Local Road cross-section will contribute to the City's green infrastructure network.

This well-connected series of natural areas, greenway and trails complimented with a central park area in the southern portion of the site and will enhance livability for residents and visitors.

Royal Vista Way, included in the City's "Long Term Cycling Network" will include dedicated bike lanes on both side of the road as shown in **Figure 4**.

3.3 Transportation Impacts

Appendix E contains an analysis by McElhanney of the calculated traffic impacts associated with this development. Several findings are listed below including:

- Royal Vista Way and Lannan Road have sufficient capacity for the proposed development,
- No additional offsite road infrastructure is required due to this this development.

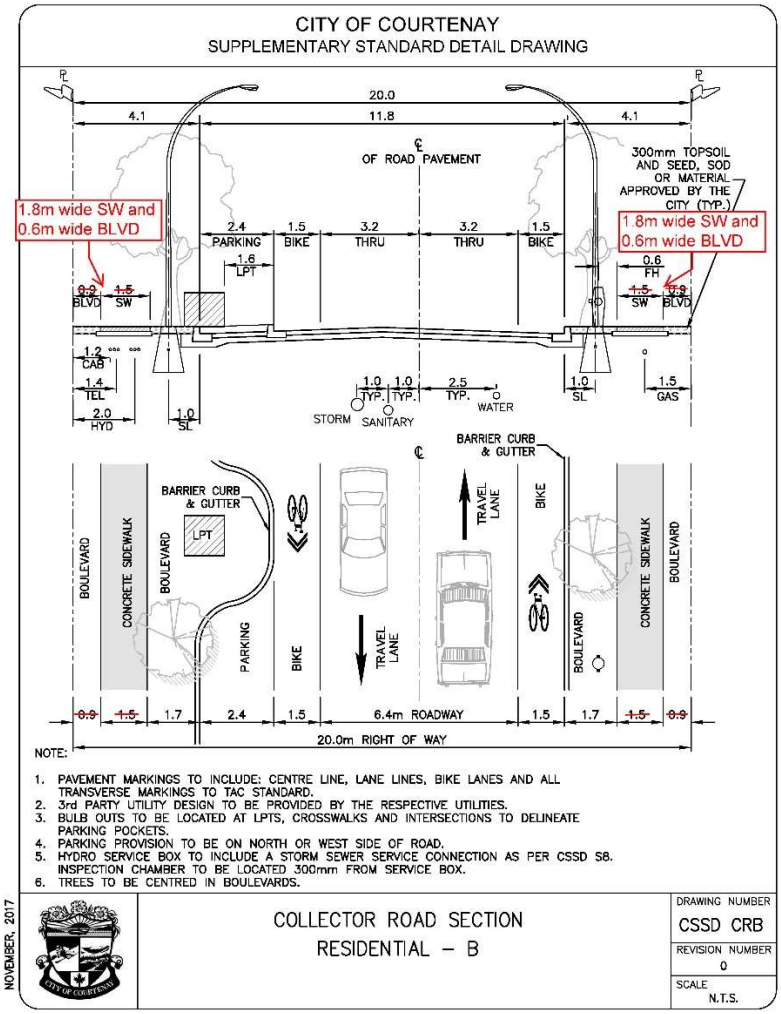


Figure 4 – Typical Road Section – Royal Vista Way

The changes to the sidewalk and boulevard widths address the City's June 21, 2024 comments and to provide consistency with the local road sidewalk widths.

Royal Vista Way will have minimum horizontal curves radii of 85 m in accordance with Bylaw 2919 (2018).

4 CONCEPTUAL WATER SYSTEM

Figure WS shows the conceptual water system for the development. A watermain network will be looped internally and will connect to the existing water mains on Britannia Way and Royal Vista Way. It is not expected that the new mains will cross any pressure zones, so the need for a pressure reducing valve is not anticipated.

4.1 Water Modelling and Fire Flows

The City's consultant, GeoAdvice provided a Technical Memorandum dated September 23, 2024. The report detailed the water distribution system analysis, using the proposed water system layout and sizing shown in the March 14, 2024 PIMP. This report is included in Appendix A. Although the proposed layout of the development has been revised, the proposed watermain configuration has not significantly changed. The findings in the report should still be valid. The future subdivision process will most likely require an update to this memo.

The report indicated that the proposed development, using the proposed fire flows provided (60 L/s for single family residential and 90 L/s for multi-family patio homes) "does not trigger any new pressure or fire flow deficiencies in Pressure Zone 138." The GeoAdvice report did not include modelling of the existing private system within the Brittania multi-family development. GeoAdvice indicated that they were unable to provide a report for private developments within the City. The report also did not consider and model a connection to the CVRD's supply main (Pressure Zone 120), near the Atlas Road reservoir. Pressure Zone 138 (The East Courtenay Booster Station) services the higher elevation areas of Crown Isle, Ryan Road, Lerwick Road and surrounding areas. The higher pressure in this zone is provided by booster pumps located on Waters Place. The booster pumps draw water from the lower 120 Pressure Zone (East Courtenay Reservoir with a top water elevation of 120m) and increase the hydraulic grade line to 138m.

The proposed development layout includes two parcels where higher density, multi-story condos are proposed. These buildings will most likely be wood frame and will require a greater fire flow than a patio home development. Since these buildings have not yet been designed, a specific fire flow demand cannot be determined. However, estimates of the proposed floor area indicate that fire flows could be in the range of 190 to 220 L/s. This indicates that additional fire flow will likely be required before this type of development can be considered.

During a December 4, 2024 meeting with Comox Valley Regional District (CVRD) engineering staff we discussed the proposed connection to the 120m zone water supply main near the Atlas Road reservoir. Based on work previously undertaken for the CVRD, we can confirm that this connection will significantly increase the available fire flow on Royal Vista Way, enough for higher density, multi-story developments as proposed. **Figure WS** shows this connection.

The connection to the CVRD system near Atlas Road was planned decades ago. The existing 250 mm diameter watermain on Royal Vista Way will be extended and will connect to the CVRD's water

system near the Crown Isle / Atlas Road reservoir with a check valve and a meter. Although this connection will only be required to support the multi-story developments, Silverado Land Corporation is planning to include this connection in the Phase 2 works.

4.2 Regional District Water Capacity

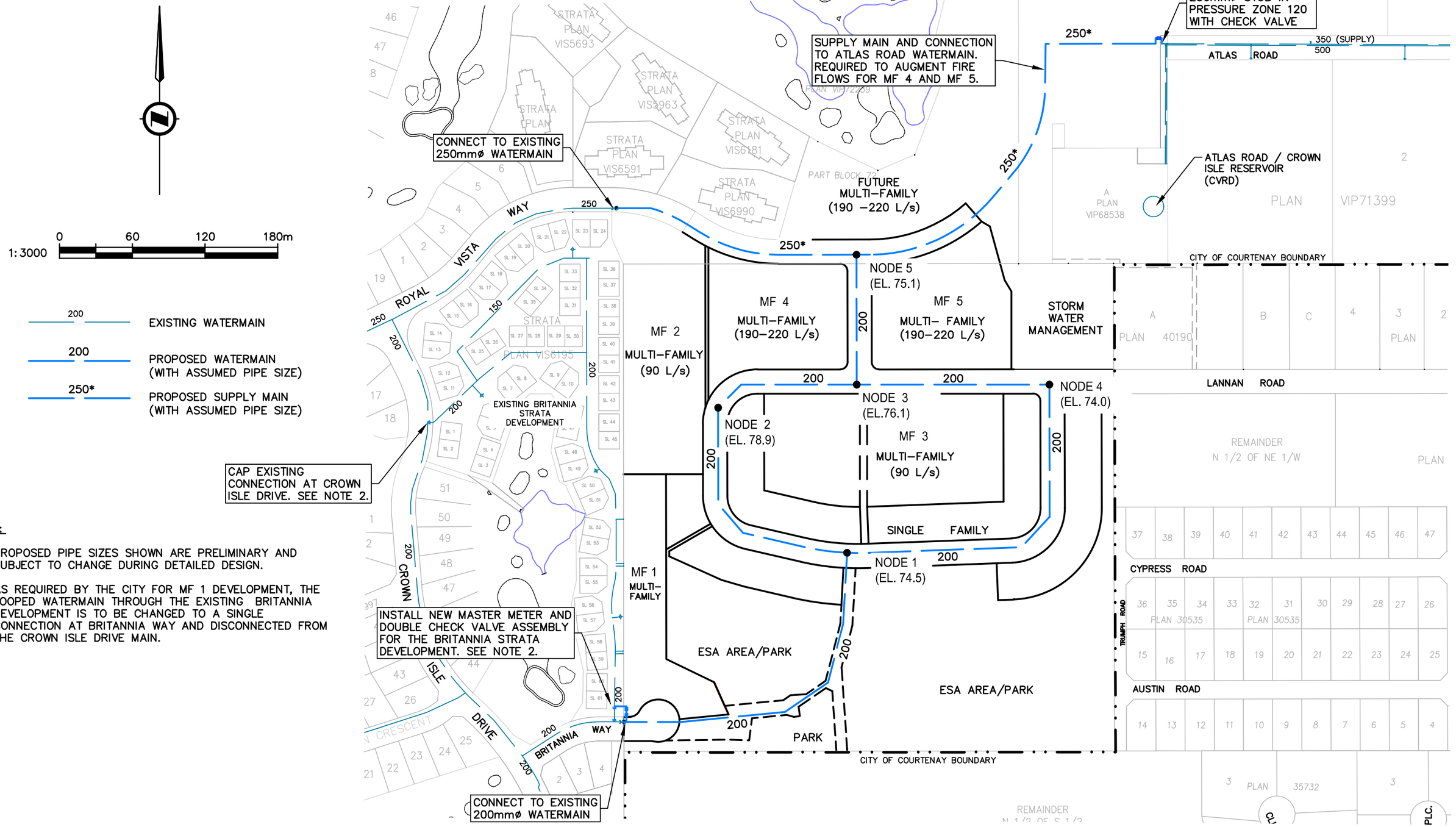
Discussions with the CVRD have indicated that the current 138m zone system experiences challenges during peak day demands. This is a separate issue from the fire demands, addressed in Section 4.1. The CVRD stated that the 138m zone experiences lower than desired pressures during peak day demand, when irrigation systems are straining the system during the summer months. CVRD staff is currently working with their consultants to develop mitigation strategies and operational adjustments (short term and long term), to alleviate this issue. We understand that the operational changes that the CVRD is considering will be implemented in the near future and do not require significant capital improvements.

4.3 Phase 1 – Britannia Multi-Family Development

Phase 1 of the development will see the construction of 10 patio homes added to the existing Britannia Strata Development. It is anticipated that these patio homes will be serviced with water from the existing 200 mm diameter watermain within the strata property. Currently, each unit in the Britannia Development has a metered connection and the watermain loops from Britannia Way to Crown Isle Drive. The City has indicated that the strata is to be supplied with water from a single metered connection, and that a looped system through the strata is no longer acceptable. Therefore, as a condition of this development, the City has requested that the current watermain on Crown Isle Drive be disconnected and a master meter and double check valve assembly be installed at the existing Britannia Way connection so that the entire development is metered through this single meter.

As mentioned previously, the City's consultant was unable to model the watermains within this development. However, the GeoAdvice report indicated that there is 120 L/s of fire flow available on Britannia Way, which is 33% more than the 90 L/s required. During detailed design of Phase 1, Koers & Associates will model the private system to confirm that there is at least 90 L/s available to the on-site fire hydrant system. If the model indicates that sufficient fire flow is not possible with a single connection, then the existing connection to Crown Isle Drive will be designed to include a check valve.

Figure WS shows the conceptual meter and double check valve assembly location on Britannia Way, which is to be confirmed during the detailed design process.



NOTES:

1. PROPOSED PIPE SIZES SHOWN ARE PRELIMINARY AND SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. AS REQUIRED BY THE CITY FOR MF 1 DEVELOPMENT, THE LOOPED WATERMAIN THROUGH THE EXISTING BRITANNIA DEVELOPMENT IS TO BE CHANGED TO A SINGLE CONNECTION AT BRITANNIA WAY AND DISCONNECTED FROM THE CROWN ISLE DRIVE MAIN.

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CLIENT: **SILVERADO LAND CORPORATION**

PROJECT: LANNAN ROAD DEVELOPMENT (THE SITE)
FOR ZONING AMENDMENT BYLAW No. 2973

TITLE: **CONCEPTUAL WATER SYSTEM**

APPROVED	
DATE	MAY 2025
PROJECT No.	9109–181
SCALE	1: 3,000
DWG No.	**FIGURE WS**

5 CONCEPTUAL SANITARY SEWER SYSTEM

A network of gravity sanitary sewer pipes will convey the sewage to a location on Lannan Road. The gravity sewer system will head south through the proposed park to the south property boundary and cross into the CVRD (Remainder N ½ of S ½ District Lot 206). A trunk gravity sewer, owned by the City, within an SRW, will convey the sewage to the southwest, connecting to City manhole 4-1099, located east of Crown Isle Drive on the existing greenway trail. This manhole is immediately upstream of manhole 4-1098 which is the limit of the City of Courtenay system and is the start of the CVRD's Hudson Trunk Sewer.

Figure SS shows two potential trunk sewer route options that are being considered. Route A continues south to Lot C, Plan 27276, then west to the existing greenway. Route B traverses west, utilizing an existing access road to the greenway. Although the overall pipe lengths are similar, Route B cuts through a high point in the topography resulting in a deeper sewer than Route A. Detailed design, along with discussions with the City will be required to confirm the appropriate trunk sewer route. Environmental aspects will also be considered in the decision, although both routes do not cross environmentally sensitive areas. The route selected will require an SRW in favour of the City, in lands beyond the City's boundaries. We understand that the owner of both properties has given approval to build and register SRW's on the properties.

The 10 units proposed for the Phase 1 development will be serviced by the private 200 mm diameter sanitary sewer already located within the existing Britannia strata development. This sewer connects to the City owned manhole 4-546 located on Britannia Way.

5.1 Sanitary Sewer Modelling

The City's consultant, GeoAdvice provided a Technical Memorandum dated August 20, 2024. The report detailed the sanitary sewer collection system analysis, using the proposed sewer loading and sizing shown in the March 14, 2024 PIMP. This report is included in Appendix B. Although the proposed layout of the development has been revised, the proposed sanitary collection system configuration has not significantly changed and the findings in the report should still be valid. The report indicated that "there are zero (0) existing deficiencies without the development. The development triggers zero (0) additional deficiencies under the existing scenario."

The sanitary loading provided in the March 14, 2024 PIMP for modelling indicated a total of 247 units. At the request of the City, the sewer capacity for 330 units from the Lannan Site, entering the Hudson Trunk sewer is to be proven. Despite the current development layout (**Figure 1**) showing a total of about 252 units contributing to the Hudson Trunk Sewer, the following calculation shows the peak flow from a total of 330 units is estimated at 9.4 L/s. Updated values for population density were outlined in an April 22, 2025 email from the City. A copy of this email correspondence is included in Appendix F.

From Section 3.2 "Per Capita Flow" of the Bylaw 2929 (2018), the design flows applied to this development are as follows:

- Average Dry Weather Flow (ADWF): 360 L/c/d
- Population: 2.1 Capita average SF lot and MF unit (1)

From MMCD Sections 3.4 to 3.6

- PF = $3.2/p^{0.105}$ (P=population in thousand rounded to nearest thousand).
- Infiltration: 0.06 L/s/ha
- Design Flow Q=(ADWF x PF) + Infiltration

Table 2 – Preliminary Sanitary Sewer Flows from Proposed Development

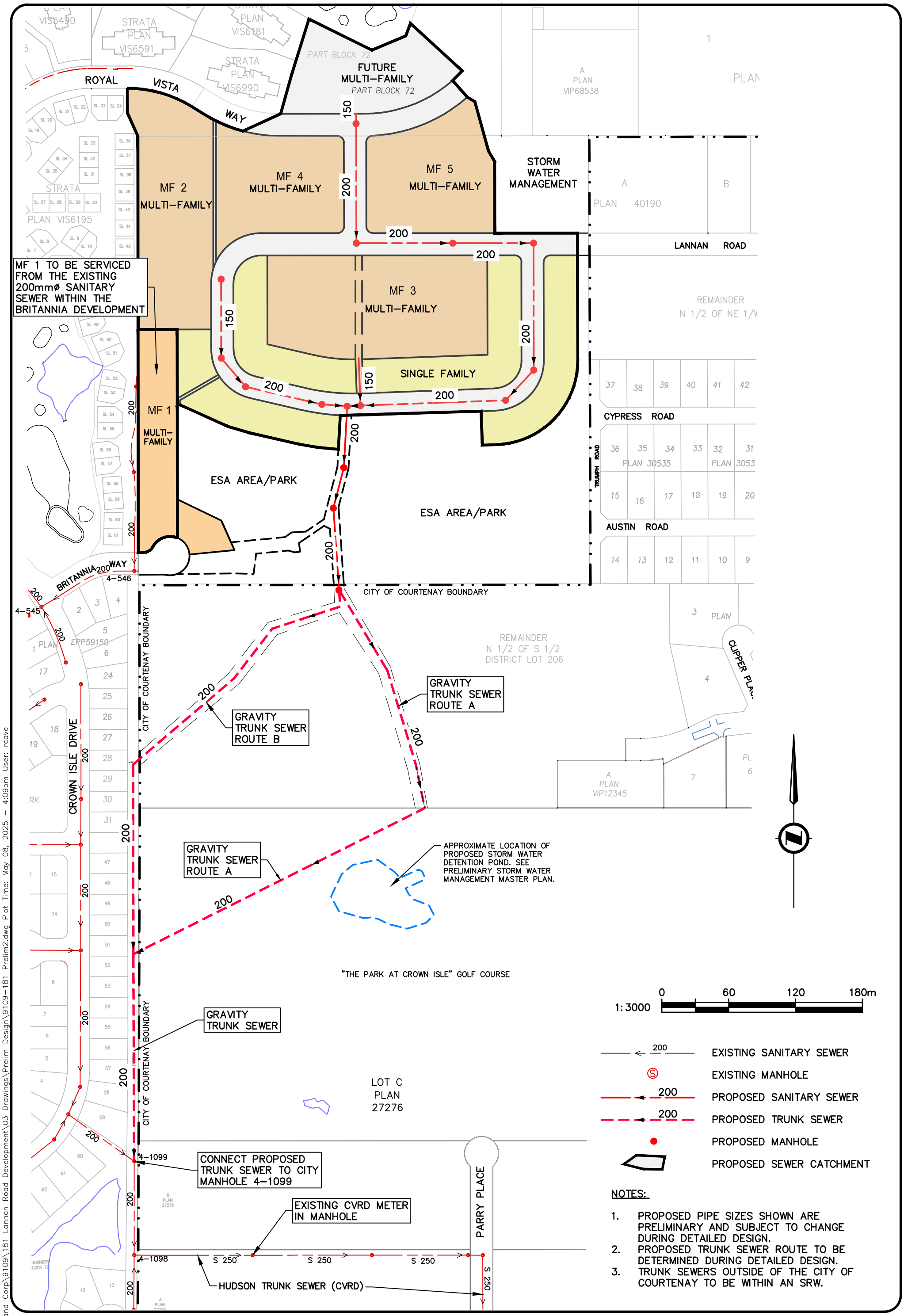
Manhole Number	Assumed Number of New Dwelling Units	Projected Population (2)	Catchment Area (Ha)	Estimated Peak Flow from development (L/s) (3)
4-1099	320	672	11.0	9.1
4-546	10	21	0.7	0.3

Notes:

1. Per capita population values outlined in the City of Courtenay April 22, 2025 email.
2. The design populations shown are assumed, based on a total of 330 units.
3. The peaking factor used (3.0) to calculation peak flow is based on a population of 1800 contributing to the Hudson Trunk Sewer at the City of Courtenay boundary.

5.2 Comox Valley Regional District Trunk Sewer

We understand that the CVRD's consultant has modelled the estimated flows from the proposed development and has found that there is adequate capacity in the downstream Hudson Trunk sewer for the proposed development, including the future 40 unit development on Royal Vista Way.



NOTES:

1. PROPOSED PIPE SIZES SHOWN ARE PRELIMINARY AND SUBJECT TO CHANGE DURING DETAILED DESIGN.
2. PROPOSED TRUNK SEWER ROUTE TO BE DETERMINED DURING DETAILED DESIGN.
3. TRUNK SEWERS OUTSIDE OF THE CITY OF COURTENAY TO BE WITHIN AN SRW.

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Consulting Engineers
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Parksville, BC V9P 2G8
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Ph: 250-248-3151
Fax: 250-248-5362

CLIENT: SILVERADO LAND CORPORATION

PROJECT: LANNAN ROAD DEVELOPMENT (THE SITE) FOR ZONING AMENDMENT BYLAW No. 2973

TITLE: CONCEPTUAL SANITARY SEWERS

APPROVED	SCALE 1:3,000
DATE MAY 2025	DWG No. FIGURE SS
PROJECT No. 9109-181	

6 CONCEPTUAL SHALLOW UTILITIES

6.1 Streetlighting

It is anticipated that the streetlighting for this development will be designed by others, within the guidelines of Bylaw 2919 (2018). We do not anticipate any unusual or special considerations.

6.2 BC Hydro, Telus and Shaw Cable

We understand that a 3-phase conduit system already exists on Royal Vista Way. BC Hydro, Telus and Shaw Cable (Rogers) will be responsible for planning and designing an electrical and communications system to meet the needs of the proposed development. There is adequate space within the road right of ways to meet the utility offsets for these systems as required in Bylaw 2919. However, the extent and configuration of the proposed energy and communication plant will be determined by each utility during the detailed design process. We do not anticipate any unusual or special considerations.

6.3 FortisBC Gas

It is anticipated that this development will be serviced with gas. Existing gas mains are located on both Royal Vista Way and Britannia Way. Fortis BC will be responsible for planning and design of the gas delivery system within the development. Given past installations in similar circumstances we do not anticipate any unusual difficulties.

6.4 Canada Post

The locations of additional community mailbox facilities have not yet been determined and will require input from Canada Post during the detailed design stage. Given past installations in similar circumstances we do not anticipate any unusual difficulties.

7 DEVELOPMENT AND SERVICING PHASING

The proposed development has been divided into three distinct phases with Phase 1 including the Britannia Way cul-de-sac and the 10 unit patio development. Phase 2 includes most of the remainder of the development and Phase 3 includes Lannan Road, west of Road A and MF 4. Phase boundaries are approximate and subject to change.

7.1 Phase 1 – Britannia Way Cul-De-Sac and MF 1

This phase involves extending Britannia Way and the development of a proposed 10-unit expansion to an existing strata. The 0.83 ha patio home development will be accessed and serviced internally with water and sanitary sewer from within the existing Britannia strata development.

7.1.1 Roadworks

The site will be accessed by an existing driveway on Britannia Way. Britannia Way will be extended to provide legal frontage to MF 1 and it will be terminated with a new cul-de-sac. The trail system and extension of the watermains will be part of the Phase 2 works.

7.1.2 Watermains, Sanitary Sewers and Shallow Utilities

We anticipate that the 10 new units will be serviced with water, sanitary sewer and shallow utilities internally from within the existing Britannia development. The new master meter and double check valve assembly will be installed near the property line on Britannia Way (See **Figure WS**). The existing watermain on Britannia Way will be extended east through the cul-de-sac and under the future 4m wide maintenance access trail and past the detention pond and outlet pipe.

7.1.3 Drainage

The on-site detention system will be sized in accordance with Bylaw 2919 and will follow the guidelines for on-site volume reduction listed in the previously mentioned PSWMP drainage report. The detention storage will include additional detention volume to comply with the requirements in the Town of Comox Anderton Corridor Servicing Study-Volume 1, Stormwater Management Plan, May 9, 2023 update (ACSS). Minimum infiltration volumes and areas will also be included to comply with the ACSS. This additional level of detention storage is required because this phase of development will not be within the catchment area of the larger downstream detention pond that will be constructed in Phase 2. See the accompanying PSMMP for further details. An additional small detention pond and infiltration facility will be constructed to treat the drainage from the Britannia Way cul-de-sac. It is anticipated that the 4m wide park access trail will be rough graded and the ditching to the future culvert will be completed in this phase.

7.2 Phase 2 – Royal Vista Way, Road A, Lannan Road, MF 2, MF 3, MF 5

This phase involves the construction of Royal Vista Way, Road A and the portions of Lannan Road east of Road A. Phase 2 will also include the servicing for the MF 2, MF 3 and MF 5.

7.2.1 Roadworks

The roadworks for this phase includes the construction of:

- Royal Vista Way.
- Road A.
- Lannan Road, east of Road A.

7.2.2 Watermains and Shallow Utilities

All of the remaining watermains and other shallow utilities will be constructed, with exception of the watermains on Lannan Road west of Road A. This phase will include the extension of the watermain from Royal Vista Way to Atlas Road and the connection to the CVRD supply main in the 120 zone. This connection is anticipated to include a check valve and meter.

7.2.3 Sanitary Sewers

The sanitary sewers needed to service this phase will consist of both on and offsite works as described below:

- The construction of all on-site sanitary sewers and,
- The construction of all the off-site sanitary trunk sewer connecting to the City sanitary sewer at manhole 4-1099. See **Figure SS**.

7.2.4 Drainage

The drainage system needed to service this phase will be consist of both on and offsite works as described below:

- The construction of all on-site storm sewers, including the volume reduction facilities described in the PSMMP, except parts of Lannan Road west of Road A, and
- The construction of the off-site drainage works within the Brooklyn Creek catchment area. The works are generally located south of the development, and include the off-site ditching, detention pond and Parry Place storm main noted on **Figure 2** and described in detail in the PSMMP.
- Construction of the Lannan Road detention pond and related works.

7.3 Phase 3 – Lannan Road (West of Road A), MF 4

This phase involves the completion of Lannan Road A and servicing of MF 4.

7.3.1 Roadworks

The roadworks for this phase includes the construction of:

- Lannan Road, west of Road A.

7.3.2 Watermains and Shallow Utilities

The remaining watermains and other shallow utilities on Lannan Road will be constructed.

7.3.3 Sanitary Sewers

The remaining sanitary sewer works on Lannan Road will be constructed.

7.3.4 Drainage

The remaining drainage works on Lannan Road will be constructed.

APPENDIX A

Technical Memorandum, City of Courtenay Water Distribution System Hydraulic Impact Analysis of the Lannan Road Development, GeoAdvice, September 24, 2024

Technical Memorandum

City of Courtenay Water Distribution System Hydraulic Impact Analysis of the Lannan Road Development

FINAL

Municipality: City of Courtenay, BC
Project ID: 2024-092-COU
Requested by: Koers & Associates Engineering Ltd.
Date: September 23, 2024
Location: Lannan Road, Courtenay BC

1. Introduction

GeoAdvice Engineering Inc. (GeoAdvice) was retained by City of Courtenay (City) to assess the hydraulic impact of a proposed development (development), located at Lannan Road, on the City of Courtenay (City) water distribution systems.

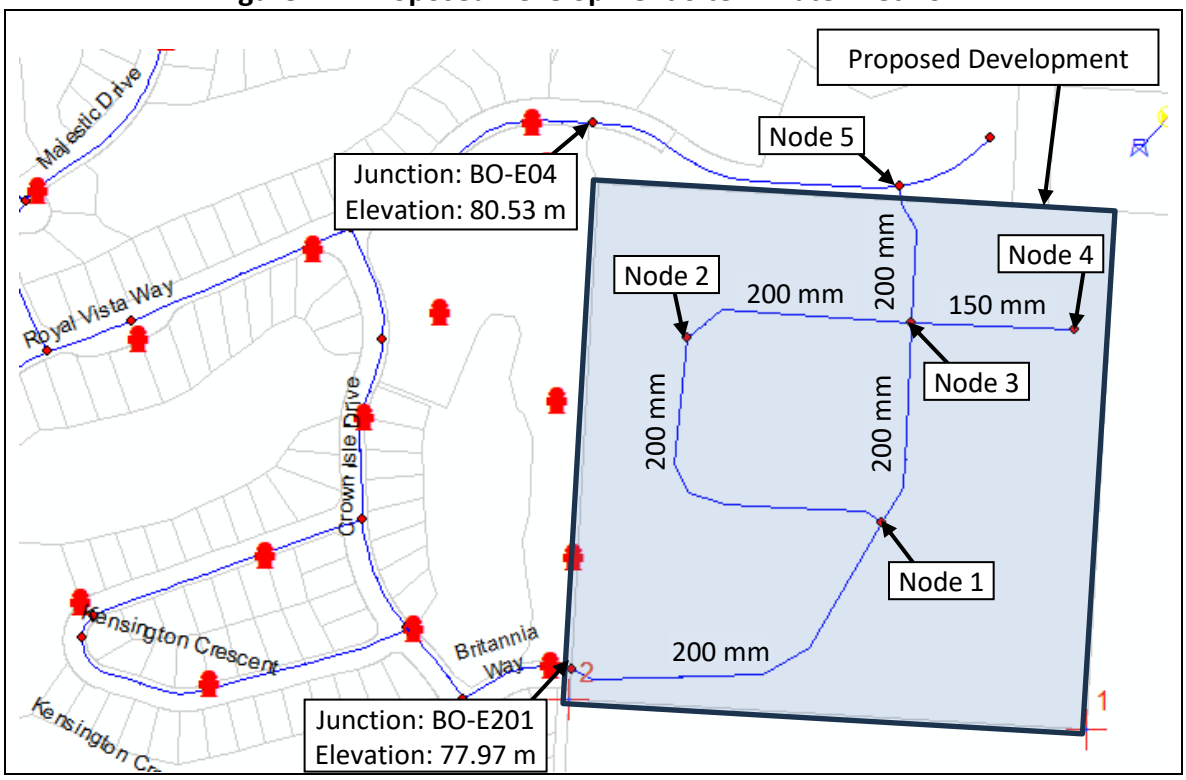
This memo describes the assumptions and results of the hydraulic modeling and capacity analysis using InfoWater (Innovyze Software). InfoWater is a GIS-based water distribution system modeling and management software application.

The City's InfoWater model updated in July 2024 was used to complete the hydraulic modeling and capacity analysis. In the latest City model, for the Lannan Road development a duplicate demand of 560 people was removed at Junction BO-E04 in the future scenario.

2. Water Distribution System Analysis

Figure 2.1 shows the proposed location of the development. The development will be serviced from the 250 mm PVC water main along Royal Vista Way at junction ID BO-E04 and 200 mm PVC water main along Britannia Way at junction ID BO-E201 as per Koers & Associates Engineering Ltd. site servicing report, located in pressure zone 138 of the City water distribution network.

Figure 2.1: Proposed Development Site – Water Network



2.1. Water Demands

Table 2.1 summarizes the demand rates applied to the development. The rates are based on the City of Courtenay Subdivision and Development Servicing Bylaw.

Table 2.1: Unit Demand Rates

Demand Condition	Demand Rate
Maximum Day Demand (MDD)	2,100 L/cap/day
Peak Hour Demand (PHD)	3,000 L/cap/day

Table 2.2 summarizes the development demands as calculated by Koers & Associates Engineering Ltd. GeoAdvice was unable to validate the Koers & Associates Engineering Ltd. water demand and fire flow calculations for the development. For the first scenario (Phase 1 only), the demands were calculated using the information provided by Koers & Associates Engineering Ltd. for 10 patio homes at 2.4 capita per unit.

Table 2.2: Development Water Demands

Node ID	MDD (L/s)	PHD (L/s)	Phase	Scenario
BO-E201	0.58	0.83	1	1
Node 1	2.6	3.7	All	2
Node 2	3.4	4.8	All	2
Node 3	1.8	2.6	All	2
Node 4	0.4	0.6	All	2
Node 5	5.6	8.0	All	2

Fire Flow values were allocated based on MMCD, the values are 60 L/s for single family residential and 90 L/s for apartments and townhouses.

Table 2.3: Development Fire Flows

Node ID	Land Use	Fire Flow (L/s)	Phase	Scenario
BO-E201	SF	60	1	1
Node 1	MF	90	All	2
Node 2	MF	90	All	2
Node 3	SF	60	All	2
Node 4	SF	60	All	2
Node 5	MF	90	All	2

2.2. Hydraulic Capacity Performance and Design Criteria

Based on the MMCD Design Guide Manual, the criteria outlined in **Table 2.4** was used to assess the hydraulic impact of the proposed development on the City water distribution system. The criteria below were also used to validate the development pipe sizes as shown in **Figure 2.1.**

Table 2.4: Hydraulic Performance and Design Criteria

Criteria	Analysis Scenario	Parameter Value
Minimum Static Pressure	PHD	44 psi
Minimum Residual Pressure	MDD+FF	22 psi

2.3. Hydraulic Capacity Analysis

Hydraulic and fire flow simulations were run with and without the proposed development, for two scenarios. Scenario 1 analysis was done for Phase 1 with one connection at Britannia Way under the existing scenario. Scenario 2 analysis was done for all phases with two connections at Royal Vista Way and Britannia Way, under both existing and future scenarios.

2.3.1. Development Pressure Analysis

The existing pressure results for Scenario 1 (with and without the development) at junction BO-E201 are presented in **Table 2.5.**

Table 2.5: PHD Development Pressure Modeling Results For Scenario 1

Node ID	Without Development	With Development
BO-E201	78.3 psi	78.01 psi

Furthermore, the existing and future pressure results with the development for Scenario 2 are summarized in **Table 2.6**.

Table 2.6: PHD Development Pressure Modeling Results For Scenario 2

Node ID	Existing With Development	Future With Development
Node 1	76.1 psi	61.7 psi
Node 2	71.8 psi	57.4 psi
Node 3	75.4 psi	60.9 psi
Node 4	78.9 psi	64.5 psi
Node 5	77.1 psi	62.6 psi

The results of the pressure analysis show that the proposed development pressures are not deficient under the existing and future scenarios with the development.

The results for PHD pressure modelling with the development are shown in **Figure 2.2** and **Figure 2.3** for existing and future scenarios (Scenario 2).

Figure 2.2: PHD Pressure Modeling Results With Development – Existing

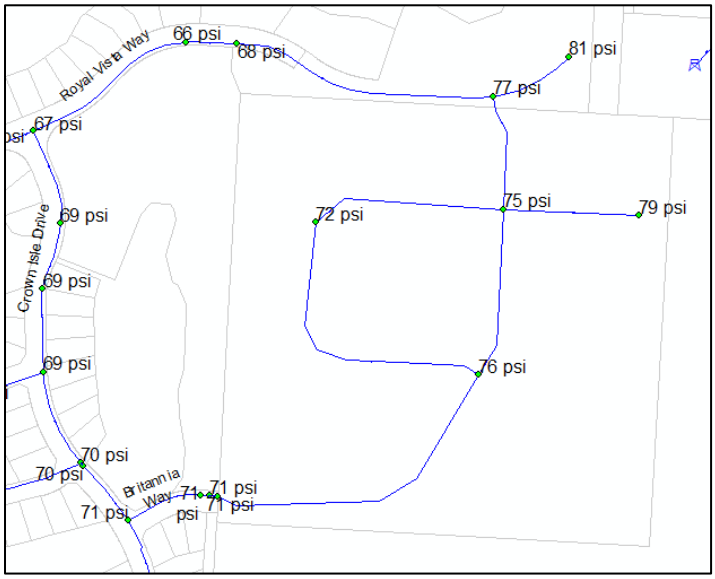
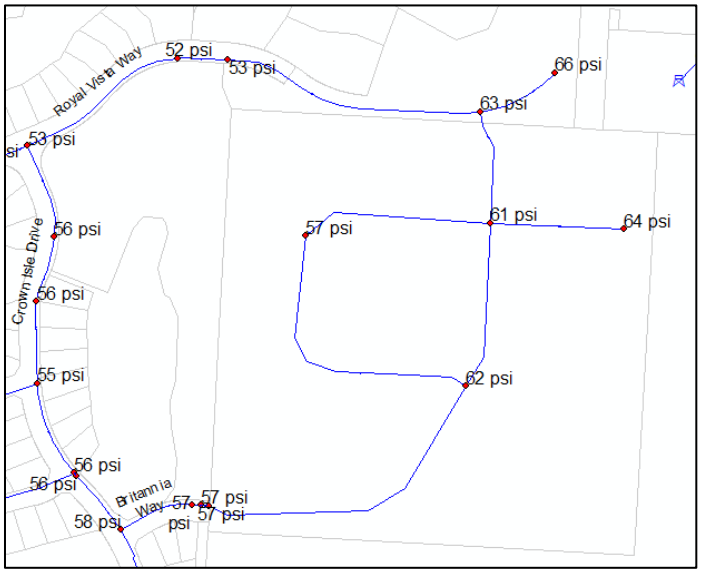


Figure 2.3: PHD Pressure Modeling Results With Development – Future



2.3.2. Development Fire Flow Analysis

The existing scenario fire flow modeling results are summarized in **Table 2.7** and **Table 2.8** for Scenario 1 and Scenario 2 respectively.

Table 2.7: Development Fire Flow Modeling Results – Scenario 1

Node ID	Required Fire Flow Development	Available Flow @ 22 psi
BO-E201	60 L/s	120 L/s

Table 2.8: Development Fire Flow Modeling Results – Scenario 2

Node ID	Required Fire Flow Development	Available Flow @ 22 psi
Node 1	90 L/s	137 L/s
Node 2	90 L/s	124 L/s
Node 3	60 L/s	136 L/s
Node 4	60 L/s	94 L/s
Node 5	90 L/s	156 L/s

As shown above, under Scenario 1 and Scenario 2, the available fire flow at 22 psi is greater than the required fire flow at each junction. The future Scenario 2 fire flow modeling results are summarized in **Table 2.9**.

Table 2.9: Development Fire Flow Modeling Results – Scenario 2

Node ID	Required Fire Flow Development	Available Flow @ 22 psi
Node 1	90 L/s	115 L/s
Node 2	90 L/s	105 L/s
Node 3	60 L/s	115 L/s
Node 4	60 L/s	84 L/s
Node 5	90 L/s	122 L/s

As shown above, under future Scenario 2, the available fire flow at 22 psi is greater than the required fire flow at each node.

Figure 2.4: Fire Flow Modeling Results With Development – Existing

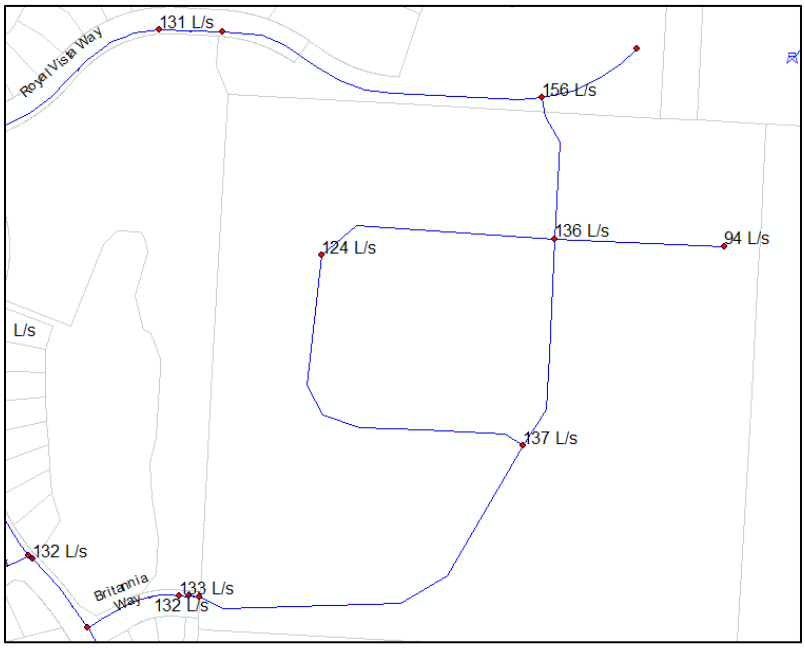
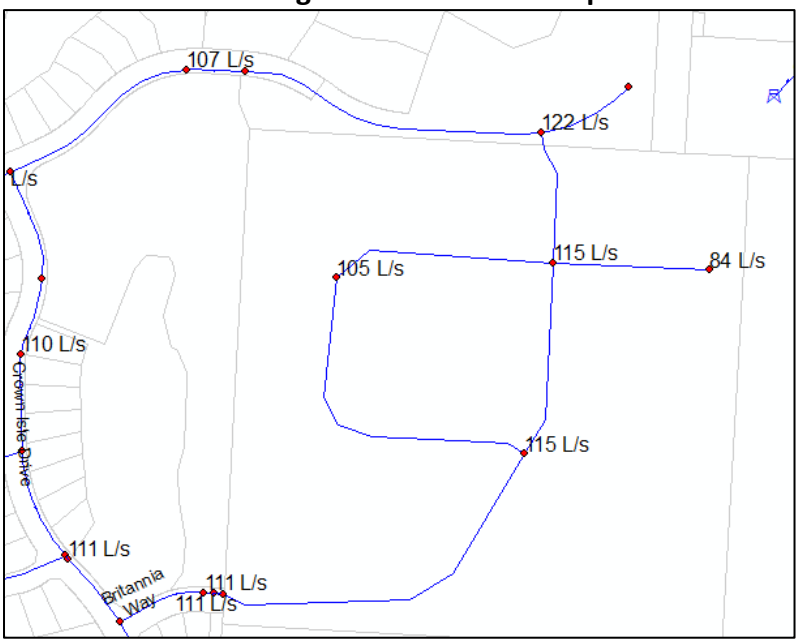


Figure 2.5: Fire Flow Modeling Results With Development – Future



2.3.3. Pressure Zone Impact Analysis

In order to assess the impact of the proposed development on the rest of the City water distribution system, simulation results from the model in pressure zone 138 were compared under Scenario 1 with and without the proposed development, as well as under Scenario 2 with and without the proposed development.

Table 2.10 and **Table 2.11** summarize the impact analysis in pressure zone 138 for both Scenarios 1 and 2.

Table 2.10: Pressure Zone Impact Analysis Summary – Pressure Zone 138

Scenario 1		PHD		MDD+FF	
		# of Low-Pressure Deficiencies	PHD Average Pressure (psi)	# of Fire Flow Deficiencies	Average Available Fire Flow (L/s)
Existing	Without Development	N/A	76.9	N/A	158.0
	With Development	+0	76.7	+0	157.8

Table 2.11: Pressure Zone Impact Analysis Summary – Pressure Zone 138

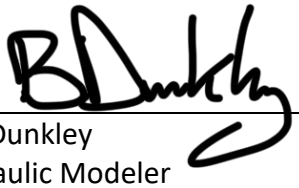
Scenario 2		PHD		MDD+FF	
		# of Low-Pressure Deficiencies	PHD Average Pressure (psi)	# of Fire Flow Deficiencies	Average Available Fire Flow (L/s)
Existing	Without Development	N/A	75.1	N/A	156.1
	With Development	+0	72.3	+0	153.6
Future	Without Development	N/A	66.6	N/A	141.9
	With Development	+0	64.0	+0	138.2

As summarized in the tables above, under the existing and future scenarios, the development does not trigger any new pressure or fire flow deficiencies in pressure zone 138.

The Courtenay Booster pump station is owned by Comox Valley Regional District and is the main feed to Pressure Zone 138. The District has confirmed with the City that the PS total capacity is limited to 262 L/s. Upgrades will be required to provide flows above 262 L/s including internal piping upgrades and additional pumping. The modeling completed in this memo did not assume any upgrade to the Courtenay Booster pump station.

Submission

Prepared by:



Ben Dunkley
Hydraulic Modeler

Reviewed and Approved by:

Werner de Schaetzen, Ph.D., P.Eng.
Senior Modeling Review

Revision No.	Date	Document Description	Revised By	Reviewed By
R0	August 28, 2024	Draft	Negar Shams	Werner de Schaetzen
R1	September 23, 2024	Final	Ben Dunkley	Werner de Schaetzen

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APPENDIX B

Technical Memorandum, City of Courtenay Sanitary Sewer Collection System Hydraulic Impact Analysis of the Lannan Road Development, GeoAdvice,
August 20, 2024

Technical Memorandum

City of Courtenay Sanitary Sewer Collection System Hydraulic Impact Analysis of the Lannan Road Development

FINAL

Municipality: City of Courtenay, BC
Project ID: 2024-092-COU
Requested by: City of Courtenay, BC
Date: August 20, 2024
Location: Lannan Road Development, Courtenay, BC

1. Introduction

GeoAdvice Engineering Inc. (GeoAdvice) was retained by the City of Courtenay (City) to assess the hydraulic impact of a proposed Lannan Road development (development) located south of Royal Vista Way, north of Britannia Way and extending on Lannan Road on the City sanitary sewer collection system.

The City's InfoSWMM model updated in July 2024 was used to complete the capacity analysis.

2. Sanitary Sewer Collection Analysis

The development will connect to the existing 200 mm PVC gravity main on Britannia Way (Manhole ID 4-546) and the existing 200mm PVC gravity main on easement southeast of Crown Isle Drive (Manhole ID 4-1099). Flows from the development will be conveyed to the Comox Valley Regional District (CVRD) main northeast of Sussex Place then to the outfall. The extent of the analysis was limited to the downstream pipes from the development to the discharge into the CVRD main, as shown in red on **Figure 2.1** on the following page.

2.1. Sanitary Sewer Load

The development load as calculated by Koers & Associates is summarized in **Table 2.1**. GeoAdvice was unable to validate the sanitary sewer loads for the development.

Table 2.1: Development Sanitary Sewer Load

Manhole #	Peak Wet Weather Flow (PWWF)
4-1099	8.8 L/s
4-546	0.5 L/s

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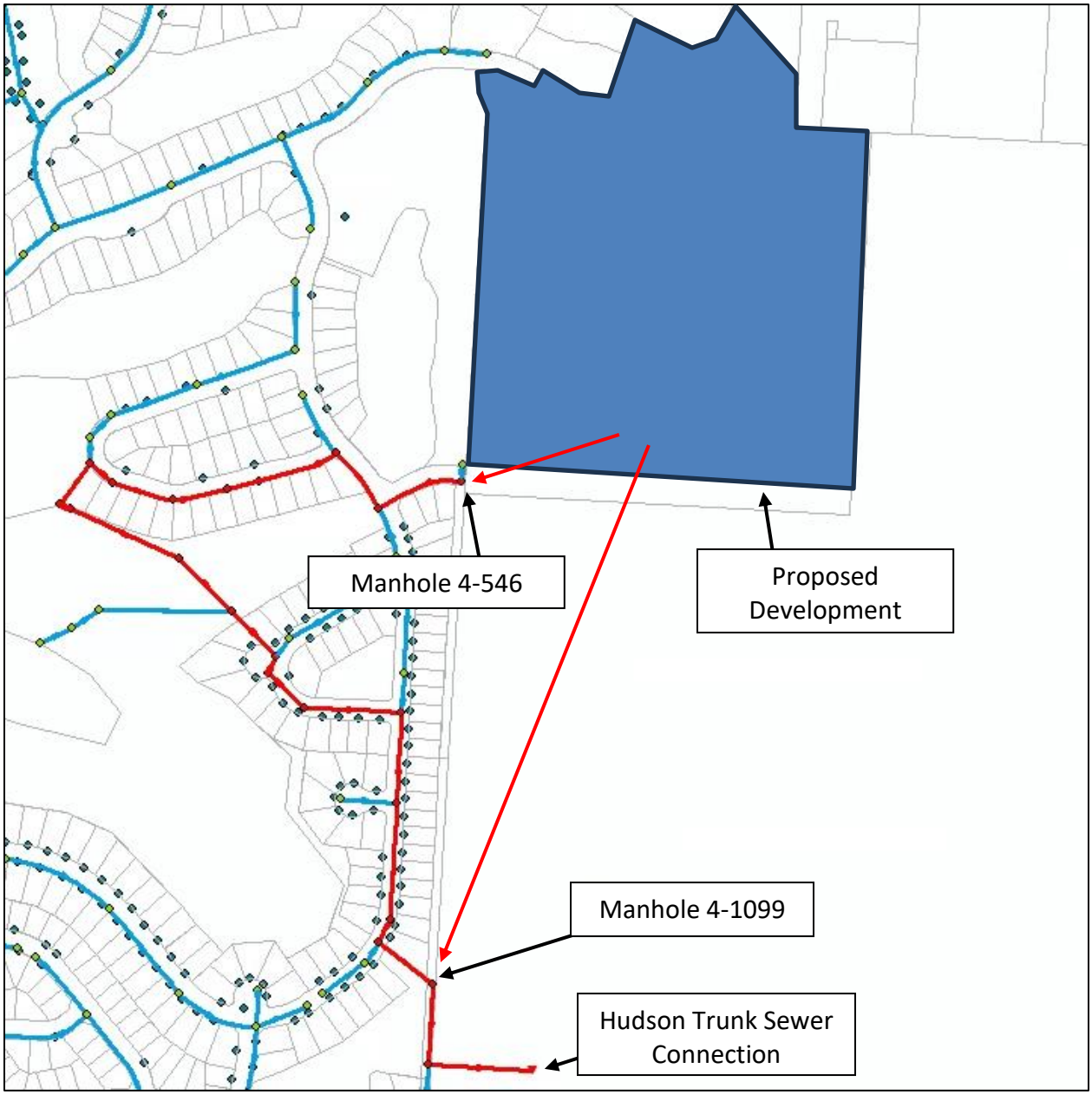
Port Moody, British Columbia
V3H 2B4 Canada
Tel (604) 931-0550

Figure 2.1: Pipe Capacity Analysis Extent



Unit 203, 2502 St Johns Street
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2.2. Hydraulic Capacity Results

Simulation results from the model were compared with and without the development for the existing scenario. Only the pipes downstream of the development's discharge location were included in the comparison below, as these are the only pipes affected by the proposed development's discharge. **Table 2.2** summarizes the existing gravity main results both with and without the development.

Table 2.2: Gravity Main Modeling Results – Existing PWWF Scenario (Number of Gravity Mains Downstream of Proposed Development)

LoF* Rating	Description	PWWF Without Development	PWWF With Development
1	Gravity main performing as designed	2	5
2	Adequate capacity	18	15
3	Marginal capacity	0	0
4	**Capacity exceeded and surcharging likely**	**0**	**0**
5	**Capacity exceeded and flooding likely**	**0**	**0**

***Likelihood of Failure Rating.**

The table above shows that there are zero (0) existing deficiencies without the development. The development triggers zero (0) additional deficiencies under the existing scenario.

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Submission

Prepared by:

Jacky Lee, E.I.T.,
Hydraulic Modeler

Reviewed and Approved by:

Werner de Schaetzen, Ph.D., P.Eng.
Senior Modeling Review

Statement of Qualifications and Limitations

This document represents GeoAdvice Engineering Inc. best professional judgment based on the information available at the time of its completion and as appropriate for the project scope of work. Services performed in developing the content of this document have been conducted in a manner consistent with that level and skill ordinarily exercised by a member of the engineering profession currently practicing under similar conditions. No warranty, express or implied is made.

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Port Moody, British Columbia
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APPENDIX C

City of Courtenay Staff Review Comments
June 5, 2024

1. General Comments
    a. Lot layout maps and other maps are inconsistent need to work from a base map that aligns with Zoning Bylaw Map and reflects concept plan, need close attention to ensure that these are consistent with each other.
    b. There is no reference plan which is required for adoption documents.
    c. A subdivision plan will be required for creation of the development plan to coordinate with the Zoning Amendment Bylaw Map. Some language has been added to the May 31, 2024 revised DA.

2. Street Hierarchy/Active Transportation Preliminary Master Plan, March 13 2024, Westplan Consulting
    a. TIA:
        i. The Street Hierarchy / Active Transportation Preliminary Master Plan makes note of a Basic Transportation Review that will be submitted as part of each subdivision phase, but without an indication that a site-wide TIA will be produced. The City requires a site-wide TIA to help understand impacts on the surrounding street network. Language to this effect is in the May 31, 2024 revised DA.
        ii. This includes understanding of anticipated total site trip generation and trip distribution needed to understand impacts on surrounding network.
            1. What portion of trips will use Royal Vista Way / Ryan Road, Lannan Road / Anderton Road, or other routes
                a. MOTI likely wanting to understanding loading on Royal Vista Way / Ryan Road and Lannan Road / Anderton Road intersections
                b. Expectation that Royal Vista Way / Ryan Road will be signalized in future and that applicant should contribute toward costs
            2. Understanding of anticipated volumes on internal street is needed to confirm appropriate street classifications and cross-sections
                a. Desire to see sidewalks on both sides if Local Road volumes approach upper end of target volumes for classification (typically < 1,000 vpd)
    b. Cycling:
        i. Further consideration of site cycling opportunities needed relative to the City's overall Cycling Network Plan (CNP).
        ii. The section of Royal Vista Way west of the site is identified in the CNP as a Neighbourhood Bikeway and should be extended further east for the sections contained within the development
        iii. Dedicated cycling facilities (i.e., protected bike lanes, buffered bike lanes) are best practice for major roads given high traffic volumes and should be considered here. Royal Vista Way is proposed as a Collector Road and

consideration should be given to using cross-section CSSD CRD (www.courtenay.ca/EN/main/community/transportation/cycling-in-the-comox-valley.html), which includes dedicated cycling facilities.

c. Cross sections:
    i. Figure 3 in Koers Infrastructure matches with Figure 2 in Westplan Transportation Hierarchy – shows bioswale facilities
        1. City request 1.8-2.0m sidewalks (not 1.5m).
        2. Currently working on alternative local road cross-section for Phase VI and should be consistency with cross-section
        3. SDS to be amended to updated to permit this, and create a new standard.
    ii. Observing that McElhanney is designing in Phase 6 (north CI) and Koers is designing here – road cross sections need to be consistent.
    iii. MOTI will need this as part of signing the Bylaw (800m of controlled highway).

3. Preliminary Infrastructure Master Plan – March 14, 2024, Koers & Associates Engineering
    a. Modeling for both water and sanitary appear to be not included in this report. These will need to be undertaken and some language has been incorporated into May 31, 2024 revised DA.
    b. Capacity of CVRD's facilities and City's need to be factored to understand any constraints that may be generated by proposed development.
    c. Koers report indicates that constraints on the water system may not be sufficient for fire flows for example. Koers report needs to confirm fire flow capacity for proposed development.

4. Preliminary Stormwater Management Master Plan, March 14 2024, Koers & Associates Engineering
    a. In general, this is a preliminary plan that does not propose a specific design, and it raises a number of questions related to jurisdiction and land access. This may require legal guidance, and SRW's to resolve. Detailed comments below:
        1. Noted that latest version of layout/storm directions is favored as pre/post dev flows will remain same (previous version diverted some of Brooklyn's flow into Little River).
        2. Section 3.1.1 - Basements/crawlspaces should be avoided if it will require the conveyance of flows beyond the 10-year storm event.
        3. Section 5.1.1 - It is expected that there will substantially more stormwater conveyed through the private property located at 2205 Galleon Way. We may need an agreement/SRW across this property to avoid liability issues.
        4. Section 5.2 - The ownership, and maintenance responsibility of the stormwater pond on private property, within the CVRD needs to be confirmed. There may be legal/jurisdictional issues.

1. Recommended that City extend the blanket SRW Rich negotiated with Crown isle to cover all new stormwater infrastructure and the flow path of stormwater. This includes ponds, rain gardens, bioswales, ditches and utility corridors.

5. This report does not present a specific design or a commit to achieving particular standards. It calculates pond sizing using a couple of different methods, and summarizes these findings.
    1. Section 5.3 does not specify the final capacity of the stormwater pond.
    2. Section 6.5 - describes a variety of infiltration and volume reduction systems - These approaches would be beneficial across all phases of the development. The report is unclear about if and where these measures will be implemented.
    3. Section 7.1.2 and Section 7.1.3 indicate different design targets for the detention pond. It is unclear what is proposed for development.
6. Section 5.7 - it is proposed that flows released from the detention pond will be conveyed within the Parry Place road allowance in an enclosed storm sewer that is owned and maintained by the City of Courtenay.
    1. This area is outside our municipal boundary, require an SRW/Easement to maintain this infrastructure
    2. Has it been demonstrated that the existing ditches have the capacity to carry the 2024-06-05100-year flow path? Verify that the culverts in this ditch are sized for this, and will not cause flooding to private property along Parry Place.
7. Section 6.1 - who will own and maintain stormwater management facilities on multi-family lots? Require an SRW for the City to maintain this proposed infrastructure.
8. Section 6.6.1 - Table 16 and 17 present post development peak flows, storage volume and detention controls. The statement under these tables suggests that the values presented in Table 16 and 17 are estimates and are not based on site conditions.
9. MOTI has indicated they want a SRW from Pond 20 to Parry Place to be formalized.

5. Environmental Master Plan, March 2024, Corvidae Environmental Consulting
    a. The report is high level environmental overview of the property.
    b. The report identifies a variety of environmentally sensitive areas along the southern boundary of the property however, does not delineate the written breakdown into mapping graphics provided.
    c. ESA's in the report are based upon trembling aspens as presented in figure 2 but do not address the other ESA types noted in the report. Historical (2004) provincial Sensitive Ecosystem Inventory (SEI) information shows that all of Lannan RZ property was previously designated SEI (both Older Forest and Wetland Ecosystem).

d. The ESA need to be defined and mapped to determine the total area of ESA in the southern portion of the property. This will influence what will be ESA and what will be park. Further work is needed to determine this.
e. Two waterbodies (streams) are delineated in Figure 2 however, are not given any riparian buffers identified as ESA.
f. Report is not clear on what is considered an ESA in terms of protection moving forward with the development.
g. Third party review identity's a need for a wildlife corridor, this needs further discussion and how best to address moving forward.
h. Please review the City's EIA TOR: https://www.courtenay.ca/assets/Departments/Development~Services/OCP~Update/OCP-DPAs-Zoning~July~2022/EIA%20TOR%20web.pdf
i. Not delineating the ESA in this report, leads to what can be defined as Park and what can not. This will impact where park will be located to meet the 5% park requirements for subdivision calculations to inform a table for the property in the DA. How to address this needs situation needs further discussion and how to achieve this requirement in moving the development forward for Council consideration.
j. Desire for City's third-party consulting biologist to conduct a site visit. Need to get permission from CI. Developer's biologist encouraged to attend.

6. Lannan Parks Master Plan, March 13 2024, Bloom Landscape Architecture
   a. Park should be dispersed throughout development. Visually/gathering central part of development.
   b. As a note, in crown isle we are lacking a community park and as per PRMP and OCP planning standards, we should have a community park within 800m of residents at a minimum size of 1ha
   c. Concern that neighbourhood parks is split across a road (is technically 2 parks). Not a safe/ideal alignment. And threshold size for a neighbourhood park should be met (in one size). Either combine all in one location, or make two neighbourhood parks, each with a min of .2ha) spread through the development
   d. As per environment section, need to ensure that actual ESAs are not counted as Park. DA to reflect that Park needs must be met if ESAs are more present on property than reflected at this time.
   e. Need to quantify how much of the interactive/nature interpretation is part of the linear southern park and not part of ESA/tree area. Need to confirm if treed area is ESA and therefore not appropriate for park or human use.
   f. Shows dog park, but no play structure – programming needs discussion. These should also not be next to ESAs (co-location challenges). Dog parks need to be separated from children play areas.
   g. Little park nodes do not meet any classifications in parks plan - are acceptable as they appear to be additional to the 5% + deferral requirements. They're ideal for specialized uses such as dog and gardens.
   h. The plan does not include the parkland deferral from previous phases. Staff have shared those deferral numbers separately.
   i. 5-minute radius number needs to be re-centered on the park. 2024/06/05
   j. Observed that DA proposes parks improvements instead of original plan of CACs ($250K) this requires further discussion and has revised language in the DA sent on May 31, 2024.

APPENDIX D

City Memorandum dated March 14, 2025
Review of January 23, 2025 Master Plan Resubmissions

The Corporation of the City of Courtenay

Memorandum

To: **Brian McCauley,** Crown Isle **File No.:**3360-20-1911/OCP00007

From: **Marianne Wade, Director of Development Services** **Date:** March 14, 2025

Subject: Review of January 23, 2025 Master Plan Resubmissions

This memo is in response to the revised master plan submission package received January 24, 2025.

ISSUE:

I. The Rezoning was for 330 units (122 Single Family and 208 Duplex or Multi-family), reference in related memos and master plans is for 225 units, this needs to be addressed.

II. Previous technical memos have referenced a growth rate / background traffic of 1.9%, the most recent annual growth rate for the City as outlined in the Complete Communities Growth Assessment is 2.6 %over the past 10 years (2014-2024) and the future growth rate projection is 2.5%. This significant difference needs to be addressed by the authors of the various reports and be used for all future reports/modeling. This is particularly relevant for the TIA model.

III. Geo Advise modelling needs to reflect the population growth of 2.5% and the 330 DU that the proposed zone permits. This is the highest and best use of the site permitted by the proposed zone and the master plans need to address development at this density.

IV. The development phasing plan utilized in the reports need to identify how the 330 DU are proportion on the master plan.

V. Tree Density Targets are not mentioned in the overview environmental assessment review or parks plan. Please include.

VI. We suggest you address road hierarchy, cross-sections in the PIMP for better coordination.

VII. December 20, 2021 TIA identifies Royal Vista Way at Ryan Road intersection needs to be constructed. This is not mentioned in the PIMP or SHATPMP. This requirement is to be incorporated and has been raise by MOTT in their March 12, 2025 email regarding this TIA which has been requested to be updated by MOTT which the city supports.

<u>Street Hierarchy/Active Transportation Preliminary Master Plan (SHATPMP) dated January 23, 2025</u>

VIII. Figures 3, 4, and 5 do not reflect the conversation we had on August 15, 2024 on the Britannia road revision. See Sketch plan provided by Crown Isle.

IX. Page 4. States ‘At a future date, when warranted by trip generation, Royal Vista Way will connect to Ryan Road. The Lannan Road Development proposed density does not trigger this connection.”

a. This statement is ***in contradiction*** to the December 20, 2021 *Crown Isle Development at Royal Vista Way Intersection-Traffic Impact Assessment* and the August 14, 2024 technical memo noted but does not discuss how the master plan will meet the requirements in either report. There are key infrastructure timelines that must be met and inform the DA. Table 39 indicates when Royal Vista Way is to be constructed by 2036.

X. MOTT has noted in their March 12 2025 memo that the December 20 2021 is outdated and needs to be updated with the correct development composition. This incudes Crown Isle as a whole and needs to align with the CD-1 zone.

XI. Further other subsequent memos from December 2022 and April 2023 are not noted or referred to in this master plan. This includes the agreed to intersections by MOTT and the associated maps which form the framework for the Lannan Master Plan and development agreement. MOTT raises this in their March 12 email. This needs to be incorporated into the MP.

XII. Please note the Appendix A dated August 14, 2024 technical memo is not aligned with the December 20, 2021 TIA and makes statements that are contradictory to the December 2021 TIA. The Royal Vista Way Intersection is to be constructed and signalized by 2036 based upon the TIA of December 20 2021 and subsequent agreements with MOTT. (There is an intersection plan that was agreed to). Any variation from this requires a TIA that supports deferral from 2036 that can be supported by both MOTT and City.

XIII. Additional considerations in the updated TIA as requested by MOTT and City for Royal Vista / Ryan intersection construction must considered and speak to the following related criteria:

i) Continuity of Active transportation with Royal Vista as a bikeway and connecting trails and MUP's.

ii) Emergency services secondary and tertiary routes considering response times. I.e. Lannan is a rural road in an adjacent jurisdiction providing slower response times and risks related to access through the road for emergency services. Furthmore, Royal Vista at Crown Isle (nearest intersection) is one access point, with Lannan as a substandard secondary access. Due to distance, traffic controls and road width/parking the City would expect Royal Vista / Ryan Road access to be provided as per the December 20, 2021 Table 39 which identifies 2036.

iii) Internal congestion impacts such as warrant for dedicated left turn lanes at Royal Vista and Crown Isle Dr at the terminus of Royal Vista

iv) The Impact to LOS at adjacent intersections (i.e. LOS improvement with construction of Royal/Ryan intersection for the 5,10,15,20 year and buildout horizons on Anderton/Ryan, Crown/Ryan) needs to be updated with population growth of today and the proposed 330 units.

v) Transit requires a viable through road to provide internal service to Crown Isle, the City in promoting expanded transit service requires a demand management report on provision of transit with the Royal/Ryan intersection which is discussed in the December 20. 2021 TIA and needs to be reflected in this master plan-what is the timing and coordination with BC Transit?

vi) Approximately 1,770 units (McElhanney TM Dec 20, 2021) will benefit from the Royal Vista Way/Ryan Road intersection. The cost of the intersection must be

distributed equitably. The applicant is to demonstrate/propose how to accomplish that so it can inform the development agreement.

XIV. Development Agreement to identify what phase the Royal Vista Way to Ryan Road connection will be made and the requirements for infrastructure at that time (predesign showing signalization, laning, pedestrian/cycle access, lighting, etc.)

XV. Road Network Master Plan to include the future alignment and provisions for 'protecting' the access corridor from the intersection of Royal Vista Way/Road 'B' to the intersection of Royal Vista Way/Ryan Road.

XVI. Page 4. States 'Both Royal Vista Way and Britannia Way are Residential Collection Road, with the extension of Britannia along the Phase 1 frontage to the cul-de-sac matching the asphalt of the existing right-of-way.'

a. Existing curb return and pedestrian letdown at west side of access to strata development at end of Britannia should be removed and replaced with sidewalk, to be extended to tie into the proposed multi-use path at end of Britannia Way. A driveway letdown should be installed at the entrance to the existing strata development on Britannia Way.

XVII. The SHATPMP states on page 4 that 'there is no explicit requirement for pedestrian or cycling connectivity in the OCP…' but does state on page 2, in part, that "the new greenways and trails will seamlessly connect both the road and trail network and create a linear corridor that will encourage low-carbon transportation choices…as a pedestrian or cyclist.

a. The report should reference the 2019 Connecting Courtenay Plan showing Royal Vista as a Neighborhood Bikeway.
b. The report should utilize the active transportation initiatives outlined in the December 20, 2021 TIA and subsequent memos for coordination of works that need to be constructed.
c. The report should include the City road Collector Road cross-section that are intended to be constructed and coordinated with the PIMP.
d. The Preliminary Infrastructure Master Plan (PIMP), Figure 4, shows an Alternative Collector Road Section – Residential with no cycling facilities, but with bulb-outs. The City's June 5, 2024 review letter to Crown Isle, comment 2.b.iii. asked that consideration be given to using cross-section CSSD CRD, which included dedicated cycling facilities. However, the only Collector cross-sections that Bylaw 2919 has with cycling lanes and 1.8m wide sidewalks is 'Collector Road Section Urban – B CSSD CUB' & the alternative solution cross-section 'Collector Road Section Urban – Entry CSSD CUE with a boulevard & streetlights down the centre of the road'. Neither CSSD CUB or CSSD CUE have bulb-outs. Please finalize the road cross-section you are proposing. WE need to arrive at a cross section that accommodates cycling as the current Figure 4 does not.

XVIII. Appended McElhanney Aug 14, 2024 Pg. 11 states "no indication Royal Vista Way would struggle". As previously stated the report should speak to the LOS is at intersection of Royal Vista Way terminus and Crown Isle Drive. The LOS may indicate the need for a dedicated East Bound Left turn lane. As this is a City asset this needs to be addressed.

Preliminary Infrastructure Master Plan (PIMP) dated January 22, 2025

XIX. Koers January 2025 Figure SS (Phasing plan) does not provide the distribution of units to total the zone density limit of 330 dwellings defined as 122 single dwelling units with secondary suites and 208 multi-family and duplex. Please revise the phasing plan to illustrate this.

XX. There are inconsistencies in dwelling units being used for capacity modeling over time that does not align with the zone. The total number of dwelling units for this zone is 330, this is to be used in capacity calculations. Please update to align with zoning.

XXI. Section 3.1 states '…. Royal Vista Way has been identified as a "Neighbourhood Bikeway" in the City's Cycling Network Plan…", this contradicts Pg. 4 of the SHATPMP stating no dedicated cycling. We suggest elimination of the separate street hierarchy/Active Transportation MP to eliminate the contradictions and have the road hierarchy/active transportation within the PIMP.

XXII. Figure 4 does not show cycle facilities in the Royal Vista cross section such as section CSSD CRB as previously noted.

XXIII. Section 4.1 - the Koers Figure WS – does not identify the number of MF dwelling Units in phase 4 and 5that have not been designed, highest and best use should be assumed for fire flow calculations and Geo-Advice should re-run the model for the noted possible 220 L/s at the expense of the applicant.

XXIV. Section 4.1 - connection to CVRD's Atlas Reservoir must be resolved between the City and CVRD with the applicant as this is needed for fire flows. This must be a condition of development, considering Table 2.8 of the GeoAdvice model indicates max fire flows are 156 L/s and PIMP indicates 220 may be needed.

XXV. Section 4.2 states that "the CVRD have indicated that the current 138m zone system is struggling to meet peak day demands' and 'CVRD staff plans to implement mitigation measures as soon as possible. It is not clear if these mitigation measures need to be constructed prior to further development within the 138, zone, but we understand that the CVRD is actively working to address this issue". Development in Lannan is dependant on this being resolved and needs to be identified what phase in the DA requires this infrastructure.

XXVI. Section 4.3 - It is acceptable that at detailed design it be determined if the applicant must either disconnect the looped domestic water flow through the existing strata, or install double check valves.

XXVII. Re: Sanitary servicing the development to the south through private property in CVRD.

A) Initial discussions with the CVRD indicate that the SRW is to be in favour of the City to operate and maintain. This legal agreement needs to be drafted and CVRD to state whether they wish to be a party to it. Further this legal document will specify that any realigned of this sanitary main is at the expense of the developer.

b) This proposed sanitary main runs through ESA which is under CVRD jurisdiction and an EDP is required for construction. This report needs to identify that this route is viable given the ESA.

The following concerns to be identified in the SRW:

i) Any connection to the main within the CVRD jurisdiction would be at the discretion of the City

ii) Any future development of the two properties in the CVRD which the sewer will travers will require approval by the City if they can or may impact the sewer, alignment and access

iii) Any relocation of the sewer line and SRW within the CVRD jurisdiction will be at the cost of others (i.e. not the City of Courtenay)

iv) A meter be installed on the sewer main prior to leaving the City boundary at the Lannan development to measure flows being conveyed into the CVRD jurisdiction

Preliminary Stormwater Management Master Plan (PSMMP) dated January 22, 2025

19. Author should provide an overall table showing the flows and storage volumes for each catchment area/facility and jurisdiction and highlighting which jurisdictions standard is being proposed and how that impacts the other jurisdictions, especially downstream. For instance, if the Britannia Way cul-de-sac were to release 10 L/s for the 100 year storm meeting the City standards, but not meeting the 4 L/s for the ACSS what does that mean for the downstream system and will Comox/MOTI support that?
20. For infrastructure related to this project that is in other jurisdictions the City will require design approval from those jurisdictions before final development approval.
21. The following comments from the City's June 5, 2024 review (Appendix C in the PIMP) letter are still applicable:
    i. Item 4.a.2, Section 3.11 – If you are design homes that will have basements /crawl spaces infrastructure to be designed to convey flows beyond the 10-year storm event. Covenants may required.
    ii. Item 4.a.3, Section 5.11 – That the stormwater that is flowing from Crown Isle through CVRD lands is on the private property located at 2205 Galleon Way and 1239 Anderton. We are suggesting that the blanket SRW for stormwater be extended to the lands at 1239 Anderton and 2205 Parry Place.
22. Item 6.1 – It is anticipated that the blanket SRW will have Crown Isle own and maintain stormwater management facilities on multi-family lots and private lands.
    i. Item 9, MOTI has indicated they want an SRW from Pond 20 over 1179 Parry Place to be formalized. Please provide the schedule to achieve resolution of this existing situation.

23. In comparing March 2024 report to January 2025 report there appears to be modifications to Catchment areas to Little River and Brooklyn Creek in Table 2 (page 4). Please provide design calculations for the proposed stormwater management pond in the format like Table 7 in appendix B of the January 2025 report. Please provide your input and output from your modelling.
24. Fig 2 - Note "Existing Drainage Course to be Re-graded and improved" - environmental approvals and possible compensation works need to discussed or recognized as the responsibility of the developer. As per Cascadia Biological there has been Coho salmon identified in the culverts and ditches which triggers requirements under Riparian Areas Protection Regulations (RAPR). This stormwater

plan needs to be coordinate with Environmental review as the proposed plan will need to consider this condition and will most likely need to be revised.

25. Page 5 Section 3 - When referencing City, Town and MOTI should also state that the most stringent or conservative of the 3 standards will met for all aspects of the design.
26. Section 3.1 - The stormwater management works within City jurisdiction must meet City standards as noted, however once stormwater exits from the City jurisdiction and prior to entering any municipally owned infrastructure it must meet the standards of the jurisdiction that the storm system resides in. In relation to volumes and flows and storage, as this impacts all 3 jurisdictions it must both meet the intent of all 3 jurisdictional requirements as well as the most stringent of all 3 including the ACSS document.
27. Section 3.2 fourth paragraph - remove the word endeavor, as per the letter from BCWS and municipal regulations the applicant and its agents will "meet or exceed" the standards, not endeavor to meet them.
28. Section 3.2 5th paragraph - the streamkeepers letter does not actually state that it supports the drainage system, just that it appreciates being engaged and defers to the regulators to ensure professional oversight.
29. Table 3 - Note (2) ".... required to determine the actual infiltration rate....." The applicant must either determined the infiltration rates at this time through a geotechnical investigation or provide assurance and alternatives should infiltration rates be inadequate to support infiltration. To manage risk to the City it is preferable a Geotech report be completed at this time.
30. Section 4.3 paragraph 4 - Related to previous comment regarding infiltration, please note the source of the soils classification and expand on what "moderate to low" infiltration properties will mean to the proposed development, especially in the context of the infiltration required by the ACSS.
31. Section 5.1.1 The SRW width for any stormwater conveyance shall be the greater of 9 meters or the edge of pipe/ditch +3 meters, for stormwater management facilities it shall be the top of or edge of the facility + 6 meters unless otherwise approved by City staff. (as per Section 1.4 of MMCD Guidelines 2022).
32. Section 5.2 Paragraph 2 - It should be noted the environmental requirements and function of the pond takes precedent over the golf course operation and property owners' input.
33. Table 8 assumes an infiltration rate of 10mm / hr, author needs to speak to options if that rate cannot be obtained. What are these options
34. Figure 5 - Onsite infiltration trenches can be effective when maintained, how will the City ensure the property owners maintain they're on site stormwater facilities and not simply let them overflow to the road if they become plugged or clogged? A covenant will be required for the lots. A lot grading plan will be required to identify locations ad provide a maintenance document.

35. Section 5.5.2 and 5.5.3 both speak to benefit of large downstream detention pond, please expand on what that benefit of this is.
36. Section 5.6, 6.4, 7.1.4 etc. - stating "This would appear to meet MOTI's requirements...." is not an acceptable statement, confirmation is required that they meet or exceed MOTI, Courtenay and Comox standards/ requirements.
37. Section 6.2 Detention pond. The applicant is aware of the recent spawning salmon in the adjacent ditches, this needs to be discussed with the province and mitigated.
38. Section 6.5 When designing infiltration, the key component is the capacity of the soils, without a Geotech report confirming actual infiltration rates the proposal could be "unrealistic or unattainable" how can the application be approved without assurances to avoid later development applications simply stating "geotechnical report indicates infiltration is not feasible therefore infiltration will not be provided".
39. Section 7.1.2, 7.1.3 Please clarify when considering the overlapping jurisdictions what storage will be provided for which storm/jurisdiction and total storage provided.
40. Item 9, MOTI has indicated they want an SRW from Pond 20 over 1179 Parry Place to be formalized. Please provide the schedule to achieve resolution of this existing situation.
41. In comparing March 2024 report to January 2025 report there appears to be modifications to Catchment areas to Little River and Brooklyn Creek in Table 2 (page 4). Please provide design calculations for the proposed stormwater management pond in the format like Table 7 in appendix B of the January 2025 report. Please provide your input and output from your modelling.
42. All culverts should be arch style – with a natural stream bottom to avoid creating perched culverts that inhibit fish passage

Parks Master Plan

43. **Grade:** Would like clarity on “gently graded developable park space” referenced in 3.0 – Parkland Dedication. What is the proposed grade?
44. **Parking:** Community park requires parking (as outlined in 3.1.1 of proposal) – need to show where this will be conceptually. They reference off-street, but there is no area designated for off-street so concerned they will try to use portion of park at future date
    a. Also – walking radius for community park is 800m, not 400m.
45. **Trail:**
    a. Eastern border is trail not linear park, not included in dedication calculation
    b. Southern trail is within park so can be counted (i.e. doesn’t have to be excluded from calculations)
    c. All trail construction needs to adhere to RAPR and OCP policies.
    d. There are no trail standards identified in PPMP or the PIMP or SHPMP, this needs to be included. These are the standards from the PRMP:

Accessibility: Universal accessibility where possible

Trail width: 1.5-3 metres

Clear width: 2-4 metres

Clear height: 2.4 metres

Corridor width: 7 metres minimum

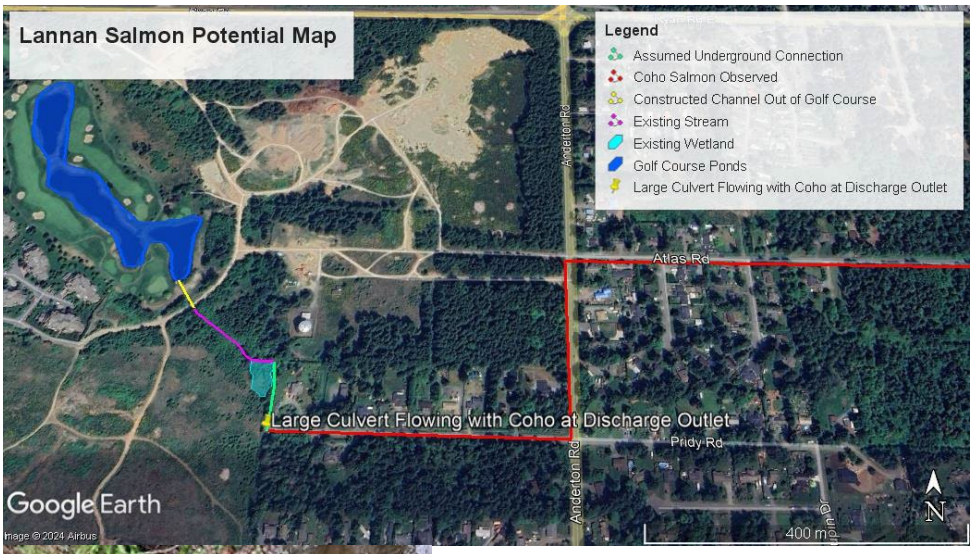
46. **Dedication** of Parkland Section 3.2
    a. A community park must be 1 ha as noted in MP.
    b. Table 1- 1.14 required parkland we believe .30 HA is low and may be .65ha and needs to be confirmed by City.
    c. What is the composition of the up 1.84 ha outside the tree retention area?
        i. Tree protection area is not park and a requirement from Council resolutions to be a section 219 covenant.
        ii. ESA can not be counted.
        iii. Trails outside the park should not be included in the parkland dedication calculation. Only trails within the park.
47. The residents accessing this park would benefit from a playground installation there are no playgrounds within an 800 m/10 M walk.
48. The park playground design standards recommend the following for pathways:
    a. Primary pathways 3 m wide
    b. Secondary pathways 3m wide
    c. Primary and secondary pathways, longitudinal slopes should be maximum 5% and cross slopes maximum 2%.
49. OCP policies listed page 4 and 5 do not indicate how the policies are being met and also states “may” be met and why its “may”. This needs to be addressed.
50. Identify, proposed Community, neighbourhood parks or smaller parks on the proposed plan to show how development will be serviced by parks .

Overview Environmental Assessment Review Plan

Site 1

The proposed stormwater settling pond(s) along the northeastern corner of the property noted above does not currently consider recent fisheries observations made by Cascadia Biological Services (Thomas Roy) in December 2024 and passed along to applicant on February 11, 2025. During that time, spawning Coho salmon were observed in the shallow ditch running along Lannan Road see photo below.

The fish at the end of Lannan were documented travelling through an 800mm CSP culvert into the wetland complex along the northeastern corner of the property as well as into the rock riprap immediately south of the ponds on the golf course see above overview map and below potential Salmon map for Lannan. The presence of fish at this location defaults the proposed stormwater pond wetland area and adjacent creek as waterbodies under the Riparian Areas Protection Regulations (RAPR) legislation. Flows from this area eventually make their way into the Little River. The Master Plan needs to address this condition and utilize the RAPR to inform infrastructure design in the MP for both PIMP and PSMMP. Their may also be impacts on the PPMP on park areas.



Site 2 (Overview Plan above)

This area is proposed to have the removal of an isolated wetland with a replacement identified as a stormwater pond downstream of this location. The City of Courtney generally does not allow for a wetland to be removed from what is considered an environmentally significant area. If the proposal is to consider removing said wetland and this support by the province, a replacement value needs to be considered i.e. 3:1 and this scenario needs to be incorporated into the plan. Stormwater ponds are not to act as replacements for a natural state wetland. The presence of this was not identified in earlier inventories and the Council Reports indicated this needed to be done and incorporated into a PDA/DA.

Site 3 (Overview Plan Above)

Consist of the classification of forestry remnants along the southwestern corner of the property as non sensitive. Although not meeting BC Conservation Data Centre blue/red listed biogeoclimactic site series classifications, the forest at this location is considered sensitive eco inventory (SEI) – this area best meets best described as older second-generation forest habitat. The protection of this SEI is a concern of Council and has ben referred in previous Council reports.

Site 4 (Overview Plan Above)

Site 4 is an overview location of a trail system that is being proposed within designated RAPR stream and SPEA's flowing south out of the property to the south. Confirmation is needed if the proposed trails follow historic trail locations or are they being proposed as new trails. Clarification is needed on how they would be permitted under the RAPR legislation if the build is considered new. This impacts the Parks Master Plan.

APPENDIX E

Technical Memo
Crown Isle Development Lannan Road Development Traffic Memo
McElhanney Ltd., May 6, 2025.

Our File: 2211-47335-00

TECHNICAL MEMO

To	From
Rick Waldhaus, CFO Crown Isle Resort & Golf Community	Matthew Browning, P.Eng., Sr. Transportation Engineer Branch 2121 / Strategic Transportation Planning Division Pieter Poel, P.Eng., Project Manager Branch 2211 / Civil Division

Re	Date
Crown Isle Development Lannan Road Development Traffic Memo	May 6, 2025

EXECUTIVE SUMMARY

This technical memo provides an analysis of the calculated traffic impacts associated with the proposed development at Lannan Road, based on the zoned land use allowance for 122 single-family housing units and 208 multi-family housing units. The analysis has been conducted according to industry best practice, utilizing trip generation methodology from the Institute of Transportation Engineers (ITE).

A summary of the findings and recommendations is provided below:

Findings of Traffic Analysis

- **The existing road infrastructure <u>is sufficient</u> to accommodate the demand generated by the development**
  - **Royal Vista Way and Lannan Road have excess capacity that can incorporate the new peak hour trips without compromising Level of Service (LOS)**
  - **The intersections at Lannan Road/Anderton Road, Road A/Royal Vista Way, and Crown Isle Drive/Royal Vista Way are all able to process the new traffic without compromising LOS or inducing additional delay at these locations**

- **The broader road network is largely unaffected by the development with the intersections at Ryan Road/Crown Isle Drive and Ryan Road/Anderton Road reporting minimal increases in delay or queuing due to this development traffic**

- **No additional road infrastructure (such as an extension of Royal Vista Way to Ryan Road) is required to support the traffic demand generated by the development. While the *2021 TIA* assumed that the Royal Vista Way extension would be delivered in 2036, this was based on a projection of 100% buildout of proposed commercial floor space and 62% buildout of proposed residential units by this date across the entirety of Crown Isle's lands. At present, there has been negligible movement towards these triggers.**
  - **Realised build-out of future development phases would be the trigger for new infrastructure, not the calendar year.**
  - **The future Royal Vista Way/Ryan Road intersection would be a likely consideration of the future neighbourhood centre area identified north of Lannan Road and west of Anderton Road, which will require a Local Area Plan in accordance with the City's Official Community Plan 2022.**
- **The proposed development plan supports and encourages active mobility with the inclusion of substantial linear trails providing permeability and access to green space throughout the site.**
- **It is recommended that, following the delivery of the Lannan Road and Rise Phase 6 Developments, the 2021 TIA be revisited and updated to provide a new baseline for future development parcel analysis and identify the appropriate trigger-points for new road infrastructure.**

1. Background

McElhanney Ltd. (McElhanney) completed a traffic impact assessment (TIA) to support the development application for the proposed Crown Isle residential and commercial developments located north and south of Ryan Road between Lerwick Road and Anderton Road in Courtenay, BC (*Crown Isle Development at Royal Vista Way Intersection – Traffic Impact Assessment,* December 20, 2021).

Subsequent technical memos have been developed to respond to localized areas that require additional analysis; the Lannan Road development (the site) requires such analysis to understand the specific impact of traffic generated by the site. The site area is shown in ***Figure 1***.

The subject of this memo is an update to a previous memo (August 14, 2024) which forecast trip generation anticipated from the site, in relation to existing and forecast future traffic volumes. The previous iteration of the memo utilized the planned units as the starting point for the trip generation, whereas this update accounts for all units the lands are zoned for. The analysis also includes an assessment of the directional distribution of these trips to the wider network and provides recommendations based on the impacts identified. The development site is assessed at its full build-out state, but it is noted that the development is intended to be delivered in phases which will each be

accompanied by technical memos as part of the subdivision process and as individual phase details are better-understood.

Figure 1: Lannan Road Development site area

2. Conceptual Road Network

The notable roads in and around this development area are as follows:

- **Ryan Road** – a highway-designated roadway under the jurisdiction of the Ministry of Transportation and Transit (MOTT), providing strategic connectivity to Comox Airport, the Little River Ferry Terminal and other major amenities and services
- **Anderton Road** – a key arterial road within the Comox Valley Regional District, providing strategic north-south connectivity from Ryan Road to the Town of Comox

- **Royal Vista Way** – a collector road serving the residential community in the area, that connects to Crown Isle Dr to the west and is intended to connect up to Ryan Road in the future, at a signalized intersection to the west of Anderton Road. This analysis, planning and development of this roadway will be delivered as part of future developments associated with the Town Centre and/or Local Area Plan for the lands to the southwest of the Ryan Road/Anderton Road intersection.
- **Crown Isle Drive** – a collector road that loops from Ryan Road (at the Crown Isle Boulevard intersection) to Royal Vista Way, providing the main circulation path for residential access/egress throughout the area, including connections to Lerwick Road (a major arterial) via Malahat Drive, and Idiens Way (a collector) via Norfolk Way.
- **Lannan Road** – a local road within the Comox Valley Regional District providing direct access for a small number of residential properties to Anderton Road
- **Britannia Way** – a collector 'stub' (approx. 80m) that currently only provides an additional access to the laneway access for 8-10 properties along the edge of the subject site

The City of Courtenay Transportation Master Plan (*Connecting Courtenay, 2019*) provides the basis for the above classifications (***Figure 2***).

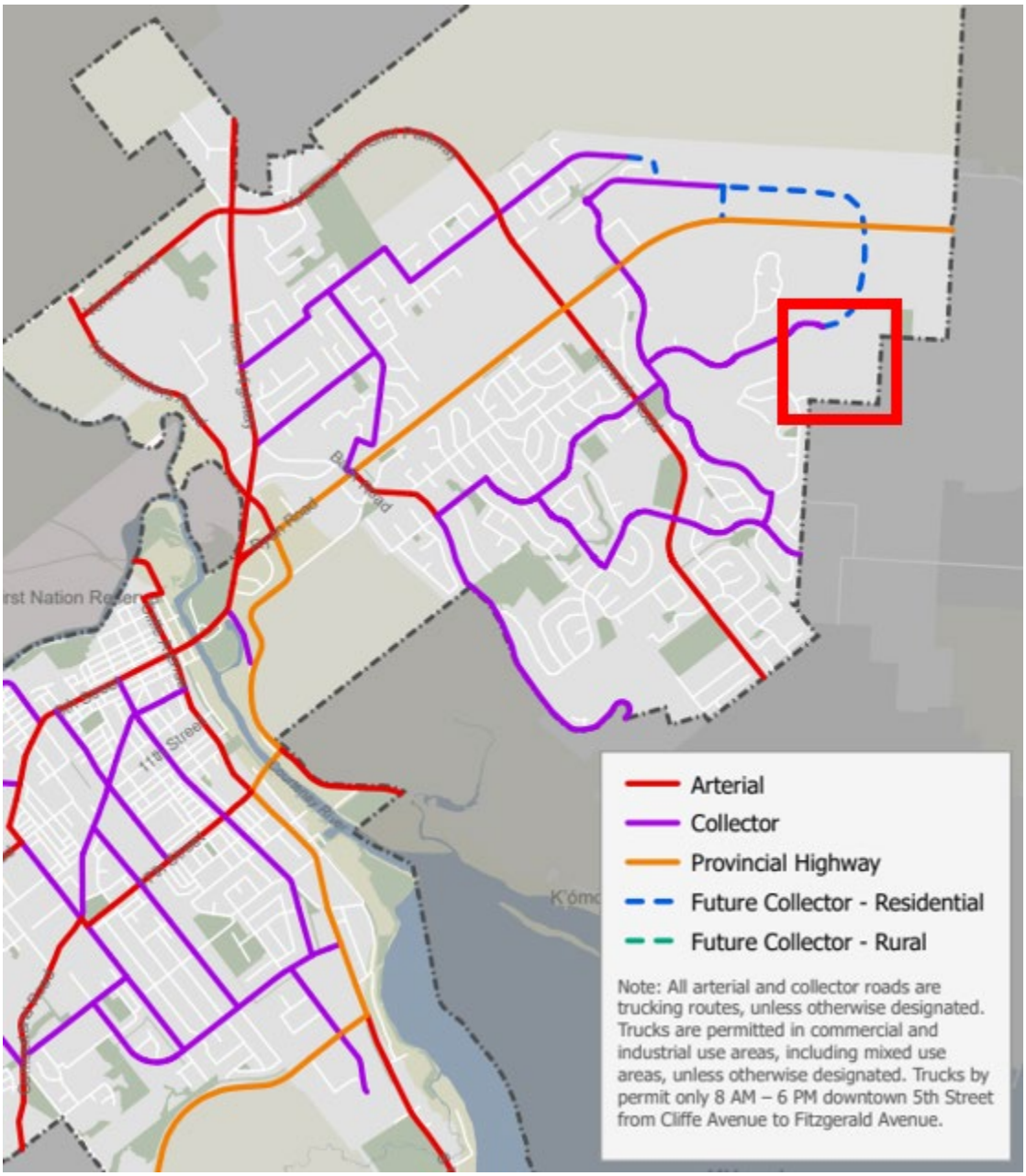


*Figure 2: City of Courtenay OCP Road Classification Map (*development site location added in red*)*

A conceptual layout of the potential development has been proposed (accepting that this does not reflect a final design and that individual elements such as road alignments, mix of units, etc. will be developed over a phased approach and may change over time) to form the basis of this analysis, see ***Figure 3***. This layout has been amended since the previous revision of this technical memo.

Figure 3: Conceptual Layout of Lannan Road Development

In this conceptual layout, the Britannia Way stub will be converted to terminate in a cul-de-sac with an easement kept for a multi-use path or trail through to the Lannan Road loop. Lannan Road provides internal circulation within the site, as well as direct access to Anderton Road to the east. A trail is proposed around the south and east of the site to take advantage of the existing green space to provide additional active transportation infrastructure.

Royal Vista Way is a collector road that runs adjacent to the northern edge of the development site, providing direct access for some of the individual properties to be included within the parcel.

The green space along the southern side of the development site is anticipated to be accessed by trails, providing a local amenity for residents.

3. Proposed Development Mix

The land use of the site for the Lannan Road development is a mix of single-family residential development, multi-family residential development, active parks and environmentally sensitive areas. The proposed land use would serve the residents of the area and provide indirect site-access to the Crown Isle Resort and Golf Community. The land use is aligned generally with similar sites located in the previously completed TIA (*Crown Isle Development at Royal Vista Way Intersection – Traffic Impact Assessment,* December 20, 2021). Each proposed dwelling unit helps determine the number of trips generated in the AM and PM peak hour.

4. Trip Generation

Trip generation refers to the process of estimating the amount of vehicular traffic a development would add to the surrounding roadway system based on land use and development size. For the proposed developments, the amount of traffic entering and exiting the road system was calculated for the weekday AM and PM peak hours

Peak hour trip generation estimates for the proposed developments were developed using the Trip Generation, 11th Edition (ITE, 2021). Peak AM and PM ITE trip generation rates were then applied, as summarized in ***Table 1***. Note that these values reflect the current total build-out of all phases of the development and individual unit mixes by phase may change. The total number of units is taken to be up to 330, with zoning for 122 single-family and 208 multi-family dwelling units.

Table 1: ITE Trip Generation Rates – Lannan Road Residential Development

Land Use Description	Land Use Setting	LU Code	Total Size	Unit	Peak Hour Trip Rate		Peak Hour In / Out Split	
					AM	PM	AM (%)	PM (%)
Single-Family Detached Housing	Residential	210	122	DU	0.74	0.99	25 / 75	63 / 38
Multifamily Housing (Low-Rise)	Residential	220	208	DU	0.46	0.56	23 / 77	63 / 77

The vehicle-trips generated by the development site are highlighted below in ***Table 2***. The peak directional outbound and inbound trips in their respective peak hours are approximately 150 from the site.

Table 2: Total Net Trips Generated AM / PM Peak Hour Lannan Road Residential Development

Land Use Description	AM Trip Gen			PM Trip Gen		
	In	Out	Total	In	Out	Total
Single-Family Detached Housing	23	68	91	76	45	121
Multifamily Housing (Low-Rise)	22	74	96	73	43	116
Total Site Generated Trips:	**45**	**142**	**187**	**149**	**88**	**237**

5. Trip Distribution

The trip distribution for traffic generated by the site was estimated based on the characteristics of the major corridors and turning movement patterns exhibited in the traffic count data.

Most trips generated by the proposed development are assumed to be travelling west on Royal Vista Way (providing access to Ryan Road / Lerwick Road and all associated destinations), with most of the remainder travelling east on Lannan Road to access Anderton Road (assumed to split relatively evenly between north and south Anderton Road). A few trips are assumed to utilize Brittania Way to access Crown Isle Drive with an even split going north and south. Note that, while some units within the development parcel will actually have addresses/driveways that front directly onto Royal Vista Way, in the interest of providing a conservative assessment, all trips are assumed to generate at the centroid of the development parcel.

The distribution based off each of the legs from the development area is shown in ***Table 3*** and illustrated in ***Figure 4***.

Table 3: Trip Distribution

Access of Lannan Road Development	% Distribution	AM Trip Distribution			PM Trip Distribution		
		In	Out	Total	In	Out	Total
Lannan Road East	35%	16	50	65	52	31	83
Road A to Royal Vista Way	60%	27	85	112	89	53	142
Britannia Way to Crown Isle Drive	5%	2	7	9	7	4	12
All Legs	100%	45	142	187	149	88	237

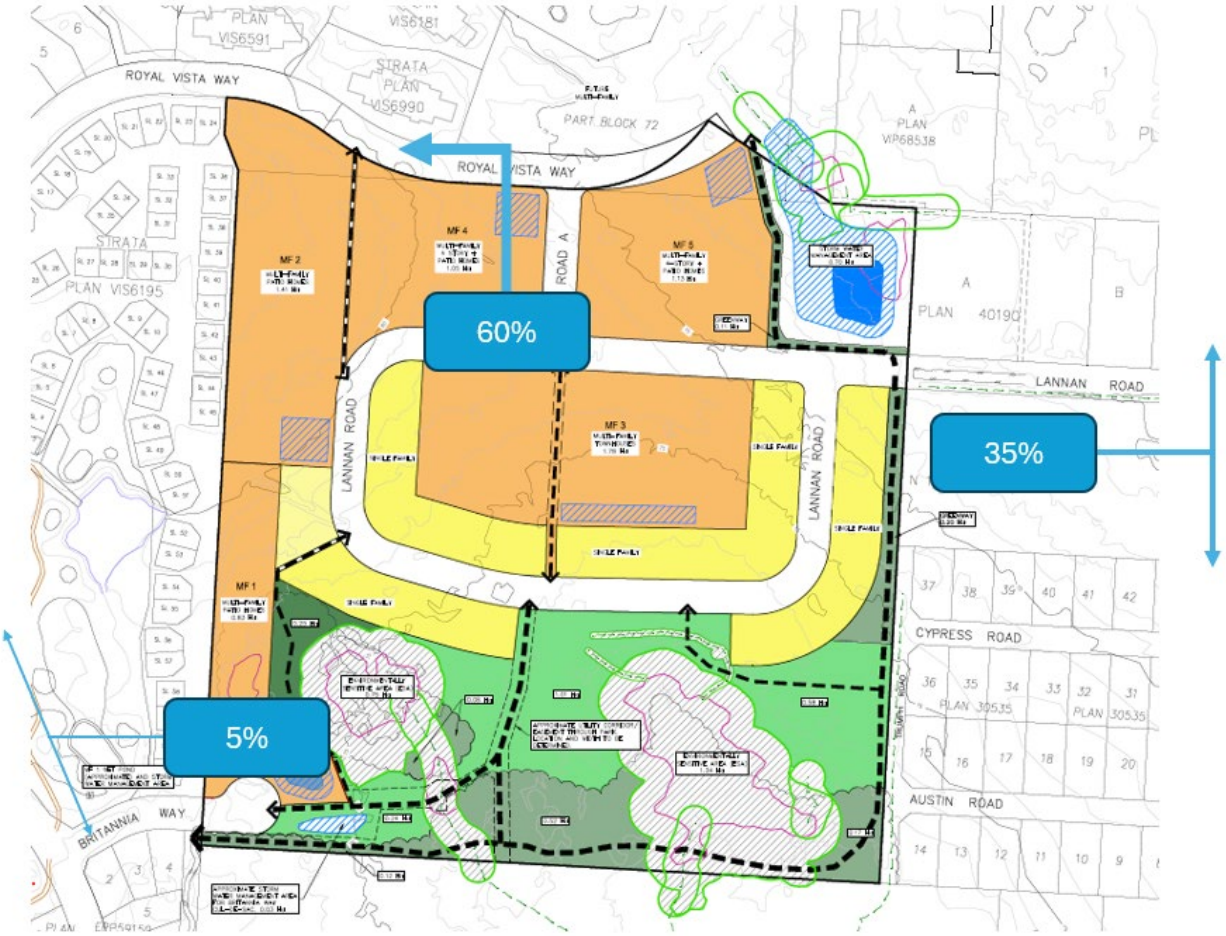


Figure 4: Summary of Trip Distribution

Based on the above information, the following conclusions can be drawn:

- The internal road network of the development site places most properties along a Lannan Road address
- The 25 outbound trips in the AM that utilize Lannan Road and then turn northbound on Anderton Road constitute 25/487 vehicles forecast for this roadway (~5%) during the AM peak hour
- Similarly, the 25 vehicles that turn southbound constitute 25/496 (~5%) of southbound demand on Anderton Road in the AM peak hour.
- Assuming half of the 5% trips egressing by Britannia Way then turn onto Crown Isle Drive and join Royal Vista Way westbound, and that *all* of these trips continue to the intersection with Ryan Road / Crown Isle Boulevard, the volume added to that intersection is estimated to be ~80 vehicles, increasing the traffic arriving at the intersection to 266 in the AM peak period. In reality, the expectation would be that many of these trips would re-route to Lerwick Road via Malahat Drive (along with other routing choices), but this assumption is made to provide a conservative estimate of trip impacts.
- Analysis of future demand/capacity was conducted based on data collection and traffic forecasting that was completed and approved by the City of Courtenay as part of the 2021 TIA. The assumptions

within the TIA are based on those presented in the *Connecting Courtenay Transportation Master Plan (2019)*.

5.1. ADJACENT INTERSECTION REVIEW

Lannan Road / Anderton Road

Lannan Road / Anderton Road (and Pridy Road) intersection is currently an unsignalized intersection with stop signs controlling eastbound and westbound traffic. The Lannan Road development is expected to add auto volume to this intersection. Synchro was used to analyze the impacts of the additional volume on this unsignalized intersection. It was assumed conservatively that the auto volume from existing residents on Lannan Road/ Pridy Road will be 20 vehicles each in WB and EB directions. It was also assumed that 50% of vehicles exiting from Lannan Road and Pridy Road will travel south and 50% will travel north.

Table 4 and ***Table 5*** summarize the AM and PM peak results for the Lannan Road/Anderton Road intersection.

Table 4: 2026 AM Synchro Results from Lannan Rd/Anderton Rd Intersection (w/ Lannan Rd Development)

AM Peak Hour														
Intersection	**Attribute**	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**Overall**
Lannan Road / Pridy Road/ Anderton Road (with Lannan Road Development)	Volume	35	0	35	10	0	10	8	222	0	0	224	8	
	v/c Ratio	0.14	-	0.14	0.04	-	0.04	**0.01**	0.01	0	0	0	0	
	Delay (s/veh)	12	-	12	12	-	12	**0**	0	0	0	0	0	2
	LOS	B	-	B	B	-	B	A	A	-	-	A	A	
	95% Q (m)	4	-	4	1	-	1	0	0	-	-	0	0	

Table 5: 2026 PM Synchro Results from Lannan Rd/Anderton Rd Intersection (w/ Lannan Rd Development)

PM Peak Hour														
Intersection	**Attribute**	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**Overall**
Lannan Road / Pridy Road/ Anderton Road (with Lannan Road Development)	Volume	26	0	26	10	0	10	26	334	0	0	342	26	
	v/c Ratio	0.15	-	0.15	0.06	-	0.06		0.03	-	-	0.03	0.03	
	Delay (s/veh)	16	-	16	15	-	15	0	1	-	-	0	0	2
	LOS	C	-	C	C	-	C	A	A	-	-	A	A	
	95% Q (m)	4	-	4	1	-	1	1	1	-	-	0	0	

Synchro results demonstrate that with a 2026 background auto volume and the addition of Lannan Road development, the unsignalized intersection at Lannan Road/Anderton Road can handle the additional volume. The level of service B is observed in AM, and a level of service C is observed in the PM scenario. The 95th percentile queue lengths were under 4 meters or less for the stop signs in AM and PM scenarios.

The negligible level of impact at this intersection would not trigger any form of infrastructure or operational improvement at this location. As and when future developments phases are assessed (during a refresh of the 2021 TIA, for example) the overall traffic patterns of the area should be explored.

Brittania Way / Crown Isle Drive

Lannan Road development will cause additional trips to be added to the two intersections at Britannia Way / Crown Isle Drive and Road A / Royal Vista Way.

Britannia Way will provide access to a small portion of the new Lannan Road development. It is expected that vehicles entering and exiting the development through Britannia Way will be less than 10 during AM or PM peak hours making a Synchro analysis necessary. No impacts to the intersection are anticipated.

In this analysis, it is assumed that Royal Vista Way is not extended to Ryan Road. There are 85 vehicles that are projected to exit using Road A through Royal Vista Way once the development is complete. Since Road A is expected to tie into Royal Vista Way near a dead-end, it is reasonable to conclude that the traffic volumes from the Lannan Road development can egress this way with no congestion. Progression from this location to either Crown Isle Drive, (south to Norfolk Way), Malahat Drive (to Lerwick Road), or Crown Isle Drive (north to Ryan Road) is not anticipated to experience delay as the existing roadway only serves local residents. A left-turn at Crown Isle Drive (south to Norfolk Way), for example, would experience little to no conflicting eastbound-through movements as there are very few residential destinations at that end of Royal Vista Way. During a future phase of development, as-and-when the Royal Vista Way extension is triggered, it will be prudent to assess the impacts of the new through-traffic and how that affects current travel patterns.

Given the opportunity to egress west on Royal Vista Way to destinations to the west, and Lannan Road to destinations to the east, there is no connectivity need for an extension of Royal Vista Way to Ryan Road due to this development – all existing intersections can accommodate the new traffic. Subsequent developments should be assessed to determine the need for new road infrastructure.

Crown Isle Drive / Royal Vista Way

The volumes generated by the Lannan Road development that are anticipated to utilize Royal Vista Way (85-90 trips in the respective peak hours) are not expected to contribute to any additional delay or congestion on Royal Vista Way, or either of the intersections with Crown Isle Drive. From site observations and based on the surrounding land use, network connectivity and how the roadway is utilized, the volumes along Royal Vista Way are comfortably accommodated by the existing traffic operation controls (i.e., stop signs) as it intersects with Crown Isle Dive at both the western and eastern locations. The additional 85-90 trips are not expected to trigger any need for these controls to be adjusted or enhanced. A contributing factor to this is that there is little to no conflicting movement that would cause congestion or delay.

For example, vehicles travelling westbound from the site and turning left onto Crown Isle Drive (eastern intersection) are not opposed by any significant through traffic in the opposite direction during the morning peak. In the PM peak, the anticipated major movement to the Lannan Road site would be heading southbound from Ryan Road on Crown Isle Drive and then making a left turn onto Royal Vista Way (this is taking the conservative assumption that ***all*** inbound traffic is routed from Ryan Road). During this time-period the conflicting traffic flow (i.e., northbound-through) is low and so the volumes are well within the maximum capacity of a 3-way stop intersection (~800 vehicles/hr).

Travel patterns through these Crown Isle South intersections may change when the Royal Vista Way extension to Ryan Road is considered and so, at that time, and through a revision to the 2021 TIA, it would be prudent to review the overall impacts of that change in the network to see if traffic control adjustments are required.

5.2. DOWNSTREAM INTERSECTION REVIEW

An assessment was completed to understand the impacts to the downstream intersection in this 'worst case' scenario, based on the 2046 model developed as part of the overall 2021 TIA for the area. ***Table 6*** and ***Table 7*** below present the findings for two scenarios (2046 and 2046+ Lannan Road Development) for the intersections of Ryan Road / Crown Isle Boulevard / Crown Isle Dr and Ryan Road / Anderton Road. Consistent with typical transportation planning reporting, intersection movements with Level of Service (LOS) E or worse are highlighted (in red) to illustrate where congestion may be present.

Key observations:

- The AM peak northbound left (NBL) movement at Ryan Road / Crown Isle Boulevard is worsened by the development traffic (from LOS C to D) with delay increasing from 31 to 44 seconds. As noted, the traffic volume added to this intersection is overly conservative and the actual volumes – and thereby impacts – are likely to be much lower
- The PM northbound left (NBL) movement at Ryan Road / Anderton Road is worsened by development traffic (LOS E to F) with delay increasing from 72 to 83 seconds,
- All other movements during both peak periods retain the same LOS as the 2046 base

Table 6: 2046 AM (25-Year Horizon) Peak Hour Intersection Level of Service Results – Improvements With Development Traffic Comparison

AM Peak Hour														
Intersection	**Attribute**	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**Overall**
Ryan Rd / Crown Isle Blvd/Crown Isle Dr (With Improvements)	Volume	301	694	88	21	895	44	127	41	21	41	20	122	
	v/c Ratio	0.75	0.44	0.12	0.07	0.8	0.08	**0.52**	0.15	0.06	0.17	0.12	0.48	-
	Delay (s/veh)	43	13	1	8	27	0	**31**	31	0	23	32	11	23
	LOS	D	B	A	A	C	A	C	C	A	C	C	B	C
	95% Q (m)	40	55	< 5	5	90	0	30	15	0	10	10	10	-
Ryan Rd / Crown Isle Blvd/Crown Isle Dr (With Improvements Lannan Rd Development)	Volume	301	694	128	24	913	44	180	58	30	41	23	122	
	v/c Ratio	0.77	0.45	0.17	0.08	0.82	0.08	0.73	0.21	0.09	0.17	0.13	0.47	-
	Delay (s/veh)	45	13	3	8	28	0	41	32	0	23	32	11	24
	LOS	D	B	A	A	C	A	D	C	A	C	C	B	C
	95% Q (m)	41	58	7	5	92	0	44	19	0	12	10	11	-
Anderton Rd / Ryan Rd (With Improvements)	Volume	167	284	155	62	214	26	286	130	54	38	200	188	
	v/c Ratio	0.51	0.43	0.24	0.3	0.6	0.06	**0.78**	0.19	0.08	0.17	0.6	0.41	-
	Delay (s/veh)	19	16	4	24	29	0	**44**	12	0	22	30	5	21
	LOS	B	B	A	C	C	A	D	B	A	C	C	A	C
	95% Q (m)	25	45	10	15	45	0	40	20	0	10	40	10	-
Anderton Rd / Ryan Rd (With Improvements Lannan Rd Development)	Volume	170	286	169	64	214	26	316	144	60	38	207	188	
	v/c Ratio	0.52	0.43	0.26	0.31	0.6	0.06	0.87	0.2	0.09	0.17	0.62	0.41	-
	Delay (s/veh)	19	16	4	25	29	0	52	12	0	22	30	5	22
	LOS	B	B	A	C	C	A	D	B	A	C	C	A	C
	95% Q (m)	27	45	12	17	45	0	45	22	0	11	43	10	-

Table 7: 2046 PM (25-Year Horizon) Peak Hour Intersection Level of Service Results – Improvements With Development Traffic Comparison

PM Peak Hour														
Intersection	**Attribute**	**EBL**	**EBT**	**EBR**	**WBL**	**WBT**	**WBR**	**NBL**	**NBT**	**NBR**	**SBL**	**SBT**	**SBR**	**Overall**
Ryan Rd / Crown Isle Blvd/Crown Isle Dr (With Improvements)	Volume	589	1097	235	54	1196	106	109	80	36	124	103	573	
	v/c Ratio	0.94	0.62	0.26	0.24	0.97	0.16	0.4	0.26	0.09	0.34	0.27	**1**	-
	Delay (s/veh)	**72**	22	4	15	**56**	1	38	44	0	34	41	**58**	43
	LOS	**E**	C	A	B	**E**	A	D	D	A	C	D	**E**	D
	95% Q (m)	105	120	15	10	195	5	35	30	0	40	35	145	-
Ryan Rd / Crown Isle Blvd/Crown Isle Dr (With Improvements Lannan Rd Development)	Volume	589	1097	285	65	1205	106	133	97	44	124	119	573	
	v/c Ratio	0.94	0.62	0.31	0.28	0.97	0.16	0.42	0.28	0.1	0.35	0.33	**1.01**	-
	Delay (s/veh)	**72**	22	4	16	**57**	1	37	43	0	34	43	**61**	43
	LOS	**E**	C	A	B	**E**	A	D	D	A	C	D	**E**	D
	95% Q (m)	107	121	17	12	197	3	40	36	0	38	44	150	-
Anderton Rd / Ryan Rd (With Improvements)	Volume	234	382	314	135	566	73	337	213	103	54	229	229	
	v/c Ratio	0.89	0.41	0.37	0.43	0.93	0.12	0.93	0.36	0.19	0.32	0.82	0.61	-
	Delay (s/veh)	52	14	6	27	52	0	**72**	24	6	39	**60**	18	36
	LOS	D	B	A	C	D	A	**E**	C	A	D	**E**	B	D
	95% Q (m)	70	60	25	35	160	0	60	50	10	20	80	35	-
Anderton Rd / Ryan Rd (With Improvements Lannan Rd Development)	Volume	234	386	337	145	566	72	353	223	108	54	247	229	
	v/c Ratio	0.89	0.42	0.39	0.46	0.94	0.12	0.98	0.37	0.2	0.32	0.87	0.60	-
	Delay (s/veh)	53	14	6	27	52	0	**83**	24	6	39	**66**	18	38
	LOS	D	B	A	C	D	A	**F**	C	A	D	**E**	B	D
	95% Q (m)	70	61	27	38	160	0	62	50	12	20	86	33	-

6. Traffic Analysis: Findings and Recommendations

The analysis of the traffic anticipated to be generated by the zoned units at the Lannan Road site yields the following findings:

- The existing road infrastructure is sufficient to accommodate the demand generated by the development
  - Royal Vista Way and Lannan Road have excess capacity that can incorporate the new peak hour trips
  - The intersections at Lannan Road/Anderton Road and Road A/Royal Vista Way are able to process the new traffic without compromising level of service or inducing additional delay

    - The broader road network is largely unaffected by the development with the intersections at Ryan Road/Crown Isle Drive and Ryan Road/Anderton Road reporting minimal increases in delay or queuing
- No additional road infrastructure (such as an extension of Royal Vista Way to Ryan Road) is required to support the traffic demand generated by the development. While the 2021 TIA assumed that the Royal Vista Way extension would be delivered in 2036, this was based on a projection of 100% buildout of proposed commercial floor space and 62% buildout of proposed residential units by this date across the entirety of Crown Isle's lands. At present, there has been negligible movement towards these triggers. Realised build-out of future development phases would be the trigger for new infrastructure, not the calendar year.
    - For example, the future Royal Vista Way/Ryan Road would be a likely consideration of the future neighbourhood centre area identified north of Lannan Road and west of Anderton Road, which will require a Local Area Plan in accordance with the City's Official Community Plan 2022.
- The proposed development plan supports and encourages active mobility with the inclusion of substantial linear trails providing permeability through the site.
    - No adjustment for mode share was applied during the trip generation process, to provide a conservative estimate of trips.
- No transit routes are currently provided or anticipated through or near the site and it is highly unlikely that a BC Transit route would be served through the development area.

7. Summary and Closing

This memo provides an analytical basis for estimating the trip volumes that are anticipated to be generated from the Lannan Road development area, given the current zoning. Based on the industry standard methodology, the anticipated traffic demand does not support any specific need for improvements to the existing transportation infrastructure. The development trips are able to be accommodated by the existing road network and the proposed concept plan for the development itself provides a well-balanced mix of local roads and trails to support good mobility choice. The development does not trigger any need for road infrastructure improvements at downstream intersections, or the need for additional roadway connectivity to serve the anticipated demand.

It is understood that the Lannan Road development is part of a broader master plan for the Crown Isle area and that additional road infrastructure improvements are anticipated during future phases of work. However, the pace of development has not matched the assumptions that were utilized in the initial 2021 TIA for the entire master plan area and so the trip generation that is anticipated to trigger these improvements will not be achieved by the Lannan Road site.

It is recommended that, once The Rise Phase 6 and Lannan Road developments are progressed and sufficient time has elapsed since the initial TIA, a refresh of the TIA be conducted to provide a new baseline for future traffic and development memos to build on. The revised TIA would incorporate and account for all technical memos and development changes since 2021 as well as adjusting development triggers, traffic growth projections and infrastructure requirements. This approach has been discussed and agreed with MOTT and the City of Courtenay (April 8, 2025 meeting at City Hall).

It is noted that the provision of two access points at either side of the development satisfies the need for emergency access.

If you have any questions or concerns regarding the contents of this technical memo, please contact the undersigned.

Sincerely,

McElhanney Ltd.

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ATTACHMENT A

Statement of Limitations

Statement of Limitations

Use of this Technical Memo. This technical memo was prepared by McElhanney Ltd. ("**McElhanney**") for the particular site, design objective, development and purpose (the "**Project**") described in this technical memo and for the exclusive use of the client identified in this technical memo (the "**Client**"). The data, interpretations and recommendations pertain to the Project and are not applicable to any other project or site location and this technical memo may not be reproduced, used or relied upon, in whole or in part, by a party other than the Client, without the prior written consent of McElhanney. The Client may provide copies of this technical memo to its affiliates, contractors, subcontractors and regulatory authorities for use in relation to and in connection with the Project provided that any reliance, unauthorized use, and/or decisions made based on the information contained within this technical memo are at the sole risk of such parties. McElhanney will not be responsible for the use of this technical memo on projects other than the Project, where this technical memo or the contents hereof have been modified without McElhanney's consent, to the extent that the content is in the nature of an opinion, and if the technical memo is preliminary or draft. This is a technical document and is not a legal representation or interpretation of laws, rules, regulations, or policies of governmental agencies.

Standard of Care and Disclaimer of Warranties. This technical memo was prepared with the degree of care, skill, and diligence as would reasonably be expected from a qualified member of the same profession, providing a similar technical memo for similar projects, and under similar circumstances, and in accordance with generally accepted engineering and scientific judgments, principles and practices. McElhanney expressly disclaims any and all warranties in connection with this technical memo.

Information from Client and Third Parties. McElhanney has relied in good faith on information provided by the Client and third parties noted in this technical memo and has assumed such information to be accurate, complete, reliable, non-fringing, and fit for the intended purpose without independent verification. McElhanney accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this technical memo as a result of omissions or errors in information provided by third parties or for omissions, misstatements or fraudulent acts of persons interviewed.

Effect of Changes. All evaluations and conclusions stated in this technical memo are based on facts, observations, site-specific details, legislation and regulations as they existed at the time of the site assessment/technical memo preparation. Some conditions are subject to change over time and the Client recognizes that the passage of time, natural occurrences, and direct or indirect human intervention at or near the site may substantially alter such evaluations and conclusions. McElhanney should be requested to re-evaluate the conclusions of this technical memo and to provide amendments as required prior to any reliance upon the information presented herein upon any of the following events: a) any changes (or possible changes) as to the site, purpose, or development plans upon which this technical memo was based, b) any changes to applicable laws subsequent to the issuance of the technical memo, c) new information is discovered in the future during site excavations, construction, building demolition or other activities, or d) additional subsurface assessments or testing conducted by others.

Independent Judgments. McElhanney will not be responsible for the independent conclusions, interpretations, interpolations and/or decisions of the Client, or others, who may come into possession of this technical memo, or any part thereof. This restriction of liability includes decisions made to purchase, finance or sell land or with respect to public offerings for the sale of securities.

APPENDIX F

City of Courtenay
Email, dated April 22, 2025

From: Dickinson, Rob <rdickinson@courtenay.ca>
Sent: Tuesday, April 22, 2025 2:20 PM
To: Rob Hoffman <rhoffman@koers-eng.com>
Cc: Law, Connie <claw@courtenay.ca>; Wade, Marianne <mwade@courtenay.ca>
Subject: Lannan

Afternoon Rob, the CVRD are doing modelling related to their sewer (and water) systems as such they asked the City to confirm the Lannan flows to the Hudson. Per the below I confirmed the property will be zoned for 330 units and therefore the flows would be 9.5 L/s. Please confirm you agree with that.

Koers PIMP (January 22, 2025) calculated 9.3 L/s PWWF to the Hudson. (242 units) This included 10 units on Brittannia Way and 40 Multi-family units on the north side of Royal Vista. The persons per dwelling unit was assumed at 2.4 (Single family)

With 330 units it is recommended the City average density of 2.1 persons per unit be used (due to more multi-family) This results in a sewer PWWF of 9.5 L/s.

Sincerely,

Rob Dickinson, P.Eng. PE | **City of Courtenay**
Acting Development Engineer

T 250-334-4441 ext. 7264 | **E** rdickinson@courtenay.ca

City of Courtenay

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