



#3-3179 BARONS ROAD, NANAIMO, B.C. V9T 5W5

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**NEWCASTLE  
ENGINEERING LTD.**

0700-002

May 1, 2020

Williamson & Associates Professional Surveyors,  
Attn.: Mr. Brian Henning, B.C.L.S.,  
3088 Barons Road,  
Nanaimo, B.C., V9T 4B5

Dear Sir:

**Re:    Proposed Mixed Use Development  
      6261 Hammond Bay Road  
      Servicing Review**

As requested, we have reviewed the services available to the above referenced property from the perspective of their ability to accommodate the proposed mixed-use development contemplated by the Official Community Plan (OCP) Amendment Application before the City of Nanaimo. If adopted as proposed, the OCP Amendment being applied for would expand the Woodgrove Centre Urban Node to include the subject property.

The lands included in the application are currently occupied by the Green Thumb Nursery.

The subject property is currently zoned AR2 (Urban Reserve) and its future land use designation in the current Official Community Plan is Corridor.

The conceptual development plans prepared by Barefoot Planning + Design, by Murdoch de Greef Landscape Planning & Design and proposed development data provided by the consultant team indicate an approximate future unit count of 2,500 units in a number of buildings varying in height from 2 to in excess of 12 storeys. Building tenure, road network configuration, proposed parcel counts and sizes all remain to be confirmed at rezoning/subdivision/design stage.

The servicing comments have been separated by service type as detailed below.

### Watermains

Watermains fronting the subject property currently include:

- A 250Ø watermain in Marlin Way along the northerly 150 metres of the westerly boundary of the subject property;
- A 300Ø watermain in Hammond Bay Road fronting the subject property;
- A 250Ø watermain in Uplands Drive fronting the subject property between Hammond Bay Road and Parkwood Drive;
- A 300Ø watermain in Uplands Drive fronting the subject property between Parkwood Drive and the southerly limit of the subject property's frontage on Uplands Drive.

Given the various target zonings required to facilitate the development as proposed we expect that the most demanding zone in terms of fire flow demand may be applicable to the design of the watermain network and required fire hydrant spacing throughout the proposed development. The maximum theoretical fire flow permissible under the City of Nanaimo Manual of Engineering Standards and Specifications (MOESS) is 300 l/s for the zoning required to permit the highest density of the anticipated property zonings (R9-High Rise Residential). The City of Nanaimo Manual of Engineering Standards and Specifications (MOESS) also requires that, at building design stage, the theoretical fire flow at the main be limited to 300 l/s under the R9 zone.

At subdivision design stage collaboration will be required with the City of Nanaimo and/or their consultant in order to confirm watermain looping requirements and pipe sizing required to ensure that available fire flows within and surrounding the proposed development meet MOESS and project requirements.

### Sanitary Sewer

There is currently a 200Ø sanitary sewer main running north to south along Uplands Drive starting approximately 120 metres to the north of Parkwood Drive and ending at Parkwood Drive from where it flows to the east. The manhole at the intersection of Uplands Drive and Parkwood Drive is the expected point of connection for the sanitary sewer servicing associated with the subject property. It is our understanding that the sanitary sewer network from this location down to the intersection of Hammond Bay Road and Sealand Road has significant capacity limitations at present.

The City of Nanaimo engaged Urban Systems to complete a review of the sanitary sewer network downstream of the subject property in 2018, and engaged Newcastle Engineering Ltd. to complete a 50% design for the recommended works in 2019. Based upon preliminary information received from the City of Nanaimo it is our understanding that construction of the sanitary sewer upgrades downstream of the subject property recommended in the Urban Systems report are tentatively scheduled for construction in 2023.

The flows attributable to the subject property in the Urban Systems report were based upon a theoretical future population of 796 persons (284.2 units at 2.8 persons per unit) and a population density of 16 units per hectare. This population density is comparable to that permitted under the City of Nanaimo R10 (Steep Slope Residential) zone. Our review of the Official Community Plan indicates that the Corridor land use designation (indicated for the subject property on the Future Land Use Plan in the OCP) would typically result in a residential density of "50-150 units/Ha" and building heights of 2 - 6 storeys. Based upon allowable densities, the current OCP land use designation for the subject property would suggest a possible theoretical future population of 1,510-4,530 persons. It therefore seems that the future sanitary sewer flow for the subject property may need to be revisited in the context of the Future Land Use indicated for the subject property in the current version of the Official Community Plan ideally in advance of completion of final design for the sanitary sewer upgrades downstream of the subject property.

Should the OCP amendment and subsequent zonings result in development rights on the subject property allowing construction of 2,500 units, the resulting theoretical population at 1.7 persons per unit (as specified in the City of Nanaimo MOESS) would be approximately 4,250 persons, which is within the range contemplated in the current OCP. The ultimate population density on the subject property will not be known with any certainty until the OCP Amendment, all required Rezoning Applications, and finally, Building Permit Applications have been completed for all parcels created by the development.

Development of the subject property will trigger a requirement by the City of Nanaimo to eliminate the sewer pump station located on the west side of the Island Highway just north of Enterprise Way and to provide a gravity sewer connection between the location of this pump station and the sanitary sewer in Parkwood Drive at Uplands Drive.

Sanitary Sewer Development Cost Charge (DCC) projects in the vicinity of the proposed development include:

- DCC Project No. SS36-290m of 350mm diameter (at time of DCC Bylaw Update) sanitary sewer between Island Highway North and the intersection of Uplands Drive and Parkwood Drive);
- DCC Project No. SS44-upsize sanitary sewers in Hammond Bay Road and Turner Road

## Drainage

The drainage from the upstream lands currently flows through the subject property from the Island Highway to an inlet structure on the west side of Uplands Drive opposite Parkwood Drive. The size of this inlet structure and the downstream piping was based upon the version of the City of Nanaimo MOESS in effect at the time of its design and construction. Updates to the MOESS since design and installation of the storm sewer piping downstream of the subject property have incorporated the requirement to adjust design flows to accommodate theoretical flow increases attributable to possible future climate change (2016 MOESS). It is our understanding that the pending 2020 version of the MOESS incorporates further increases to the theoretical drainage flows. The result of this requirement is that piping downstream of the subject properties may be found to be undersized at design stage. It is a requirement of the City of Nanaimo MOESS to prove capacity downstream as far as the nearest trunk storm sewer (defined in the MOESS as 600ø or greater), which in this instance is the 1050ø storm sewer located in Parkwood Drive immediately downstream of the point of connection for the proposed development.

Drainage from the proposed development will be required to satisfy the City of Nanaimo MOESS requirements with respect to retention on site, post development runoff rate vs pre-development runoff rate, and water quality.

The methodologies for meeting the MOESS requirements will be conceptually defined at Development Permit Stage and further refined at design stage for the development of each parcel created as a result of the required OCP Amendment Application, subsequent Rezoning Application(s), Development Permit Applications, Subdivision Application(s) and Building Permit Applications.

These methodologies would typically include some combination of:

-bio-swales, increased absorbent soil thickness, raingardens, ponds, sub-surface storage, green roofs, and/or infiltration facilities, along with grading designed to convey major flows to the downstream drainage network without damage to the proposed development or existing infrastructure or buildings.

## Roadways

The subject property currently fronts on the following roadways:

- Hammond Bay Road (approximately 290 metres);
- Uplands Drive (approximately 655 metres);
- Marlin Way (approximately 151 metres);
- Island Highway North (approximately 270 metres).

The preliminary development plan which has been provided to us indicates a road connection between Enterprise Street at the Island Highway North and Calinda Street at Hammond Bay Road, a connection to Marlin Way, and a number of connections to Uplands Drive.

It is our understanding that the City of Nanaimo has a conceptual design for the interconnecting road between Enterprise Street and Calinda Street which was prepared in advance of the significant pending revisions to the MOESS with respect to road standards. We further expect that the City of Nanaimo will require that the road network associated with development of the subject property be configured to minimize the likelihood of increased traffic flows through Parkwood Drive off Uplands Drive. It is our expectation that the City of Nanaimo will discourage any direct access to the proposed development parcels off any of the fronting roadways with the possible exception of Marlin Way.

The future access location(s), counts, widths, and configuration will require approval by the City of Nanaimo and will be incorporated into the future subdivision plan and subsequently into the design drawings for the final building development on each of the development parcels created from the subject property.

The scope of required off-site roadworks along with configuration of the internal road network required as a result of the proposed rezoning/development of the subject properties is the subject of a Traffic Impact Assessment (currently underway by Watt Consulting Group), future detailed design, and associated review by the City of Nanaimo.

As noted above, the City of Nanaimo is planning to implement significant revisions to their road standards in the May 2020 version of the MOESS which will dictate the standards for upgrading of the fronting streets as well as for the proposed internal roads required in conjunction with the proposed development. Preliminary information received from the City of Nanaimo indicates that the future (2020 MOESS) road sections for each of the fronting streets are predicted to be:

- Hammond Bay Road-Mobility Collector;
- Uplands Drive-Mobility Collector;
- Calinda-Enterprise Connector-Urban or Mobility Collector.

We have not been able to confirm what upgrades may be required to Island Highway North within the limits of the subject property but expect that this information will be provided in the Traffic Impact Assessment currently underway.

The intersections of Island Highway North with Enterprise Street, Hammond Bay Road with Calinda Street, and Hammond Bay Road with Uplands Drive are currently signalized. The required upgrades to these intersections will be subject to the recommendations of the Traffic Impact Assessment, review by the City of Nanaimo, and future rezoning of the subject property.

Roads DCC Projects in the vicinity of the proposed development include:

- R38-Uplands Drive upgrade to minor collector including left turn lanes at Parkwood Drive and into subject property;
- R105-Calinda Street between Enterprise Street/Island Highway North and Hammond Bay Road/Calinda Street;
- R106-Hammond Bay Road/Island Highway North intersection upgrade.

#### B.C. Hydro/Telus/Shaw Communications/FortisBC Gas

There is three phase overhead B.C. Hydro plant along with Telus and Shaw Communications servicing along the north side of Hammond Bay Road within the frontage of the subject property.

There is three phase overhead B.C. Hydro plant extending for one span off Hammond Bay Road along the east side of Marlin Way and single phase B.C. Hydro plant along the remainder of the east side of Marlin Way fronting the subject property. There is Telus plant along the west side of Marlin Way fronting the subject property.

There is no overhead B.C. Hydro, Telus or Shaw Communications plant along Uplands Drive within the limits of the frontage of the subject property. According to the information we received from B.C. One Call there is underground Telus plant along the east side of Uplands Drive fronting the subject property.

There is three phase overhead B.C. Hydro plant along the north side of Island Highway North within the frontage of the subject property.

Subject to detailed design to be completed by B.C. Hydro, Telus, and Shaw Communications, it is our expectation that the proposed development will be serviced with underground B.C. Hydro/Telus/Shaw infrastructure connected to existing servicing by way of underground drops off the existing overhead plant at connection points to be determined by the respective utilities.

There is ornamental streetlighting along both Hammond Bay Road (staggered) and Uplands Drive (east (far) side only) within the limits of the frontages of the subject property. There is currently one ornamental streetlight on the west (far) side of Marlin Way.

There is ornamental lighting along Island Highway North within the limits of the frontage of the subject property.

FortisBC Gas has the following infrastructure fronting or in close proximity to the subject property:

- A 60ø PE gas main along the west side of Uplands Drive between the southerly property line of the subject property and the intersection of Uplands Drive and Parkwood Drive;
- An 89ø PE gas main along the south side of Hammond Bay Road fronting the subject property;
- A 60ø PE gas main along the west side of Marlin Way fronting the subject property;
- A 160ø PE gas main along the west side of Island Highway North fronting the subject property.

It is expected that FortisBC Gas will include looping of some or all of these mains through the subject property in conjunction with their design of servicing to the proposed development. This will be confirmed by FortisBC Gas at subdivision servicing design stage.

### Conclusions

Hammond Bay Road has been developed to its ultimate standard based upon the MOESS which was in effect when it was designed and constructed. Upgrading requirements will be dictated by the Traffic Impact Assessment and subsequent City of Nanaimo review of that document, the pending changes to the MOESS, and the outcome of the rezoning application process.

The west (near) side of Uplands Drive has not been constructed to its ultimate standard pending development of the subject property. Upgrading requirements will be dictated by the Traffic Impact Assessment and subsequent City of Nanaimo review of that document, the pending changes to the MOESS, and the outcome of the rezoning application process.

The east (near) side of Marlin Way has not been constructed to its ultimate standard pending development of the subject property. Upgrading requirements will be dictated by the Traffic Impact Assessment and subsequent City of Nanaimo review of that document, the pending changes to the MOESS, and the outcome of the rezoning application process.

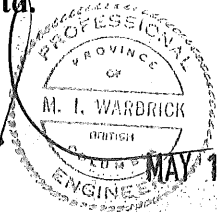
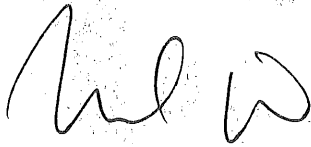
Servicing to the subject property is expected to include looping of the watermains through the development with sizes to be dictated by modelling results to be conducted by the City of Nanaimo's consultant at the developer's cost at subdivision servicing design stage.

The theoretical sanitary sewer design flows attributable to the proposed development and those based upon the current OCP Future Land Use Designation for the subject property are expected to result in a need to re-visit the future population calculations included in the Linley Valley Sanitary Servicing Review completed for the City of Nanaimo by Urban Systems in July of 2018. The revised theoretical flow information should be considered during preparation of the final design for the proposed upgrading of the sanitary sewer mains downstream of the subject property both in the context of the Future Land Use Designation in the current OCP and land uses contemplated by the OCP Amendment Application currently before the City of Nanaimo.

We expect that the drainage originating from within the proposed development will be managed on each development parcel to achieve compliance with the MOESS.

Should you require any further information in order to complete your review of the foregoing, please contact the undersigned.

Yours truly,  
**Newcastle Engineering Ltd.**



MAY 1 2020

Mark Warbrick, P.Eng.

Copy to: 1165035 B.C. Ltd., Attn.: Mr. Darwin Mahlum