



**NEWCASTLE
ENGINEERING LTD.**

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

PHONE: (250) 756-9553 FAX: (250) 756-9503

0466-028

December 2, 2019

MacDonald Gray Consultants,
Attn.: Mr. Nigel Gray, Registered Planner, Project Manager,
814 Shorewood Drive,
Parksville, B.C., V9P 1S1

Dear Sir:

Re: Proposed Mixed Density Residential Development
5757 Turner Road (Lot 11, District Lot 30, Wellington District, Plan VIP65104)
6010 Linley Valley Drive (Lot 13, District Lot 30, Wellington District, Plan VIP65104)
6020 Linley Valley Drive (Lot 12, District Lot 30, Wellington District, Plan VIP65104)
6033/6045/6047 Nelson Road (Lot A, District Lot 30, Wellington District, Plan 14190)
Servicing Review

As requested we have reviewed the services available to the above referenced properties from the perspective of their ability to accommodate the proposed residential development contemplated by the current rezoning application before the City of Nanaimo.

The current zonings and areas of the subject properties are:

5757 Turner Road-COR3-Community Corridor/PRC1-Parks, Recreation & Culture One/R8-Medium Density Residential (3.425 Acres) (1.39 Ha);
6010 Linley Valley Drive-R6-Townhouse Residential (2.218 Acres) (0.90 Ha);
6020 Linley Valley Drive-COR3-Community Corridor/PRC1-Parks, Recreation & Culture One/R6-Townhouse Residential/R8-Medium Density Residential (2.669 Acres) (1.08 Ha);
6033 Nelson Road-R1-Single Dwelling Residential/R4-Duplex Residential (5.36 Acres) (2.17 Ha)

The rezoning application is based upon two required subdivision applications to subdivide/combine a number of the subject properties in order to ultimately reconcile property lines with target zonings and associated land uses.

This servicing review has been configured based upon the final lot configuration comprised of a total of three parcels, one of which (Proposed Lot A) would be zoned R6-Townhouse Residential and two of which (Existing Lot 1 and Proposed Lot B) would be zoned R8-Medium Density Residential. Two separate subdivision applications are going to be undertaken in order to arrive at the ultimate lot configuration reconciling zoning boundaries with property lines and contemplated by the rezoning application, the first of which is currently underway.

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2020-APR-02
Current Planning

Proof of concept plans have been developed for proposed Lots A and B by de Hoog & Kierulf Architects indicating 90 suites in proposed Building 1 and 50 suites in proposed Building 2 on proposed Lot A and a total of 28 townhouse units on proposed Lot B.

Existing Lot 1 is currently zoned R8-Medium Density Residential and does not require a rezoning however a subdivision is required to reconcile the boundaries of Lot 1 with the existing and target zoning and proposed land uses.

Proposed Lot 3 does not require a rezoning, but a subdivision is required to align the boundaries of proposed Lot 3 with the current zoning boundaries.

There are no structures on the subject properties with the exception of 6033 Nelson Road which is currently occupied by one duplex dwelling and one single family dwelling.

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

Watermains

There is currently a 200Ø watermain in Nelson Road fronting the subject properties and a 250Ø watermain in Linley Valley Drive fronting the subject properties. There are two watermains in Turner Road within the limits of the property frontage of 5757 Turner Road, a 400Ø ductile iron watermain and a 200Ø PVC watermain.

At subdivision servicing stage, each proposed development parcel will be provided with a water service sized to provide fire and domestic flows for the ultimate development of each parcel based upon its zoning. Proposed Lot 3 has already been provided with 4-150Ø water services in contemplation of a possible future 4-Lot subdivision following the creation of Lot 3.

Preliminary discussions with City of Nanaimo staff indicate that, due to the configuration of the watermain network in the vicinity of the east end of Linley Valley Drive (dead end) and the expected fire flow demand associated with proposed Lot B (targeted for R8-Medium Density Residential zone) it is likely that a watermain loop will be required between Linley Valley Drive and Nelson Road through proposed Lot B and proposed Lot A. This watermain would be City owned and would require a Statutory Right of Way a minimum of 4.0m in width.

Our preliminary fire flow calculations for the most demanding of the proposed buildings (Building 1 on proposed Lot B) indicate a theoretical fire flow by Fire Underwriters' Survey Guidelines of 3,329 IGPM (252 l/s).

We have requested confirmation from the City of Nanaimo of the available fire flows on both Nelson Road and Linley Valley Drive with and without the watermain loop but have not yet received the response. Should the City of Nanaimo watermain network not be able to satisfy the fire flow demand for the proposed development the following options would be available to reduce fire flow demand:

- Reduce the size of the most demanding building;
- Introduce one or more fire separations into the most demanding building;
- Alter the construction type from wood frame to one with a lower coefficient, for the most demanding building;
- Separate the most demanding building into two or more separate structures;
- Employ an alternate solution with respect to fire protection for the most demanding building under the direction of a code consultant.

At building development stage, the water service to each proposed lot will be provided with a water meter and backflow prevention in compliance with City of Nanaimo requirements and sized to accommodate the development of each proposed lot.

Sanitary Sewer

There is currently a 200Ø sanitary sewer main running east to west along Linley Valley Drive and along the south side of Molecey Creek (parallel to the northerly boundary of proposed Lot 3 and within proposed Lot 3).

There are services off that portion of this sanitary sewer main located within proposed Lot 3 to facilitate a possible future 4-lot subdivision of proposed Lot 3.

There is a design currently underway to provide sanitary sewer servicing to the proposed parcels on the north side of Molecey Creek. It is expected that Design Stage Acceptance will be issued for this design during winter 2019/2020 and that construction will be completed spring/summer 2020.

All of the subject properties are tributary to the sanitary sewer running parallel to Molecey Creek so no sanitary sewer construction is contemplated within any of the fronting streets in conjunction with the proposed development.

The proposed May 2020 update to the City of Nanaimo Manual of Engineering Standards and Specifications requires developers to prove downstream sanitary sewer capacity within any mains projected to flow at depths in excess of 100% of the diameter of the downstream main. It is beyond the scope of this report to comment upon what this could entail with respect to flows emanating from the proposed development.

Drainage

There is no piped storm sewer service to the any of the subject properties at the present time.

Drainage from each of the subject properties is tributary to Molecey Creek which runs east to west between the northerly boundary of proposed Lot 3 and the southerly boundaries of proposed Lot B and existing Lot 1 and crosses Turner Road just to the south of the intersection of Turner Road and Nelson Road.

It is expected that, at final subdivision stage, each proposed parcel will be provided with a piped storm sewer service discharging into Molecey Creek and that at building construction stage, each parcel will be required to incorporate measures to ensure compliance with the City of Nanaimo Manual of Engineering Standards and Specifications with respect to retention of runoff, provision for infiltration, provisions for limitation of post-development runoff rate, and provisions for maintenance of stormwater quality prior to discharge from each parcel. In addition, an Erosion and Sediment Control Plan will be required for any subdivision servicing works and as a condition of any further development on each proposed lot.

Subject to verification by the Geotechnical Consultant that on-site soils are conducive to infiltration we expect that a combination of the following measures will be employed to manage and treat runoff from the future lots within the proposed development:

-bio-swales, raingardens, detention ponds, sub-surface storage, green roofs, and/or infiltration facilities, along with measures to convey major flows to the downstream drainage network without posing a hazard to any of the structures on the lots.

Roadways

Access to the subject properties at this time is available off Turner Road, Nelson Road, and will be available off Linley Valley Drive following construction of the proposed culvert(s) across Molecey Creek opposite its intersection with Stillwater Way.

Future access locations, counts, and widths will require approval by the City of Nanaimo and will be incorporated into the design drawings for the final subdivision development and/or final building development on each lot.

Provision for future access off Linley Valley Drive will be roughed in in conjunction with the currently proposed sanitary sewer servicing project scheduled for construction in 2020, subject to issuance of Design Stage Acceptance for the proposed works.

The scope of required off-site roadworks which may be required as a result of the proposed rezoning/development of the subject properties is the subject of a Traffic Impact Assessment, future detailed design and associated review by the City of Nanaimo.

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

There is underground B.C. Hydro/Telus/Shaw Communications servicing in both Turner Road and Linley Valley Drive fronting the subject properties.

Proposed Lot 3 has been provided with 4 sets of underground B.C. Hydro, Telus and Shaw Communications services to facilitate a potential 4-lot future subdivision of proposed Lot 3.

There is overhead three phase B.C. Hydro servicing along the north (far) side of Nelson Road within and beyond the extent of the Nelson Road frontage of the subject properties. Telus and Shaw Communications servicing (also overhead) is also available along the Nelson Road frontage of the subject properties.

In accordance with normal City of Nanaimo requirements it is expected that construction of ornamental streetlighting and removal of existing leased lights will be required along the Nelson Road frontage of the subject properties as a condition of development.

It is expected that B.C. Hydro, Telus and Shaw Communications servicing within the proposed lots will be underground.

FortisBC Gas service is available from a 114mm diameter gas main running along the north side of Linley Valley Drive, and from an 88mm diameter gas main running along the east side of Turner Road fronting the subject properties. There is currently no FortisBC Gas infrastructure within Nelson Road fronting the subject properties with the exception of the 88mm diameter gas main crossing Nelson Road at Turner Road. Design for any additional FortisBC Gas plant will be provided by FortisBC Gas at design stage for the final subdivision and/or and building development stage.

Conclusions

Both Turner Road and Linley Valley Drive have been constructed to their ultimate standard under the terms of the current version of the City of Nanaimo Manual of Engineering Standards and Specifications.

Nelson Road will require upgrading fronting the subject properties to bring it into compliance with the City of Nanaimo Manual of Engineering Standards current at the date of subdivision.

ervicing to the subject properties appears adequate to serve the proposed development with the possible exception of water servicing, which may require looping of the watermain between Nelson Road and Linley Valley Drive in order to increase available fire flows and with the proviso that the terms of the proposed May 2020 update to the City of Nanaimo Manual of Engineering Standards impose obligations upon the developer to prove downstream sanitary sewer capacity which are not possible to quantify without access to a complete sanitary sewer model for the downstream sanitary sewer network.

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

Yours truly,
Newcastle Engineering Ltd.

Mark Warbrick, P.Eng.

Copy to: Insight Holdings Ltd., Attn.: Mr. Darwin Mahlum
 Mr. Brian Henning, B.C.L.S.