

R E C E I V E D**RA530****2025-JUN-17**

Current Planning

2025-04-17

0406-030

R.W. (Bob) Wall Ltd.,
Attn.: Ms. Donna Hais, General Manager,
6040 Hammond Bay Road,
Nanaimo, B.C., V9T 5M4

By e-mail to: rwbobwallltd@shaw.ca

Dear Ms. Hais:

**Re: Proposed Rezoning Application Preliminary Servicing Review
1166, 1158, 1146, 1136 Seafield Crescent, 1135 Dufferin Crescent
Lot 37-40 and 44, Section 1, Nanaimo District, Plan 18936**

1. Introduction

As requested, we have reviewed the services available to the above-mentioned property from the perspective of their ability to accommodate the proposed development.

The preliminary development plans indicate two 5-storey buildings to be used as medical office space with access from Dufferin Crescent and Seafield Crescent.

The proposed development site is on five existing lots with legal description: Lots 37-40 and 44, Section 1 Nanaimo District, Plan 18936. Lots 44 & 40 are to be amalgamated into one lot (Lot A), and lots 37-40 are to be amalgamated into one lot (Lot B). Lot 44 fronts Dufferin Crescent, and lots 37-40 front Seafield Crescent. These lots are currently zoned R5 and CC5 and are occupied by single-family dwellings on each property.

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

2. Watermains

There is an existing 200Ø asbestos cement watermain along Dufferin Cr that currently services lot 44, and an existing 200Ø PVC watermain along Seafield Cr that currently services lots 37-40.

There are 4 fire hydrants along Seafield Cr: one in front of 1190 Seafield Cr, one in front of 1125 Seafield Cr, one in front of 1108 Seafield Cr, and one on Seafield Cr in front of 1125 Dufferin Cr. The current hydrant spacing within the road frontages of the subject property does exceed the maximum (90m) spacing stipulated in the 14th edition of the City of Nanaimo Manual of Engineering Standards and Specifications (MOESS) for the proposed zoning of the subject property. Based upon our preliminary investigation it appears that the existing fire hydrant located in front of 1125 Seafield Cr would be within the maximum (45m) distance to fire department connection (FDC) on the proposed building on lot B (Building B), assuming that the FDC is appropriately located on the building. However, the proposed building on future lot A (Building A) exceeds the maximum distance to existing fire hydrants. Given the fact that Building A will require a FDC and does not comply with the maximum allowable hydrant

distance to a FDC, it is our expectation that an additional City owned fire hydrant will be required on Dufferin Cr within the frontage of lot A. The additional fire hydrant would be constructed by City of Nanaimo forces at the developer's cost at building construction stage.

Nanaimo City Map indicates that the working pressure is approximately 83 psi at the fire hydrants in front of 1125 & 1190 Seafield Cr, and approximately 80 psi at the fire hydrants in front of 1108 Seafield Cr and 1125 Dufferin Cr.

In conjunction with the proposed development a water service sized to provide domestic and fire suppression flows to the proposed development will be required. The size and location of the required water services will be determined during detailed design for the site servicing and associated review by City of Nanaimo staff. This work will be completed at building construction stage by City of Nanaimo forces at the Developer's cost.

We have prepared and attached a preliminary fire flow calculation for each of the proposed buildings based upon the Fire Underwriters' Survey Guidelines and the building information currently available to us. Our preliminary fire flow calculation indicates a theoretical fire flow for Building A to be 133.3 L/s and Building B to be 216.7 L/s.

Given current City of Nanaimo policies we have not been able to confirm the fire flow available from the City of Nanaimo watermain network at this location, but it is our understanding that the City will confirm the available fire flow as part of their review of the Development Permit and/or the Building Permit application required to advance this project.

The domestic water demand for the subject property has been estimated below using the 14th Edition of the City of Nanaimo MOESS and is summarized below.

Average Daily Demand (ADD):	455 liters per capita per day (L/c/d)
Maximum Day Demand (MDD):	1135 liters per capita per day
Peak Hour Demand (PHD):	1820 liters per capita per day

The preliminary domestic flow calculation for the proposed buildings have been estimated using section 5 of MOESS to determine the population density of the proposed land use type – for this development 50 people per hectare was used. Using that design population, and applying the average daily demand, maximum daily demand, and peak hour flow factor Our preliminary domestic flow calculation indicates a theoretical peak hour demand of 0.4 L/s.

The estimated domestic demand and preliminary fire flow demand are summarized in Table 1.

Table 1: Water Demand and Fire Flow

ADD ⁽¹⁾ (m³/day)	MDD ⁽¹⁾ (m³/day)	PHD ⁽¹⁾ (L/s)	Fire Flow (L/s)
8.9	22.1	0.4	216.7

(1) City of Nanaimo Manual of Engineering Standards and Specifications (2022)

3. Sanitary Sewer

There is a 1500 asbestos cement sanitary sewer along Seafield Cr that services lots 37-40, and a 1500 asbestos cement sanitary sewer running through lots 42-49 1 meter from the southern property line that services lot 44. There is also a 2500 PVC sanitary sewer that runs along Dufferin Cr.

Based upon preliminary site development plan available to us, the anticipated design population for calculation of sanitary sewer flow would be 20 persons for both proposed lots. Using that design population, and applying the required peaking factor and infiltration allowance our preliminary calculations indicate a total design sanitary sewage flow of 0.34 L/s for both lots.

The preliminary design standard flow rate for sanitary sewers is estimated using the City of Nanaimo MOESS. The Average Dry Weather Flow (ADWF) was calculated by multiplying the estimated population by the average daily sewage flow of 230 liters per day per capita (MOESS, 2022). Shown in Table 3 below.

Table 3: Average Dry Weather Flow (ADWF)

Land Use	Estimated Population	Design Demand ⁽¹⁾ (L/d/c)	ADWF (m ³ /d)
Building A	9	230	2.1
Building B	11	230	2.5
Total	20		4.6

(1) City of Nanaimo Manual of Engineering Standards and Specifications (2022)

The peak dry weather sewage flow (PDWF) rates were estimated by multiplying the Average Dry Weather Flow (ADWF) by the Peaking Factor (PF). The Peaking Factor is calculated using the following:

$$PF = 1 + \frac{14}{4 + \left(\frac{P}{1000}\right)^{0.5}}$$

PF - Peaking Factor

P - Population

Table 4: Estimated Peak Dry Weather Flow

ADWF (m ³ /day)	Peaking Factor ⁽¹⁾	PDWF (m ³ /day)
4.5	4.4	19.8

(1) City of Nanaimo Manual of Engineering Standards and Specifications (2022)

The Infiltration allowance (I) was estimated by multiplying the assumed catchment area by the corresponding infiltration rate of 25 m³/ha for new development areas.

Table 5: Estimated Infiltration allowance

Catchment Area (ha)	I Rate (m ³ /ha/day)	Infiltration allowance (m ³ /day)
0.39	25	9.8

According to the City of Nanaimo MOESS, the sanitary sewer systems shall be designed using the equation:

$$\text{Design Flow } Q = \text{PDWF} + I$$

PDWF - Peak Dry Weather Flow

I – Infiltration allowance

The design flow is summarized table below, calculated by adding peak dry weather flow and infiltration allowance together.

Table 6: Estimated Design Flow

PDWF (m ³ /day)	Peak I&I (m ³ /day)	Design Flow (m ³ /day)	Design Flow (L/s)
19.8	9.8	29.6	0.34

As a result, our preliminary calculations indicate a peak sanitary sewer flow of 0.34 L/s.

It is our expectation that, as part of the application review, the City of Nanaimo will complete a calculation to confirm whether there will be any downstream capacity constraints due to the preliminary design sanitary sewer flows resulting from the proposed development.

4. Drainage

There is an existing 300Ø storm main running along Seafield Cr that currently services all the subject properties except for 1135 Dufferin which does not have a storm service. There is an existing catch basin within the frontage of lot 44 that leads into a 300Ø storm main along Dufferin Cr. There is also a 150Ø PVC storm main that runs along the property line between lot 37 and 36.

Since the subject property drains to a water course, MOESS requires that the site provides volume reduction, detention, and water quality treatment to minimize erosion and protect aquatic habitat and water quality.

For volume reduction and infiltration of the required 31mm of rainfall, Lot A will require 360mm of topsoil on all landscaped areas to infiltrate and retain the rainfall onsite. Lot B will require 375mm of topsoil on all landscaped areas to infiltrate and retain the rainfall onsite.

To detain the post development flow to match pre-development flows the site must detain the 5-year storm event volume to be in line with pre-development levels. Lot A will require 13 cubic meters of storage onsite to detain the 5-year storm event to pre-development levels. Lot B will require 23 cubic meters of storage to detain the 5-year storm event to pre-development levels. The development plans for Lot A include a proposed detention tank under the parking lot that will provide capacity to detain a 5-year storm event to pre-development levels. For Lot B another detention tank is proposed to be constructed underneath the driveway to similarly detain a 5-year storm event to pre-development levels. The post development flow for both lots is planned to be detained in each detention tank and conveyed through a common onsite storm water system, to be discharged to the existing 300Ø storm main running along Seafield Crescent. It is assumed that detailed design stage discussions with the City of Nanaimo will be undertaken to determine required detention volumes and conveyance of major storm events into the existing City of Nanaimo storm infrastructure.

To meet water quality treatment requirements, Lots A and B will both require oil water separators, rain gardens, and/or bioswales to comply with the MOESS rainwater best management practises for water quality.

5. Roadways and Access

The portion of Dufferin Cr. fronting the subject property (Lot A) will need to be constructed to comply with the standard cross section shown on City of Nanaimo Standard Drawing MC-XS1 (Mobility Collector) and the existing catch basin on Dufferin Cr will need to be relocated to the proposed gutter location. The portion of Seafield Cr fronting the subject property (Lot B) will need to be constructed to comply with the standard cross section shown on City of Nanaimo Standard Drawing ML-XS1 (Mobility Local) with additional road dedication within the current subject property line.

The scope of the required reconstruction of the existing fronting streets will be reviewed with City of Nanaimo staff during design of the civil works, considering the Benkelman Beam Test results on the existing Dufferin Cr and Seafield Cr pavement, and available dedication widths. It is our expectation that the City of Nanaimo will require at a minimum, removal and replacement of the pavement to the centerline of right-of-way within the limits of the road frontages of the subject property in addition to the surface works, landscaping and removal and replacement of any existing surface level utility infrastructure as indicated on the appropriate road cross sections.

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

There is existing overhead B.C. Hydro (3 phase), Telus, and Shaw distribution lines along the south (near) side of Dufferin Cr fronting the subject property.

There is currently streetlighting along the north (far) side of Dufferin Cr fronting the subject property, as well as the south (far) side of Seafield Cr frontage of the subject property. Additional lighting, if required, within the Dufferin Cr and Seafield Cr frontages to be reviewed during detailed design.

According to our review of available record drawings there is a 60Ø FortisBC gas distribution pressure main along the south (near) side of Dufferin Cr fronting the subject property. There is also a 42Ø gas distribution pressure main along the north (near) side of Seafield Cr that is capped approximately 19 meters to the west of the subject property.

Design for any FortisBC Gas servicing required in conjunction with the proposed development will be provided by FortisBC Gas at the design stage for the development.

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

Yours truly,
Newcastle Engineering Ltd.

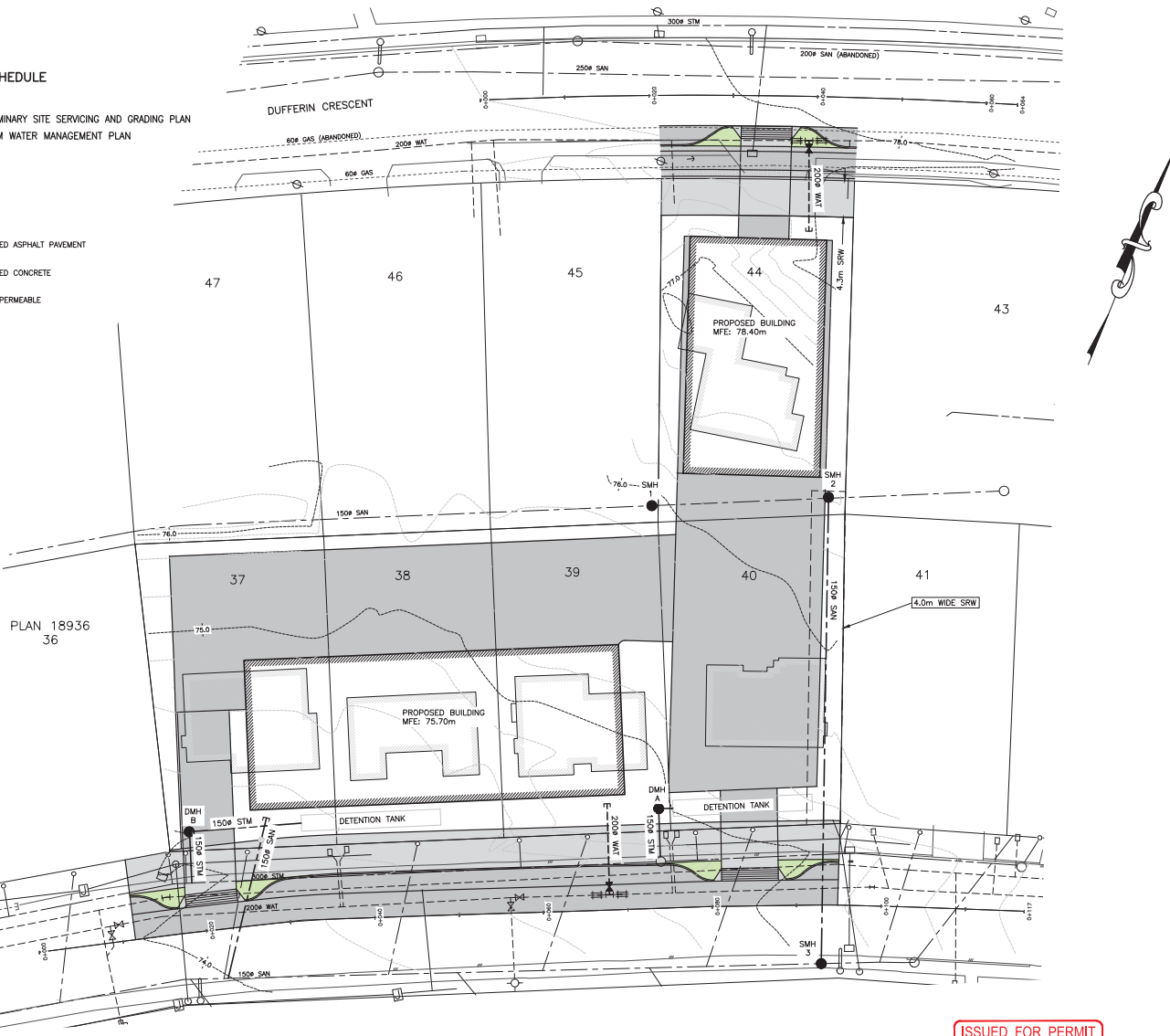


Drew Beiderwieden, P.Eng.

CITY DWG No.	NEL DWG No.	REVISION	TITLE
0406-030-01	0406-030-01	REV00	PRELIMINARY SITE SERVING AND GRADING PLAN
0406-030-02	0406-030-02	REV00	STORM WATER MANAGEMENT PLAN

DRAWING SCHEDULE

- AREA OF PROPOSED ASPHALT PAVEMENT
- AREA OF PROPOSED CONCRETE SIDEWALK
- AREA PROPOSED PERMEABLE LANDSCAPING



LOCATION PLAN
N.T.S.

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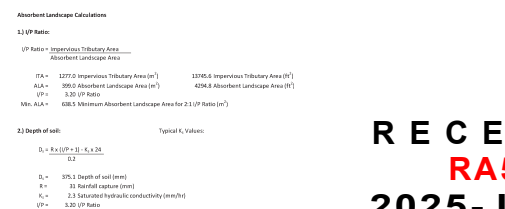
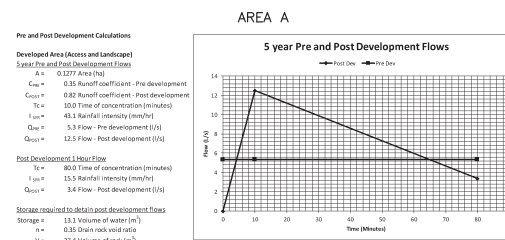
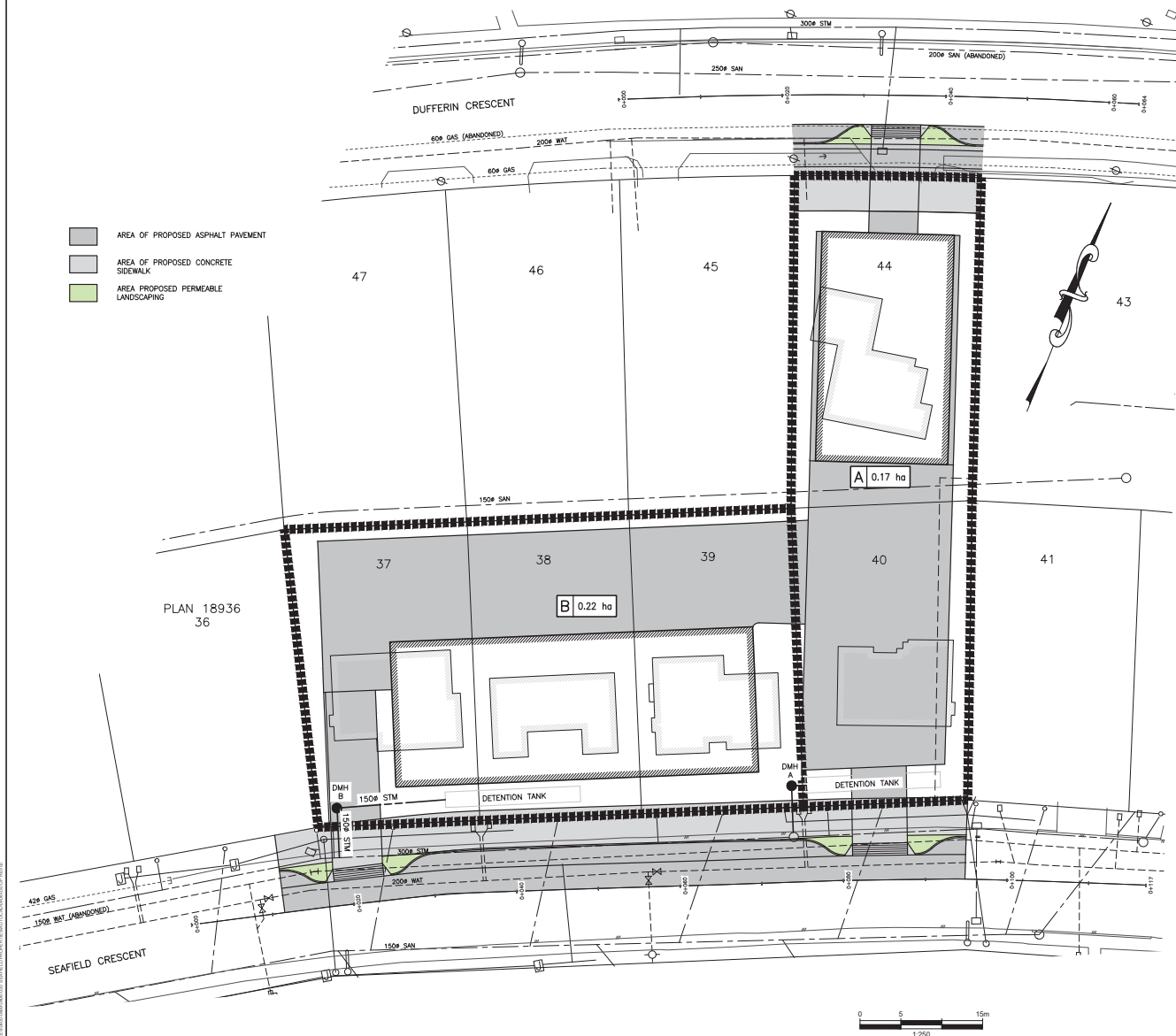
NOTES:
1. THE LOCATIONS OF EXISTING SERVICES ARE SHOWN APPROXIMATELY AND SHALL BE CONFIRMED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK. EXISTING & PROPOSED SERVICES MAY REQUIRE ADJUSTMENT WHERE A CONFLICT OCCURS. THE ENGINEER SHALL BE NOTIFIED OF ANY CONFLICT.

ISSUED FOR PERMIT
PURPOSES ONLY



Rev. No.	DATE	BY	REVISION DESCRIPTION	ENG	LEGEND				SITE LEGAL DESCRIPTION		ENGINEER'S SEAL	DESIGN	DB	CLIENT NAME	DRAWING TITLE	
00	04/02/25	JM	SUBMITTED FOR REVIEW - NOT FOR CONSTRUCTION		DB	PROPOSED	EXISTING	PROPOSED	EXISTING	LOT 37-40 & 44, SECTION 1 NANAIMO DISTRICT, PLAN 18936				R.W. (BOB) WALL LTD.	PRELIMINARY SITE SERVING AND GRADING PLAN	
					-----	WATERMAIN	-----	-----	HYDRAULIC GROUND							
					-----	STORM SEWER	-----	-----	MEAN GROUND							
					-----	SANITARY SEWER	-----	-----	FLUSHOUT							
					-----	GAS MAIN	-----	-----	CATCH-BASIN							
					-----	ELECTRICAL DUCT	-----	-----	DITCH INLET OB							
					-----	INLET/OUTLET HEADWALL	-----	-----	MANHOLE							
					-----	DITCH INLET/OUTLET	-----	-----	CLEANOUT							
					-----	DITCH	-----	-----	HYDRO POLE							
					-----	EDGE OF PAVEMENT	-----	-----	GAP							
					-----	VALVE BOX	-----	-----	STREETLIGHT							
					-----	LIMIT OF CONSTRUCTION	-----	-----	FENCE							
												</				





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