TRITON ENGINEERING SERVICES LIMITED
Consulting Engineers

DATE:	June 3, 2021
TO:	Town of Minto/Wellington County
FROM:	Dwaine Scheerer
RE:	Clair Ridge Estates, Palmerston Site Servicing Memorandum in Support of Re-Zoning Application

Site Servicing Memorandum – Clair Ridge Estates

BACKGROUND:

Triton Engineering Services is the engineering consultant for Galaxy Fine Homes who are proposing to develop a parcel of land in the south end of Palmerston that is located between Toronto Street and Prospect Street known as Clair Ridge Estates (formerly referred to as the Dan Sinclair Subdivision).

This Site Servicing Memorandum has been prepared in support of a Planning Justification Report being submitted by GSP Group whereas it is being proposed that the existing Draft Plan of Subdivision be re-zoned from an R1B Residential Zone to an R2 Residential Zone to permit semi-detached units and reduced frontage widths for single detached units. The existing Draft Plan of Subdivision provides a total of 28 single detached units for the complete build out of the development (five of which have already been constructed). The proposed rezoning provides 24 single detached units and 16 semi detached units for the remaining Phase 2/3 vacant lands (40 total units). These units plus the 5 that have already been constructed brings a total of 45 overall units for the complete build out of the development. No changes are proposed to the alignment of the road network or location of the Stormwater Management facility within the parcel.

This memorandum is supplemental to Triton Engineering's Functional Servicing Report prepared for the development dated October 2017 and engineering design drawings approved by the Ministry of the Environment and Climate Change dated November 6, 2017.

Our purpose in providing this Site Servicing Memorandum is to display that the Site Servicing and Stormwater Management design prepared by Triton Engineering Services for the existing Draft Plan of Subdivision design for the development can support the proposed intensification. Additionally, to confirm that the Town of Minto's water and wastewater infrastructure has adequate reserve capacity for additional lots proposed for the development.

STORMWATER MANAGEMENT:

Imperviousness

Given the proposal to increase the density for the development, an analysis on the post development impervious area was conducted to compare against the impervious area that was expected for the existing Draft Plan of Subdivision density. The analysis has shown that although we will be increasing the density, the impervious area actually decreases by 0.6% as shown in **Table 1** below. The analysis revealed that the proposed increase in density did very little to change the impervious roof top area and driveway area, and was more than equalled by the increase in pervious area with the additional sideyards that will exist with the proposed increase in the number of lots in the outer portion of the development.

TABLE 1 – Impervious Area

	Existing Draft Plan (2017)	Proposed Re-Zoning (2021)
Total Site Area	3.3ha	3.3ha
Impervious Area	1.39ha	1.37ha
% Impervious	42.1%	41.5%

Grading/Drainage

The proposed overall grading design for the original lot configuration directs the majority of the developed site to the SWM block for treatment and attenuation. The proposed lot configuration will not change the proposed grading patterns in any manner. The internal lots will remain as back-to-front draining properties in which the entirety of each lots' overland flow will be directed to the street. The outer properties will remain a combination of back-to-front draining lots as well as split draining where a portion of the lots overland flow is directed to a rear yard swale and conveyed to the storm system within the roadway via a rear yard storm sewer lead.

Storm Sewer System

The storm sewer system configuration and pipe sizing for the proposed lot configuration will generally remain as they were designed originally because the layout of the roadway and the increase/decrease in imperviousness is virtually unchanged. The only alteration that may be required to the storm sewer system will be the location of the rear yard storm leads to accommodate the proposed location of sideyard property lines.

Stormwater Management Facility

Based on the above analysis of the difference in impervious areas between the existing Draft Plan and the proposed re-zoning, we can conclude that since there is a slight decrease in impervious area that the existing design of the Storm Water Management facility will not require and modifications or alterations and that the intent of the storm water management strategy presented in the Functional Servicing Report (2017) for quantity and quality control will be upheld under the proposed increase in density for the development.

WATER AND WASTEWATER SERVICING:

The Planning Justification Report being submitted by GSP Group is proposing an increase in density for the existing Draft Plan of Subdivision for the remaining vacant lands (Phase 2/3) that would see a total of 40 equivalent residential units (ERU), an increase of 17 ERU's from the existing Draft Plan that had allocated 23 ERU's for the same remaining vacant lands.

Water

Water servicing size and alignment for the proposed increase in density for the development will not vary from what had been designed for the existing Draft Plan. The units will be serviced by a 150mm diameter PVC watermain that will be looped to the existing water supply via a connection at Prospect Street and at the intersection of Toronto Street and Derby Street.

As per the 2021 Town of Minto (Palmerston) Reserve Capacity Calculations, the existing water system has the reserve capacity to serve an additional 614 ERU's. Out of the 614 ERU's, the Town has 152

committed ERU's that have not yet been developed (23 of which are included in the 'Dan Sinclair Subdivision'); resulting in an uncommitted water reserve capacity of an additional 462 ERU's, the equivalent of 481.66 m^3/day. Therefore, it can be concluded that there is sufficient water supply to accommodate the additional 17 ERU's being proposed in the re-zoning that are expected to produce an Average Daily Flow of 17.76 m^3/day.

TABLE 2 – Average Daily Flow Calculations (Water)

	Existing Draft Plan (2017) Phase 1, Constructed dwellings	Existing Draft Plan (2017) Phase 2/3, Remaining Vacant Lots[(1)]	Proposed Re-Zoning (2021) Phase 2/3, Additional New Lots[(2)]	Total of Phase 1 (constructed) plus proposed Phase 2/3 Re-Zoning
ERU's	5	23	17	45
Average Daily Flow	5.22 m^3/day	24.03 m^3/day	**17.76 m^3/day**	47.01 m^3/day

[(1)] Committed ERU's not yet developed
[(2)] Uncommitted ERU's
Per Capita Maximum Daily Flow = 0.423 m^3/day
2.47 persons per ERU

Wastewater

Sanitary servicing size and alignment for the proposed increase in density for the development will not vary from what had been designed for the existing Draft Plan. The units will be serviced by a 200mm diameter PVC sewer that will outlet via a connection to the existing sanitary sewer network at Prospect Street and at the intersection of Toronto Street and Derby Street.

As per the 2021 Town of Minto (Palmerston) Reserve Capacity Calculations, the existing surplus sewage capacity is 767 m^3/day, which equates to 768 ERU's. Out of the 768 ERU's, the Town has 152 committed ERU's that have not yet been developed (23 of which are included in the 'Dan Sinclair Subdivision'); resulting in an uncommitted sewage reserve capacity of an additional 616 ERU's, the equivalent of 616.21 m^3/day. Therefore, it can be concluded that there is sufficient sewage reserve capacity to accommodate the additional 17 ERU's being proposed in the re-zoning that are expected to produce an Average Daily Flow of 17.01 m^3/day.

TABLE 3 – Average Daily Flow Calculations (Wastewater)

	Existing Draft Plan (2017) Phase 1, Constructed dwellings	Existing Draft Plan (2017) Phase 2/3, Remaining Vacant Lots	Proposed Re-Zoning (2021) Phase 2/3, Additional New Lots	Total of Phase 1 (constructed) plus proposed Phase 2/3 Re-Zoning
ERU's	5	23[(1)]	17[(2)]	45
Average Daily Flow	5.00 m^3/day	23.01 m^3/day	**17.01 m^3/day**	45.02 m^3/day

[(1)] Committed ERU's not yet developed
[(2)] Uncommitted ERU's
Per Capita Maximum Daily Flow = 0.405 m^3/day
2.47 persons per ERU

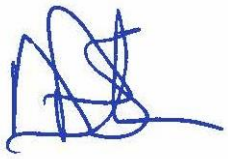
CONCLUSIONS:

Based on the information provided within this Site Servicing Memorandum and the existing engineering design, we conclude the following when considering the re-zoning proposal of the Clair Ridge Estates Subdivision (Phase 2/3) from the existing R1B Residential Zone to an R2 Residential Zone to permit semi-detached units and reduced frontage widths for single detached units and the resultant increase in density:

- The existing proposed lot grading design and storm sewer collection system are satisfactory to the re-zoning proposal and will not require significant alterations to service the proposal.
- The existing design, location, and size of the Storm Water Management facility is satisfactory to the proposal and will not require any design modifications.
- The increased daily water flows required to accommodate the proposal are well within the reserve capacity available within the Town of Minto's (Palmerston) water distribution system. The existing design, location, and size of the water distribution system within the development is satisfactory to the proposal and will not require any design modifications.
- The increased daily sewage flows required to accommodate the proposal are well within the reserve capacities available within the Town of Minto's (Palmerston) sewage treatment facilities. The existing design, location, and size of the sanitary sewer system within the development is satisfactory to the proposal and will not require any design modifications.

Respectfully Submitted By,

TRITON ENGINEERING SERVICES LIMITED



Dwaine P. Scheerer, C.E.T.