

November 28th, 2016

SV of Silver Sands
Box 8
Alberta Beach, AB
T0E 0A0

Attn: Wendy Wildman

RE: Silver Sands Golf Resort Area Structure Plan Engineering Review

Bolson Engineering is managing the engineering review for an Area Structure Plan (ASP) for the Silver Sands Golf Resort that was prepared by the Norcan Group Inc. Found below is our initial engineering review of the application prepared in October, 2016.

Legal Description: Pt. of the SW3 and N1/2 of 3, Township 54, Range 4, West of the 5th Meridian

Location: Summer Village of Silver Sands

Applicant: The Norcan Group Inc.

Gross Area: 114.5 Ha (283 Acres)

BACKGROUND

The Summer Village of Silver Sands has requested that an Area Structure Plan be submitted and approved for the proposed Silver Sand Golf Resort Development. The goal of the ASP is to provide a framework for a recreational residential community that will integrate into the golf course and the Silver Sands community. The community will be within a seasonally serviced condominium that will have full time residency restricted through condominium bylaw restrictions and a sharply reduced level of services through the winter months. A long term commercial area is planned for the NW portion of the property while potential future full time residential areas are conceptual at this stage.

ENGINEERING REVIEW

A review of the major engineering components of the ASP has been conducted by Bolson Engineering and our findings and comments are listed below. The information that was provided as part of the review process consisted of the following:

Area Structure Plan (October 2016) - The Norcan Group Inc.
Geotechnical Investigation Report (February 2015) - Parkland Geo
Preliminary Groundwater Assessment - The Norcan Group Inc.
Preliminary Servicing Design Brief (July 2016) - The Norcan Group Inc.
Stormwater Management Plan (July 2016) - River Engineering Consulting
Traffic Impact Assessment (Sept 2016) - D&A Paulichuk Consulting Ltd.
Wetland Assessment (July 2016) - River Engineering Consulting

TIA:

A review of the Traffic Impact Assessment completed by D&A Paulichuk Consulting Ltd. in September, 2016 for this proposed development found that no improvements of the existing roadway infrastructure are required for the 20 year period based on the phasing model currently outlined in the ASP. It has also been noted that the Summer Village of Silver Sands has approved a road standard to match Silver Sands Drive and this standard will govern for the future design.

Bolson Engineering has no concerns with the findings of the TIA and only has the following general comments with regards to the traffic improvements and network design for the proposed new subdivision:

- As noted in the TIA, the north boundary road of the NE of 3 54-5-W5M (TWP Road 541) will be developed to the east and connect with Range Road 52. It is recommended that this work be done during any initial development to allow for an additional access to the Summer Village and to provide an alternate route during construction and for emergency access vehicles if required.
- In the servicing brief, there is discussion of the 14.0m and 10.0m road ROW's for the internal network along with corresponding cross sections. However, the 20.0m road allowance for the north boundary road does not have a cross section and particularly the portion that is being proposed to be reduced to a 15.0m road allowance to minimize disturbance to the existing golf green is not included. It would be helpful to have a detail of the proposed 15.0m road allowance showing the roadway, ditches, buffer, etc. for clarification and to confirm constructability.
- The detailed engineering design for the proposed road network (once completed) will need to be reviewed prior to approval of the Development Agreement to ensure compliance with the recommendations of the geotechnical report and the Summer Village design criteria.
- Alberta Transportation support for the findings of the TIA should be provided as part of the approval process.

Storm Water Management Plan:

The proposed methodology of overland storm drainage through a series of ditches, dry, and wet ponds is an acceptable option for storm water management for this type of subdivision. All the design criteria utilized by River Engineering Consulting in the preparation of the stormwater management plan was reviewed and are satisfactory for the proposed development. Some additional general comments regarding the stormwater management plan include:

- Culverts will be required at various locations of the development to ensure drainage across roadways, approaches, etc. A typical culvert detail or standard that is acceptable to the Summer Village of Silver Sands should be provided as part of the detailed design to ensure culverts are installed and sized properly.

- If a dry hydrant is to be utilized for fire protection then the pond must be sized accordingly to ensure adequate flows for the hydrant are available and that enough water is available within the pond year round. It may also be possible that more than 1 dry hydrant will be required to provide adequate fire protection and this should be considered during the design stage.
- Landscaping and planting plans for the wet ponds should be provided as part of the design stage to ensure adequate erosion control and naturalized appearances are part of the pond construction.
- Would it be possible to identify the major overflow path for the development for large storm events? This would help identify where spillways on the ponds would be located and ultimately ensure that developed areas are not affected by major storm events. At a minimum this information should be provided as part of the detailed design for the project.
- As part of the ultimate design for the storm ponds please ensure a minimum 0.300m is used for freeboard allowance and if dry hydrants are being installed that the volume calculations take into account ice allowance to ensure that enough water is available year round for fire protection. Overflow spillways and inlet/outlets should all be properly rip-rapped as well to prevent potential erosion and these design details included as part of the design review.

Water and Sanitary Sewer Servicing:

The proposed water and sanitary sewer servicing options seem acceptable for the development. A few comments/clarifications that Bolson Engineering has are:

- Due to the seasonal nature of the development, and the shallow depth of the water services, what is the methodology being proposed for "winterizing" the system?
- Pipe sizes will need to be confirmed at the design stage along with the corresponding calculations for pipe capacities, velocity, pressure, etc.
- Would it be possible to provide a detail showing the typical installation of the water and sewer main lines? Basically, what the proposed depth of installation, horizontal spacing between the lines, and the location within the various types of road ROW's is for clarification?
- It is understood that as part of the treatment process for the sewage that a pond will be utilized with approximately 30,000 cubic meters of storage. Is the approximate location of this pond known? Will this pond also be utilized for stormwater storage or will it be strictly for treated wastewater? Will testing be conducted on the treated wastewater prior to its release to the environment? A little more clarification on the treatment pond would be beneficial to understand how it will integrate with the rest of the development.
- Mention of some water and sewer services for year round use is made regarding the wash and shower buildings in the ASP. Would this be through septic tank and cistern/well or is another methodology being proposed?

Wetland Assessment:

Based on the review of the Wetland Assessment Report prepared by River Engineering Consulting in July, 2016, all existing wetlands are located on the developed Golf Course and not impacted by the proposed development. However, in the ASP it does mention that an existing Wetland No. 5 is in the developable area. The limits of Wetland No. 5 should be confirmed with a boundary survey prior to development and a plan provided that shows how the Wetland will be preserved (ie. buffer between the wetland and development, landscaping improvements, etc.). No wetland compensation is required if the Wetland No. 5 is properly preserved and utilized as part of the storm water management of the new development.

Shallow Utilities:

It is understood that gas and power utilities will be made available in the new development by Ste. Anne Gas Co-Op Ltd. and Fortis Alberta. As part of the design process utility ROW's or location of the shallow utilities in relation to the road network should be provided. A detail for individual servicing of the various lot types is also recommended to be provided prior to development.

It would also be helpful to identify the location of the nearest existing power and gas services and to verify that the required demand can be met by the current infrastructure or if upgrades by the utility companies will be required.

Phone and cable utilities should also be identified to show where they are available for future servicing.

SUMMARY

Overall we support the information provided in the ASP pending the responses to our questions/clarifications and look forward to doing further reviews at the design stage.

If you have any questions or require further information please feel free to contact me at 780-668-8571 or by email at tthompson@bolson.ca.

Sincerely,



Trent Thompson, P.Eng.