

## Memorandum

---

<b>To</b>	Larry Horncastle, CAO, Summer Village of Ross Haven
<b>Copy</b>	Garry MacDonald, Kyle Reiling
<b>From</b>	Alamgir Hossain
<b>Office</b>	Sherwood Park Office
<b>Date</b>	November 16, 2017
<b>File</b>	S-39447
<b>Subject</b>	Summer Village of Ross Haven (Village), 4 <sup>th</sup> Street and Driveway Construction

---

This technical memorandum is issued to explain how the 4<sup>th</sup> Street and associated driveway was constructed as part of the drainage improvement works undertaken in 2017.

Work on the 4<sup>th</sup> street was carried out as per the design, which was approved by the Village in May / June, 2017. The new driveway location for Houses #416 and #415 was provided in the field during construction by the Village based on the field conditions.

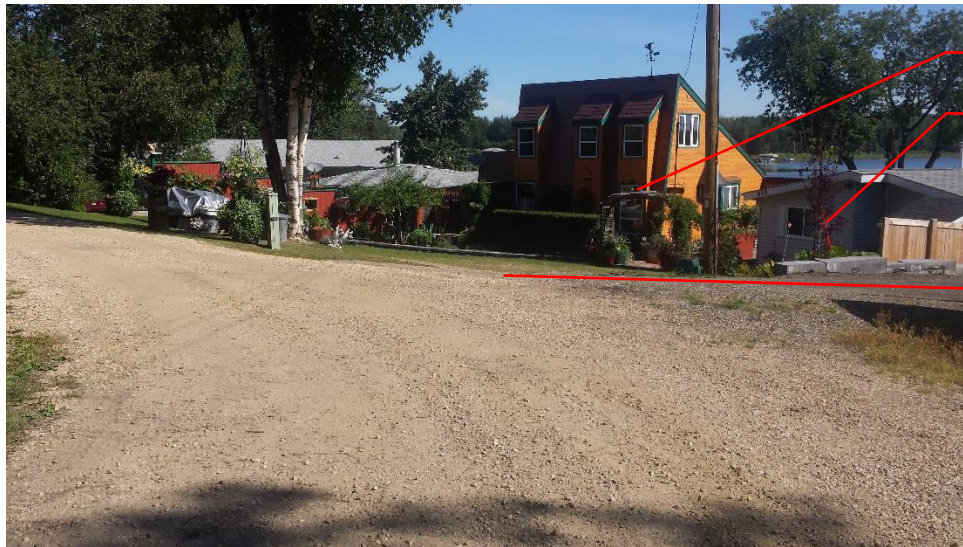
The original driveway / access to these properties was perpendicular to the 4<sup>th</sup> street alignment, with a slope gradient between 16% to 17%. (ground surveyed by Opus in April, 2017). The existing surface of this area appeared to be graveled. No geotechnical investigations were undertaken or were available to ascertain the thickness of gravel and soil conditions underneath the existing surface. Based on the visual observations and excavations undertaken during the Telus line relocation (by Telus), the existing soil in the area appeared to be mostly topsoil and clay mix. **Photo 1a and 1b** show the conditions prior to construction.

The new shared driveway for Houses #416 and #415 was constructed (in September/October, 2017) more or less in the same area as originally existed but at a skewed angle with the 4<sup>th</sup> Street alignment at a slope gradient between 15% to 16% (as-built surveyed on October 13, 2017). Ground slope along the direction of original driveway (i.e. perpendicular to 4<sup>th</sup> Street) was constructed at about 28% to 30% gradient.

The new driveway was constructed by spreading new gravel material (about 125 to 150mm thick layer) on top of the existing ground and compacted with a vibratory smooth drum roller (Caterpillar 563, size 84") that was also used for compacting the roadway. Quality assurance was based on visual observations and ensuring appropriate construction equipment was used and procedures were followed. Performance under actual traffic movement on the newly constructed areas were also observed as part of quality assurance.

In our opinion, the structure of the as-constructed driveway is equal or better than the structural conditions that existed on the original driveway. Although the two alignments are different (i.e. perpendicular to 4<sup>th</sup> Street in case of the original driveway vs. skewed angle with 4<sup>th</sup> Street in case of the new driveway), the longitudinal slope of the new driveway (15% to 16%) is in the same range as that of the original driveway (16% to 17%).

The topsoil and clay mix underneath the driveway is not an ideal sub-base material for a roadway / driveway and it is anticipated that some settlements will occur over the time. It should be noted that the structural integrity of any gravel surface used for vehicles vastly depends on the usage (vehicle type/weight, speed, breaks / acceleration rates etc.) and typically requires some level of maintenances from time to time. Considering the existing underlying soil conditions and anticipated maintenance requirements, cement stabilization of the new driveway was suggested (during joint inspection on October 18<sup>th</sup>) to further improve the overall structural strength of the driveway. Details of the cement stabilization method were provided to the Village following the joint inspection. It is our understanding that the cement stabilization option is under Village's active consideration subjected to further consultation / agreement with the owners of House #416 and #415.



House #416

House #415

Existing  
Driveway



Existing  
Driveway

*Photo: 1a and 1b: 4<sup>th</sup> Street and Driveway, 'Before' Condition, Photo Dated July 27, 2016*





House #416

New Driveway



House #416

House #415

New Driveway

*Photo 2a and 2b:4<sup>th</sup> Street and Driveway – “After” Condition, Photo Dated Oct. 10, 2017*