

TECHNICAL MEMORANDUM

DATE January 22, 2019

Project No. 07-1121-0037

TO Shawn Malhotra
Claridge Homes

FROM Alex Meacoe, P.Eng.

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**GRADING PLAN REVIEW - REVISED
BLOCK 14 – 25 OVERBERG WAY
BRIDLEWOOD TRAILS SUBDIVISION – PHASE 2
OTTAWA, ONTARIO**

This memo provides geotechnical guidelines on the grading and foundation design for Block 14 of the Bridlewood Trails subdivision in Ottawa, Ontario.

Background

The results of the geotechnical investigation for this project as well as guidelines on the geotechnical aspects of developing the site were provided in:

- Our technical memorandum of May 28, 2015 titled “*Response to City of Ottawa’s Questions, Block 14 – Bridlewood Trails Residential Subdivision, Ottawa, Ontario*” (project number 07-1121-0037).
- Our technical memorandum of June 25, 2013 titled “*Response to City of Ottawa’s Questions, Phase 2 – Bridlewood Trails Residential Subdivision, Ottawa, Ontario*” (project number 07-1121-0037).
- Our report of March 2011 titled “*Geotechnical Investigation, Proposed Residential Development, Fernbank Road and Terry Fox Drive, Kanata, Ontario*” (report number 07-1121-0037).

The guidelines provided in the above correspondence were however based on some assumptions regarding the founding levels and were generalized for broad areas of the site. The specific foundation and grading requirements are therefore being reviewed now that the final grading plans and lot site plans have been prepared.

The existing and finished grades and underside of footing elevations for the above lots are provided on the Grading Plan Drawing Number 114013-GR, Revision 12, dated January 18, 2019, prepared by Novatech Engineering Consultants Ltd. – Project No. 114013.

Review

A tabular summary of the existing grades, design grade raises, underside of footing elevations, and calculated grade raises is provided on the attached table. Foundation design parameters and lightweight fill requirements for each block are also provided on the attached table.

Based on the above grading plan and a review of the specific geotechnical data for this part of the site, the grade raise for these blocks exceeds the allowable grade raise at this site of 0.9 metres. Therefore, expanded polystyrene (EPS) Geofoam light weight fill is required in the porch and above any exterior footing projections. The EPS must extend a minimum of 1.0 metres out from the foundation walls, even if the footings do not. The EPS should extend from the top of the footings to at least the underside of the topsoil at the finished grade level, with a maximum topsoil thickness of 0.3 metres.

All exterior footings or footings in unheated areas should be provided with a minimum of 1.5 metres of earth cover (or equivalent) for frost protection purposes. Isolated, unheated footings adjacent to surfaces which are cleared of snow cover during winter months should be provided with a minimum of 1.8 metres of earth cover (or equivalent).

The finished grades, lightweight fill requirements, and underside of footing elevations were reviewed and are found to be in accordance with the guidelines and recommendations provided in the geotechnical report prepared for this site and, as such, are considered acceptable from a geotechnical point of view.

The following parameters may be used for the design of the foundations:

Strip footings up to 0.6 metres wide and interior pad footings up to 1.5 metres square can be designed using an allowable bearing pressure (i.e., SLS bearing resistance) of 75 kilopascals.

The post construction total and differential settlements for footings sized using the above allowable bearing pressures should be less than about 25 and 15 millimetres, respectively, provided that the soil at or below founding level is not disturbed during construction. Further, these maximum allowable bearing pressures correspond to a settlement resulting from consolidation of the silty clay. Consolidation of the silty clay is a process which takes months or longer and, as such, results from sustained loading. Therefore, the foundation loads to be used in conjunction with the allowable bearing pressures given above should be the full dead load plus sustained live load.

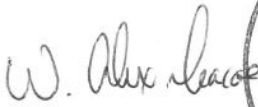
Given the thickness and compressibility of the silty clay deposit beneath this site, nominal amounts of reinforcing should be provided in the top and bottom of the foundation walls to make them more tolerant to settlements.

The foundation wall backfill and general grade raise fill adjacent to the houses should have a unit weight no greater than 18 kilonewtons per cubic metre.

We trust that this memo provides sufficient information for your present requirements. If you have any questions concerning this memo, please don't hesitate to contact us.

Yours truly,

GOLDER ASSOCIATES LTD.


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WAM/WC/mvrd

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Attachment: Table 1 – Grade Raise Review

Table 1: Grade Raise Review

Block	Underside of Footing Elevation (metres)	Location	Original Grade (metres)	Proposed Finished Grade (metres)	Grade Raise (metres)
A	96.35	South	96.91	98.20	1.29
		West	96.93	98.25	1.32
		East	96.70	98.20	1.50
		North	96.65	98.25	1.60
B	96.35	South	96.70	98.20	1.50
		West	96.63	98.25	1.62
		East	96.64	98.20	1.56
		North	96.65	98.25	1.60
C	96.43	South	96.54	98.23	1.69
		West	96.56	98.23	1.67
		East	96.54	98.23	1.69
		North	96.52	98.23	1.71
D	96.40	South	96.56	98.25	1.69
		West	96.60	98.20	1.60
		East	96.55	98.25	1.70
		North	96.47	98.20	1.73
E	96.40	South	96.62	98.25	1.60
		West	96.61	98.20	1.59
		East	96.56	98.25	1.69
		North	96.60	98.20	1.60
F	96.40	South	96.93	98.25	1.32
		West	96.73	98.20	1.47
		East	96.65	98.25	1.60
		North	96.68	98.20	1.52