March 11, 2019

Patti Wilson Design Inc.
489 Timothy Street, Suite 3
Newmarket, Ontario
L3Y 3X1

Attention: Ms. Patti Wilson

RE: REVIEW OF THE EXISTING RESIDENTIAL STRUCTURE AT 578 LYDIA STREET, NEWMARKET, ONTARIO
OUR JOB NO. 190042

Dear Ms. Wilson:

As per your request, we scheduled to meet with you at 578 Lydia Street, Newmarket, Ontario during the afternoon of January 15, 2019 to review existing residential structure based on random visual sampling. The scope of this report was to examine existing structure and provide our opinion on the extent of structural remediation that may be required for future renovations and structural alterations. For the purpose of this report, the front of the house is deemed to be facing north. Appendix A of the report consists of few pictures pertaining to this residence.

The current structure is a detached single-family dwelling and appears to be century old. The foundation walls consist of 13" thick field-stone rubble foundation wall with no evidence of strip footings. Portion of the basement appears to have been lowered and stabilized by bench footing. It appears that the mortar in foundation wall has been repointed in some areas. The condition of the foundation wall in these areas appear to be in a satisfactory condition. However, loose stone and loss of mortar bed is evident in other areas of the basement. It was also noted that floor system was not anchored to top of foundation wall.

At few locations along the foundation wall, efflorescence stains and vertical cracking extending from previous window opening were evident. It is not known at this time if waterproofing is applied on the exterior of the foundation wall. However, efflorescence stains suggest that water has been penetrating through the basement foundation walls. It is also not clear at this time if a slip joint is present between field-stone foundation wall and soil interface.

The floor construction is a platform-type construction with timber joists of varying sizes attached to supporting beams with mortise and tenon type connections. This type of connection tends to introduce holes of varying sizes in the main beams supporting tributary joists. It was also evident that few of the main beams for ground floor framing were supported by steel posts supported from the existing slab-on-grade. It is typical construction to have spread footings below steel posts for to transfer these concentrated loads. There is no evidence of spread footings.

Based on our review of the existing structure, it is our opinion that significant structural remediation may be required for any alterations and renovations to the existing structure:

1. The rubble foundation wall may require additional stability measures for vibrations introduces during construction;
2. New footings/underpinning may be required to transfer new loads into underlying soils;

3. New wall piers and spread footings may be required to account for any point loads that may be introduced as part of renovations;
4. Existing mortise and tenon joints may require new hangers to connect tributary joists to main beams;
5. Holes present in main beams will require further analysis and possible reinforcement to comply with current codes and standards;
6. Excavation along the exterior foundation wall for waterproofing maybe required;
7. New excavation may lead to further instability of the rubble foundation walls;
8. A slip joint at the interface of field-stone foundation wall and soil may be required to negate frost heaving effects; and
9. New spread footings may be required under existing steel posts if existing slab-on-grade is not adequate to accept new loads due to the proposed renovations/alterations.

It is to be noted that the above list is not exhaustive and further remedial measures may be required depending on the extent of proposed renovations/alterations. Our opinion is presented based on the information available at the time of preparing this report. We hope that this suffices your present requirements. Please feel free to contact us with any questions or concerns.

Yours very truly,
A-D Engineering Group Ltd.

Dharmik P. Prajapati, P.Eng., M.Eng.
Structural Engineer

DPP/

APPENDIX A

Photo 1 - Existing field-stone rubble foundation wall with loss of mortar and loose stone at top of foundation wall.

Photo 2 - Existing field-stone rubble foundation wall with evidence of efflorescence stains and vertical crack extending from previous window opening.

Photo 3 - Existing framing for ground floor and mortise and tenon joint into main structural beam.

Photo 4 - Existing steel post supported from slab-on-grade with no evidence of spread footing.