

**QUALITY CONTROL CHECKLIST
FOUNDATION ENGINEERING SERVICES**

PHASE 1 – DOCUMENT REVIEW, INVESTIGATION, TESTING AND REPORTING

**HIGH MAST LIGHT POLES
HIGHWAY 400-11 (CROWN HILL) INTERCHANGE
SIMCOE COUNTY, G.W.P. 2179-10-00**


| No. | Item | Checked | Project-Specific Comments |
|-----|--|---------|---|
| 1 | Review of project documentation and available Foundation Reports. | √ | Reviewed existing borehole information in the area and selected the closest boreholes to the proposed HML poles, for use in the development of foundation engineering recommendations. |
| 2 | Site visit to inspect terrain and performance of existing structures and/or roads. | √ | Site visit performed by N. La Posta. |
| 3 | Location, number and depth of boreholes and any other subsurface investigations, and sample frequency. | √ | <p>In accordance with the Terms of Reference, borehole coverage was to be provided for at least 30% of the HML pole locations. To achieve this, reference was made to one borehole from Golder's 2007 investigation for Highway 400 SBL, two boreholes from Golder's 2009 investigation for Highway 400 NBL, and one borehole advanced as part of the current "Contract 2" investigation; the one new borehole is as per the . These boreholes are located within approximately 12 m to 50 m of the proposed HML pole locations.</p> <p>These boreholes were advanced to depths of 9.8 m to 16.8 m, which satisfies the minimum depth requirements of approximately 10 m. Soil samples were obtained at 0.75 m and 1.5 m intervals in the boreholes, except where in situ vane shear strength testing was completed in which case the sample interval was as much as 3 m to permit more vane testing to be completed.</p> |
| 4 | Determination of groundwater elevation in boreholes. | √ | Water level observed in open boreholes during drilling. |

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| 5 | Number of laboratory tests and type of laboratory tests. | √ | For the single borehole (Borehole 11-HML-01) advanced as part of the Contract 2 scope, a total of eleven cohesionless soil samples were obtained. Golder completed five water contents and three grain size distribution tests on selected soil samples. |
| 6 | Abandonment of boreholes and site restoration. | √ | Boreholes backfilled to ground surface using bentonite pellets, in places mixed with soil cuttings, in accordance with Ontario Regulation 903 (as amended) |
| 7 | Surveying of boreholes. | √ | Boreholes locations measured relative to site features and survey stakes, and ground surface elevations assessed from topographic survey data for the project area. |
| 8 | Submission of Foundation Investigation and Design Reports, via the TPM, to MTO's Project Manager and to the MTO Foundations Section. | √ | |
| 9 | Report signed and sealed by two P.Eng.'s from Golder, one of whom is the Designated MTO Foundations Contact. | √ | Draft report signed but not sealed, in accordance with direction from MTO Foundations. |
| 10 | Report in two sections: (i) Foundation Investigation Report, and (ii) Foundation Design Report. | √ | |
| 11 | Foundation Investigation Report presents a subsurface model at the culvert sites. Report consists of factual information only. Includes sections on Site Description, Investigation Procedures, and Description of Subsurface Conditions. | √ | |
| 12 | Presentation of borehole records to MTO format. | √ | |
| 13 | Presentation of Borehole Locations and Soil Strata drawings to MTO format. | √ | |
| 14 | Presentation of laboratory test result figures to MTO format. | √ | |
| 15 | Foundation Design Report presents discussion and recommendations for design with recommendations in accordance with CHBDC, pertaining to both temporary and permanent conditions of the project. | √ | |
| 16 | Appropriate range of alternatives considered. | √ | Report addresses caisson foundations, which represent the appropriate option for the subsurface conditions at this site. |


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| 17 | Structure foundation design addressed including axial and lateral resistances for shallow/ deep foundations. | √ | |
| 18 | Earth pressure design addressed. | √ | |
| 19 | Embankment design addressed, including settlement and stability. | N/A | |
| 20 | Earth/rock excavation requirements addressed. | N/A | |
| 21 | Construction concerns addressed including any required specifications and special provisions for materials and specialized construction activities, and recommendations for methods of overcoming anticipated construction problems. | √ | Report addresses requirements for control of soil and groundwater during caisson construction. |

Interim Milestone Quality Review No. 1
(Submission of Draft Foundation Investigation and Design Report)

Designated MTO Foundations Contact:



Foundations Project Manager:



Date:

29 JUNE 2012
