

GEOSYSTEMS, L.P.

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May 29, 2017

Town of Gibsons
Attn: Mr. Dave Newman
Director of Engineering
P.O. Box 340
474 South Fletcher Road
Gibsons, BC V0N 1V0

THE PROPOSED “THE GEORGE” MIXED USE DEVELOPMENT **SUMMARY OF ITEMS REQUIRED AS PERMITTING CONDITIONS**

Dear Sir:

As requested during our teleconference of Tuesday, May 23, 2017, I provide herein a list of actions and initiatives I regard as essential for the Proponent (and his Engineer-of-Record) to commit to undertake as conditions for permit approval. Kindly note there will be some overlap between this letter and my other letter of today's date (reviewing Horizon Engineering Inc.'s Draft Report of May 15, 2017), but there should be no inconsistencies. Further, it should be reiterated that many of these actions are required to be implemented just before or during construction, and so cannot be completed before the permitting process is undertaken: I believe what we seek is the *commitment* of the Proponent to assure that implementation will occur. Kindly note the following list applies solely to the engineering and construction aspects of the project, and does not address other spheres (e.g., environmental protection or well head protection) which are also integral to your permitting process.

In my opinion, the Proponent should commit to implementing the following items as conditions of being awarded the relevant permits.

- (i) Production of a Design Basis Memorandum, describing the choice of the foundation system and how the details are related to all relevant structural loading conditions. (Timing: prior to development of the Field Verification Trial Proposal.)
- (ii) Checking calculations on the uplift stability of the aquiclude, during all construction phases. (Timing: prior to development of the Field Verification Trial Proposal.)
- (iii) Production of a consolidated Geotechnical Data Report and a Geotechnical Interpretative Report. (Timing: prior to development of the Field Verification Trial Proposal.)
- (iv) Audit of existing geotechnical instrumentation (and especially of piezometer distribution in “high risk” areas), and installation of additional instruments as appropriate. (Timing: prior to development of the Field Verification Trial Proposal.)

- (v) Providing on site, throughout all phases of on site construction, the following supervisory/engineering staff, as a minimum:
- Project Manager
 - Technical Manager

Each would, independently, have authority to suspend any or all construction activities in the event that there would be evidence of negative impact to the aquifer. These Professionals will be located in suitable office accommodation with communication facilities capable of real time monitoring of construction progress and geostructural instrumentation. (Timing: throughout all construction activities.)

- (vi) Production of a Field Verification Test Report detailing the design, installation, monitoring and analysis of the Field Verification Test Program. (Timing: minimum 30 days before Implementation.)
- (vii) Implementation and Analysis of aforementioned Test Program. (Timing (of final acceptance): minimum 7 days prior to commencement of Production Works.)
- (viii) Implementation of location-specific supplemental investigations to identify elevation and thickness of the aquiclude, including CPT, test pits and trenching. (Timing: prior to excavation and foundation treatment in any one area.)
- (ix) Provision of all equipment necessary to remediate any aquiclude breach occurring during construction. (Timing: throughout all excavation and foundation treatment activities.)
- (x) Development and acceptance of all submittals/work procedures relating (but not limited to):
- Excavation
 - Foundation treatment
 - Breach remediation plan
 - Personnel safety
 - Instrumentation monitoring and analysis (including threshold levels)

(Timing: prior to commencement of construction.)

Please advise if you require clarification on any of these proposed conditions.

Very truly yours,
GEOSYSTEMS, L.P.



Donald A. Bruce, Ph.D., D.GE, C.Eng., P.G. L.G., L.E.G.
President