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**MEMORANDUM**

**March 27, 2015**

**To:** JD Deschamps and Clifton Serres

**Subject:** Due Diligence Summary for Geotechnical and Environmental Phase I and Phase II on Hawthorne Bridgehead and Block 128

**Summary:**

Geotechnical Report by PBS Engineering and Environmental Ltd:

No items of concern were discovered on either site from the Phase I geotechnical investigation. A Phase II investigation was performed, including soil borings and testing at both sites. This provides the geotechnical engineer with site specific data to prepare preliminary foundation recommendations. .

Block 128

* A layer of potentially liquefiable soil was encountered on the site.
* Appropriate deep foundation system or mat foundation will be developed during final design to address the existence of liquefiable soils.
* Conventional shoring techniques are feasible but special care will need to minimize impact to the access for the KOIN tower parking garage.
* Local Contractors have experience with the construction means and methods that will be required to safely and cost effectively construct a courthouse on this site.

Hawthorne Bridgehead

* A layer of potentially liquefiable soil was encountered on the site and can be mitigated using a deep foundation system.
* Appropriate deep foundation system will be developed during final design to address the existence of liquefiable soils and also accounting for the proximity of buildings.
* Conventional shoring techniques are feasible.
* Temporary and permanent support of the Hawthorne Bridge west abutment will be addressed during construction.
* Soft soils encountered will require mitigation either by over-excavation and backfill or reinforcement with soil improvements.
* Local contractors have experience with the construction means and methods that will be required to safely and cost effectively construct a courthouse on this site.

Environmental Phase I results and Phase II investigation Reports by PBS Engineering and Environmental Ltd:

* No environmental concerns with either site were identified.
* A Phase I was performed on both sites and a Phase II investigation was performed on the Hawthorne Bridgehead site.
* Phase II Results on Hawthorne Bridgehead
  + No soil contamination was noted in soil borings.
  + Soil Samples collected at the site appear to meet the criteria for clean fill.
  + Excavated soils should be allowed for normal disposal
  + . As is standard practice on large capital projects even when the Phase I and II results do not identify areas of concern a contingency amount is included in the project budget to address any environmental mitigation work that may need to be performed during construction.
  + Low levels of contaminants are present in one or more soil samples and communication with receiving parties receiving the fill is recommended.
  + No further assessment is recommended for either site.
  + Standard practice on large capital projects is to include a contingency amount in the project budget to address any environmental mitigation work that may need to be performed during construction even when no issues have been identified in the Phase I or II analysis.

Regards,

**Paul Smith**

Project Manager

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