



7.6. Retaining Wall Design

It is apparent that the envisioned 6m depth of excavation will have to proceed with bracing, soil nailing and or tiebacks for temporary support, as the soil is generally weak and is prone to sliding failure.

The design of the wall will have to consider the combined effect of the lateral earth pressure and the surcharge load (if any), the water pressure, and earthquake loads.

In estimating for the lateral earth pressure acting on the retaining wall, an effective friction angle ϕ of 28 degrees and a saturated unit weight of 15kN/m^3 may be assumed. Full hydrostatic height of water will also have to be conservatively assumed, unless appropriate fail-proof drainage system can be assured.

7.7. Ground Subsidence

Ground subsidence in the surrounding area is anticipated due to the presence of high water table and loose sand in the uppermost 12m depth, coupled with the anticipated pumping out of the ground water. It is prudent to provide monitoring of ground and wall movements during construction to evaluate its effect and help minimize the damage to the surrounding structures.

Mitigation would involve soil improvement of the surrounding soils prior to excavation and perhaps provision of longer sheet piles. Seepage forces will have to be considered in the analysis of the retaining wall design

7.8. Seismicity

Based on the seismic provisions of the National Structural Code of the Philippines (NSCP2010, Sixth Edition) seismic zone factor is 0.4 for the project area, and the prevailing soil type (alluvial deposits) falls under S_D . The near-source factors N_a & N_v are 1.0.



8. LIMITATIONS

This geotechnical report was prepared to aid in the design of this specific project. Its scope is limited to the project and location described herein and represents our understanding of the surface and subsurface conditions at the site, at the time of the investigation.

Should there be appreciable differences found in the soil/rock conditions during the construction phase, or should there be any differences in our understanding of the project requirements, we should be immediately notified so that supplemental recommendations can be provided.

RICHARD C. TAN, MSCE
Principal Geotechnical Engineer
PRC Reg. No. 23248
October 12, 2015
Quezon City, Philippines



TITLE:		BOREHOLE LOCATION PLAN		
PROJECT:	PROPOSED SEWAGE TREATMENT PLANT FOR ZAMBOANGA WATER DISTRICT	LOCATION: MAGAY STREET, ZAMBOANGA CITY		
CLIENT:	AECOM International Development, Inc.	DATE: OCTOBER 05, 2015	SCALE: not to scale	SHEET NO.: 1 of 1