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February 05, 2008

Mr. Li C. Chen, P.E.
Project Engineer/Manager
Binkley & Barfield
1710 Seamist Drive
Houston, Texas 77008

Re: Trench Safety Letter
Proposed Almeda Sims Sludge Processing Facility (SPF) Improvements
At 12319 ½ Almeda Road, Houston, Texas 77045
WBS: R-000298-004-3, File No. WW4903
AEC Project No.G150-07

Dear Mr. Chen,

Aviles Engineering Corporation's (AEC) is pleased to submit this trench safety recommendation letter for the proposed Almeda Sims Sludge Processing Facility (SPF) Improvements. Details regarding to project information, subsurface exploration, laboratory testing, subsurface soil and groundwater conditions, and geotechnical engineering recommendations are included in the AEC geotechnical Report No.G150 – 07, dated October 23, 2007. We understand that the proposed three sludge holding tanks (each sized 185 feet × 30 feet in plan, about 20-foot high above existing grade and about 1 to 10.5 feet below existing grade), a 100-foot diameter sludge thickener (about 11 feet above grade, and the foundation will be located about 6 to 18 feet below the grade), 14- to 18-inch diameter wastewater drainage lines with an approximate invert depth less than 10 feet, as well as site drainage improvements with an approximate invert depth less than 15 feet, may be excavated in open-cut method.

EXCAVATION SAFETY RECOMMENDATIONS

OSHA Soil Types The Occupational Safety and Health Administration (OSHA) requires that an adequate protective system be designed to protect workers in an excavation from cave-ins. Excavations less than 5 feet deep should be appropriately protected when an indication of hazardous ground movement is anticipated. Trench excavations with depth between 5 and 20 feet should be shored, sheeted and braced, or laid back to a stable slope for the safety of workers, public and adjacent structures. For trenches deeper than 20 feet, OSHA requires that shoring or bracing be designed by a licensed professional engineer.

Based on the results of our field investigation, laboratory tests and experience, the soils encountered in our borings are classified as OSHA soil Type B to Type C according to OSHA Safety and Health Regulations, 29

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CFR, Part 1926, Subpart P. Details are presented in the following table.

TABLE 1. OSHA SOIL CLASSIFICATION FOR FOUNDATION AND TRENCH EXCAVATION SUPPORT

	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12	B-13	B-14	B-15
0'-2'	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C
2'-4'	C	C	C	C	B	B	C	C	B	C	C	C	C	C	C
4'-6'	B	B	C	B	B	B	C	C	B	C	C	C	C	C	C
6'-8'	B	B	C	B	B	B	C	C	B	B	C	C	-	B	-
8'-10'	B	B	B	B	B	B	B	B	B	B	B	B	-	B	-
10'-15'	B	B	B	B	B	B	B	B	B	B	B	B	-	B	-
15'-20'	B	B	B	C	C	B	B	B	-	-	-	B	-	B	-

Notes: (1) Soil Types

A q_u = 1.5 tsf or greater,

B q_u = 0.5 tsf or greater,

C q_u = less than 0.5 tsf or granular soils or submerged soils or soils with significant weak secondary structure. For submerged, firm to very stiff cohesive soils, type B can be used if dewatering is performed

(2) q_u = Unconfined Compression Strength

Excavated materials should not be allowed to stockpile near the excavation wall. We recommend that excavated materials should be placed away a distance of half the excavation depth on both sides of the trench.

The maximum allowable slopes in Soil Types B and C for excavations less than 20 feet are 1H:1V and 1.5H:1V, respectively. If limited space is available for the required open trench side slopes, the space required for the slope can be reduced by using a combination of bracing and open cut.

Fill soils were encountered in all soil borings from top surface to maximum 8 feet below existing ground surface. Sand and silt soils were encountered at different depths in Borings B-2 through B-9. Details can be found in our geotechnical report. In addition, calcareous nodules, silt and sand seams within cohesive soil strata, and fat clays with slickenside were encountered in some of the borings. These secondary structures may become sources of localized instability when they are exposed during excavation, especially when they become saturated. Such soils have a tendency to slough or cave in when not laterally confined, such as in trench excavations. The Contractor should be aware of the potential for cave-in of the soils. Low plasticity soils will lose strength and may behave like granular soils when saturated.

Computation of Bracing Pressures If trench boxes or shields are to be used, the calculating of lateral earth pressures against temporary bracing of trenches are presented on Plates B-4 through B-6 in our geotechnical report. If excavations are located close to existing structures, we recommend using the coefficient

of at-rest earth pressure (K_o) for design to reduce the potential for distress to the existing structures. The active earth pressure at depth z can be determined by Equation (4), which is included in our geotechnical report.

Excavation Bottom Stability In open-cuts, the possibility of the bottom failing by heaving, due to the removal of the weight of excavated soil, must be considered. In fat clays and lean clays (at least moderate plasticity), heave normally does not occur unless the ratio of Critical Height to Depth of Cut approaches one. In low plasticity lean clays or weak clay with low cohesion, heave does not typically occur unless an artificially large head of water is created through the use of impervious sheeting in bracing the cut. This can be mitigated if a well point system is used to dewater the area. Guidelines for evaluating bottom stability are presented on the Plate B-7 in our geotechnical report.

If the excavation is carried out below the groundwater table and a significant amount of the soils at or near the bottom of the excavation are sands or silts or low plasticity clays, the bottom can fail by blow-out (boiling) at the bottom when a sufficient hydraulic head exists. The potential for boiling or in-flow of granular soils increases where the groundwater is pressurized. To reduce the potential for boiling of excavation terminating in granular soils below groundwater, the groundwater table should be lowered to at least 3 feet below the excavation. In extreme conditions, mechanical or chemical stabilization of the granular soils may be required.

Excavation Dewatering Ground water was encountered in some of the borings during drilling, at depth from about 24 to 30 feet below existing grade and subsequently changed to depths from about 15.3 to 36 feet upon completion of drilling. According to long-term water level reading of the piezometer in Boring B-7, the ground water level is at 19.7 feet below existing ground surface. Details on ground water level can be found in Table 1 of our geotechnical report. It should be noted that the groundwater conditions might vary during construction. In the event that there is heavy rain prior to or during construction, the groundwater table may be higher than indicated in this report; higher seepage is also likely and may require a more extensive groundwater control program. In addition, groundwater may be pressurized in certain areas of the alignment, requiring further evaluation and consideration of the excess hydrostatic pressures.

The need for groundwater control will depend on the depth of excavation relative to the groundwater depth at the time of construction. The Contractor should be responsible for selecting, designing, constructing, maintaining and monitoring a groundwater control system and adapt his operations to ensure the stability of the excavations. We recommend that the Contractor verify the groundwater depths and seepage rates and existence of pressurized groundwater prior to and during construction and retain the services of a dewatering expert to

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assist him in identifying the most suitable and cost-effective method of controlling groundwater. The Contractor should take necessary precautions to avoid distressing existing structures as a result of dewatering. Groundwater control should be in accordance with Section 01578 of 2002 City of Houston Standard Construction Specifications.

AEC appreciates the opportunity to be of service on this project and looks forward to our continuing association during the construction phase of this project and on future projects.

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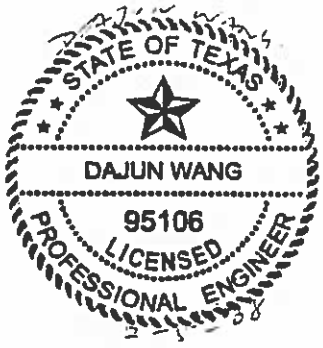

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