

**H. A. CLARK MEMORIAL FIELD
WILLIAMS, ARIZONA**

HANGAR DEVELOPMENT

ADOT E5L02

**ADDENDUM NO.1
February 19, 2015**

The following revisions to the bid documents, specifications and drawings for the project shall become a part of the referenced contract documents. Bidders shall acknowledge receipt of this addendum on BP-1. **Failure to do so will render the bidders bid non-responsive.**

**"Geotechnical Report
Addendum No.1"**

**Following are Clarifications and Changes to the Specifications. Reference Appendix,
Geotechnical Report.**

The geotechnical engineering firm has issued the attached addendum to their Letter Report dated October 31, 2014. The attachment introduces additional earth work options for slab-on-grade support for the Hangar Development project at H.A. Clark Memorial Field located in Williams, Arizona. For the option selected by the successful bidder, all necessary mix designs for lime stabilization or for certification of replacement materials meeting the requirements of this addendum are the responsibility of the contractor and shall be stamped by a Professional Engineer registered in the State of Arizona.

All other aspects of this solicitation remain unchanged. Bidder is required to acknowledge this addendum in their bid.

ATTACHMENT: SPEEDIE AND ASSOCIATES,
Project No. 142103SF, Addendum No. 1

Prepared by:
Stantec Consulting Services Inc.
8211 South 48th Street
Phoenix, AZ 85044

END ADDENDUM No. 1



February 19, 2015

Mr. Bill Harvey
Stantec Consulting Inc.
8211 South 48th Street
Phoenix, AZ 850445355

RE: Project No. 142103SF
H.A. Clark Memorial Field Hanger
H.A Clark Memorial Field
Williams, AZ
Addendum No. 1

Dear Mr. Harvey:

This addendum addresses earthwork options for slab-on-grade support for the above referenced hanger project.

As stated in our original report, we have no specific subsurface information from within the proposed hanger location; recommendations were based on other geotechnical reports performed for the H.A. Clark Memorial Field. We recommended complete removal of the clay soils beneath concrete slabs-on-grade. Specific borings/test pits were not performed as part of the 2014 geotechnical report. The closest excavations previously performed indicated that the depth of clay is between 2.5 and 3.0 feet. It is our understanding that construction bids received have exceeded the available funds and alternative earthwork options have been requested.

As previously indicated, the swell potential of the clayey soils (assume they exist in the hanger location) is a concern for lightly loaded structures and concrete slabs-on-grade. To **eliminate** the risk of post construction movement due to the expansive soils, complete removal was recommended. Typical recommendations to **reduce** the risk of post construction movement caused by the expansive soils would typically consist of removal of 1 to 2 feet of the expansive soils and replacement with a low expansive material. This option is available with the understanding that there is still some risk, although reduced, for post construction movement.

Another option is to lime stabilize the upper soils. This option also **reduces** the risk of post construction movement, but **does not** eliminate the possibility. If lime slurry is utilized it should result in a minimum of 18 inches of lime stabilized subgrade. A nominal 2.0 inches of aggregate base should be placed between the stabilized subgrade and concrete slab-on-grade. The application of lime stabilization should be carried out by a contractor experienced in this type of work. The use of lime slurry rather than dry application is recommended since proper hydration and dusting is a concern when dry lime is used. Use of a lime slurry will also reduce the amount of loss and provide consistent coverage. A mix design study would be required to determine the amount of lime required to reduce plasticity and/or increase strength. It is anticipated that 6 to 7 percent lime, by weight, would be necessary. All lime stabilization work should be carried out in accordance with M.A.G. Section 309.

If the removal and replacement option is chosen, it is recommended that a minimum of 2.0 feet of low-expansive material be placed under the building slabs. This is in addition to AB material used for slab support. Following the partial removal of the clay, the excavation should be scarified 8 inches, moisture conditioned to at least optimum to 3 percent above optimum, and lightly but uniformly compacted to 88 to 92 percent of maximum dry density.

Imported fill for use beneath concrete slabs-on-grade should be examined by a Soils Engineer to ensure that it is of low swell potential and free of organic or otherwise deleterious material. In general, the fill should have 100 percent passing the 3-inch sieve and 15 to 60 percent passing the 200 sieve. For the fine fraction (passing the 40 sieve), the liquid limit and plasticity index should not exceed 30 percent and 10 percent, respectively. It should exhibit less than 1.5 percent swell potential when compacted to 95 percent of maximum dry density (ASTM D-698) at a moisture content of 2 percent below optimum, confined under a 100 psf surcharge, and inundated. **Clean Cinders are not acceptable.**

Fill should be placed on subgrade which has been properly prepared and approved by a Soils Engineer. Fill must be wetted and thoroughly mixed to achieve optimum moisture content, ± 2 percent (optimum to $+3$ percent for underslab fill). Granular fill (ASTM Classification GW, GP, SW, SP) can be placed on the dry side of optimum at the discretion of the geotechnical engineer on record.

Fill should be placed in horizontal lifts of 8-inch thickness (or as dictated by compaction equipment) and compacted to the percent of maximum dry density per ASTM D-698 as set forth below. Frozen material shall not be placed, nor shall fill be placed upon frozen grade.

A.	Building Areas	
1.	Fills > 5 feet below finished grade and/or footing bottom (Full depth to finished grade)	97
2.	Fills < 5 feet below finished grade	95
3.	Below slabs-on-grade (non-expansive soils)	95
4.	Below slabs-on-grade (expansive soils)	88-92 max
5.	Lime Stabilized Subgrade	95
B.	Pavement Subgrade or Fill	95
C.	Utility Trench Backfill	95
D.	Aggregate Base Course	
1.	Below floor slabs	95
2.	Below asphalt paving	100
E.	Landscape Areas	
1.	Miscellaneous fill	90
2.	Utility trench - more than 1.0' below finish grade	85
3.	Utility trench - within 1.0' of finish grade	90

As indicated, both options provided in this addendum **reduce** the risk for distress due to post construction movements as a result of the expansion of the clayey soil. Complete removal and replacement with a non-expansive import material would still be necessary to eliminate the risk. This addendum should be attached to the original geotechnical report and made a part thereof.

Please give us a call if you have any questions or if we can be of further assistance.

Respectfully submitted,
SPEEDIE & ASSOCIATES

Clay W. Spencer, R.G.

Gregg A. Creaser, P.E.

