

HUALAPAI INDIAN TRIBE
PEACH SPRINGS, ARIZONA
IFB NO. 02-2016

Questions and Answers on Notice of Invitation for Bids from Commercial Modular Building Contractors for
Fitness Center Annex in Peach Springs, Arizona

October 31, 2016

ADDENDUM NO. 5

Response to Questions

1. *Are gas heaters (with the new scope per Addendum No. 4) the requirement or are they just acceptable? Please provide the price difference between electric and propane heat on the revised bid form (see attached).*
2. *Is there a minimum specification for the rubber flooring in the work out area? Resilient flooring (48" wide rolls) should be at least 8 mm thick and easily washable. Both RubberDeck and TrackDeck by Signature Sports Flooring are acceptable.*
3. *Is the TERO compliance plan, safety documentation mentioned in Addendum 3, #23, and bonding letter required with bid submission? The TERO compliance plan is written post-award. Bond letter is required with bid packet.*
4. *Can you provide information on who to contact at Lhoist in Nelson about the free chat? Please contact Ester at (928) 769-2271. The chat may be picked up with your dump truck at the lime plant between 7:00 AM and 3:00 PM Monday through Friday.*

In addition, I have attached the geotechnical soils investigation and a revised Bid Form. Should you have any questions regarding this Addendum, please contact me at (928) 769-1310.

Except as modified herein all other specifications, terms, conditions and special provisions shall remain the same.

ISSUED BY:



Kevin Davidson
Planning Director

Encl: Revised Bid Form
Geotechnical Soil Investigation

cc: File

Bid Form

RE: HUALALPAI FITNESS CENTER ANNEX
IFB No. 02-2016

TO: TRIBAL COUNCIL
HUALAPAI NATION
P.O. BOX 179
PEACH SPRINGS, AZ 86434

We, the undersigned, propose to do all the work and furnish all the labor, physical plant and materials necessary for the construction of the modular building located on Rodeo Circle, Peach Springs, AZ. We further declare that we have carefully read Invitation for Bid that we have made a personal examination of the site, that we understand the exact Scope of the Project, and by making the Bid, declare that we are in compliance with all requirements thereof. We acknowledge receipt of the following Addenda and have included their provisions in this Bid.

Addendum No. 1, Dated: 10/7/16_; Addendum No. 2, Dated: 10/13/16_; Addendum No. 3, Dated: 10/19/16_; Addendum No. 4, Dated: 10/21/2016_; Addendum No. 5, Dated: 10/31/16_.

In submitting this Bid, We agree:

1. To hold the Bid open until 30 days after date for receipt of bids.
2. To enter into and execute a Contract, and to furnish Performance and Payment Bonds and Insurance Certificates in accordance with the Contract Documents, within 24 hours after notice of award of contract.
3. To accomplish the work in accordance with the Contract Documents.
4. To provide substantial completion of the work by the date stated in the Calendar of Events and that failure to meet this provision will result in Owner applying provisions of liquidated damages of \$250 per day.

Base Bid:

The undersigned agrees to perform the work as described in the Scope of Work, including allowances, for the following lump sum price:

_____ Dollars (\$ _____)

Concrete Foundation:

_____ Dollars (\$ _____)

ADA Parking Spaces and chat surfacing for six extra non-ADA parking spaces:

_____ Dollars (\$ _____)

ADA Access Ramps to Entrances:

_____ Dollars (\$ _____)

Extra cost of Propane heating option over Electric heating option:

_____ Dollars (\$_____)

Additional cost of two-year warranty over one-year warranty on workmanship:

_____ Dollars (\$_____)

Rights: In submitting this bid, it is understood that the right is reserved by the Tribe to reject any and all bids. If written notice of the acceptance bid is mailed, telegraphed or delivered to the undersigned within thirty days after the opening thereof, or at any time thereafter before this bid is withdrawn, the undersigned agrees to execute and deliver a contract in the prescribed form and furnish the required performance and payment security within ten (10) days after the contract is presented to him for a signature.

Bid Bond: Bid security in the sum of _____ dollars (\$_____) in the form of _____ is submitted herewith in accordance with the Invitation for Bids.

Non-Collusion: Attached hereto is an affidavit in proof that the undersigned has not colluded with any person with respect to the proposal.

Required Attachments: We have enclosed the following required items:

1. Bid Bond
2. Bidder's Certification of Eligibility
3. Non-Collusive Affidavit
4. Contractors Qualifications (AIA Document A305)
5. Subcontractor List Form
6. Evidence of Performance & Payment Bond
7. Preliminary Construction Schedule
8. Indian Preference Documentation (if applicable; Form 01095 is optional)
9. Copy of Contractor's License(s)

Date _____

Contractor _____

By _____

Title _____

Address _____

Telephone _____

Surety _____

AZ License No. _____

(Seal if Corporation)



Brazos Geotech, Inc.
2298 W Turtle Dove Ln
Tucson, Arizona 85755

(520) 237-0750

brazosgeo@yahoo.com

**GEOTECHNICAL SOIL INVESTIGATION
HUALAPAI TRIBE
FITNESS CENTER ANNEX**

PEACH SPRINGS, ARIZONA

BRAZOS GEOTECH PROJECT NO. 16226

PREPARED FOR:

Hualapai Planning & Economic Development Department
887 W Highway 66
Peach Springs, AZ 86434

PREPARED BY:

Brazos Geotech, Inc.
2298 W Turtle Dove Ln
Tucson, AZ 85755

October, 2016



Expires on 9/30/18



Brazos Geotech, Inc.
2298 W Turtle Dove Ln
Tucson, Arizona 85755

(520) 237-0750

brazosgeo@yahoo.com

October 24, 2016

Kevin Davidson
Hualapai Planning & Economic Development Department

Re: Hualapai Fitness Center Annex, Peach Springs, Arizona
Geotechnical Soil Investigation

Dear Mr. Davidson:

This letter transmits a report by Brazos Geotech entitled "Geotechnical Soil Investigation, Hualapai Tribe, Fitness Center Annex, Peach Springs, Arizona."

Thank you for the opportunity to perform these services. Please feel free to call if you have any questions or concerns.

Sincerely,

BRAZOS GEOTECH, INC.



Gerald A. Tripp, P.E.
President

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GEOTECHNICAL SOIL INVESTIGATION HUALAPAI TRIBE PROPOSED FITNESS CENTER ANNEX PEACH SPRINGS, ARIZONA

1.0 INTRODUCTION

This report presents the results of a geotechnical soil investigation performed by Brazos Geotech, Inc. (BGI) to assist the design of a proposed structure for the Hualapai Tribe in Peach Springs, Arizona. Plate 1, Vicinity Map, illustrates the general site location. The attached Plate 2, Site Plan, shows the approximate locations of the soil test pits.

The report describes Brazos Geotech's understanding of site conditions, interprets subsurface conditions, and presents conclusions and recommendations.

2.0 SITE CONDITIONS

2.1 Surface Conditions

The site is located in northwestern Arizona, in the town of Peach Springs, approximately 15 miles south of the Grand Canyon. The site elevation is roughly 4,806 feet above sea level. Its location is described as a portion of the northwest quarter of Section 26, Township 25N, Range 11W, Gila and Salt River Base and Meridian.

The proposed building site area is currently undeveloped. The surface of the site slopes at roughly a 1-2 percent gradient toward the west. The surface material consists of bare earth with a very thin layer of small gravel also known as chat.

According to a soil survey published by the U.S. Department of Agriculture Soil Conservation Service, surface soils were expected to consist of Quagwa Silt Loam. Our findings suggested that this description most likely applies to the subject site.

2.2 Seismicity

The native soil is considered to be a Site Class 'D' (stiff soil profile), according to the 2012 International Building Code Criteria.

2.3 Weather

The following weather information was derived from worldclimate.com:

Peach Springs has a mean annual precipitation of 11 inches with an average maximum temperature of 74 degrees Fahrenheit and an average minimum temperature of 43 degrees Fahrenheit.

At nearby Truxton Canyon, approximately 1,000 feet lower in elevation, the normal January minimum temperature is 28 degrees Fahrenheit. In July, the normal daily maximum temperature is 95 degrees Fahrenheit. Temperatures in Peach Springs are assumed to be a few degrees lower.

2.4 Groundwater

Data provided by the Arizona Department of Water Resources indicates that the depth to groundwater at the nearest well with depth data (approximately 860 feet north of the site) is roughly 400 feet. No groundwater was contacted while excavating.

3.0 PROPOSED CONSTRUCTION

The proposed project is the construction of a fitness center annex. The 42 ft x 65 ft pre-fabricated wood-frame structure will consist of three (3) adjoined parts. The anticipated foundation will consist of stem walls around the perimeter as well as beneath the two (2) interior match lines, with the floor elevated roughly 1.5-2 feet above the existing grade. Loading typical of a lightly-loaded facility is assumed.

The existing near-surface soil is not considered to be suitable to use as fill beneath the structure because of its high fines content. Grading recommendations are provided in Section 6.1.

4.0 SCOPE OF THE INVESTIGATION

4.1 Field Data

In October, 2016 at locations shown on the Site Plan, Plate 2, Hualapai Tribe Public Works personnel excavated two (2) test pits to a depth of 10 feet below existing grade.

The test pit logs, Plates 5 and 6, show the field description of the soil and the Unified Classification based on laboratory test data. Plate 3, Unified Soil Classification System, illustrates general features of the classification system used on the logs. Plate 4, Soil Terminology, lists and describes other terms used on the logs.

4.2 Laboratory Tests

Four (4) representative samples of soil were selected to be tested for classification characteristics (liquid limit, plasticity index, and gradation) (ASTM D 4318 and ASTM D 1140).

5.0 INTERPRETATION OF SUBSURFACE CONDITIONS

Two (2) test pits were excavated to evaluate subsurface soil conditions. The pit locations are indicated on the Site Plan, Plate 2, attached.

The soil from the surface to a depth of 10 feet was found to consist of loose silt and sandy silt. Groundwater was not encountered while excavating.

Table 1, below, displays the results.

Table 1: Particle Size Distribution Tests (ASTM D1140)

<u>Test Pit#</u>	<u>Depth (ft)</u>	<u>%-200 Mesh</u>	<u>USCS Classification</u>
1	0-5	63	ML (Sandy Silt)
1	5-10	78	ML (Silt)
2	0-5	80	ML (Silt)
2	5-10	92	ML (Silt)

As the above table indicates, soils consisted of sandy silt and silt.

The Atterberg Limits test provides an indication of the range of moisture contents at which a soil will behave as a plastic. Table 2, below, displays results of the tests with an opinion of the shrink-swell potential based upon the liquid limit and plasticity index.

Table 2: Atterberg Limits Tests

<u>Test Pit #</u>	<u>Depth (ft)</u>	<u>Liquid Limit</u>	<u>Plasticity Index</u>	<u>Shrink-Swell Potential</u>
1	0-5	NP	NP	Negligible
1	5-10	NP	NP	Negligible
2	0-5	NP	NP	Negligible
2	0-5	NP	NP	Negligible

NP = Non-plastic

As the above table shows, the site soil was found to be non-plastic, with an estimated negligible shrink-swell potential.

5.1 Water Table

The water table depth was not determined but Arizona Department of Water Resources data indicate that the depth to groundwater on railway property located approximately 860 feet north of the site is roughly 400 feet. No groundwater was contacted while drilling. This potential concern should not affect the design and/or construction of the proposed facilities.

5.2 Expansive Soils

No soils with significant expansion potential were encountered.

5.3 Compressible Soils

No soils with significant compression potential were encountered.

5.4 Fill Soils

No unsuitable fill soils were encountered.

5.5 Seismic Considerations

Considering the depth to groundwater, potential structural damage resulting from soil liquefaction is not considered to be a concern at this site.

According to the 2012 IBC criteria, the soil at this site is classified as Site Class 'D'. Arizona Geological Survey data indicates that the nearest fault considered to be active in the last 15,000 years is located roughly 40 miles southeast of the site.

6.0 RECOMMENDATIONS

6.1 Site Grading

Grading for the site should be completed in accordance with the following:

- a) Strip and dispose of any remains of previous improvements discovered within the area to be graded. This shall include removal of all vegetation, debris, and other deleterious material. Any concrete and/or asphaltic rubble larger than six (6) inches in diameter should be removed and wasted in accordance with all applicable regulations.
- b) At all points underlying the proposed (exterior and interior) stem wall footings and extending two (2) feet out on both sides of the footings, over-excavate and remove the soil to a depth of at least 12 inches below the bottom of footing depth.
- c) Alternatively, if it is more operationally efficient, it may be preferred to remove soil beneath the entire building footprint to a depth of 12 inches below bottom of foundation depth, and extending two (2) feet out from the perimeter.
- d) After moistening and wheel-rolling the subgrade, replace the removed material with six (6) inch layers of imported material compacted as described below. Areas around the foundation should be graded to insure positive drainage away from the foundation.
- e) The on-site soil is not considered to be suitable to place beneath or around the footings but it may be used as fill above the spread footings provided that it is topped by at least a one inch layer of chat. In general, fill material should comply with the following minimum criteria. It should be a non-expansive soil with limited fines such as fine to medium-grained sand (SP, SW) which meets with the following minimum standards: 1) less than 25% passing the No. 200 sieve (<25% fines), 2) a plasticity index not more than 6 (PI<6), and 3) a liquid limit below 20 (LL<20).
- f) Thoroughly and uniformly moisten the soil and maintain soil moisture prior to placement of all concrete.
- g) Compact all soils, wherein the term "compact" and its derivatives mean a minimum of 95% of the maximum dry density within +1 and -4 percentage points of optimum moisture as determined by ASTM D698.
- h) When fill is placed, it should be placed in layers not to exceed six (6) inches in compacted thickness, with treatment as described above.

- i) Utility trenches are to be backfilled and compacted to a minimum of 95% of the maximum dry density under slabs or other improvements. In all other areas, utility trenches are to be backfilled and compacted to a minimum of 90% of the maximum dry density.
- j) The site should be graded such that storm water is directed away from all foundations and toward either on-site retention basins or to a suitable off-site location. No water, from either on or off-site sources should be allowed to pond contiguous to any foundation. Additionally, once construction is complete, the moisture content of the soils should be closely monitored to prevent over-saturation or extended drying of moisture conditioned soils.
- k) In all instances in which compaction is to be performed, the compaction should be verified by appropriate testing.

6.2 Foundation Considerations

The recommended maximum soil contact pressure is 1,500 pounds per square foot for support of dead plus normal live loads. Foundations should have a minimum embedment depth of 12 inches into compacted material.

The floor-foundation systems should be designed by the structural engineer so that loading will be balanced to minimize the potential for differential settlements.

The design and construction of underground water conduits should consider the possibility of moisture infiltration at foundations and/or floor slabs in the event of plumbing leaks or failures.

According to the USDA soil survey, local soils are considered to be highly corrosive for uncoated steel but concrete corrosion is less of a concern.

6.3 Parking Areas

The following section is recommended for the proposed parking areas:

- For light loads, two (2) inches of chat over four (4) inches of aggregate base (AB).

Note: Compacted soil subgrade shall be a minimum of eight (8) inches thick and be compacted to 95% of maximum density per ASTM D698. Aggregate base should be compacted to 100% of maximum density in accordance with ASTM D698. All compaction should be verified by testing.

Parking areas should be sloped and drainage gradients maintained to carry all surface water away from the development. Where concrete curbs are used to isolate landscaping in or adjacent to the pavement areas, curbs extend below the aggregate base course and six (6) inches into the subgrade soil to provide a deterrent against migration of landscape water into the pavement section.

6.4 Observation and Testing

The conclusions and recommendations in this report are predicated on observation of footing excavations, and observation and testing of grading by an Engineer registered to practice in Arizona.

Additionally, he must perform sufficient observations and tests to support an opinion as to the compliance of the work and prepare and submit a compliance report to document same. The absence of a satisfactory compliance report relieves BGI of responsibility for its recommendations, and unless BGI concurs, any modification of its recommendations by others relieves BGI of responsibility for its recommendations.

7.0 LIMITATIONS AND GENERAL CONDITIONS

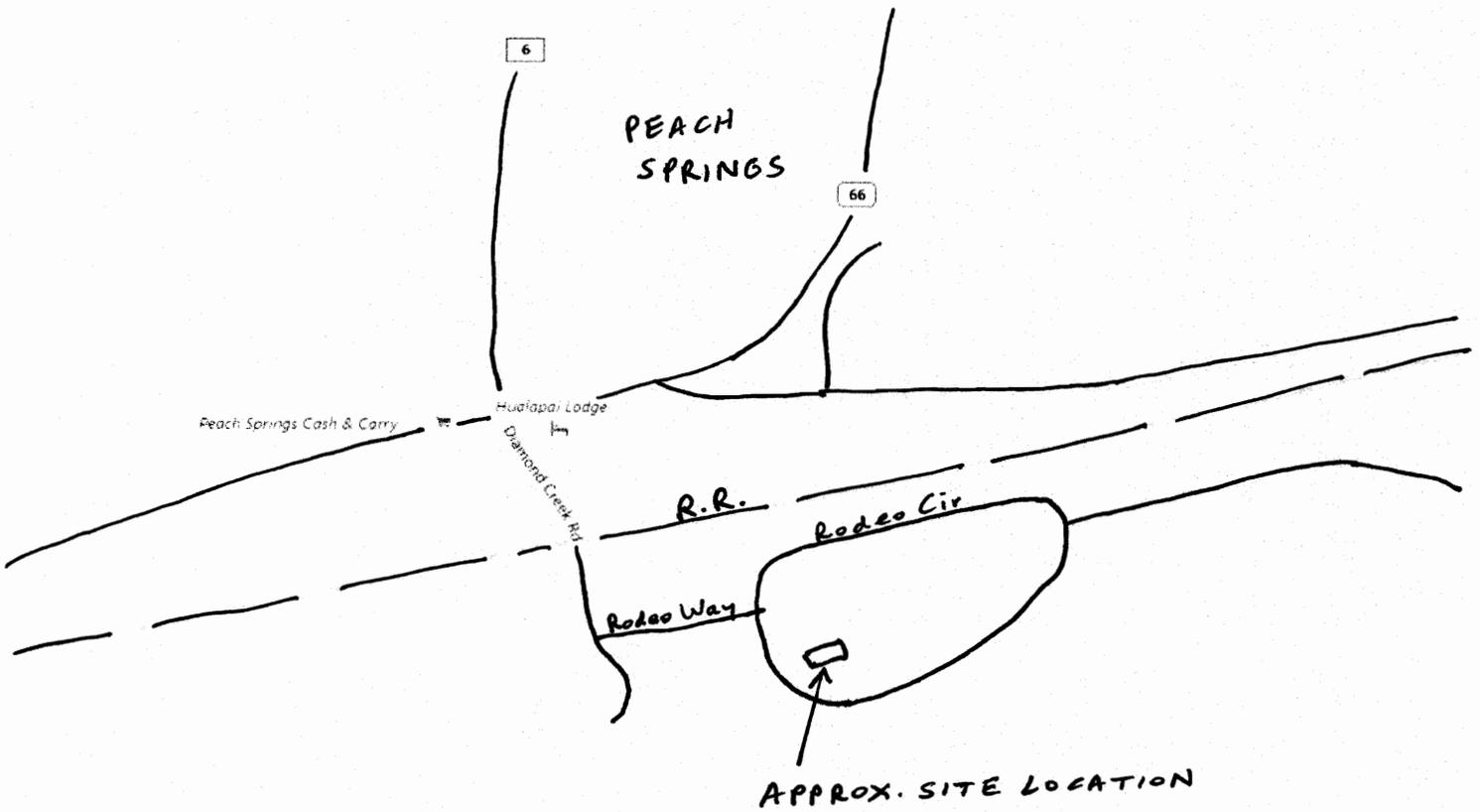
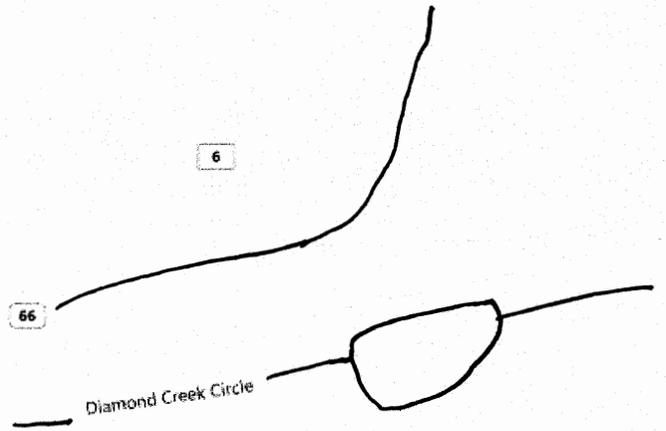
- 1. It must be recognized by all parties concerned that the recommendations developed during this investigation are based upon many indeterminate factors and problems for which exact solutions are not available. Thus, BGI has attempted to provide practical answers using the professional standards and techniques available at the time of the investigation. Of necessity, the recommendations developed on the Client's behalf must not be considered a warranty, direct or indirect, as to the final performance of the project. Since many of the subsurface conditions will remain unknown, it must be recognized that the Geotechnical Engineer should be given an opportunity to evaluate the subsurface conditions during construction and that some changes may be required during design and construction to achieve the maximum economy and safety for the project.**
- 2. BGI warrants that all services are performed within time, monetary and technical limitations prescribed by our Clients and their consultants, with the usual thoroughness and competence of the Geotechnical Profession in this part of the country at the time of the investigation. No other warranty or presentation, either expressed or implied, is included or intended in our proposals, contracts, oral communications or written report.**
- 3. This report is to be used in the design of the proposed project and is not intended as a bidding document, and any contractors reviewing this report must draw their own conclusions regarding construction procedures and difficulties for the project at this site.**
- 4. Generalized subsurface conditions were interpreted from soils sampling and apply only at the sampled location and the date sampled. They are not warranted to be representative of the subsurface conditions at other locations and other times.**
- 5. This report is prepared for the specific site location and specific proposed project. If the project location or the design considerations are changed, BGI should be consulted to review the conditions and issue applicable recommendations. This report should not be used for other types of structures at the same site location or similar structures at other locations.**
- 6. If there is a substantial lapse of time (say, more than twelve months) between the submission of our report and the start of construction work on the site, or if conditions have changed due to natural causes, plan changes, or construction operations at or adjacent to the site, it is recommended that this report be reviewed by the Geotechnical Engineer to determine the continued applicability of the recommendations.**

8.0 CLOSURE

The eight (8) plates are attached and complete the report.

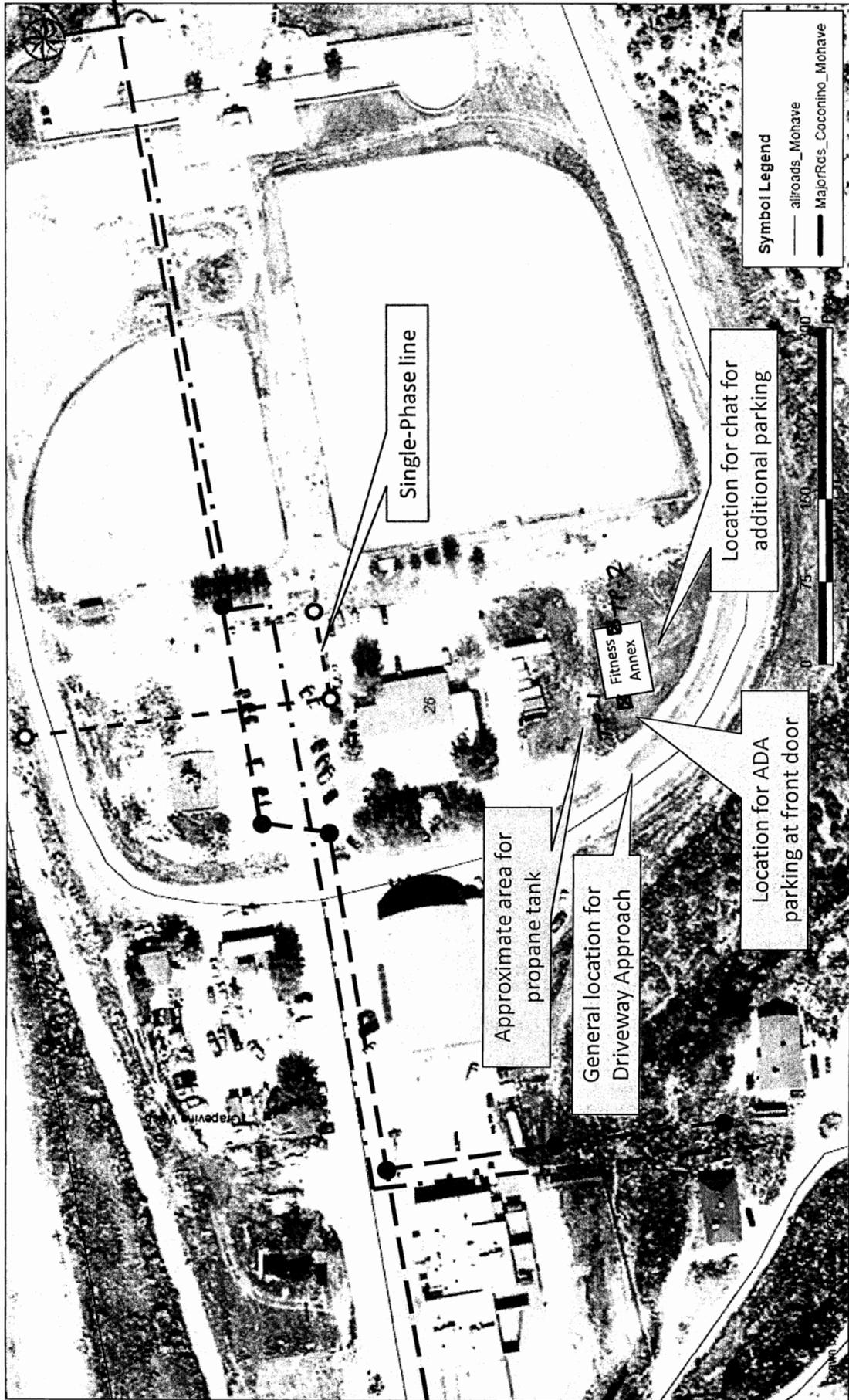
Notes

LOCATION MAP PLATE 1



Location for New Fitness Center Annex on Rodeo Circle

Aerial Photography 2014



☒ APPROX TEST PIT LOCATION

SITE PLAN PLATE 2

Water Line (4"), Sewer Line, Overhead Electric Line

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
GW	Well graded gravel Well graded gravel with sand	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size
GP	Poorly graded gravel Poorly graded gravel with sand	
GM	Silty gravel Silty gravel with sand	
GC	Clayey gravel Clayey gravel with sand	
SW	Well graded sand Well graded sand with gravel	SANDS More than half of coarse fraction is smaller than No. 4 sieve size
SP	Poorly graded sand Poorly graded sand with gravel	
SM	Silty sand Silty sand with gravel	
SC	Clayey sand Clayey sand with gravel	

NOTE: Coarse-grained soils receive dual symbols if:
(1) their fines are CL-ML (e.g. SC-SM or GC-GM) or
(2) they contain 5-12% fines (e.g. SW-SM, GP-GC, etc.)

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	ABOVE 12 in.
COBBLES	3 in. to 12 in.
GRAVEL	No. 4 to 3 in.
Coarse	¾ in. to 3 in.
Fine	No. 4 to ¾ in.
SAND	No. 200 to No. 4
Coarse	No. 10 to No. 4
Medium	No. 40 to No. 10
Fine	No. 200 to No. 40
*FINES (Silt or Clay)	BELOW No. 200

NOTE: Classification is based on the portion of a sample that passes the 3-inch sieve.

GENERAL NOTE: The tables list 30 out of a possible 110 Group Names, all of which are assigned to unique proportions of constituent soils. Flow charts in ASTM D 2487 aid assignment of the Group Names. Some general rules for fine grained soils are: less than 15% sand or gravel is not mentioned; 15% to 29% sand or gravel is termed "with sand" or "with gravel;" and 30% or more sand or gravel is termed "sandy" or "gravelly." Some general rules for coarse-grained soils are: uniformly-graded or gap-graded soils are "Poorly" graded (SP or GP); 15% or more sand or gravel is termed "with sand" or "with gravel;" and any cobbles or boulders are termed "with cobbles" or "with boulders."

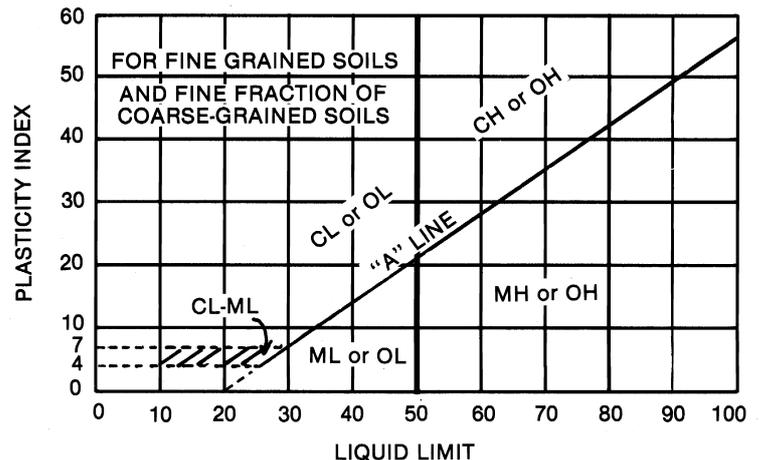
FINE-GRAINED SOILS

MORE THAN 50% FINES*

GROUP SYMBOLS	ILLUSTRATIVE GROUP NAMES	MAJOR DIVISIONS
CL	Lean clay Sandy lean clay with gravel	SILTS AND CLAYS Liquid limit less than 50
ML	Silt Sandy silt with gravel	
OL	Organic clay Sandy organic clay with gravel	
CH	Fat clay Sandy fat clay with gravel	SILTS AND CLAYS Liquid Limit more than 50
MH	Elastic silt Sandy elastic silt with gravel	
OH	Organic clay Sandy organic clay with gravel	
PT	Peat Highly organic silt	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils receive dual symbols if their limits plot in the hatched zone on the Plasticity Chart (CL-ML).

PLASTICITY CHART



UNIFIED SOIL CLASSIFICATION SYSTEM

Plate 3

SOIL TYPES (Ref 1)

Boulders: particles of rock that will not pass a 12-in. screen.

Cobbles: particles of rock that will pass a 12-in. screen, but not a 3-in sieve.

Gravel: particles of rock that will pass a 3-in. sieve, but not a #4 sieve.

Sand: particles of rock that will pass a #4 sieve, but not a #200 sieve.

Clay: soil that will pass a #200 sieve, that can be made to exhibit plasticity (putty-like properties) within a range of water contents, and that exhibits considerable strength when dry.

Silt: soil that will pass a #200 sieve, that is non-plastic or very slightly plastic, and that exhibits little or no strength when dry.

MOISTURE AND DENSITY

Moisture Condition: an observational term; dry, damp, moist, wet, or saturated.

Moisture Content: the weight of water in a sample divided by the weight of dry soil in the sample, expressed as a percentage.

Dry Density: the pounds of dry soil in a cubic foot of soil.

DESCRIPTORS OF CONSISTENCY (Ref 2)

Liquid Limit: the moisture content at which a - #200 soil is on the boundary between exhibiting liquid and plastic characteristics. The consistency feels like soft butter.

Plastic Limit: the moisture content at which a - #200 soil is on the boundary between exhibiting plastic and semi-solid characteristics. The consistency feels like stiff putty.

Plasticity Index: the difference between the liquid limit and the plastic limit, i.e. the range in water contents over which the soil is in a plastic state.

MEASURES OF CONSISTENCY OF COHESIVE SOILS (CLAYS) (Ref 2)

Very Soft	N = 0-1*	C = 0-250 psf	Squeezes between fingers
Soft	N = 2-4	C = 250-500 psf	Easily molded by finger pressure
Firm	N = 5-8	C = 500-1000 psf	Molded by strong finger pressure
Stiff	N = 9-15	C = 1000-1500 psf	Dented by strong finger pressure
Very Stiff	N = 16-30	C = 1500-2000 psf	Dented slightly by finger pressure
Hard	N > 30	C > 2000 psf	Dented slightly by a pencil point

* N = blows per foot in the Standard Penetration Test. In cohesive soils, with the 3-inch -diameter ring sampler, 140-pound weight, divide the blow count by 1.2 to get N (Ref 3).

MEASURES OF RELATIVE DENSITY OF GRANULAR SOILS (GRAVELS, SANDS, AND SILTS) (Ref 2)

Very Loose	N = 0-4**	RD = 0-50	Push a 1/2-inch reinforcing rod by hand
Loose	N = 5-10	"	"
Firm	N = 11-20	RD = 50-70	Easily drive a 1/2-inch reinforcing rod
Very Firm	N = 21-30	"	"
Dense	N = 31-50	RD = 70-90	Drive a 1/2-inch reinforcing rod 1 foot
Very Dense	N > 50	RD = 90-100	Drive a 1/2-inch reinforcing rod a few inches

**N = blows per foot in the Standard Penetration Test. In granular soils, with the 3-inch -diameter ring sampler, 140-pound weight, divide the blow count by 2 to get N (Ref 3).

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Ref 1: ASTM Designation: D 2487-85, **Standard Test Method for Classification of Soils for Engineering Purposes.**

Ref 2: Sowers, George F., **Introductory Soil Mechanics and Foundations: Geotechnical Engineering**, MacMillan Publishing Company, New York, 4th Ed., 1979, pp. 80, 81, and 312.

Ref 3: Lowe, John III, and Zaccheo, Philip F., **Subsurface Explorations and Sampling**, Chapter 1 in Winterkorn, Hans F., and Fang, Hsai-Yang, "Foundation Engineering Handbook," Van Nostrand Reinhold Company, New York, 1975, pp. 37-38.

Report Date: 10/29/2016	TEST PIT LOG	Pit No.: 1
Company Name: Brazos Geotech, Inc.		Surface Elevation:
Site Name: Hualapai Fitness Center Annex		Total Depth: 10 feet
Location: Peach Springs, AZ		Start: 10/24/16
Logged By: G Tripp		Finish: 10/24/16
Contractor: Hualpai Public Works		Equipment Type: Backhoe
Conditions:		Pit Dimensions:
Comments: NP = Non-Plastic		Sampling Methods:

Graphical Log	Top Depth (feet)	Thick. (feet)	Bt.Elev. (feet)	Strata Code	Material Description	Sample No.	Sampling Method	Remarks
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[Graphical Log Column]	0	5	-5	ML	Sandy Silt: lt brown, loose, top 10 inches moist.	1		NP ~1 inch layer of small gravel (Chat) on surface.
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[Graphical Log Column]	5	5	-10	ML	Silt: lt brown, loose.	2		NP
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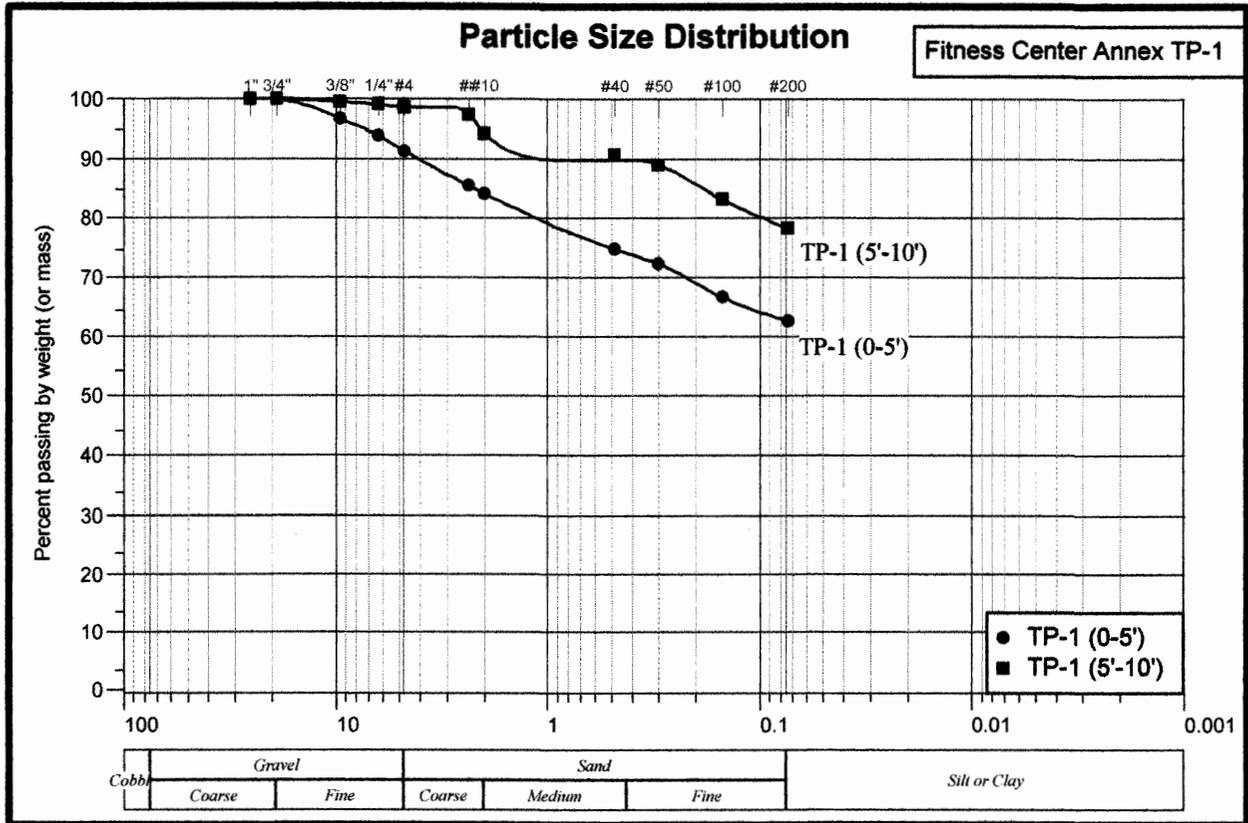
10 feet T.D.

Report Date: 10/29/2016	TEST PIT LOG	Pit No.: 2
Company Name: Brazos Geotech, Inc.		Surface Elevation:
Site Name: Hualapai Fitness Center Annex		Total Depth: 10 feet
Location: Peach Springs, AZ		Start: 10/24/16
Logged By: G Tripp		Finish: 10/24/16
Contractor: Hualpai Public Works		Equipment Type: Backhoe
Conditions:		Pit Dimensions:
Comments: NP = Non-Plastic		Sampling Methods:

Graphical Log	Top Depth (feet)	Thick. (feet)	Bt.Elev. (feet)	Strata Code	Material Description	Sample No.	Sampling Method	Remarks
	0	5	-5	ML	Sandy Silt: lt brown, loose, top 10 inches moist.	1		NP ~1 inch layer of small gravel (Chat) on surface.
	5	5	-10	ML	Silt: lt brown, loose.	2		NP

10 feet T.D.

Particle Size Distribution



Particle Size Distribution

