Applied Geotechnical Engineering Consultants, Inc.

GEOTECHNICAL INVESTIGATION

PROPOSED RESIDENCE

SHADOW RIDGE ESTATES LOT 4

13270 SOUTH PETES PLACE (1192 WEST)

RIVERTON, UTAH

PREPARED FOR:

THE GENTRY CONSTRUCTION
10984 NORTH 4800 WEST
HIGHLAND, UTAH 84003

ATTENTION: JAMES WHITE

PROJECT NO. 1990743

DECEMBER 6, 1999

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

1. The natural subsurface soils at the site generally consist of silt overlying lean clay which extends the full depth investigated, approximately 30½ feet. Fill was encountered above the natural soil in Test Pits TP-1 and TP-2 extending to depths of 3 and 4 feet, respectively. Approximately 3 feet of silty gravel overlying silty sand was encountered in Test Pit TP-3.

2. Free water was measured at a depth of approximately 21½ feet below the ground surface in Boring B-1 when measured 3 days after drilling. No free water was encountered in the test pits which extended to a maximum depth of approximately 11 feet.

3. The proposed residence may be supported on spread footings bearing on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil. Footings bearing on the undisturbed natural soil or on compacted structural fill may be designed using an allowable net bearing pressure of 1,500 pounds per square foot. Footings bearing on at least 2 feet of compacted structural fill may be designed using an allowable net bearing pressure of 2,500 pounds per square foot.

4. The western portion of the site, approximately the shaded area on Figure 1, is relatively flat. There is a slope approximately 2 horizontal to 1 vertical extending down to the east through the central portion of the site, becoming more gentle in the eastern portion of the property. A stability analysis was conducted on the existing slope and indicates a safety factor of 1.6 under static conditions and 1.0 under seismic conditions. Footings for the proposed residence should be set back from the slope at least the distance indicated in the Foundations Section of the report.

5. Geotechnical information related to foundations, subgrade preparation, and materials are included in the report.

SCOPE

This report presents the results of a geotechnical investigation for the proposed residence to be located on Lot 4 of the Shadow Ridge Estates Phase 2 Subdivision at approximately 13270 South Petes Place (1192 West) in Riverton, Utah. The report presents the subsurface conditions encountered, laboratory test results, and recommendations for foundations. The study was conducted in general accordance with our proposal dated November 2, 1999.

Field exploration was conducted to obtain information on the subsurface conditions. Samples obtained from the field investigation were tested in the laboratory to determine physical and engineering characteristics of the on-site soil. Information obtained from the field and laboratory was used to define conditions at the site for our engineering analysis and to develop recommendations for the proposed foundations.

This report has been prepared to summarize the data obtained during the study and to present our conclusions and recommendations based on the proposed construction and the subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction are included in the report.

SITE CONDITIONS

The site consists of a vacant lot. The western portion of the lot is relatively flat with a gentle slope downward to the east. The central portion of the site slopes approximately 2 horizontal to 1 vertical down to the east. The eastern end of the site has a moderate to gentle slope down to the east. There is a relatively small gully or area of erosion which extends into the western portion of the site between Test Pits TP-1 and TP-2 (see Figure 1). The gully has been partially filled in with soil and some debris.

The western portion of the property is free of significant vegetation. The slope and eastern portion of the site are covered with grass, weeds and sagebrush.

There are existing residences to the east and west of the site and a residence under construction to the north. There is a vacant lot to the south.

FIELD STUDY

The field study was conducted on November 10 and 15, 1999. Three test pits were excavated on November 10 and 1 boring was drilled on November 15, 1999 at the approximate locations indicated on Figure 1. The test pits were excavated with a rubber-tired backhoe and the boring was drilled with 8-inch diameter hollow stem auger powered by an all-terrain drill rig. The test pits and boring were logged and soil samples obtained by representatives from AGEC. Logs of the subsurface conditions encountered in the test pits and boring are graphically shown on Figure 2 with Legend and Notes on Figure 3.

SUBSURFACE CONDITIONS

The natural subsurface soils at the site generally consist of silt overlying lean clay which extends the full depth investigated, approximately 30½ feet. Fill was encountered above the natural soil in Test Pits TP-1 and TP-2 extending to depths of 3 and 4 feet, respectively. Approximately 3 feet of silty gravel overlying silty sand was encountered in Test Pit TP-3.

A description of the various soils encountered in the test pits and boring follows:

Fill - The fill consists of clayey sand with gravel and occasional debris in Test Pit TP-1. The fill is moist and brown in color.

Lean Clay - The lean clay contains sand and silty sand layers. It is medium stiff to stiff, very moist to wet and brown in color with iron oxide staining.

Laboratory tests conducted on samples of the clay indicate natural moisture contents range from 24 to 32 percent and natural dry densities range from 89 to 91 pounds per cubic foot (pcf).

A sample of the clay tested in the laboratory was found to have an unconfined compressive strength of 1,185 pounds per square foot (psf).

A direct shear test was conducted on a sample of the clay. Results of the direct shear test are presented on Figure 5.

Silt - The silt contains a small to large amount of sand, silty sand and silty clay layers. It is stiff, slightly moist to moist and brown in color.

Laboratory tests conducted on samples of the silt which included some silty clay and silty sand indicate natural moisture contents range from 11 to 30 percent and natural dry densities range from 81 to 92 pcf.

A sample of the silty clay from the silt deposit tested in the laboratory was found to have an unconfined compressive strength of 2,945 psf.

A consolidation test conducted on a sample of the silt indicates that the soil will compress a small to moderate amount with the addition of light to moderate loads. Results of the consolidation test are presented on Figure 4.

Silty Sand - The silty sand is medium dense, moist and brown in color with iron oxide staining.

Silty Gravel with Sand - The gravel contains silty sand layers. It is medium dense, moist and brown in color.

Results of the laboratory tests are summarized on Table I and are included on the Logs of the Test Pits and Boring.

SUBSURFACE WATER

Free water was measured at a depth of approximately 21½ feet below the ground surface in Boring B-1 when measured 3 days after drilling. No water was encountered in the test pits at the time of excavating and no water was measured in a slotted PVC pipe installed in Test Pit TP-1 when checked 8 days after excavating.

Fluctuations in the water level may occur over time. Generally, water levels are expected to be highest in the spring and summer and lowest in the fall and winter. An evaluation of fluctuations in the water level is beyond the scope of this report.

PROPOSED CONSTRUCTION

We understand that the proposed residence will be a one to two-story, wood frame residence with a basement. We have assumed that building loads will include wall loads up to approximately 3 kips per lineal foot and column loads up to 20 kips based on typical residential construction in the area.

If the proposed construction or anticipated building loads are significantly different from those described above, we should be notified to re-evaluate our recommendations.

RECOMMENDATIONS

Based on the subsurface conditions encountered, laboratory test results, and the proposed construction, the following recommendations are given:

A. Site Grading

Site grading plans were not available at the time of our investigation. We anticipate that there will be only a minor amount of cut and fill required for the construction.

1. Slopes

The existing slope extending through the central portion of the site was measured to be approximately 2 horizontal to 1 vertical. Slope stability analysis was conducted to evaluate the stability of the existing slope. The results of our analysis indicate a safety factor of 1.6 under static conditions and a safety factor of 1.0 under seismic conditions, assuming an earthquake with a ground acceleration having a 10 percent probability of exceedance in the 50 year period.

Based on the results of our stability analysis, the proposed foundations should be set back from the slope at least the distance indicated in the Foundations Section of the report.

Site grading should be carefully planned to maintain stable slopes. The slope should not be modified to exceed 2 horizontal to 1 vertical.

The small gully extending into the proposed building area should be properly backfilled. Existing fill, organics, debris and other deleterious material should be removed before backfilling. Backfill should be placed in lifts and keyed into the slope with a key every 2 feet in vertical rise. Due to the close proximity to the proposed house, the gully should be backfilled using structural fill and meet the compaction recommendations for fill to support footings contained in items 3 and 4 below.

Good surface drainage should be provided upslope of the natural slope and runoff should be directed away from the slope. The slope should be protected from erosion by vegetation and/or other methods.

2. Excavation

Excavation at the site can be accomplished with typical excavation equipment. A flat cutting edge should be used for excavation equipment when excavating for foundations to reduce disturbance of the bearing soil.

3. Compaction

Compaction of materials placed at the site should equal or exceed the minimum densities as indicated below when compared to the maximum dry density as determined by ASTM D-1557.

Fill to Support	Compaction
Foundations	≥ 95%
Concrete Flatwork and Pavement	≥ 90%
Landscaping	≥ 85%
Retaining Wall Backfill	85 - 90%

To facilitate the compaction process, the fill should be compacted at a moisture content within 2 percent of the optimum moisture content.

Fill should be frequently tested for compaction.

4. Materials

Material placed as fill to support foundations should be non-expansive granular soil. The natural silt and clay is not suitable for use as structural fill below building areas, but may be used in pavement areas or as utility trench backfill, if topsoil, organics and other deleterious material are removed, or it may be used in landscaping areas. The on-site soils are generally above or near the optimum moisture content and may require moisture conditioning prior to use as fill. Drying of the soil may not be practical during the cold or wet periods of the year.

Listed below are materials recommended for imported structural fill.

Fill to Support	Recommendation
Footings	Non-expansive granular soil Passing No. 200 sieve <35% Liquid Limit <30% Maximum size 4 inches
Floor Slabs (Upper 4 inches)	Sand and/or Gravel Passing No. 200 sieve <5% Maximum size 2 inches
Slab Support	Non-expansive granular soil Passing No. 200 sieve <50% Liquid Limit <30% Maximum size 6 inches

5. Drainage

The ground surface surrounding the proposed residence should be sloped away from the building in all directions. Roof down spouts and drains should discharge beyond the limits of backfill.

B. Foundations

1. Bearing Material

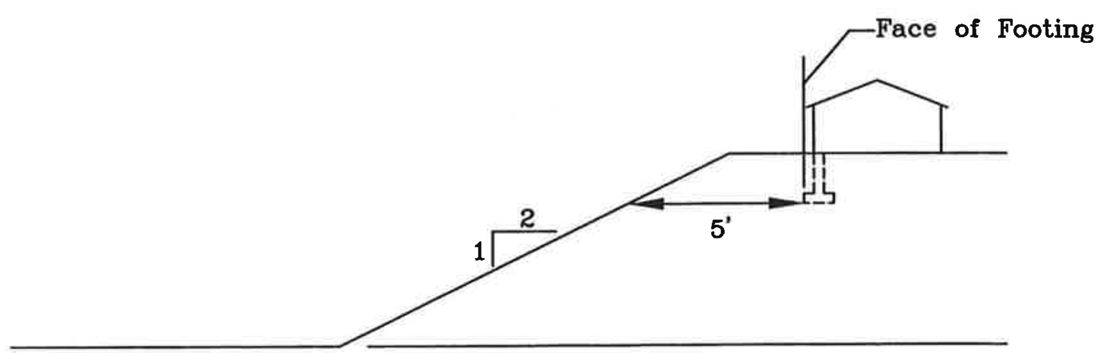
With the proposed construction and the subsurface conditions encountered, the proposed residence may be supported on spread footings bearing on the undisturbed natural soil or on compacted structural fill extending down to the undisturbed natural soil. Structural fill should extend out away from the edge of the footings a distance equal to the depth of fill beneath footings. All topsoil, organics, unsuitable fill or other deleterious material should be removed from foundation areas.

2. Bearing Pressure

Spread footings bearing on the undisturbed natural soil or on compacted structural fill may be designed using an allowable net bearing pressure of 1,500 psf. Footings bearing on a minimum of 2 feet of compacted structural fill may be designed for an allowable net bearing pressure of 2,500 psf. Footings should have a minimum width of 1½ feet and a minimum depth of embedment of 1 foot.

3. Building Setbacks from Slope

The proposed footings should be setback from the slope at least the minimum distance indicated below.



4. Temporary Loading Conditions

The allowable bearing pressure may be increased by one-half for temporary loading conditions such as wind or seismic loads.

5. Settlement

Based on the subsoil conditions encountered and the assumed building loads, we estimate that total settlement for foundations designed as indicated above will be on the order of 1 inch with differential settlement on the order of 3/4 of an inch.

6. Frost Depth

Exterior footings and footings beneath unheated areas should be placed at least 30 inches below grade for frost protection.

7. Foundation Base

The base of all footing excavations should be cleared of loose or deleterious material prior to structural fill or concrete placement.

8. Construction Observation

A representative of the geotechnical engineer should observe all footing excavations prior to structural fill or concrete placement.

C. Concrete Slab-on-Grade

1. Slab Support

Concrete slabs may be supported on the undisturbed natural soil or on compacted structural fill.

2. Underslab Gravel

A 4-inch layer of free draining gravel (less than 5 percent passing the No. 200 sieve) should be placed below the concrete slabs for ease of construction and to promote even curing of the slab concrete.

D. Lateral Earth Pressures

1. Lateral Resistance for Footings

Lateral resistance for spread footings placed on the natural soil or on compacted structural fill is controlled by sliding resistance between the footing and the foundation soils. A friction value of 0.3 may be used in design for ultimate lateral resistance.

2. Subgrade Walls and Retaining Structures

The following equivalent fluid weights are given for design of subgrade walls and retaining structures. The active condition is where the wall moves away from the soil. The passive condition is where the wall moves into the soil and the at-rest condition is where the wall does not move. The values listed below assume a horizontal surface adjacent the wall.

Soil Type	Active	At-Rest	Passive
Clay and Silt	50 pcf	65 pcf	250 pcf
Sand and Gravel	40 pcf	55 pcf	300 pcf

3. Seismic Conditions

Under seismic conditions, the equivalent fluid weight should be increased by 24 pcf for active and at-rest conditions and decreased by 24 pcf for the passive condition. This assumes a horizontal ground acceleration of 0.25g which represents a 10 percent probability of exceedance in a 50 year period (Frankel and others, 1996).

4. Safety Factors

The values recommended above assume mobilization of the soil to achieve soil strength. Conventional safety factors used for structural analysis for such items as overturning and sliding resistance should be used in design.

E. Subsurface Drains

No free water was encountered at the time of the investigation, however, the interlayered clay and silt may result in perched water conditions, or highly permeable layers may transmit water to the subgrade floor portion of the building during times of rainfall or snow melt. Consideration should be given to installing a permanent under drain system for subgrade floor construction. The under drain system should consist of at least the following items:

1. The under drain system should consist of perforated pipes installed in a gravel filled trench around the perimeter of the subgrade floor of the building.

2. The flow line of the pipes should be placed at least 18 inches below the subgrade floor level and should slope to a sump or outlet where water can be removed by pumping or by gravity flow.

3. If placing the gravel and drain pipe requires excavation below the bearing level of footings, the excavation for the drain pipe and gravel should have a slope no steeper than 1 horizontal to 1 vertical away from the edge of footings, so as not to disturb soil below footings.

4. A filter fabric should be placed between the natural soil and the drain gravel. This will help reduce the potential for fine-grained material filling in the void spaces of the gravel.

5. Subgrade floor slabs should have at least 6 inches of free draining gravel placed below them and the underslab gravel should connect to the perimeter drain.

6. Consideration should be given to installing cleanouts to allow access into the perimeter drain should cleaning of the pipe be required in the future.

F. Seismicity and Liquefaction

The site is located in an area mapped as having a "very low" to "high" potential for liquefaction (Salt Lake County Planning Department, 1997). Subsurface soils encountered in the boring would indicate that the subsurface soil at the site is not susceptible to liquefaction.

Based on the location of the site, we recommend that the building be designed and constructed to at least meet the Uniform Building Code Seismic Zone 3 criteria using a Soil Profile Type of "S_D".

G. Water Soluble Sulfates

One sample of the natural soil was tested in the laboratory for water soluble sulfate content. The test results indicate there is less than 0.1 percent water soluble sulfate in the sample tested. Based on the results of the test and published literature, the natural soil possesses negligible sulfate attack potential on concrete. The concentration of water soluble sulfates present in the soil at the site indicates that sulfate resistant cement is not needed for concrete placed in contact with the natural soil. Other conditions may dictate the type of cement to be used in concrete for the project.

LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for the use of the client for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the boring drilled and test pits excavated and the data obtained from laboratory testing. Variations in the subsurface conditions may not become evident until excavation is conducted. If the subsurface conditions or groundwater level are found to be significantly different from those described above, we should be notified to re-evaluate our recommendations.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

LICENSED PROFESSIONAL ENGINEER
12/6/99
No. 177892
JAY R.
McQUIVEY
STATE OF UTAH

Jay R. McQuivey, P.E.

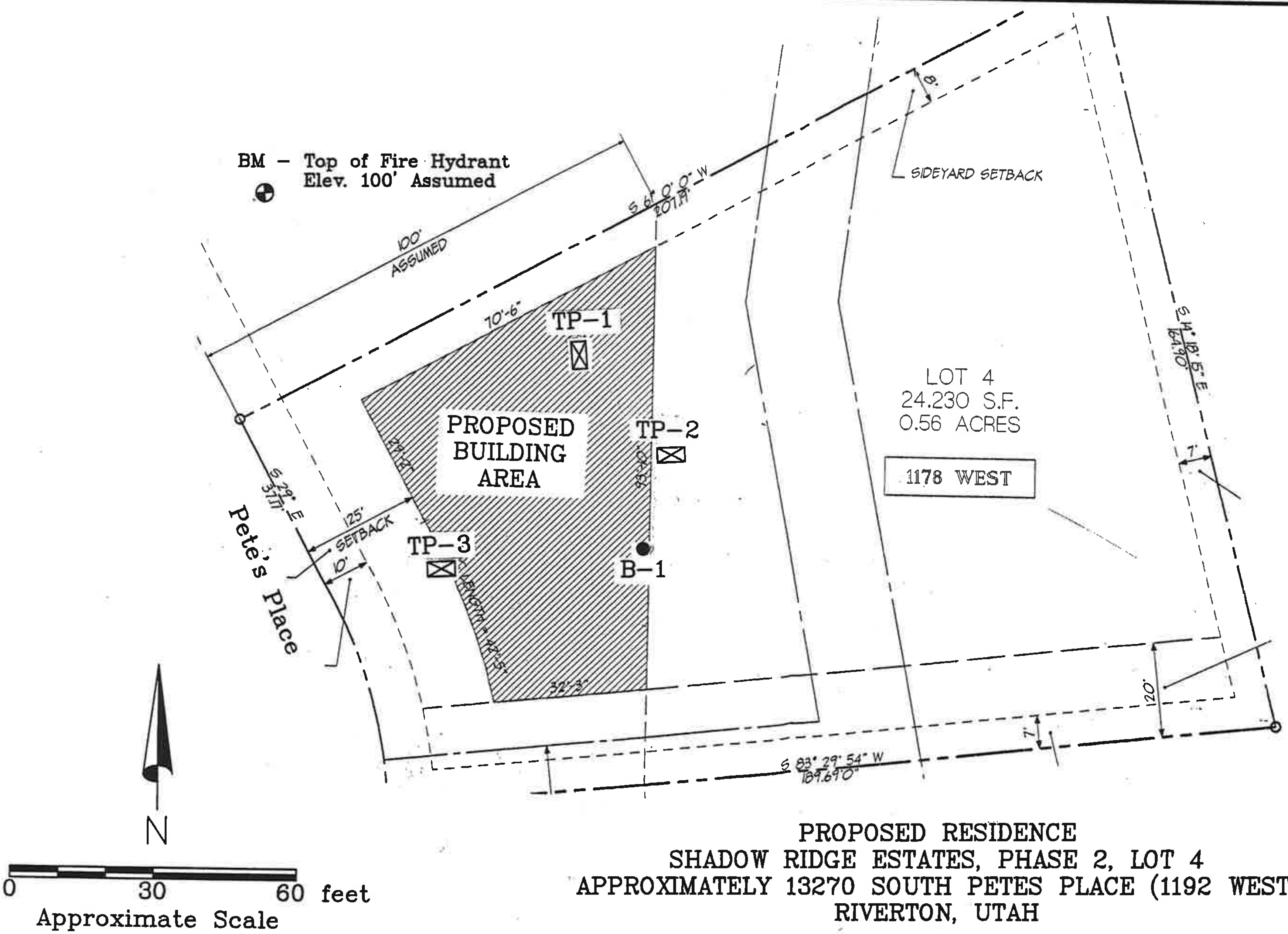
Reviewed by: Douglas R. Hawkes, P.E., P.G.

JRM/cs

REFERENCES CITED

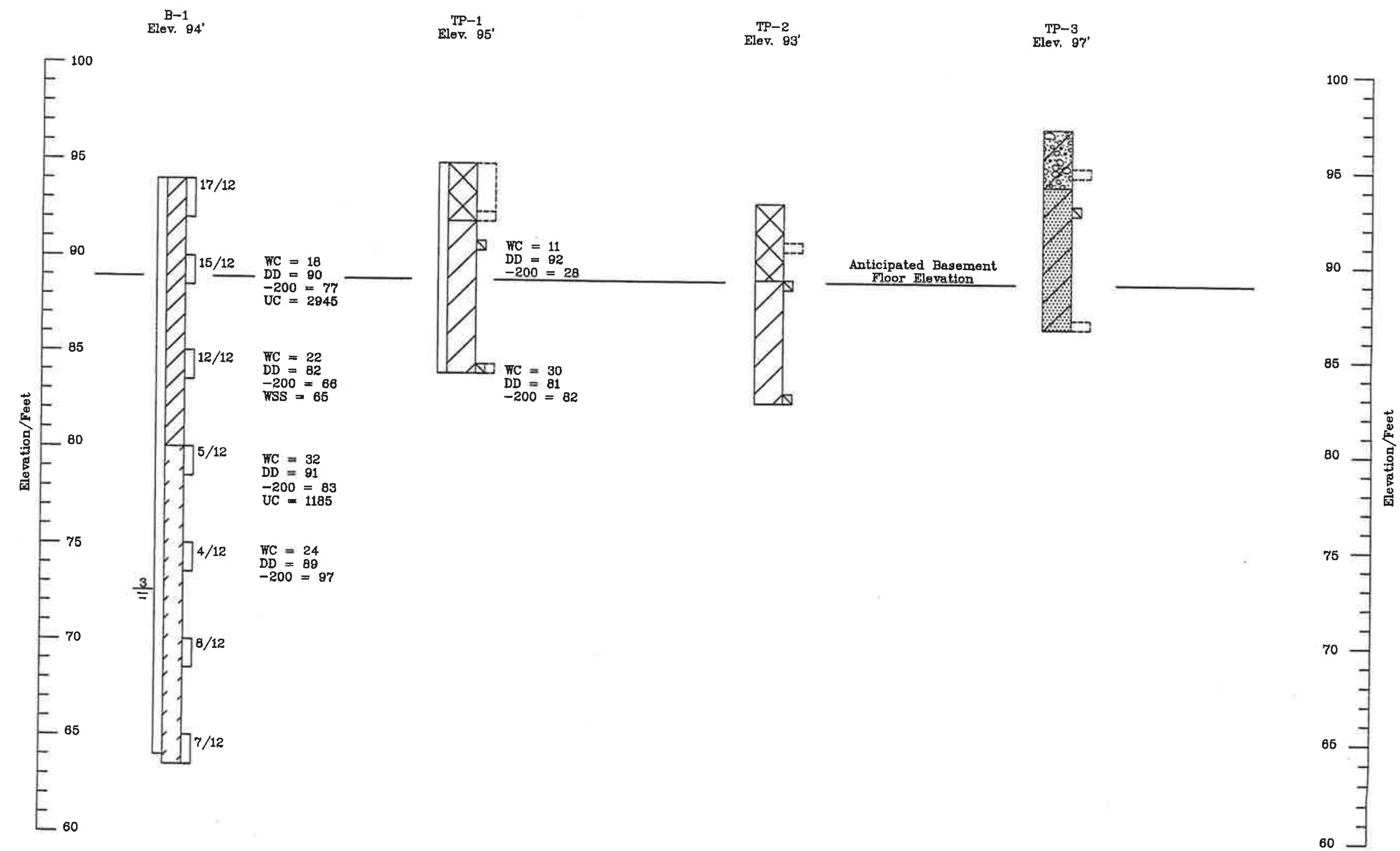
Frankel, A., C. Mueller, T. Barnhard, D. Perkins, E.V. Leyendecker, N. Dickman, S. Hanson and M. Hopper, 1996; National Seismic Hazard Maps, U.S. Geological Survey Open File Report 96-532.

Salt Lake County Planning Department, 1997, Surface Rupture and Liquefaction Potential Special Study Areas Map, Salt Lake County, Utah, adopted March 31, 1989, revised February, 1997, Salt Lake County Public Works, Planning Department, 2001 South State Street, Salt Lake City, Utah.



PROPOSED RESIDENCE
SHADOW RIDGE ESTATES, PHASE 2, LOT 4
APPROXIMATELY 13270 SOUTH PETES PLACE (1192 WEST)
RIVERTON, UTAH

1990743	AGEC	Locations of Exploratory Boring and Test Pits	Figure 1



Approximate Vertical Scale 1" = 8'

See Figure 3 for Legend and Notes

1990743	AGEC	Logs of Exploratory Boring and Test Pits	Figure 2

LEGEND:

- Fill; clayey sand with gravel, occasional debris in TP-1, moist, brown.
- Lean Clay (CL); with sand and silty sand layers, medium stiff to stiff, very moist to wet, brown, iron oxide staining.
- Silt (ML); with small to large amount of sand, silty sand and silty clay layers, stiff, slightly moist to moist, brown.
- Silty Sand (SM); medium dense, moist, brown, iron oxide staining.
- Silty Gravel with Sand (GM); silty sand layers, medium dense, moist, brown.
- 10/12 California Drive sample taken. The symbol 10/12 indicates that 10 blows from a 140 pound automatic hammer falling 30 inches were required to drive the sampler 12 inches.
- Indicates relatively undisturbed hand drive sample taken.
- Indicates disturbed sample taken.
- Indicates slotted 1 1/2 inch PVC pipe installed in the boring or test pit to the depth shown.
- 3 Indicates the depth to free water and the number of days after drilling the measurement was taken.

NOTES:

1. The boring was drilled on November 15, 1999 with 8-inch diameter hollowstem auger. The test pits were excavated on November 10, 1999 with a rubber-tired backhoe.
2. Locations of the boring and test pits were measured approximately by pacing from features shown on the site plan provided.
3. Elevations of the boring and test pits were measured by hand level and refer to the bench mark shown on Figure 1.
4. The boring and test pit locations and elevations should be considered accurate only to the degree implied by the method used.
5. The lines between the materials shown on the boring and test pit logs represent the approximate boundaries between material types and the transitions may be gradual.
6. Water level readings shown on the logs were made at the time and under the conditions indicated. Fluctuations in the water level may occur with time.
7. WC = Water Content (%);
   DD = Dry Density (pcf);
   -200 = Percent Passing No. 200 Sieve;
   UC = Unconfined Compressive Strength (psf);
   WSS = Water Soluble Sulfates (ppm).

1990743	AGEC	Legend and Notes of Exploratory Boring and Test Pits	Figure 3

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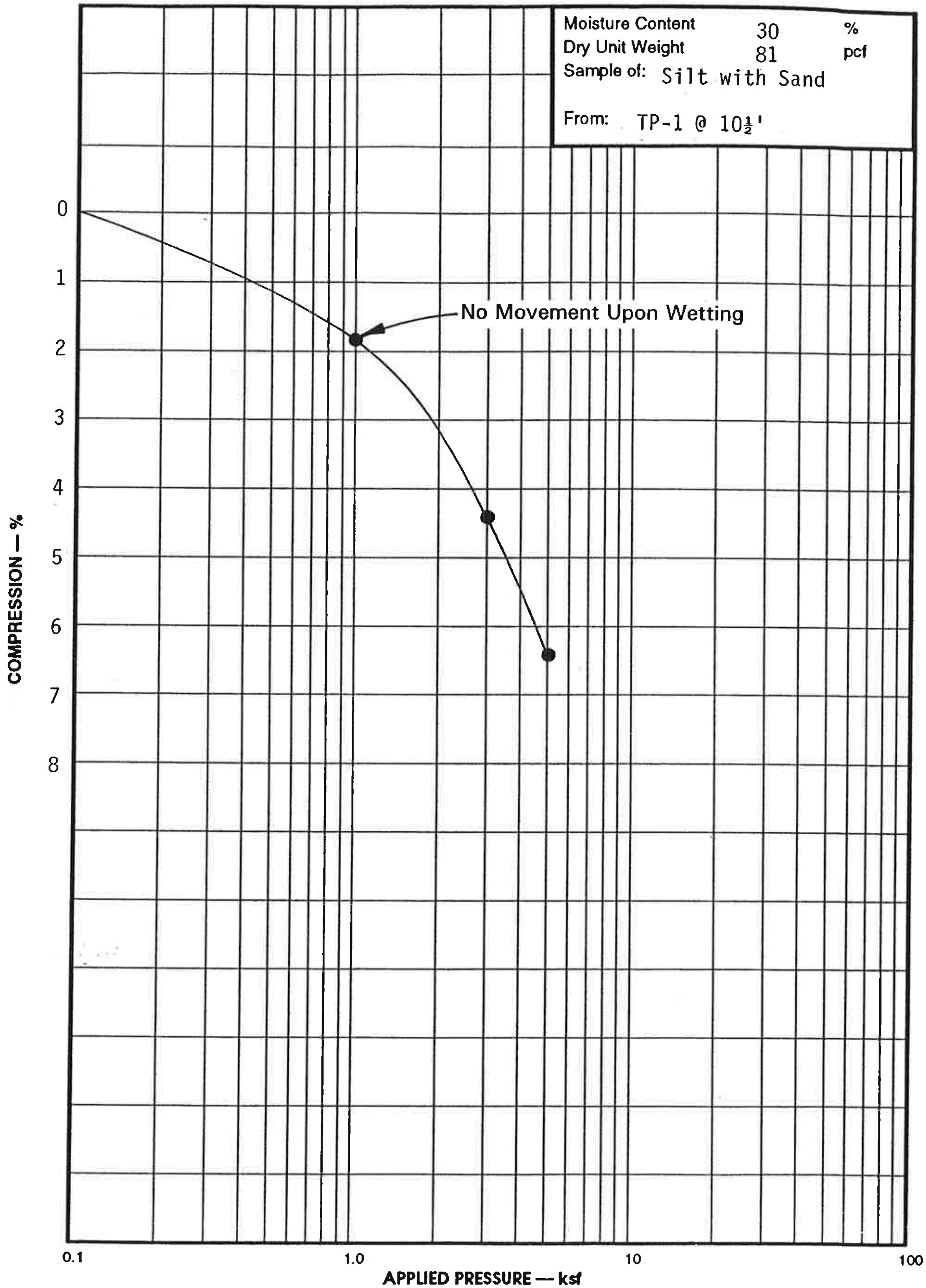
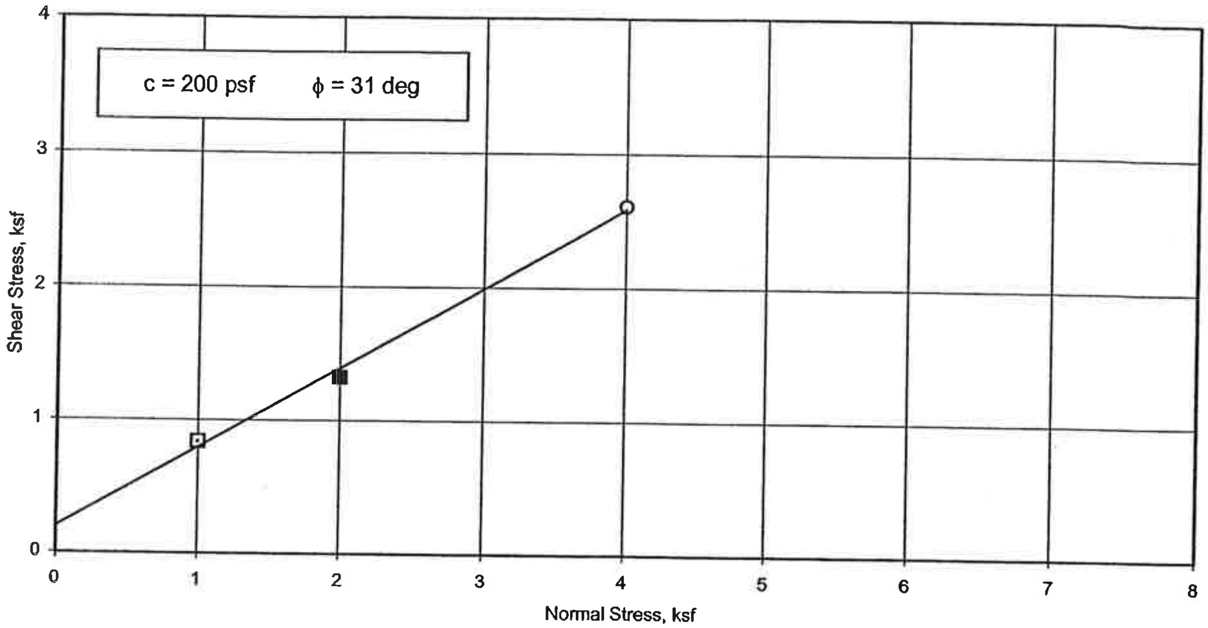
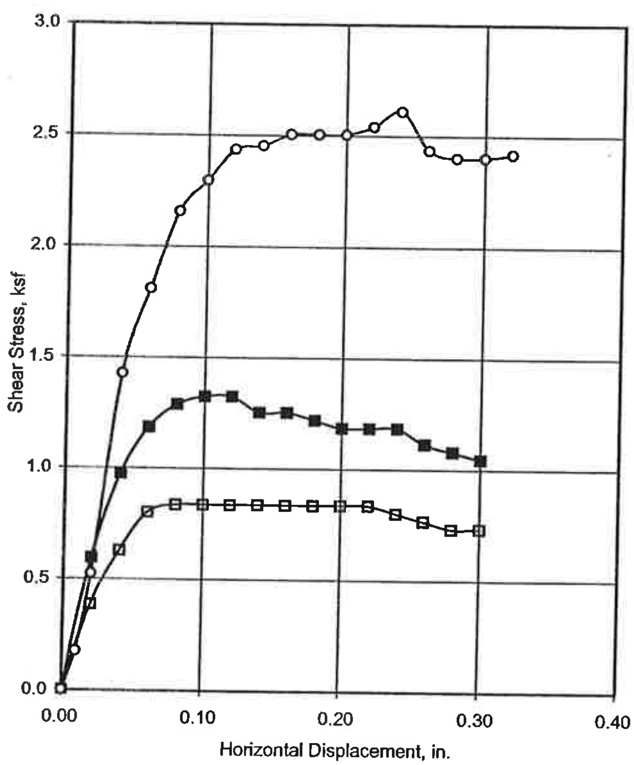


Project No. 1990743 **CONSOLIDATION TEST RESULTS** Figure 4

Applied Geotechnical Engineering Consultants, Inc.





Test No. (Symbol)	1(□)	2(■)	3(○)
Sample Type	Undisturbed		
Length, in.	0.75	0.75	0.75
Diameter, in.	1.93	1.93	1.93
Dry Density, pcf	89	89	89
Moisture Content, %	24	24	24
Consolidation Load, ksf	1.0	2.0	4.0
Normal Load, ksf	1.0	2.0	4.0
Shear Stress, ksf	0.84	1.32	2.61
Remarks	Strain Rate 0.005 in/min.		

Sample Index Properties	
Dry Density, pcf	89
Moisture Content, %	24
Liquid Limit, %	N/A
Plasticity Index, %	N/A
Percent Gravel	N/A
Percent Sand	N/A
Percent Passing No. 200 Sieve	97

Type of Test: Consolidated Drained/Saturated

Sample Description: Lean Clay (CL) From: B-1 @ 19'

Project No. 1990743

DIRECT SHEAR TEST RESULTS

Figure 5

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

TABLE I
SUMMARY OF LABORATORY TEST RESULTS

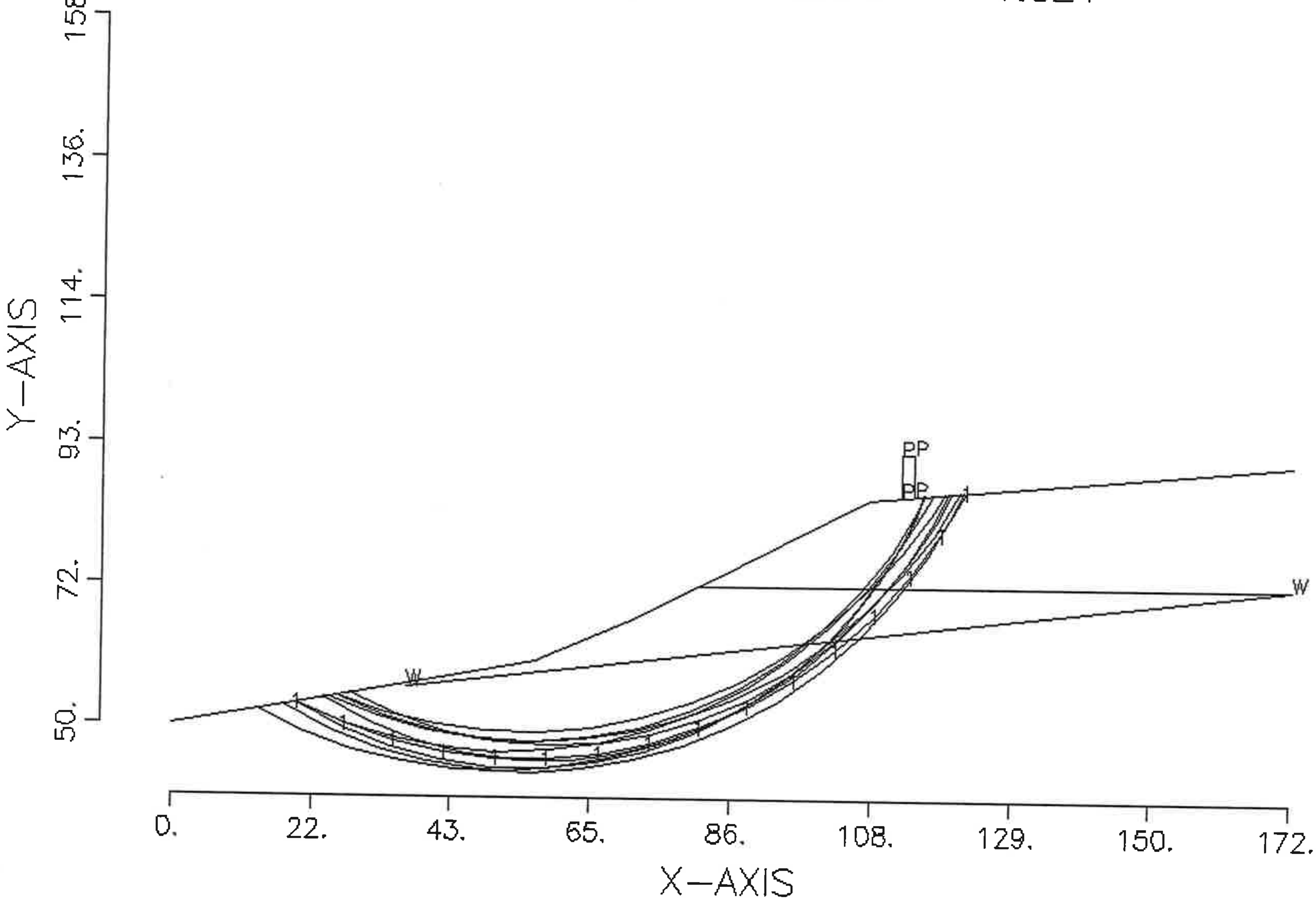
PROJECT NUMBER 1990743

SAMPLE LOCATION		NATURAL MOISTURE CONTENT (%)	NATURAL DRY DENSITY (PCF)	GRADATION			ATTERBERG LIMITS		UNCONFINED COMPRESSIVE STRENGTH (PSF)	WATER SOLUBLE SULFATE (ppm)	SAMPLE CLASSIFICATION
BORING/ TEST PIT	DEPTH (FEET)			GRAVEL (%)	SAND (%)	SILT/ CLAY (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)			
B-1	4	18	90			77			2945		Silty Clay with Sand
	9	22	82			66				65	Sandy Silt
	14	32	91			83			1185		Lean Clay with Sand
	19	24	89			97					Lean Clay
TP-1	4	11	92			28					Silty Sand
	10½	30	81			82					Silt with Sand

AGEC
Midvale UT s/n5206

RIVERTON RESIDENCE - STATIC

2500SURFACES HAVE BEEN GENERATED
10 MOST CRITICAL OF SURFACES GENERATED
MINIMUM FACTOR OF SAFETY = 1.621



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU METHOD OF SLICES
IRREGULAR FAILURE SURFACES

PROBLEM DESCRIPTION RIVERTON RESIDENCE - STATIC

BOUNDARY COORDINATES

6 TOP BOUNDARIES
7 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT	Y-LEFT	X-RIGHT	Y-RIGHT	SOIL TYPE BELOW BND
1	.00	50.00	44.00	58.00	2
2	44.00	58.00	56.00	60.00	2
3	56.00	60.00	70.00	66.00	2
4	70.00	66.00	81.00	71.50	2
5	81.00	71.50	107.00	85.00	1
6	107.00	85.00	172.00	90.50	1
7	81.00	71.50	172.00	71.50	2

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT.	SATURATED UNIT WT.	COHESION INTERCEPT	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT	PIEZOMETRIC SURFACE NO.
1	103.0	103.0	500.0	.0	.00	.0	1
2	120.0	120.0	200.0	25.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNITWEIGHT OF WATER = 62.40

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 2 COORDINATE POINTS

POINT NO.	X-WATER	Y-WATER
1	36.00	56.00
2	172.00	71.50

BOUNDARY LOAD(S)

1 LOAD(S) SPECIFIED

LOAD NO.	X-LEFT	X-RIGHT	INTENSITY	DEFLECTION (DEG)
1	112.00	114.00	1500.0	.0

NOTE - INTENSITY IS SPECIFIED AS A UNIFORMLY DISTRIBUTED
FORCE ACTING ON A HORIZONTALLY PROJECTED SURFACE.

A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

2500 TRIAL SURFACES HAVE BEEN GENERATED.

50 SURFACES INITIATE FROM EACH OF 50 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 10.00
AND X = 60.00

EACH SURFACE TERMINATES BETWEEN X = 90.00
AND X = 170.00

UNLESS FURTHER LIMITATIONS WERE IMPOSED, THE MINIMUM ELEVATION
AT WHICH A SURFACE EXTENDS IS Y = .00

8.00 FT. LINE SEGMENTS DEFINE EACH TRIAL FAILURE SURFACE.

SAFETY FACTORS ARE CALCULATED BY THE MODIFIED BISHOP METHOD.

FAILURE SURFACE # 1 SPECIFIED BY 16 COORDINATE POINTS

SAFETY FACTOR = 1.621

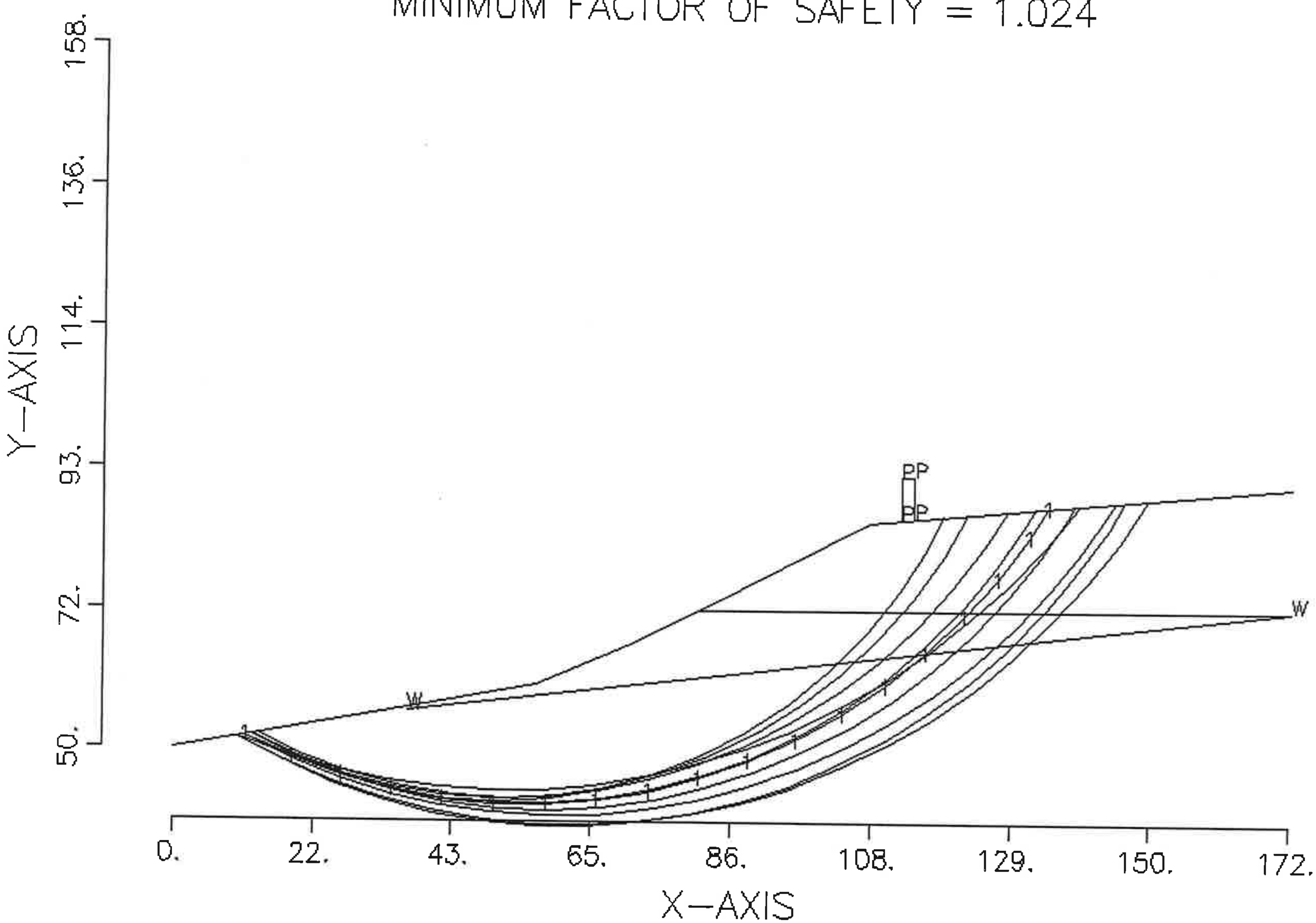
X-CENTER = 54.16
Y-CENTER = 121.19
RADIUS = 76.20

POINT NO.	X-SURF	Y-SURF	ALPHA (DEG)
1	19.18	53.49	-24.31
2	26.47	50.19	-18.30
3	34.07	47.68	-12.28
4	41.89	45.98	-6.26
5	49.84	45.11	-.24
6	57.84	45.08	5.78
7	65.80	45.88	11.79
8	73.63	47.52	17.81
9	81.25	49.96	23.83
10	88.56	53.20	29.85
11	95.50	57.18	35.87
12	101.99	61.86	41.88
13	107.94	67.20	47.90
14	113.31	73.14	53.92
15	118.02	79.61	59.94
16	121.87	86.26	

AGEC
Midvale UT s/n5206

RIVERTON RESIDENCE – 0.25g EQ

2500SURFACES HAVE BEEN GENERATED
10 MOST CRITICAL OF SURFACES GENERATED
MINIMUM FACTOR OF SAFETY = 1.024



--SLOPE STABILITY ANALYSIS--
SIMPLIFIED JANBU METHOD OF SLICES
IRREGULAR FAILURE SURFACES

PROBLEM DESCRIPTION   RIVERTON RESIDENCE - 0.25g EQ

BOUNDARY COORDINATES

6 TOP BOUNDARIES
7 TOTAL BOUNDARIES

BOUNDARY NO.	X-LEFT	Y-LEFT	X-RIGHT	Y-RIGHT	SOIL TYPE BELOW BND
1	.00	50.00	44.00	58.00	2
2	44.00	58.00	56.00	60.00	2
3	56.00	60.00	70.00	66.00	2
4	70.00	66.00	81.00	71.50	2
5	81.00	71.50	107.00	85.00	1
6	107.00	85.00	172.00	90.50	1
7	81.00	71.50	172.00	71.50	2

ISOTROPIC SOIL PARAMETERS

2 TYPE(S) OF SOIL

SOIL TYPE NO.	TOTAL UNIT WT.	SATURATED UNIT WT.	COHESION INTERCEPT	FRICTION ANGLE (DEG)	PORE PRESSURE PARAMETER	PRESSURE CONSTANT	PIEZOMETRIC SURFACE NO.
1	103.0	103.0	500.0	.0	.00	.0	1
2	120.0	120.0	200.0	25.0	.00	.0	1

1 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

UNITWEIGHT OF WATER = 62.40

PIEZOMETRIC SURFACE NO. 1 SPECIFIED BY 2 COORDINATE POINTS

POINT NO.	X-WATER	Y-WATER
1	36.00	56.00
2	172.00	71.50

A HORIZONTAL EARTHQUAKE LOADING COEFFICIENT
OF .190 HAS BEEN ASSIGNED

A VERTICAL EARTHQUAKE LOADING COEFFICIENT
OF .000 HAS BEEN ASSIGNED

CAVITATION PRESSURE = .0

BOUNDARY LOAD(S)

1 LOAD(S) SPECIFIED

LOAD NO.	X-LEFT	X-RIGHT	INTENSITY	DEFLECTION (DEG)
1	112.00	114.00	1500.0	.0

NOTE - INTENSITY IS SPECIFIED AS A UNIFORMLY DISTRIBUTED
FORCE ACTING ON A HORIZONTALLY PROJECTED SURFACE.

A CRITICAL FAILURE SURFACE SEARCHING METHOD, USING A RANDOM
TECHNIQUE FOR GENERATING CIRCULAR SURFACES, HAS BEEN SPECIFIED.

2500 TRIAL SURFACES HAVE BEEN GENERATED.

50 SURFACES INITIATE FROM EACH OF 50 POINTS EQUALLY SPACED
ALONG THE GROUND SURFACE BETWEEN X = 10.00
AND X = 60.00

EACH SURFACE TERMINATES BETWEEN X = 90.00