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GEOTECHNICAL ENGINEERING REPORT
PROPOSED MONARCH MEADOWS
RESIDENTAIL DEVELOPMENT
13400 SOUTH 4800 WEST
HERRIMAN, UTAH

Prepared for:

Mr. Ryan Staker
Monarch Development of Salt Lake City, L.L.C.
1515 West 2200 South, Suite C
Salt Lake City, Utah

Prepared by:

PROFESSIONAL SERVICE INDUSTRIES, INC.
2779 South 600 West
Salt Lake City, Utah
(801) 954-8442

PSI PROJECT NO. 710-25083-2 & 3

March 17, 2003

PSI Information To Build On
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March 17, 2003

Mr. Ryan Staker
Monarch Development of Salt Lake City, L.L.C.
1515 West 2200 South, Suite C
Salt Lake City, Utah 84119

Re: Geotechnical Report Addendum - Foundations
Proposed Monarch Meadows
13400 South 4800 West
Herriman, Utah
PSI Project No. 710-25083-3

Dear Mr. Staker:

At the request of Doug Young and yourself, the undersigned engineer and Jason Crosby, P.E. visited the referenced site on February 28, 2003 to observed test pits excavated across the site. PSI previously completed a geotechnical report for the project where test pits were randomly excavated for the project and recommendations made based on the conditions observed. This letter presents the results of our findings as they pertain to the foundation recommendations provided in the original report.

An additional 14 test pits were observed on February 28, 2003. The materials in the test pits consisted of silty clay with sand and a pinhole structure underlain by dense gravel. The silty clay layer varied in thickness from 1 to 2 feet in the west and southern portions of the site to beyond the depth investigated of 10 feet in the east central and northeast portions of the site.

Samples of potentially collapsible soils were obtained from two of the test pits. Others labeled the test pits as TP-5561 and TP-5562. The test pits were located near our original test pits TP-31 and TP-38 as shown on the original report site plan. Samples obtained from 2.5 feet below the surface were tested for their collapse potential. The results of the laboratory tests indicated an approximate collapse potential of 7 percent; and dry units weights and moisture contents of 72 pcf @ 21% and 85 pcf @ 14%.

Based on the recently observed conditions and additional information obtained from the test pits and laboratory work, we recommend the following:

(1) Foundation recommendations provided in the geotechnical report should be followed for areas where the silty clay to clayey silt soils exist and no fill is placed to build the site up in elevation.
(2) Foundations located in gravel soils will not require over-excavation below footings.
(3) In the east central and northeast portions of the site where the silty clay soils with a pinhole structure are present to depths that extend beyond 3 feet below existing site grades, and fill will be used to raise site grades, a portion of the silty clay soils should be removed. The depth of native silty clay removal to depth of fill placed on the site should be on a 1.2 Removal to 1.0 Fill placement ratio. In other, words, if 7 feet of fill is being placed on the site, then 8.5 feet of pinhole type soil should be removed and replaced with structural fill. This will limit severe adverse reactions to building construction due to fill loads on the native soils. Additionally, a minimum of 2 feet of native soil removal below the 1 foot topsoil zone should be completed prior to the placement of any fill in this area.
(4) As an option to Item (3) above, deep foundations, such as mini-piers, or deep basements extending below the depth of collapsible soils may be utilized at this site.
(5) The geotechnical engineer should be contacted during foundation excavation operations to observe site conditions prior to the placement of fill or concrete to ensure our recommendations were properly understood.

All other recommendations that pertain to site grading and compaction requirements as presented in the original report should be followed.

We appreciate the opportunity to be of service to you on this project. If you have additional questions, please call.

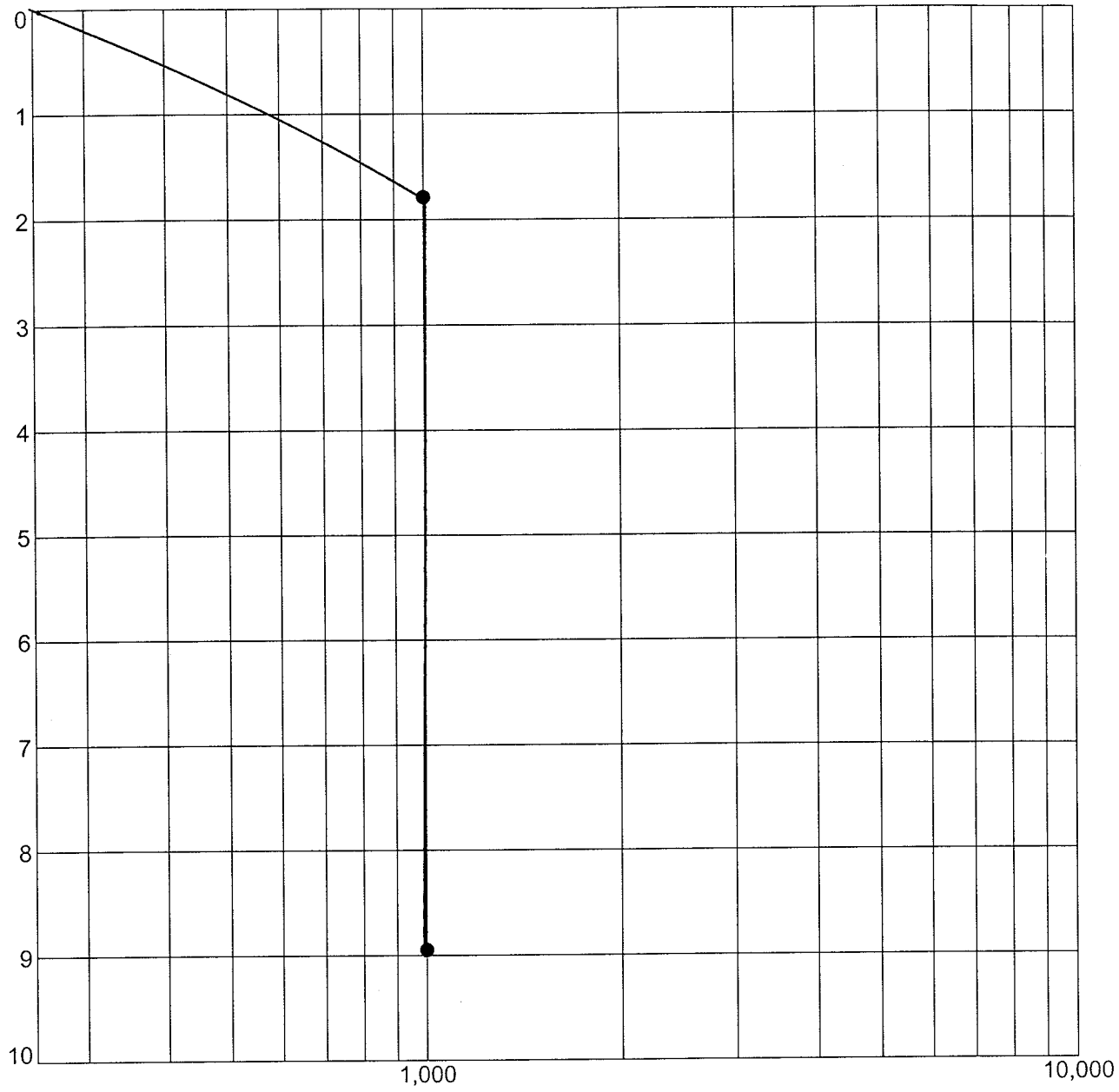
Respectfully submitted,
Professional Service Industries, Inc.

REGISTERED PROFESSIONAL ENGINEER
No. 183550
Alan O. Taylor
7-17-07
STATE OF UTAH

Alan O. Taylor, P.E.
District Manager

Reviewed by,

James Niehoff, P.E.
Chief Engineer

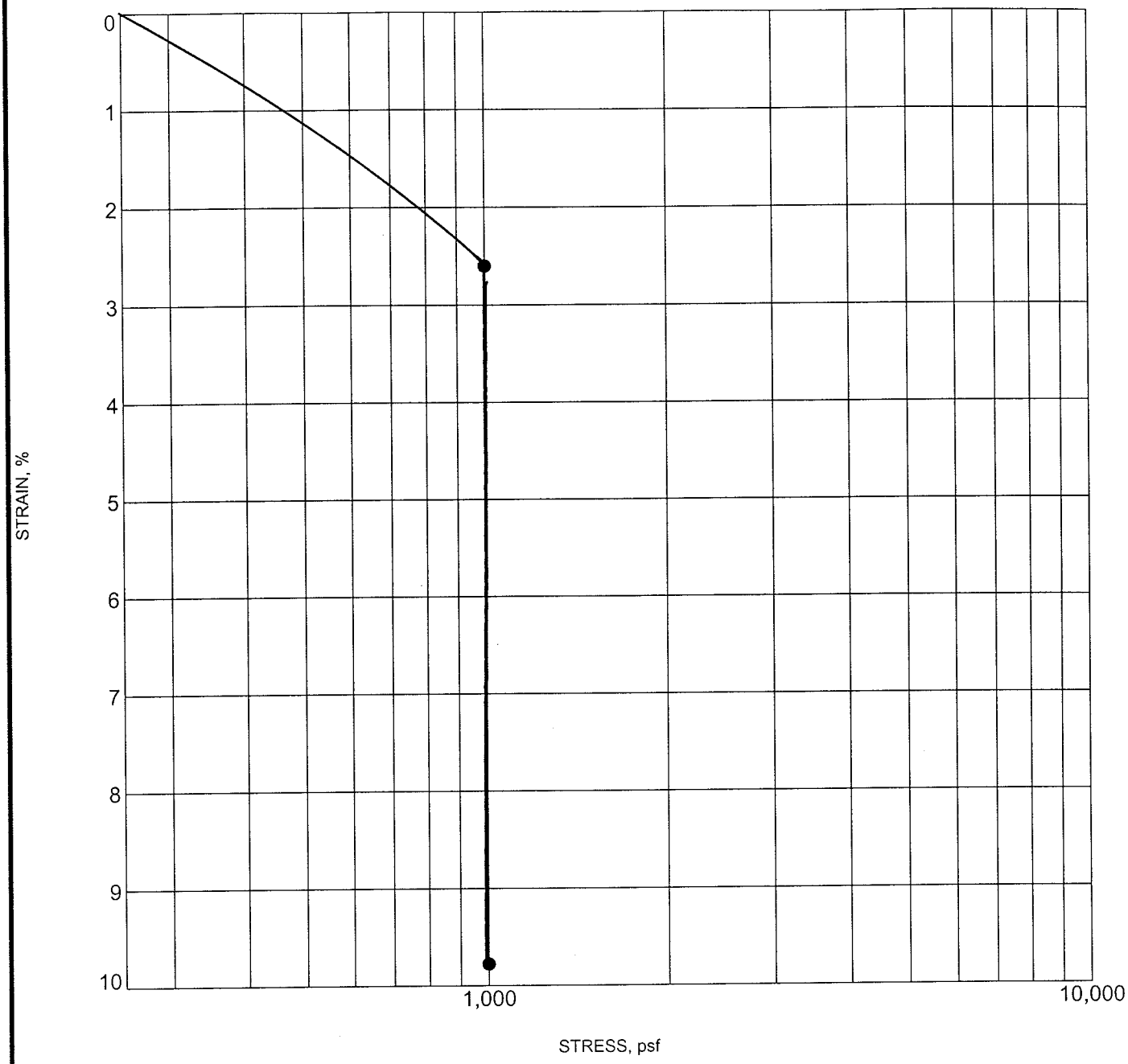


Specimen Identification		Classification	γ_d	MC%
● TP-5561	2.5		72	21

CONSOLIDATION TEST

PSI Job No.: 710-25083-3
Project: Monarch Meadows
Location: Herriman, Utah

Figure A-1



Specimen Identification		Classification	γ_d	MC%
● TP-5562 2.5			85	14

CONSOLIDATION TEST

PSI Job No.: 710-25083-3
Project: Monarch Meadows
Location: Herriman, Utah
-

Figure A-2

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March 10, 2003

Mr. Ryan Staker
Monarch Development of Salt Lake City, L.L.C.
1515 West 2200 South, Suite C
Salt Lake City, Utah 84119

Re: Geotechnical Report Addendum - Pavement
Proposed Monarch Meadows
13400 South 4800 West
Herriman, Utah
PSI Project No. 710-25083-2

Dear Mr. Staker:

At your request, the undersigned engineer and Jason Crosby, P.E. with PSI visited the referenced site on February 28, 2003 to observed test pits excavated across the site. PSI previously completed a geotechnical report for the project where test pits were randomly excavated for the project and recommendations made based on the conditions observed. The purpose of this recent site visit was to observe the conditions in proposed roadway areas. The letter presents the results of our findings as they pertain to the roadway recommendations.

An additional 14 test pits were observed on February 28, 2003. The materials in the test pits consisted on silty clay with sand and a pinhole structure underlain by dense gravel. The silty clay layer varied in thickness from 1 to 2 feet in the west and southern portions of the site to beyond the depth investigated of 10 feet in the east central and northeast portions of the site.

Based on the recently observed conditions and additional information obtained for the test pits, we recommend that the pavement recommendations provided in the geotechnical report be followed for the east central and northeast portions of the site where the silty clay soils with a pinhole structure are present to depths that extend beyond 5 feet below the surface. Where gravel is encountered, the subgrade should be scarified and recompacted 8 inches and the pavement section of 3 inches of asphalt over 6 inches of base course be used. No over-excavation of gravel soils is required in the pavement areas as previously specified. The over-excavation of the soils may be accomplished with deep scarification and recompaction at the contractors option but may be difficult to accomplish due to the nature of the silty soils. If areas are in question

during grading operations, the geotechnical engineer should be contacted to delineate areas that require modification.

We appreciate the opportunity to be of service to you on this project. If you have additional questions, please call.

Respectfully submitted,
Professional Service Industries, Inc.

Alan O. Taylor, P.E.
District Manager

REGISTERED PROFESSIONAL ENGINEER No. 183550 Alanson O. Taylor STATE OF UTAH

Reviewed by,

James Niehoff, P.E.
Chief Engineer

Information To Build On
Engineering • Consulting • Testing

GEOTECHNICAL ENGINEERING REPORT
PROPOSED MONARCH MEADOWS
RESIDENTIAL DEVELOPMENT
13400 SOUTH 4800 WEST
HERRIMAN, UTAH

Prepared For

Mr. Doug Young
Herriman Land, L.L.C.
3727 South State Street
Salt Lake City, Utah 84115

Prepared By

PROFESSIONAL SERVICE INDUSTRIES, INC.
2779 South 600 West Street
Salt Lake City, Utah
(801) 954-8442

PSI PROJECT 710-25083

August 9, 2002

PSI Information To Build On
Engineering • Consulting • Testing

August 9, 2002

Mr. Doug Young
Herriman Land, L.L.C.
3727 South State Street
Salt Lake City, Utah 84115

Report of Geotechnical Exploration for
Proposed Monarch Meadows
Residential Development
13400 South 4800 West
Herriman, Utah
PSI Project No. 710-25083

Dear Mr. Young:

We are pleased to submit this report of our geotechnical engineering study for the proposed Monarch Meadows Residential Development to be constructed at approximately 13400 South 4800 West, Herriman, Utah. Details of our findings and recommendations along with the supporting field data are presented in the attached report.

A total of forty-two (42) test pits were excavated within the development area. The test pits revealed that subsurface conditions generally consists of up to 18 inches of silty topsoil underlain by stiff silt (ML) and/or clay (CL), medium dense to dense silty sand (SM), and silty gravel (GM). Collapsible soil was encountered throughout the site and extended to the depth explored in several of the test pits. Groundwater was not encountered during the field investigation.

Based upon our field and laboratory tests, the site appears to be generally suitable for the proposed development provided the recommendations of this report are properly followed. The proposed structures may be supported on conventional spread footings. For residences without basements, we recommend that collapsible soils be removed a minimum of 2 feet below foundations and be replaced with structural fill. Floor slabs may also be supported on 12 inches of properly placed and compacted structural fill below the collapsible soil. If basements are to be excavated, spread footings and floor slabs may be placed on the native soil. Footings may be designed using an allowable bearing capacity of up to **1,500 psf. Prior to placement of footings, we recommend**

inspection of footing subgrades on a lot by lot basis to ensure the removal of collapsible soil to a depth of at least 2 feet below founding bearing elevation. Additional details are provided in the attached report.

It has been a pleasure to serve you on this project. Please call us if you have any questions or need additional information.

Very truly yours,
PROFESSIONAL SERVICE INDUSTRIES, INC.

JASON D. CROSBY, P.E.
Manager, Geotechnical Services

BRIAN GARRETT, E.I.T.
Project Engineer

Reviewed By:

JAMES NIEHOFF, P.E.
Chief Engineer

JDC/JN/BG/ckh

Submitted in three copies.

TABLE OF CONTENTS

INTRODUCTION

Authorization and Purpose

This report presents the findings of a geotechnical study for the proposed Creek View Meadows Residential Development at approximately 13400 South 4800 West, Herriman, Utah. The services for this project were performed in general accordance with our proposal No. 710-25053 dated May 13, 2002 as authorized by Mr. Doug Young, Herriman Land, L.L.C.

The purpose of this exploration was to generally characterize subsurface conditions at the site and to provide recommendations regarding site development and parameters for foundation and floor slab design for the proposed construction.

Project Information

Based upon our discussions and upon provided plans, we understand that the proposed development will consist of overlot grading and construction of streets and utilities for a 200-acre subdivision for one to two story single family residences. It is anticipated that the proposed homes will be of typical wood frame construction possibly underlain by a full basement. This report was prepared with the anticipation that the maximum column loads (if any) will be about 50 kips and the maximum wall loads will range from 2 to 4 kips per linear foot

The geotechnical recommendations presented in this report are based on the available project information, building location, and the subsurface materials described in this document. If any of the noted information is incorrect, please inform PSI in writing so that we may amend the recommendations presented in this report if appropriate and if desired by the client. PSI will not be responsible for the implementation of its recommendations when it is not notified of changes in the project.

SITE AND SUBSURFACE CONDITIONS

Site Location and Description

The proposed development is located at approximately 13400 South 4800 West, Herriman, Utah. The proposed site consists of about 200 acres of open farmland, and is currently covered with planted wheat. The site is neighbored by residential developments on the south and west, 4800 West Street on the east, and 13400 South Street on the north. The general site topography is rolling with a variable downward slope to the north/northeast.

Regional Geology

Based on published maps, no known faults exist on the property or within the immediate vicinity. The nearest known fault of concern is the Wasatch Fault located about 12 miles to the east. We recommend that earthquake related design parameters be obtained from the International Building Code (IBC) 2000 Edition, using a Site Class Definition = D, and spectral accelerations S_s = 1.15g and S_L = 0.42g for a 2% probability of exceedence in 50 years. No other special seismic considerations are recommended for this site.

Site Analysis

Field Investigation

Subsurface conditions at the project site were evaluated by excavating a total of forty-two test pits (TP-1 through TP-42). The test pits were excavated throughout the proposed development and were located on the site by the owner prior to our arrival. The approximate locations of these pits are shown on Figure A-2, *Site Plan and Approximate Locations of Test Pits* presented in the Appendix. The test pits were excavated using a track hoe to a depth ranging from 10 to 14 feet below the existing ground surface.

Laboratory Testing

The soil samples collected were visually classified in accordance with the Unified Soil Classification System (USCS) in the field, placed in air-tight containers, and transported to our soil laboratory in Salt Lake City, Utah. Representative soil samples were tested to assess applicable properties of the soils, and included Atterberg Limits, mechanical sieve analysis, and collapse/swell analysis. The results of the analyses are presented in Figures A-46 to A-50 in the Appendix of this report.

Subsurface Conditions

Soil Profile

The test pits revealed that subsurface conditions generally consists of up to 18 inches of silty topsoil underlain by stiff silt (ML) and/or clay (CL), medium dense to dense silty sand (SM), and dense silty gravel (GM) extending to the maximum depth explored. For a detailed description of the conditions encountered at each test pit location, please refer to the Test Pit Logs, Figures A-3 through A-44 in Appendix A. Figure A-45 is the key to symbols and abbreviations used on the Test Pit Logs.

The above subsurface description is of a generalized nature, provided to highlight the major subsurface stratification features and material characteristics. The Test Pit Logs included in the Appendix should be reviewed for specific information as to individual test pit locations. The stratification shown on the Test Pit Logs represent the conditions only at the actual test pit locations. Variations may occur and should be expected

between test pit locations. The stratification represents the approximate boundary between subsurface materials and the transition may be gradual. The samples that were not altered by laboratory testing will be retained for 30 days from the date of this report and then will be discarded.

Collapsible Soils

Collapsible soils occur naturally and are associated with relatively dry alluvial fans, colluvium and wind-blown deposits. These soils are typically comprised of silts and sands with a small amount of clay. Collapsible soils are characterized by low density, porous structures, high shear strength when dry, and susceptibility to large settlement when wetted.

Collapsible soil was encountered at many locations within the proposed Monarch Meadows Residential Development site. The depth of collapsible soil varied throughout the site and extended to the depth explored in several of the test pits.

Groundwater Measurements

Groundwater was not encountered during the field investigation. It should be noted that it is possible for the groundwater table to fluctuate during the year depending upon climatic and rainfall conditions. Additionally, discontinuous zones of perched water may exist within the overburden materials. The groundwater levels presented in this report are the levels that were measured at the time of our field activities. We recommend that the building contractors evaluate the groundwater levels at the site at the time of the construction activities.

EVALUATION AND RECOMMENDATIONS

Geotechnical Discussion

The following geotechnical related recommendations have been developed on the basis of the subsurface conditions encountered and our understanding of the proposed development. Should changes in the project criteria occur, a review must be made by PSI to determine if modifications to our recommendations will be required.

Due to the presence of collapsible soils, we recommend that footings and slabs on-grade should bear on a minimum of 2 feet of new, properly compacted fill. The on-site soils may be used as structural fill. If basements are to be excavated, spread footings may be placed directly on native material. Footing bearing capacities and additional geotechnical details are provided in the following paragraphs.

Site Preparation Recommendations

General Site Grading

Topsoil, man-placed fill or soft soils in the construction areas should be stripped from the site and either wasted or stockpiled for later use in landscaping. The building and roadway areas should be excavated to a depth of at least 2 feet below final grades. After stripping and excavating to the depth noted above, the building and road areas should be proof-rolled to a smooth, non-yielding surface with rubber tire equipment or a smooth-drum compactor. Soils that are observed to rut or deflect excessively under the moving load should be excavated and replaced with properly compacted structural fill. The proof-rolling and excavation activities should be witnessed by a representative of the geotechnical engineer and should be performed during a period of dry weather. If the subgrade is too soft/wet to proof-roll, we recommend that a stabilization fill be placed prior to placement of structural fill.

Stabilization Fill

Areas of extremely soft subgrade may require stabilization prior to structural fill placement. Additional lifts of stabilization fill may be required in areas of particularly poor subgrade. The stabilization fill can be counted as part of the required structural fill section below the footings. Exposed native subgrades not requiring stabilization should be proof-rolled with a heavy truck or similar equipment to check for soft spots. Soft spots detected should be removed and replaced with either stabilization fill as defined above or structural fill as defined below.

Structural Fill

Structural fill should consist of a well graded sand or gravel material which is free of organic or other deleterious materials, have a maximum particle size less than 4 inches, retain less than 30 percent on the ¾ inch sieve, and contain less than 25 percent fines (materials passing the No. 200 sieve). The liquid limit of the fines should not exceed 35 percent and the plasticity index should be less than 25. Structural fill should be placed in maximum lifts of 8 inches of loose material and compacted on a horizontal plane. Moisture should be maintained at moisture content within 2 percent of the optimum moisture determined by ASTM D 1557. Structural fill should be compacted to at least 95 percent of modified proctor maximum dry density (ASTM D 1557) in structurally loaded areas. Fills placed in landscape areas not supporting structural loads should be compacted to at least 90 percent of the modified proctor maximum dry density. If water must be added, it should be uniformly applied and thoroughly mixed into the soil by disking or scarifying. Each lift of compacted-engineered fill should be tested by a representative of the geotechnical engineer prior to placement of subsequent lifts.

Utility Trenches

Utility trenches may be backfilled with imported structural fill or the on-site soils. Backfill soils used in areas not structurally loaded should be placed in maximum 10-inch lifts and compacted to 90 percent of the modified Proctor (ASTM D 1557). The upper 2 feet of trench backfill within pavement sections or beneath footings should be compacted to 95 percent of the maximum density.

If unstable soils are encountered at invert elevations, it may be necessary to excavate an additional depth and replace the unstable soils with structural/stabilization fill. The depth of over-excavation, if necessary, should be determined by field observation.

Excavations

The contractor is solely responsible for designing and constructing stable, temporary excavations and should shore, slope, or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. The contractor should evaluate the soil exposed in the excavations as part of the his/her safety procedures. In no case should slope height, slope inclination, or excavation depth including utility trench excavation depth, exceed those specified in local, state, and federal safety regulations.

For temporary excavations not exceeding 4 feet in height, we recommend a maximum slope of 1 to 1 (H:V). For excavations up to 10 feet in height, we recommend slopes be limited to 1.5:1. If unstable soils or groundwater conditions are encountered during excavation, bracing, benching, shoring or flatter slopes may be necessary.

We are providing this information solely as a service to our client. PSI does not assume responsibility for construction site safety or the contractor's (or other parties) compliance with local, state, and federal safety or other regulations.

Foundations

Provided that the sites are properly prepared as noted above and below, homes may be supported by spread footing foundations. For residences without basements, we recommend that collapsible soils be removed a minimum of 2 feet below foundations and be replaced with structural fill. If basements are to be excavated, spread footings may be placed directly on native soil. Footings constructed in this manner should be designed using an allowable bearing capacity of up to **1,500 psf.** The following design parameters are recommended for footing construction:

- Footings should bear at a minimum depth of 30 inches below final grade for frost protection. For non-frost areas, such as interior footings, a minimum embedment depth of 18 inches is recommended.

- Foundations should have minimum widths of 18 inches for continuous wall footings and 24 inches for isolated column footings.

- Structural fill should extend a minimum of ½ the depth of fill laterally away from the edge of the footing.

- The allowable bearing pressures presented above may be increased up to 33 percent for transient loading for such as wind and seismic load combinations.

- We recommend that the footings, foundations and below grade walls be designed in accordance with the IBC, 2000 edition.

Footings should not be installed on loose or disturbed soil or within ponded water. If unsuitable soils are encountered near the footing subgrade, they should be removed and replaced with properly compacted structural fill.

Estimated Settlement

If footings are design according to the recommendations described above, total estimated settlement under static conditions should not exceed one inch. Differential settlement is expected to approach 50 to 75 percent of the total settlement. Most of this settlement should occur during the construction phase.

Floor Slabs

Due to the collapsible characteristics of the on-site soils, concrete slab on grade floors should be supported on at least 24 inches of properly placed and compacted structural fill provided a minimum of 4 inches of free-draining gravel is placed immediately below the slabs and/or exterior flatwork. The free-draining gravel will enhance drainage.

The soil subgrade in the area of concrete slab-on-grade support is often disturbed during foundation and superstructure construction. We recommend that floor slab subgrades be evaluated by a representative of PSI immediately prior to beginning floor slab construction. If disturbed subgrade soils are present which cannot be adequately densified in place, such soils should be removed and replaced with additional structural/stabilization fill.

Surface Drainage Considerations

It is absolutely critical at this site that adequate surface drainage be maintained during and after construction. Water should not be allowed to collect near the foundations or floor slab areas of the building or in pavement areas. Undercut or excavated areas should be sloped towards one corner to facilitate removal of collected rainwater, groundwater seepage, or surface runoff. Positive site drainage should be provided to reduce infiltration of surface water around the perimeter of the buildings and beneath floor slabs. Grades should be sloped away from the building, and surface drainage should be collected and discharged such that water is not permitted to infiltrate the backfill of the buildings.

Lateral Resistance and Earth Pressure

Resistance to lateral loads on foundations may be achieved by frictional resistance between foundations and the load bearing soils, and by passive earth pressure from soils placed adjacent to the foundations. Retaining walls and below grade walls should be designed to resist pressures induced by the backfill soils. Basement walls or stem walls restrained at the top can be designed for "at rest" earth pressure conditions. Retaining walls that are free to deflect can be designed for "active" earth pressure conditions. The "passive" earth pressure state should be used for soils supporting retaining structures, such as toe backfill. Lateral earth pressures applied to walls may be computed by multiplying the vertical depth of the backfill by the appropriate equivalent fluid density. The table below presents recommended values of earth pressure coefficients using imported granular fill for the backfill materials, assuming an approximate angle of internal friction of 32 degrees, and the respective equivalent fluid densities, based on a total unit weight of 115 pcf.

Earth Pressure State	Earth Pressure Coefficient	Equivalent Fluid Density
At-Rest	0.47	54 pcf
Active	0.31	36 pcf
Passive	3.25	374 pcf

PSI recommends that only ½ the passive pressure be used in design due to the large movement required to mobilize this resistance. The design values and recommendations presented above assume that the backfill behind the walls will be horizontal with no surcharge loads and that a permanent drainage system will be installed behind the walls to prevent the development of hydrostatic pressures. Also, relatively free draining sands or crushed stone materials should be used as backfill behind retaining walls in place of the native clays.

For analysis of sliding resistance of the base of the retaining walls, the ultimate coefficient of friction may be taken as 0.4 between concrete and soil.

Pavement Recommendations

PSI understands that a flexible pavement is desired in the road areas for the development. We have prepared a pavement design section assuming anticipated soil characteristics and light traffic loads. For design purposes, we have assumed the subgrade to consist of the firm and unyielding, proof-rolled, non-organic native soils and/or structural/stabilization fill. We have further assumed a minimum subgrade California Bearing Ratio (CBR) value of 7. For the traffic loads, we anticipate 500 cars and 2 heavy trucks per day. **Based on these assumptions, we recommend a minimum pavement section of 3 inches of bituminous concrete over 6 inches of aggregate base.** The subgrade should also be scarified to a depth of 12 inches and recompacted to at least 95 percent of the maximum modified proctor dry density (ASTM D 1557). These design recommendations were based on AASHTO design procedures and the following assumptions:

- Pavement to be placed only after the subgrade has been properly prepared,

- Construction materials such as bituminous concrete and aggregate base will meet project specifications requirements,

- Aggregate base and granular fill will be compacted to at least 95 percent of the maximum modified proctor dry density (ASTM D 1557) and bituminous concrete will be compacted to at least 95 percent of the Marshal mix design density.

Subgrades should be properly prepared as recommended above for asphalt pavements. Construction of concrete flatwork should be in accordance with Portland Cement Association (PCA) guidelines. Consideration should be given to constructing exterior concrete slabs over a minimum of 4 inches of an aggregate pad/structural fill leveling coarse.

ADDITIONAL INSPECTION RECOMMENDED

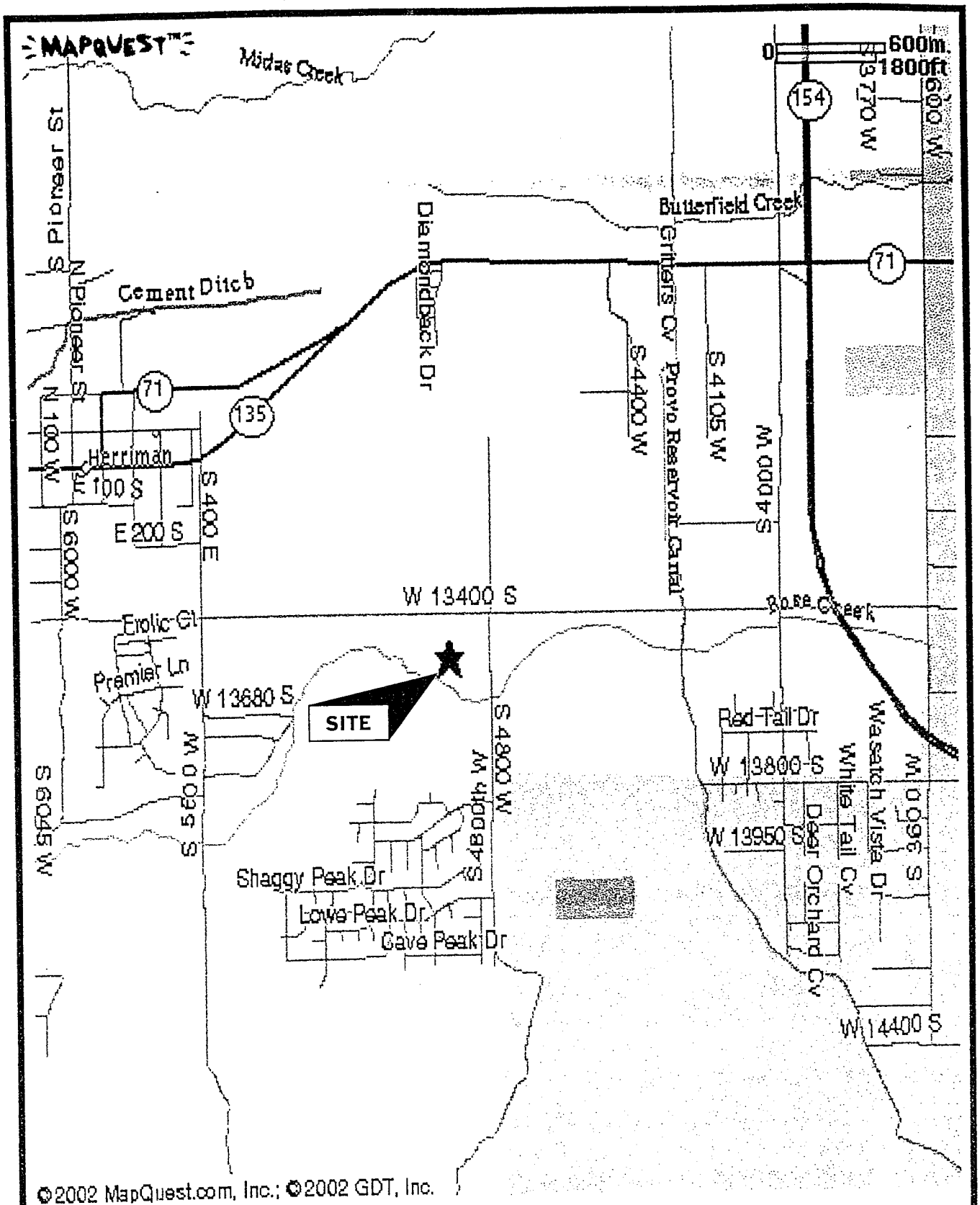
Due to the variable soil conditions and the potential for collapsible soil to be encountered, we recommend additional inspection to be performed on a lot by lot basis prior to placement of footings.

REPORT LIMITATIONS

The recommendations submitted are based on the available subsurface information obtained by PSI, and information provided by Herriman Land, L.L.C. and their design consultants. If there are any revisions to the plans for this project or if deviations from the subsurface conditions noted in this report are encountered during construction, PSI should be notified immediately to determine if changes in the foundation, or other recommendations are required. If PSI is not retained to perform these functions, PSI can not be responsible for the impact of those conditions on the performance of the project.

The geotechnical engineer warrants that the findings, recommendations, specifications, or professional advice contained herein have been made in accordance with generally accepted professional geotechnical engineering practices in the local area. No other warranties are implied or expressed.

APPENDIX



psi *Information To Build On*

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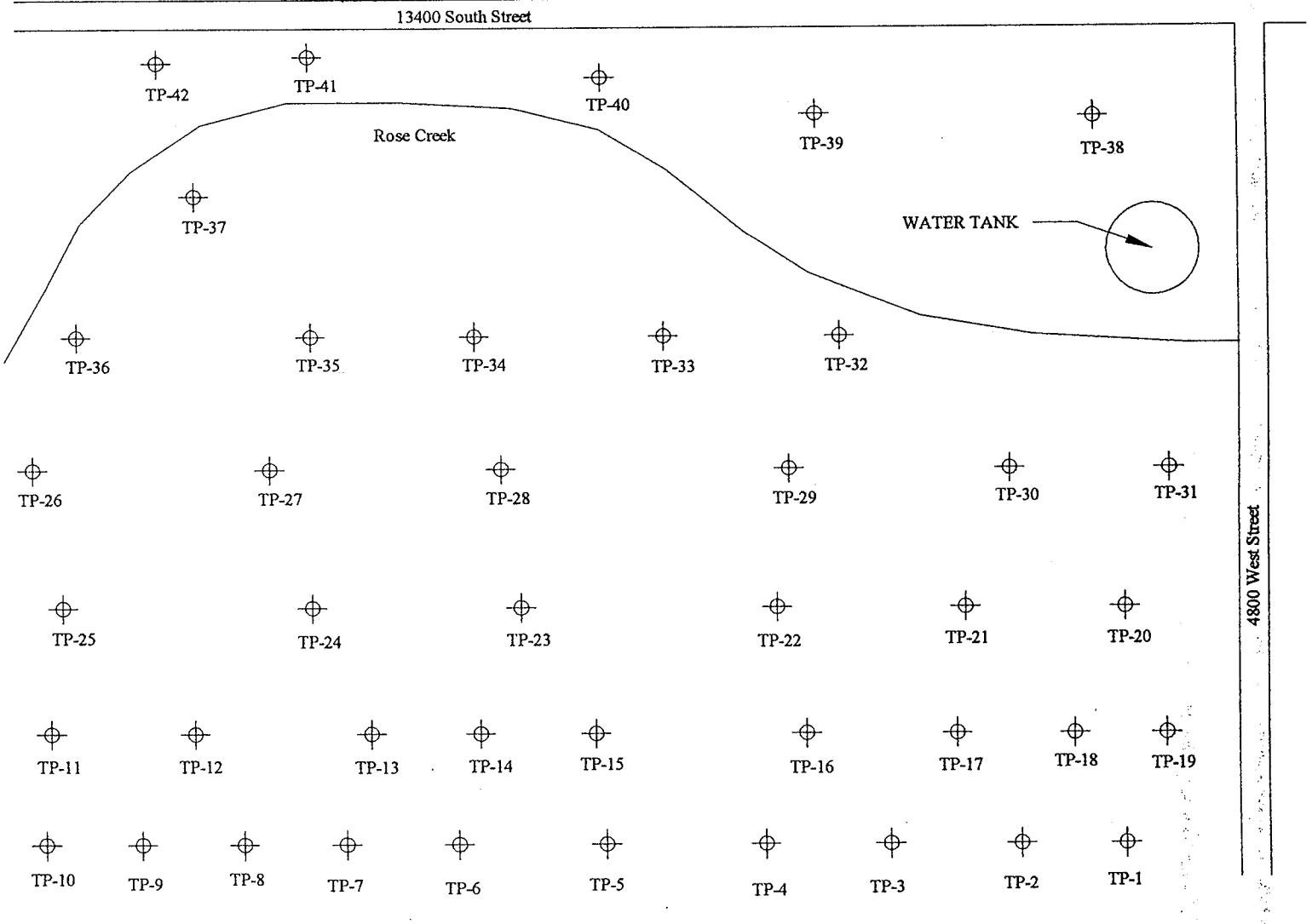
Drawn By: SG		Scale:
Checked By: JC		Project No: 710-25083
Date: 07/24/02		Figure No: A-1



LEGEND

⊕ — TEST PIT

PSI Information To Build On Engineering • Consulting • Testing		GEOTECHNICAL SERVICES 2779 South 500 West Salt Lake City, Utah 84115 (801) 484-8827		
PROJECT NAME: MONARCH MEADOWS 13400 SOUTH 4800 WEST, HERRIMAN, UTAH		DRAWN BY: SC	DATE: 07/24/02	SCALE:
TITLE: SITE PLAN & APPROXIMATE TEST PIT LOCATIONS		APPROVED BY: JC	PROJECT NO.: 710-25083	FIGURE NO.: A-2

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-1

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ⊕ × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp (0 – 2.0 – Qu – 4.0)	NOTES
	0					Surface Elev.: ft					
				1		SILT, loose to medium stiff, dry, light brown, pinholes.	ML				
						GRAVEL, silty, very dense, dry, light brown to gray.	GM				
						SILT, with sand, loose to medium stiff, dry, light brown, pinholes.	ML				
	5					GRAVEL, silty, medium dense, dry, light brown to gray.	GM				
				2		SAND, silty, with gravel layers, medium dense, dry to moist, light brown, some pinholes.	SM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-3

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-2

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft					
						SILT, loose to medium stiff, dry, light brown, pinholes.	ML				
						GRAVEL, well-graded, dense, dry, gray.	GW				
				1		SILT, medium stiff, dry, light brown, pinholes.	ML				
	5					SAND, silty, medium dense, dry to moist, brown.					
				2			SM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.5 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-4

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-3

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✙ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✳ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, loose to medium stiff, dry, light brown, pinholes.	ML				
				1							
						GRAVEL, silty, with sand, dense, dry, gray.	GM				
	5					SAND, silty, medium dense, dry to moist, brown to light brown, pinholes.	SM				
				2							
	10					GRAVEL, silty, with cobbles, dense, dry, light brown to gray.	GM				
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-5

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-4

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✙ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp (0 – 2.0 – Qu – 4.0)	NOTES
	0					Surface Elev.: ft					
				1		SILT, loose to medium stiff, dry, light brown, pinholes.	ML				
						SAND, silty, medium dense, dry to moist, light brown to gray, pinholes.	SM				
	5					GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-6

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-5

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft SILT, soft, dry, light brown.	ML				
						GRAVEL, silty, with sand, cobbles, and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-7

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-6

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with cobbles, soft to medium stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand, cobbles, and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-8

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-7

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✙ LL (1–25–50) STRENGTH, tsf ▲ ✱ Qp (0–2.0–Qu–4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with cobbles, medium stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand, cobbles, and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-9

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-8

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✚ LL (1–25–50) STRENGTH, tsf ▲ ✱ Qp Qu (0–2.0–4.0)	NOTES
	0					Surface Elev.: ft SILT, with cobbles, medium stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-10

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-9

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft					
				1		SILT, soft to medium stiff, dry, light brown, pinholes.	ML				
	5			2		SAND, silty, loose to medium dense, dry to moist, light brown.	SM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-11

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-10

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✱ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp (0 – 2.0 Qu – 4.0)	NOTES
	0					Surface Elev.: ft GRAVEL, silty, dense, dry, gray.	GM				
	5			1		SAND, silty, loose to medium dense, dry to moist, light brown to gray.	SM				
				2		SILT, with organic material, moist, light brown to gray, pinholes.	ML				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-12

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-11

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, loose to medium stiff, dry, light brown, pinholes.	ML				
				1		SAND, silty, medium dense, dry, light brown to gray.	SM				
	5					SILT, stiff, dry to moist, brown to light brown, iron oxide stains, pinholes.	ML				
				2							
	10					GRAVEL, sandy, dense, dry, reddish brown.	GP				
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-13

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-12

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft SILT, with sand, loose to stiff, dry, light brown to gray, pinholes.	ML				
	5					SAND, silty, loose to medium dense, dry to moist, light brown to gray.	SM				
	10					GRAVEL, silty, dense, dry, reddish brown.	GM				
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-14

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-13

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1 – 25 – 50); STRENGTH, tsf; Qp; Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, with cobbles, loose, dry, light brown.	ML				
						GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/15/02
Date Boring Completed: 7/15/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-15

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-14

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ⊕ × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, with cobbles, loose, dry, light brown.	ML				
						GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 11 feet. Groundwater was not encountered.					

Completion Depth: 11.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-16

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-15

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1 – 25 – 50); STRENGTH, tsf; Qp; Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with cobbles, loose, dry, light brown.	ML				
						GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-17

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-16

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1 / 25 / 50); STRENGTH, tsf; Qp; Qu (0 / 2.0 / 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with cobbles, loose, dry, light brown.	ML				
						GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-18

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-17

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft SILT, with cobbles, loose, dry, light brown.	ML				
						GRAVEL, silty, with cobbles and boulders, dense, dry, gray.	GM				
	5										
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-19

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-18

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS	
While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft					
				1		SILT, gravelly, loose to stiff, dry, light brown pinholes.	ML				
	5			2		SAND, silty, medium dense, dry to moist, light brown to brown, pinholes.	SM				
	10					SAND, with gravel, dense, dry to moist, light brown to gray.	SP				
						EOTP @ 11 feet. Groundwater was not encountered.					

Completion Depth: 11.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-20

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-19

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✤ LL (1–25–50) STRENGTH, tsf ▲ ✱ Qp Qu (0–2.0–4.0)	NOTES
	0					Surface Elev.: ft SILT, with gravel, loose to stiff, dry, light brown, pinholes.	ML				
	5					SAND, with silt and gravel, loose to medium dense, dry to moist, light brown to gray.	SP				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-21

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-20

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0			1		CLAY, soft to dense, dry, light brown, pinholes.	CL				
				2							
	5			3		SAND, silty, medium dense, dry to moist, light brown, iron oxide.	SM				
	10					GRAVEL, silty, with sand, dense, dry, reddish brown.	GM				
						EOTP @ 13 feet. Groundwater was not encountered.					

Surface Elev.: ft

STANDARD PENETRATION TEST DATA: N in blows/ft; Moisture; PL; LL; 1; 25; 50
STRENGTH, tsf: 0; 2.0; 4.0; Qp; Qu

Completion Depth: 13.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-22

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-21

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✳ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, soft to stiff, dry, light brown.	ML				
						GRAVEL, silty, with cobbles, dense, dry, light brown to gray.	GM				
	5										
	10										
						EOTP @ 12 feet. Groundwater was not encountered.					

Completion Depth: 12.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-23

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-22

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classifcation	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, soft to stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	5										
	10					EOTP @ 12 feet. Groundwater was not encountered.					

Completion Depth: 12.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-24

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-23

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● / STRENGTH, tsf	NOTES
	0					Surface Elev.: ft SILT, soft to stiff, dry, light brown.	ML				
	5					GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	10					EOTP @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-25

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-24

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft SILT, soft to stiff, dry, light brown.	ML				
	5					GRAVEL, silty, with sand, dense, dry, light brown to brown.	GM				
	10					EOTP @ 12 feet. Groundwater was not encountered.					

Completion Depth: 12.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-26

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-25

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1–25–50); STRENGTH, tsf Qp / Qu (0–2.0–4.0)	NOTES
	0					Surface Elev.: ft					
						CLAY, with gravel, loose to stiff, dry, light brown, pinholes.	CL				
						GRAVEL, with sand, dense, dry, reddish brown.	GW				
	5					SAND, silty, medium dense, dry to moist, brown.	SM				
						GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-27

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-26

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✚ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp (0 – 2.0 – Qu – 4.0)	NOTES
	0					Surface Elev.: ft					
				1		SILT, soft to stiff, dry, light brown, pinholes.	ML				
	5			2		SAND, silty, dry to moist, light brown to brown, pinholes.	SM				
	10					GRAVEL, silty, dense, dry, gray.	GM				
						EOTP @ 12 feet. Groundwater was not encountered.					

Completion Depth: 12.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-28

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-27

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with gravel, loose to stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	5										
						CLAY, sandy, medium dense, dry to moist, light brown.	CL				
	10										
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-29

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-28

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1–25–50); STRENGTH, tsf Qp / Qu (0–2.0–4.0)	NOTES
	0					Surface Elev.: ft SILT, loose to stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand and cobbles, dense, dry, gray.	GM				
	5										
						SAND, silty, medium dense, dry to moist, light brown.	SM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 12.5 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-30

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-29

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✥ LL (1, 25, 50) STRENGTH, tsf ▲ ✳ Qp (0, 2.0, Qu, 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, loose to stiff, dry, light brown.	ML				
						GRAVEL, silty, with sand, dense, dry, gray.	GM				
	5					SAND, clean, soft to medium dense, dry to moist, light brown to gray.	SP				
						SAND, silty, medium dense, dry to moist, light brown.	SM				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 12.5 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-31

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-30

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft SILT, with gravel, loose to stiff, dry, light brown.	ML				
				1		SAND, silty, medium dense, dry to moist, gray, iron oxide stains.	SM				
	5					GRAVEL, silty, dense, dry, gray.	GM				
	10			2		SAND, silty, medium dense, moist, gray, iron oxide stains, pinholes.	SM				
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/16/02
Date Boring Completed: 7/16/02
Logged By: S.Greenberg
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-32

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-31

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / Moisture / PL / LL (1, 25, 50); STRENGTH, tsf / Qp / Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, with gravel, loose, dark brown, dry.	ML				
						GRAVEL, silty, dense, dry, light brown.	GM				
						SAND, clean, medium dense, dry, gray.	SP				
						SAND, silty, medium dense, dry, light brown.	SM				
	5										
				1		SILT, medium stiff, moist, light brown, iron oxide stains.	ML				
	10										
				2		SAND, silty, medium dense, dry, light brown, iron oxide stains.	SM				
						EOTH @ 12.5 feet. Groundwater was not encountered.					

Completion Depth: 12.5 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-33

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-32

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✥ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✱ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft SILT, loose, dry, dark brown, pinholes.	ML				
						GRAVEL, silty, dense, dry, gray to brown.	GM				
	5			1		SILT, medium stiff, dry, brown, pinholes.	ML				
						GRAVEL, silty, dense, dry, light brown.	GM				
	10					SILT, medium stiff, moist, brown, small pinholes.	ML				
				2		EOTH @ 12.5 feet. Groundwater was not encountered.					

Completion Depth: 12.5 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-34

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-33

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft					
						SILT, loose, dry, dark brown.	ML				
				1		SILT, medium stiff, dry, light brown, pinholes.	ML				
	5					GRAVEL, silty, with cobbles, dense, dry, light brown.	GM				
				2		SILT, sandy, medium stiff, moist, brown, iron oxide stains.	ML				
	10					EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-35

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-34

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1, 25, 50); STRENGTH, tsf; Qp; Qu (0, 2.0, 4.0)	NOTES
	0					Surface Elev.: ft SILT, with gravel, loose, dry, dark brown, pinholes.	ML				
						GRAVEL, silty, dense, dry, light brown.	GM				
	5					SAND, silty, medium dense dry light brown.	SM				
						SILT, medium stiff, dry to moist, light brown.	ML				
	10					EOTP @ 14 feet. Groundwater was not encountered.					

Completion Depth: 14.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-36

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-35

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1 / 25 / 50); STRENGTH, tsf; Qp; Qu (0 / 2.0 / 4.0)	NOTES
	0					Surface Elev.: ft SILT, loose, dry, dark brown.	ML				
				1		SILT, medium stiff, dry, brown, pinholes.					
	5						ML				
	10			2							
						EOTH @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-37

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-36

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✤ LL (1 – 25 – 50) STRENGTH, tsf ▲ ✳ Qp Qu (0 – 2.0 – 4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, loose, dry, light brown.	ML				
						SILT, medium stiff, dry, light brown, pinholes.	ML				
	5					GRAVEL, silty, dense, dry, light brown to gray.	GM				
	10					EOTH @ 11.5 feet. Groundwater was not encountered.					

Completion Depth: 11.5 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-38

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-37

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✙ LL (1–25–50) STRENGTH, tsf ▲ ✱ Qp (0–2.0–Qu–4.0)	NOTES
	0					Surface Elev.: ft					
						SILT, loose, dry, light brown.	ML				
						SILT, medium stiff, dry, light brown, pinholes.	ML				
	5					GRAVEL, silty, dense, dry, gray.	GM				
						SILT, sandy, medium stiff, dry, light brown.	ML				
						GRAVEL, silty, dense, dry, gray.	GM				
	10					EOTH @ 10 feet. Groundwater was not encountered.					

Completion Depth: 10.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-39

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-38

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0					Surface Elev.: ft					
						SILT, loose, moist, light brown.	ML				
				1		SAND, silty, medium dense, moist, brown.	SM				
	5										
	10			2		SILT, sandy, medium stiff, moist, brown.	ML				
						EOTP @ 13 feet. Groundwater was not encountered.					

Completion Depth: 13.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-40

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-39

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft ● × Moisture ◪ PL ✱ LL (1–25–50) STRENGTH, tsf ▲ ✱ Qp Qu (0–2.0–4.0)	NOTES
	0			1		Surface Elev.: ft SILT, loose, moist, light brown, pinholes.	ML				
	5					GRAVEL, silty, cobbles, dense, moist, gray.	GM				
	10			2		SILT, sandy, medium stiff, moist, light brown.	ML				
						EOTP @ 14 feet. Groundwater was not encountered.					

Completion Depth: 14.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-41

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-40

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS

While excavating	N/A ft
After excavating	N/A ft
24 hours later	N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft / STRENGTH, tsf	NOTES
	0					Surface Elev.: ft					
						SILT, loose, dry, light brown, pinholes.	ML				
						GRAVEL, silty, with sand and cobbles, dense, dry, light brown.	GM				
	5			1		SILT, medium stiff, moist, brown, pinholes.	ML				
						GRAVEL, silty, with cobbles, dense, dry, gray.	GM				
	10			2		CLAY, medium stiff, moist, brown.	CL				
						EOTP @ 14 feet. Groundwater was not encountered.					

STANDARD PENETRATION TEST DATA
N in blows/ft
Moisture (×) PL LL
1 25 50
STRENGTH, tsf
0 2.0 Qu 4.0 Qp

Completion Depth: 14.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-42

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-41

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL; STRENGTH, tsf; Qp; Qu	NOTES
	0			1		Surface Elev.: ft SILT, loose to medium stiff, moist, light brown, pinholes.	ML				
	5					GRAVEL, silty, with cobbles, dense, moist, light brown.	GM				
	10			2		SILT, sandy, medium stiff, moist, brown, iron oxide stains.	ML				
						EOTP @ 14 feet. Groundwater was not encountered.					

Completion Depth: 14.0 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-43

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

LOG OF TEST HOLE: TP-42

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Drilling Method:
Sampling Method:
Hammer Type:
Latitude:
Longitude:

WATER LEVELS
While excavating N/A ft
After excavating N/A ft
24 hours later N/A ft

Elevation, (feet)	Depth, (feet)	Graphic Log	Sample Type	Sample No.	Recovery (%)	MATERIAL DESCRIPTION	USCS Classification	SPT Blows per 6-inch	Moisture, %	STANDARD PENETRATION TEST DATA N in blows/ft; Moisture; PL; LL (1–25–50); STRENGTH, tsf; Qp; Qu (0–2.0–4.0)	NOTES
	0					Surface Elev.: ft					
				1		SILT, loose to medium stiff, moist, light brown, pinholes.	ML				
	5										
						GRAVEL, silty, with cobbles, dense, dry, gray.	GM				
	10			2		SILT, medium stiff, moist, brown, iron oxide stains.	ML				
						EOTP @ 12.5 feet. Groundwater was not encountered.					

Completion Depth: 12.5 ft
Date Boring Started: 7/17/02
Date Boring Completed: 7/17/02
Logged By: B.Garrett
Drilling Contractor: -

Sample Types:
Auger Cutting
Split-Spoon
Rock Core
Shelby Tube
Grab Sample
Mod. California

Remarks:

Figure A-44

KEY TO SYMBOLS


USCS Silt


USCS Low Plasticity Clay


USCS Silty Gravel


USCS Well-graded Gravel


USCS Poorly-graded Sand


USCS Silty Sand

HSA = Hollow Stem Auger

CFA = Continuous Flight Auger

SS = Split-spoon Sampler

ST = Shelby Tube Sampler

RC = Rock Core

DD = Dry Density

LL = Liquid Limit

PL = Plastic Limit

Qu = Unconfined Compressive Strength

Qp = Pocket Penetrometer

RQD = Rock Quality Designation

REC'D = Rock Core Recovery Percentage

PID = Photo Ionic Detector (ppm)

MR* = Unable to determine depth of water due to mud rotary drilling methods

The test pits were excavated to the desired depth using a trackhoe. Disturbed bag samples and relatively undisturbed tube and block samples were obtained at various intervals in each test pit. Each tube and bag sample was sealed and transported to the laboratory for testing.

2779 South 600 West
South Salt Lake, UT 84115
Telephone: (801) 954-8442
Fax: (801) 954-8485

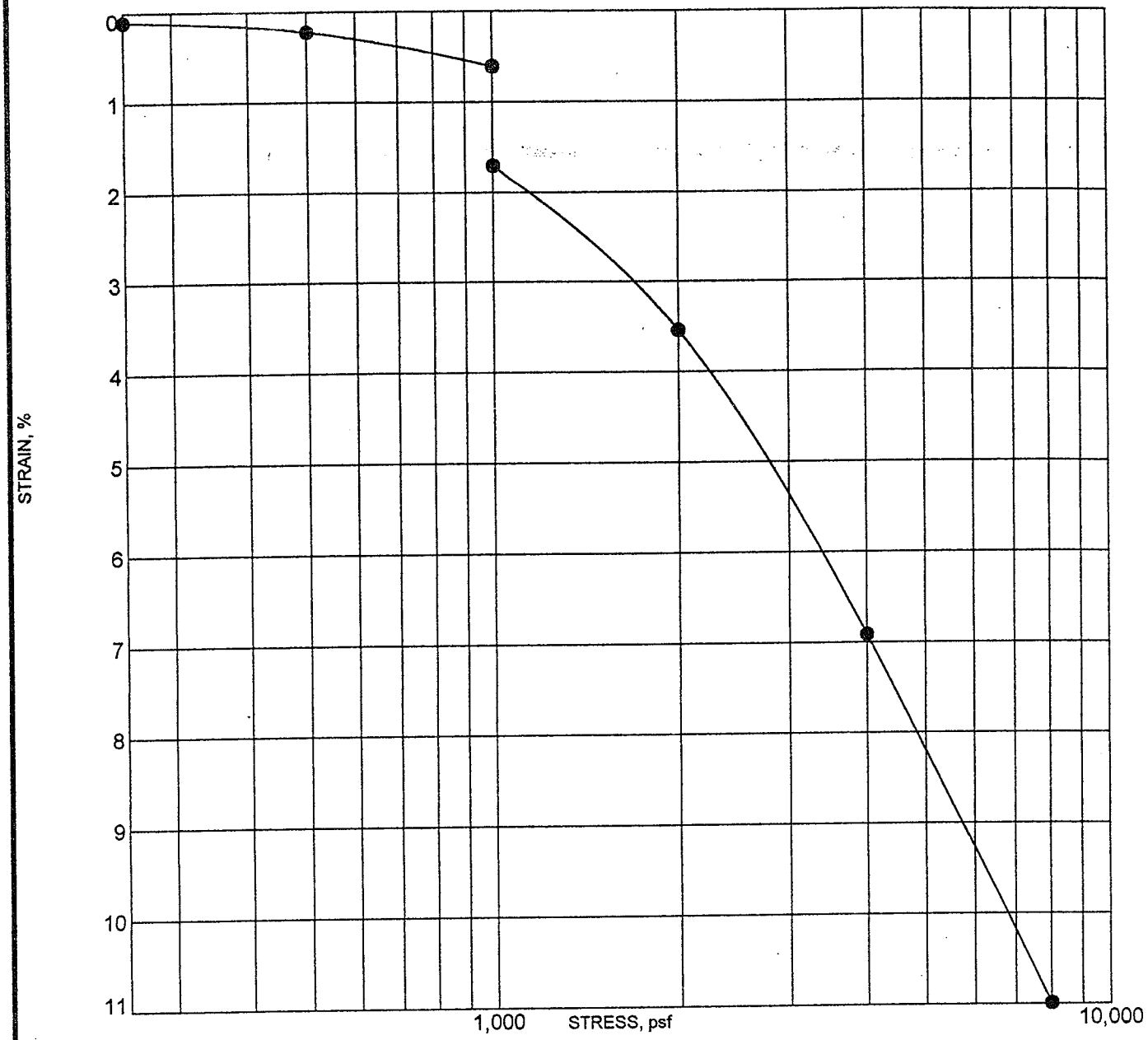
PSI Job No.: 710-25083
Project: Monarch Meadows
Location: 13400 South and 4800 West
Herriman, Utah

Figure A-45

TABLE 1: SUMMARY OF LABORATORY TESTING

Sample No.	Sample Depth (ft.)	Mechanical Sieve Analysis			Atterberg Limits		USCS Soil Classification
		% Gravel	% Sand	% Fines	Liquid Limit (%)	Plastic Index (%)	
TP-5	PILE	66.2	27.8	6.0	--	--	GP-GC
TP-11	4.0	0.0	61.5	38.5	--	--	SM
TP-20	2.5	--	--	--	27	13	CL
TP-25	2.5	--	--	--	32	16	CL
TP-27	8.0	0.0	7.9	92.1	28	8	CL
TP-31	12.0	0.0	14.0	86.0	26	5	ML
TP-38	4.0	0.9	57.8	41.3	--	--	SM
TP-38	11.0	0.0	33.7	66.3	NP*	NP	ML
TP-40	5.0	--	--	--	26	3	ML
TP-40	10.0	--	--	--	32	15	CL

*NP = Non-Plastic as per ASTM D 4318 Section 11.4.

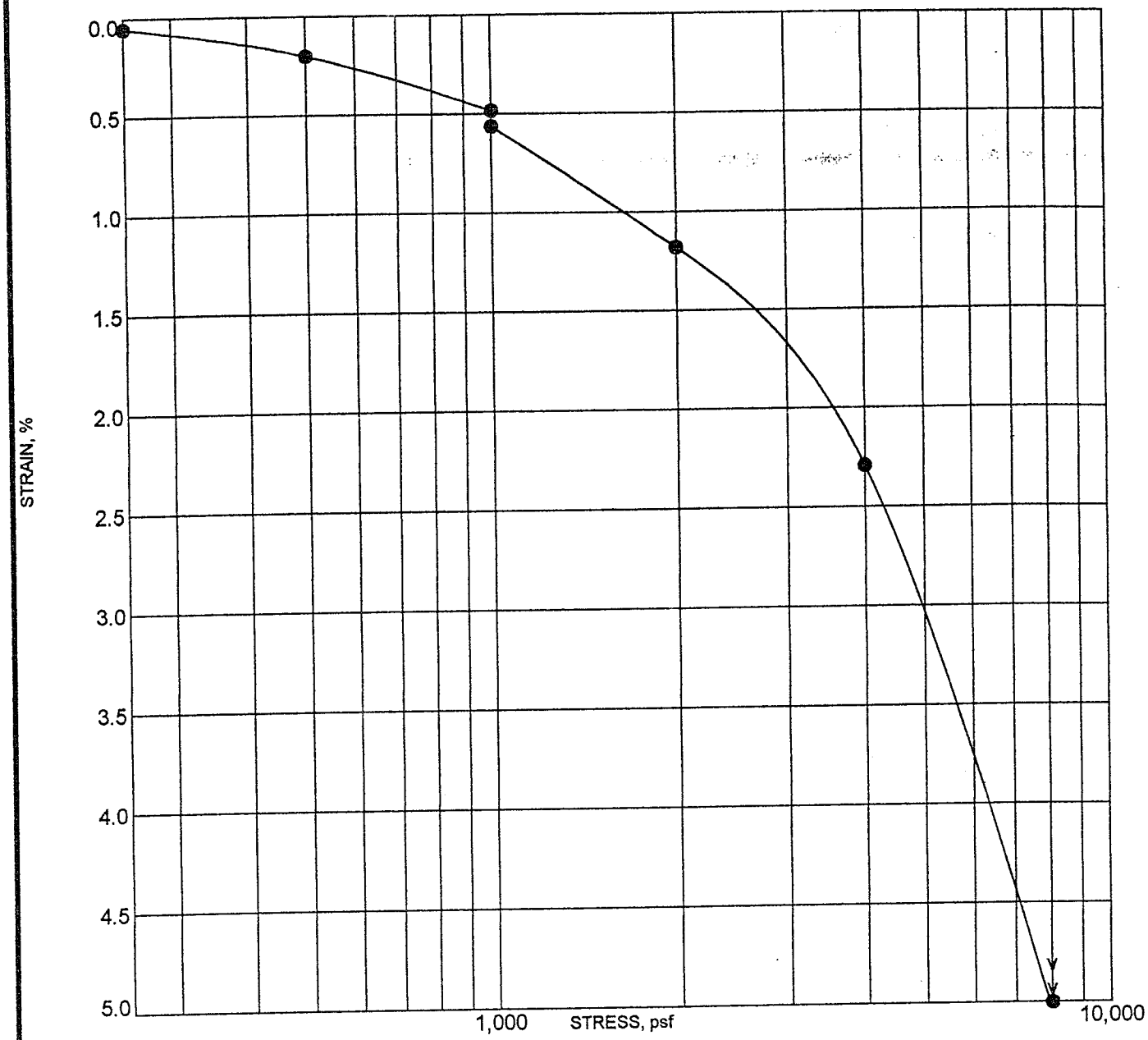


Specimen Identification		Classification	γ_d	MC%
● TP-20	2.5			9

CONSOLIDATION TEST

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: Herriman, Utah
-

Figure A-47



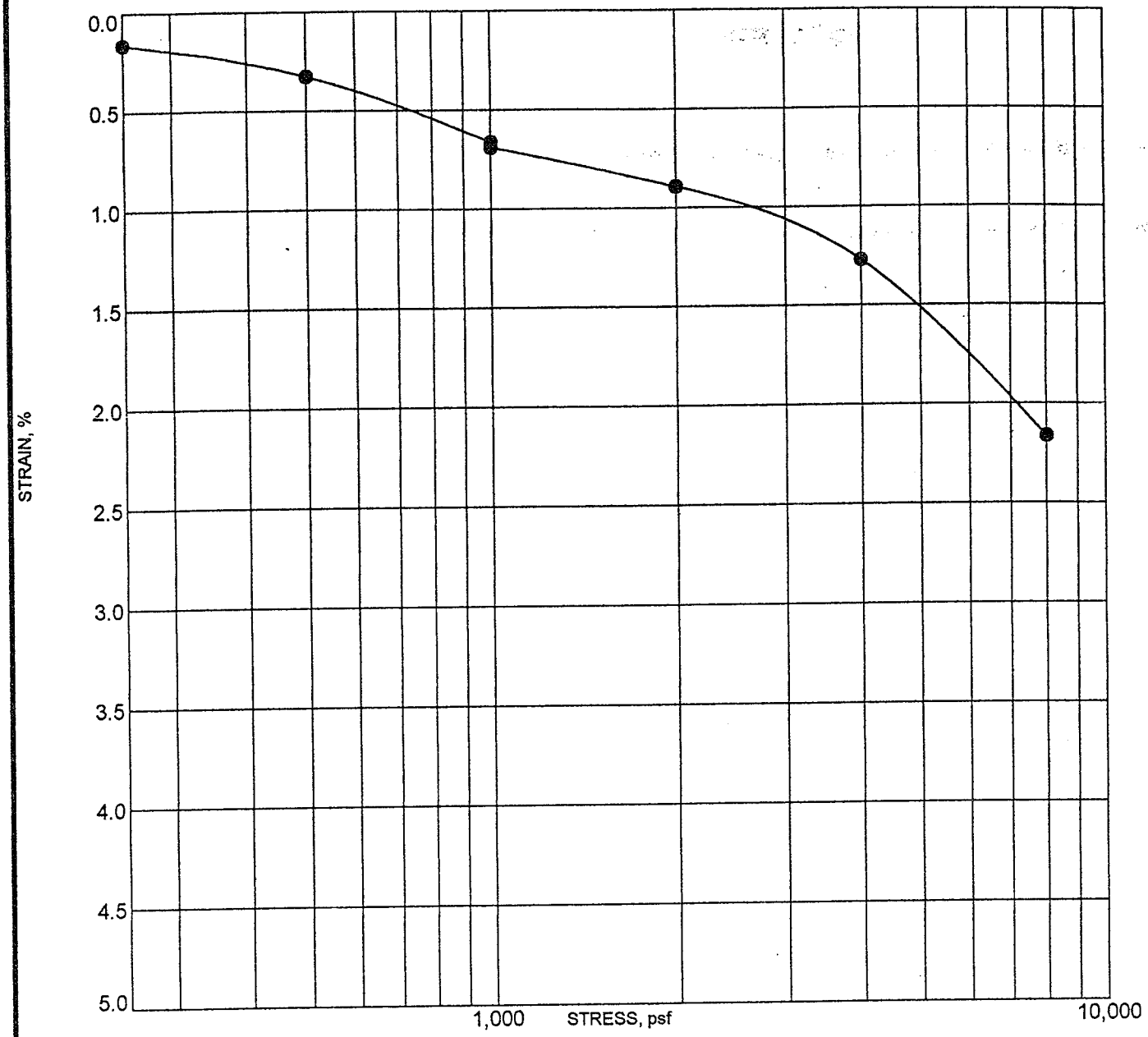
Specimen Identification		Classification	γ_d	MC%
● TP-25	2.5		93	7

psi

CONSOLIDATION TEST

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: Herriman, Utah
-

Figure A-48

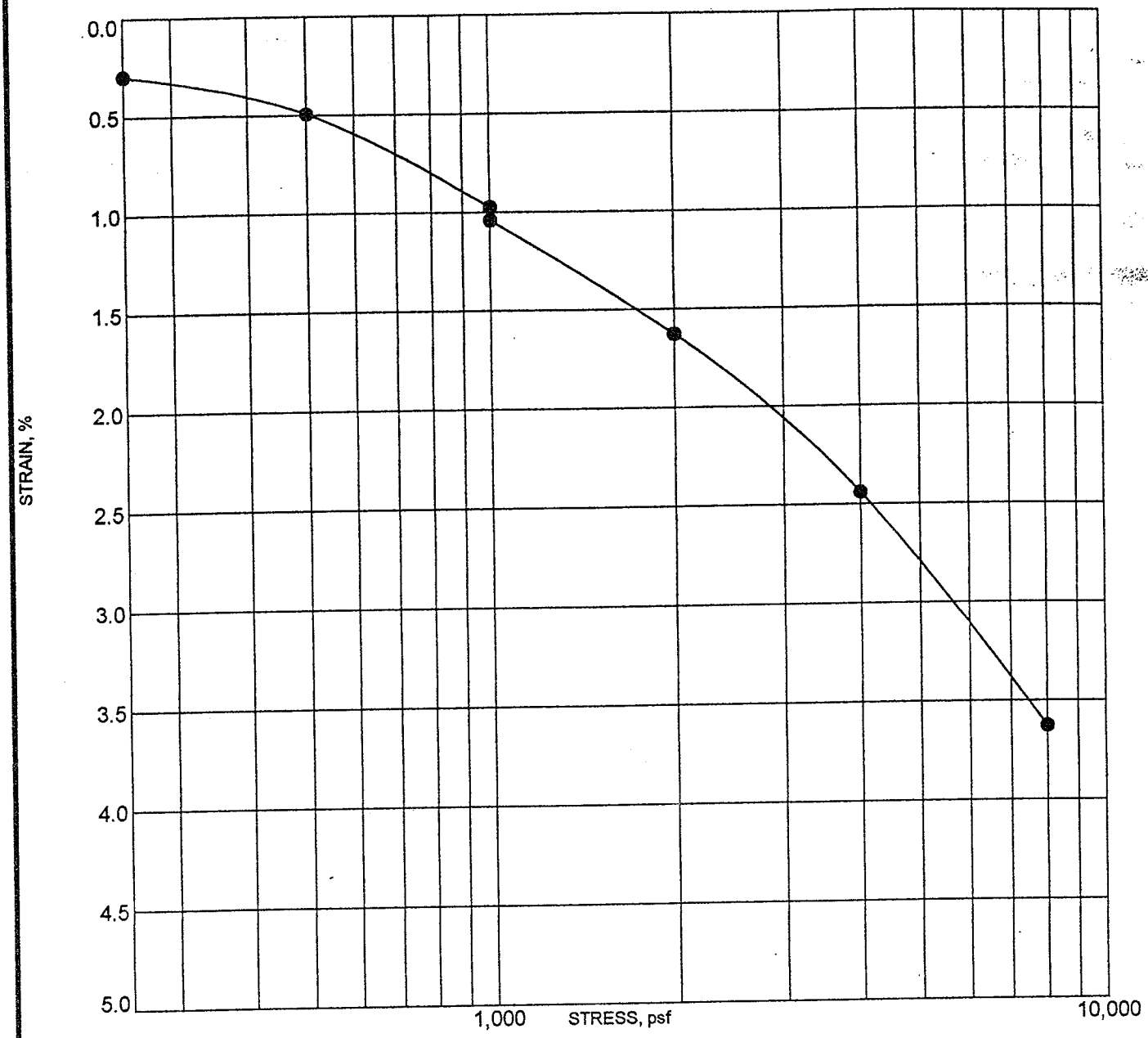


Specimen Identification		Classification	γ_d	MC%
● TP-40	5.0		90	21

CONSOLIDATION TEST

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: Herriman, Utah
-

Figure A-49



Specimen Identification		Classification	γ_d	MC%
● TP-40	10.0		86	34

CONSOLIDATION TEST

PSI Job No.: 710-25083
Project: Monarch Meadows
Location: Herriman, Utah

Figure A-50