State of Utah

GARY R. HERBERT
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GREGORY S. BELL
Lt. Governo

Department of Administrative Services
KIMBERLY K. HOOD
Executive Director

Division of Facilities Construction and Management
DAVID G. BUXTON
Director

ADDENDUM NO. 2

Date: October 13, 2009

To: A/Es

From: Matthias Mueller

Reference: ABC ASRS Expansion/Warehouse Remodel – Design
DFCM Project No. 08246030

Subject: **Addendum No. 2**

Pages	Addendum Cover Sheet	2	pages
	Geotechnical Report	48	pages
	Drawings	72	pages
	Pile Package	180	pages
	Total	302	pages

Note: This Addendum shall be included as part of the Contract Documents. Items in this Addendum apply to all drawings and specification sections whether referenced or not involving the portion of the work added, deleted, modified, or otherwise addressed in the Addendum. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to Disqualification.

While we contend that SB220 should only be potentially applicable to a contract issued after the effective date of said bill, this is to clarify that for purposes of this contract, regardless of the execution or effective dates of this contract, the status of Utah Law and remedies available to the State of Utah and DFCM, as it relates to any matter referred to or affected by said SB220, shall be the Utah law in effect at the time of the issuance of this Addendum.

2.1 SCHEDULE CHANGES: No Project Schedule changes.

2.2 GENERAL ITEMS: Questions/Answers

2.2.1 *Question:* Would you please provide us with the warehouse as-built drawings and the most recent soils report, site survey, and water flow analysis?

Answer: Although a soils report, site survey, and water flow analysis are being made available by way of this addendum, they are not made part of the Addendum, Solicitation, and the DFCM Contract Documents. A/Es may use this information at their own risk. DFCM does not warrant the soils report, site survey, and water flow analysis and makes no guarantee as to their accuracy. The report, survey, and analysis were not intended to define subsoil conditions, the site, and site water flow in sufficient detail for the A/E's proposal and design. The successful A/E shall be responsible to obtain and pay for the services of a Geotechnical Engineer, site surveyor, and water flow specialist licensed in the State of Utah to provide a soils report, site survey, and water flow analysis for the project site. The successful A/E shall be responsible to design the building in accordance with its own soils report, site survey, and water flow analysis.

2.2.2 *Question:* In the mandatory meeting, DFCM stated that the inbound load conveyor system upgrade and extension and the two options (conventional conveyor or conveyor and STV/ATV/AGV shuttles) available for the outbound loads, were to be part of the scope of the work for the A/E and CM/GC. However, that statement is in conflict with the program requirements. Which is correct?

Answer: DFCM was wrong. Section 04.d, paragraph 3 of the program is correct – the inbound and outbound load conveyor upgrades to the existing system, new conveyor system, and potential ATV/AGV/STV shuttles, are outside of (not a part of) the A/E and CM/GC scope of work for this project.

GSH
Gordon Spilker Huber
Geotechnical Consultants, Inc.

REPORT
GEOTECHNICAL STUDY
PROPOSED EXPANSION
ABC DISTRIBUTION CENTER
LOCATED NORTHEAST OF THE NORTHEAST
CORNER OF 900 WEST AND 1700 SOUTH
SALT LAKE CITY, UTAH

Submitted To:

MHTN Architects, Inc
420 East South Temple, Suite 100
Salt Lake City, Utah 84111

Submitted By:

Gordon Spilker Huber Geotechnical Consultants, Inc.
4426 South Century Drive, Suite 100
Salt Lake City, Utah 84123

August 14, 2009

Job No. 0128-044-09

Geotechnical Report

Gordon Spilker Huber
Geotechnical Consultants, Inc.

August 14, 2009
Job No. 0128-044-09

MHTN Architects, Inc
420 East South Temple, Suite 100
Salt Lake City, Utah 84111

Attention: Ms. Sara Miller

Ladies and Gentlemen:

Re: Report
Geotechnical Study
Proposed Expansion
ABC Distribution Center
Located Northeast of the Northeast Corner
of 900 West and 1700 South
Salt Lake City, Utah

1. INTRODUCTION

1.1 GENERAL

This report presents the results of our detailed geotechnical study for the proposed immediate and future expansion facilities associated with the ABC Distribution Center, which is located northeast of the northeast corner of 900 West and 1700 South in Salt Lake City, Utah. The general location and configuration of the existing ABC Distribution Center, including the proposed expansion areas to the north, with respect to existing facilities and major topographic features, as of 1998 and 1999, is presented on Figure 1, Vicinity Map. A more detailed layout of the presently proposed north addition to the existing automated stacked storage structure (AS/RS) facility and future expansion areas to the north, all with respect to existing features and streets, is presented on an air photograph base as Figure 2, Area Map. A conceptual layout of the proposed facilities is presented on Figure 3, Site Plan. Locations of the borings drilled in conjunction with this study and pertinent borings drilled for the existing AS/RS facility[1, 2] are also presented on Figure 3.

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[1] "Report, Geotechnical Study, Proposed Alcoholic Beverage Warehouse Expansion, 1665 South 900 West, Salt Lake City, Utah. DFCM Project No. 01007030," AMEC Job NO. 1-817-003395, Dated April 4, 2001.

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Prior to this report, an interim report dated July 2, 2009[3] was submitted.

1.2 OBJECTIVES AND SCOPE

The objectives and scope of our study were planned in discussions between Ms. Sara Miller of MHTN Architects, Inc.; Mr. Matthias Mueller of State of Utah – Division of Facilities Construction & Management (DFCM); Mr. Steve Trommer of Trommer & Associates, Inc.; and Mr. Bill Gordon of Gordon Spilker Huber Geotechnical Consultants, Inc. (GSH).

In general, the objectives of this study were to:

1. Define:

   a. In more detail the subsurface soil and groundwater conditions in the area of the proposed north expansion to the existing AS/RS facility.

   b. The general subsurface soil and groundwater conditions at the proposed crossing of the east-west drainage along the north side of the present property limits and the laydown-fabrication-future expansion area to the north of the drainage.

2. Provide appropriate foundation, earthwork, pavement, and geoseismic recommendations to be utilized in the design and construction of the presently proposed facilities and for the initial planning and design of the proposed future facilities.

In accomplishing these objectives, our scope has included the following:

1. A field program consisting of the drilling, logging, and sampling of seven exploration borings.

2. A laboratory testing program.

3. An office program consisting of the correlation of available data, engineering analyses, and the preparation of this interim report.

1.3 AUTHORIZATION

Authorization was provided by representatives of the MHTN Architects, Inc.

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[3] "Report, Geotechnical Study, Proposed Expansion, ABC Distribution Facility, Located Northeast of the Northeast Corner of 900 West and 1700 South, Salt Lake City, Utah," GSH Job No. 0128-044-09.

1.4 PROFESSIONAL STATEMENTS

Supporting data upon which our recommendations are based are presented in subsequent sections of this report. Recommendations presented herein are governed by the physical properties of the soils encountered in the exploration borings, projected groundwater conditions, and the layout and design data discussed in Section 2., Background, and Section 3., Proposed Construction, of this report. If subsurface conditions other than those described in this report are encountered and/or if design and layout changes are implemented, GSH must be informed so that our recommendations can be reviewed and amended, if necessary.

Our professional services have been performed, our findings developed, and our recommendations prepared in accordance with generally accepted engineering principles and practices in this area at this time.

2. BACKGROUND

During 2003, a 30,000 square foot, 100-foot high AS/RS was constructed onto the east side of the then-existing warehouse. The 2003 structure, as shown on Figure 2, extended from the south end of the then-existing warehouse to the west but ended approximately 115 feet short of the north end.

Presently, it is proposed that a new AS/RS addition fill in this missing gap. The expansion addition will have plan dimensions of approximately 115 feet north-south by 75 feet east-west.

3. PROPOSED CONSTRUCTION

3.1 AS/RS EXPANSION

The AS/RS expansion will ultimately store product but will also be the framework for the overall structure. Perimeter walls will be hung on the stacked storage system skeleton and transmitted down to the supporting foundation system.

For the existing facility to the south, it was calculated that the average load imposed on top of the at-grade slab due to proposed product storage and the structure itself would be on the order of 1,500 pounds per square foot.

The proposed AS/AR addition will be similarly loaded. Only minimal loads associated with the proposed addition will be transferred to the existing structures to the south and west.

It is presently proposed to fabricate the majority of the new AS/RS structure on open, presently undeveloped land on the north side of the drainage ditch. The fabricated segments will then be transferred over the drainage by crane or carried over by truck. If by truck, an approximately 30-foot long bridge structure will be required. Loads, which are not known at this time, are projected to be very high.

The "working pad" upon which the new structure will be fabricated; that is, to the north of the drainage ditch, will consist of a concrete slab underlain by granular fills extending to natural soils. Access to the fabrication site will be east-to-west along an existing roadway along the immediate north side of the drainage (see Figures 2 and 3).

3.2 FUTURE WAREHOUSE/DISTRIBUTION FACILITY

In the future, the overall ABC Distribution Center will be expanded to the north. The expansion could include typical warehousing structures with dock-height fills to possibly high automated stacked storage structures similar to the presently proposed addition. Loads imposed will vary greatly depending upon the structure.

Typical warehousing generally incorporates dock-height fills with the structure being of light steel and tilt-up concrete wall construction. Average uniform floor slab loads are generally moderate to moderately high. High automated storage facility may not include dock-height fills and will impose very heavy uniform loads through the floor slab system.

For all scenarios, there will be extensive pavements, most of which will be subjected to a high volume of heavy-weight trucks.

Earthwork, except for the dock-height fills, will be moderate with general site grading fills and cuts on the order of one to two feet.

4. SITE INVESTIGATIONS

4.1 FIELD PROGRAM

The field portion of this study consisted of the drilling, logging, and sampling of 7 exploration borings ranging in depth from 5.0 to 6.0 feet in proposed pavement areas to depths of 41.5 feet in the proposed AS/RS expansion area and fabrication/future warehouse area to the north. The borings were drilled with a truck-mounted drill rig equipped with hollow-stem augers. Locations of the borings drilled in conjunction with this study and the pertinent borings drilled in conjunction with the April 4, 2001 and August 3, 2001 studies are also shown on Figure 3.

The field portion of our study was under the direct control and continual supervision of an experienced member of our geotechnical staff. During the course of the drilling operations, a continuous log of the subsurface conditions encountered was maintained. In addition, relatively undisturbed and small disturbed samples of the typical soils encountered were obtained for subsequent laboratory testing and examination. The soils were classified in the field based upon visual and textural examination. These classifications have been supplemented by subsequent inspection and testing in our laboratory. Detailed graphical representation of the subsurface conditions encountered in the borings drilled in conjunction with this study is presented on Figures 4A through 4G, Log of Borings (This Study). Logs of Borings B-3A, B-4A, and B-6A previously drilled are presented on Figures 4H through 4J, Log of Borings (April 4, 2001 and

August 3, 2001 Studies). Soils were classified in accordance with the nomenclature described on Figure 5, Unified Soil Classification System.

A 3.25-inch outside diameter, 2.42-inch inside diameter drive sampler (Dames & Moore) was utilized for the majority of the subsurface sampling at the site. Additionally, a 2.0-inch outside diameter, 1.38-inch inside diameter drive sampler (SPT) was utilized at select locations/depths. The blow-counts recorded on the boring logs were those required to drive the sampler 12 inches with a 140-pound hammer dropping 30 inches.

Following completion of drilling operations, one and one-quarter-inch diameter slotted PVC pipe was installed in most of the borings in order to provide a means of monitoring the groundwater fluctuations.

4.2 LABORATORY TESTING

4.2.1 General

To provide data necessary for our engineering analyses, a laboratory testing program was performed. The program included moisture and density, partial gradation, consolidation, laboratory vane shear, and chemical tests. A brief description of the tests is presented in the following sections.

4.2.2 Moisture and Density Tests

Moisture and density tests are performed to provide general index parameters and to aid in correlating consolidation and vane shear tests.

4.2.3 Partial Gradation Tests

To aid in classification of the granular soils and to provide data necessary for our liquefaction analysis, partial gradation tests were performed upon representative samples. The results of the tests are tabulated below:

Boring No,	Depth (feet)	Percent Passing No. 200 Sieve	Soil Classification
B-1	20.5	2.1	SP
B-3	17.5	15.2	SM
B-3	20.5	52.1	CL/SC
B-4	15.5	3.7	SP
B-4	18.0	4.9	SP

4.2.4 Consolidation Tests

To provide data necessary for settlement analyses, a consolidation test was performed on each of four representative samples of the near-surface and deeper fine-grained cohesive soils. Tests show that the clays range from slightly to moderately over-consolidated. When loaded below the over-consolidated pressures, the clays will exhibit moderate compressibility characteristics. Detailed results of the tests are maintained within our files and can be transmitted to you, upon your request.

4.2.5 Laboratory Vane Shear Tests

To provide data necessary for our analysis for deep foundations, laboratory vane shear tests were performed. Results of the tests are tabulated below:

Boring No.	Depth (feet)	Soil Classification	In-situ Dry Density (psf)	In-situ Moisture Control (percent)	Maximum Vane Shear Strength (psf)
B-1	10.5	CL	73.2	42.1	1,115
B-1	35.0	CL	72.7	43.4	895
B-2	10.5	CL	93.8	23.1	902
B-2	35.5	CL	75.5	40.0	800
B-3	25.5	CL	68.6	50.1	865
B-3	30.5	CL	57.7	65.1	925
B-4	10.5	CL	87.8	30.0	850

4.2.6 Chemical Tests

To determine if the site soils will react detrimentally with concrete or ferrous metals, pH and sulfate chemical tests have been performed upon representative samples. Results are tabulated below:

Boring No.	Depth (feet)	Soil Classification	pH	Total Water Soluble Sulfate (ppm)
B-1	2.5	CL	7.71	3,000
B-3	3..5	SC-FILL	9.03	140

5. SITE CONDITIONS

5.1 SURFACE

The area of the proposed AS/RS expansion is a relatively flat asphalt concrete paved area on the immediate northeast side of the existing older warehouse and north of the more recent AS/RS structure. The site is bounded on the north by an east-west roadway and then the east-west drainage ditch, which is approximately 25 to 30 feet wide and 10 to 12 feet deep.

The majority of the area north of the drainage ditch is open and, except for the placement of surface granular fills, is undeveloped. The area is used for the storage of tractor trailers, storage containers, and some construction equipment.

The area to the east is used for the storage of tractor trailers and along the northern portion of the east boundary by flat undeveloped land with a few one-level light structures. To the north, the site is bounded by an elementary school. To the west, the site is bounded by open fields and single-family residential structure.

5.2 SUBSURFACE SOIL AND GROUNDWATER

The subsurface soil and groundwater conditions in the area of the presently proposed expansion and in the north laydown and future expansion areas are very similar and correlate with the conditions encountered beneath the existing AS/RS structure to the immediate south.

In general, the subsurface conditions consist of two to five feet of granular fill consisting primarily of silty fine to coarse sands and fine and coarse gravels. These materials are medium dense to dense and should exhibit relatively high strength and low compressibility characteristics. Much of the graveled area is utilized as an access roadway and parking area for tractor, storage bins, and construction equipment. The surface does not show any signs of excessive rutting or deformation.

Beneath the surficial fills and essentially extending to the depths penetrated, silty clays with occasional seams and thin layers of silts and silty fine sands were encountered. To a depth of approximately 8 to 10 feet, the silty clays are medium stiff to stiff and will exhibit relatively high strength, low compressibility structure, and are moderately to moderately highly preconsolidated. With depth, the silty clays are soft to very soft and will exhibit low strength and very high compressibility characteristics. With greater depth, approximately 32 feet, the clays grade medium stiff and moderately over-consolidated. The key controlling layer is the soft to very soft silty clays between 20 to 32 feet

In three of the borings at depths ranging from 14 to 16 feet, an approximately 4- to 8-foot thick layer of silty fine sands were encountered. These sands are medium dense and will exhibit favorable engineering characteristics.

Immediately following drilling, groundwater was measured at depths of approximately eight to nine feet. It is anticipated that further check of the water levels will indicate water at approximately seven feet. Seasonal and longer-term groundwater fluctuations on the order of one to two feet must be anticipated with the highest seasonal levels generally occurring during the late spring through summer months.

6. DISCUSSIONS AND RECOMMENDATIONS

6.1 SUMMARY OF FINDINGS

The most significant geotechnical aspect of the areas studied by this study are the very low strength and high compressibility silty clays encountered generally below 20 and 32 feet. In order to control settlements, the AS/RS addition must be supported upon deep foundations.

For typical loading condition, it is our opinion that future "typical" warehouse structures can be supported upon conventional spread and continuous wall foundations underlain by replacement granular fill. For average uniform floor slab loading in excessive of 200 to 250 pounds per square foot, over dock-height fill preloading must be anticipated.

There have been discussions related to trading the northern portion of the parcel, north of the drainage ditch, with the generally open undeveloped parcel west of the southern portion of the present north parcel. This parcel would extend to 900 West Street. Subsurface conditions encountered in conjunction with this study and the previously referenced studies are very consistent across the site. Therefore, it is our opinion that the discussions and recommendation presented herein should be applicable to the proposed west trade parcel.

In the following sections, general earthwork, foundation, pavement, and geoseismic discussions and recommendations are provided. Subsurface and laboratory data obtained in conjunction with this data can be utilized to develop detailed recommendations once specific loading and layout data become available.

6.2 PRESENTLY PROPOSED AS/RS EXPANSION

Because of the extremely soft and compressible soils between 20 to 32 feet, and the extremely high average floor slab loadings, the addition, similar to the existing AS/RS, will have to be supported upon deep foundations. In order to control settlement beneath the AS/RS facility, 12.75-inch diameter closed-end pipe piles should be driven to minimum depths in the range of 50.0 to 70.0 feet. Recommended minimum depth of pile penetration versus floor slab loading to control settlement is tabulated on the following page.

Floor Slab Loading (psf)	Minimum Depth (feet)
1,000	50
1,250	60
1,500	70

Capacities of the piles driven to the depth tabulated above would develop through friction. Piles driven to depths of approximately 90 feet would develop capacity through both friction and end-bearing. For a 12.75-inch diameter closed-end pipe piles the estimated capacity is 275 kips.

From a geotechnical standpoint, the existing AS/RS structure, which is supported upon piles, has performed favorably.

Driving of the closed-end displacement piles will induce some vibration into the subsurface sequence. However, the driving of the piles supporting the structure to the immediate south did not detrimentally affect the older warehouse structure to the west or impede day-to-day operations.

The question has been raised as to whether there is an alternate deep foundation system which could be utilized. The one that would best fit the situation would be auger-cast piles extended to depths equal to or somewhat greater than the 12.75-inch displacement piles. A year or so ago, it would be fair to say that the auger-cast piles would be the chosen system because of cost and the inducement of limited vibration into the soils. Since then the cost of steel has dropped drastically; therefore, more conventional closed-end pipe piles may presently be more cost effective. Both systems will provide the appropriate support and settlement control. More detailed capacities can be provided once more specific loading and layout data become available.

Because of the depth and thickness of the very soft to soft, highly compressible silty clays, it is our opinion that soil improvement methods, such as Geopiers®, deep stone columns, or similar type approaches, would not provide the appropriate settlement control.

6.3 BRIDGE STRUCTURE CROSSING EAST-WEST RUNNING DRAINAGE DITCH

As stated previously, the AS/RS structure will be fabricated on the north side of the drainage and ultimately transported by truck or swung over the drainage by crane. In either case, a bridge connecting the two sites will be required. Because of the anticipated heavy bridge loads, it is our initial conclusion that conventional abutments on shallow foundations, even underlain by replacement granular fill, will not provide appropriate settlement control. It is, therefore, our opinion at this time that the structure best consist of a box culvert supported upon a continuous mat underlain by a few feet of granular fill as a “working stabilization mat” and/or by driving a series of moderate depth piles under more standard abutments. Piles may be cost effective since

similar piles will be required for the AS/RS expansion. Again, the primary purpose for the box culvert or piling will be to control settlements.

Detailed analyses will require more specific loading information. Geotechnical data obtained in conjunction with this study is adequate to develop detailed recommendations.

6.4 PROPOSED LAYDOWN-FABRICATION AREA

The area to the north is to be initially utilized as a laydown-fabrication area for the proposed AS/RS expansion structure. It is presently proposed to place a concrete slab over stable prepared subgrade. The thickness of the slab will be primarily dependant upon the point loads imposed and the subgrade. Borings B-1, B-4, B-5, and B-7 were drilled in the area. At the boring locations, two and one-half to four and one-half feet of silty sand and gravel fill were encountered. If the surface of the fill is properly prepared and at least two feet thick, a modulus of subgrade reaction "k" of 250 pounds per cubic inch can be utilized of the design of the slab.

If the average uniform pressures imposed by the slab/fill sequence due to the fabrication and construction operations do not exceed 300 to 400 pounds per square foot, total and differential settlement should not exceed one-half of an inch. If the average uniform loading exceeds approximately 500 to 600 pounds per square foot, differential areal settlements of a moderate magnitude could be realized.

6.5 FUTURE BUILDINGS TO THE NORTH

It is not known at this time the exact configuration and loading associated with the buildings to the north. If the structures are to be similar to the presently proposed AS/RS addition, where floor slab loadings are very high, similar deep foundations will be required in order to control total and differential settlements. If the average uniform loadings imposed upon the subsurface sequence are generally no more than 600 or 700 pounds per square foot, including the loads imposed by structural site grading fills, dock-height fills, and product, then more conventional spread and continuous wall foundations underlain by varying thicknesses of replacement fill could be utilized. If the average uniform loading imposed, however, is higher, consideration must be given to preloading the footprint of the structures. Ninety to 120 days should be anticipated for preloading. The degree of preloading will be dependant upon the average uniform loads imposed considering site grading fill, dock-height fill, floor slab loads, etc. It is our opinion that average total loads as much as 800 pounds per square foot could be fairly easily handled with 6 to 7 foot preload utilizing soil having a non-compacted density of 115 pounds per cubic foot. The bottom three to four feet of this fill would be placed as a structural fill. It would ultimately support the at-grade slabs. The remainder of the fill could then be removed and utilized to preload for other future buildings and/or as site grading fill in the projected surrounding pavement areas.

If the top of the dock-height fill is established two and one-half to three feet above existing grade, somewhat higher floor loads could be applied without preloading.

6.6 ACCESS ROADWAY

The existing access roadway from 700 West to the laydown-fabrication area to north of the drainage is blanketed, at the exploration borings, by two to four feet of silty sand and gravel fill. Presently, tractor trucks and some construction equipment pass over the fill. During the field portion of our study, no signs of deformation of the surface of this fill were observed.

It is our opinion that as part of the development of the laydown-fabrication area and roadway that approximately six inches of aggregate base be placed over the present sand and gravel roadway to level the surface and provide somewhat more stability, especially during the upcoming wetter and colder late fall winter months. This section will also provide the subbase and partial aggregate base components of paved roadway.

6.7 GEOSEISMIC SETTING

6.7.1 General

Utah municipalities adopted the International Building Code (IBC) 2006 on January 1, 2007. The IBC 2006 code determines the seismic hazard for a site based upon 2002 mapping of bedrock accelerations prepared by the United States Geologic Survey (USGS) and the soil site class. The USGS values are presented on maps incorporated into the IBC code and are also available based on latitude and longitude coordinates (grid points).

The addition and future additions must be designed in accordance with the procedure presented in Section 1613, Earthquake Loads, of the IBC 2006 edition.

6.7.2 Faulting

Based on our review of available literature, no active faults pass through or immediately adjacent to the site.

6.7.3 Soil Class

For dynamic structural analysis, the Site Class E – Soft Soil Profile as defined in Table 1613.5.2, Site Class Definitions, of the IBC 2006 can be utilized.

6.7.4 Liquefaction

The predominate subsurface soils to the depths penetrated, 41.5 feet, are fine-grained, cohesive, and not susceptible to liquefaction, even during a major seismic event. The silty sand soils encountered at depths ranging from 13 to 16 feet, and generally 4 to 7 feet thick, could be susceptible to variable liquefaction during a major seismic event. The depth of these soils is such that ground rupture would not occur, even if some of the sand soils were to liquefy. Liquefaction-induced settlements, however, could be in the range of one to one and one-half inches.

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MHTN Architects, Inc.
Job No. 0128-044-09
Geotechnical Study
August 14, 2009

By establishing the proposed AS/RS expansion on piles extending to depths of 50 feet or grouting, the potentially liquefiable soils would be penetrated. Vibration induced, especially by the driven piles, would aid in reducing the liquefaction potential. Lateral spread should not be a concern.

We appreciate the opportunity of providing this service for you. If you have any questions or require additional information, please do not hesitate to contact us.

Respectfully submitted,

Gordon Spilker Huber Geotechnical Consultants, Inc.

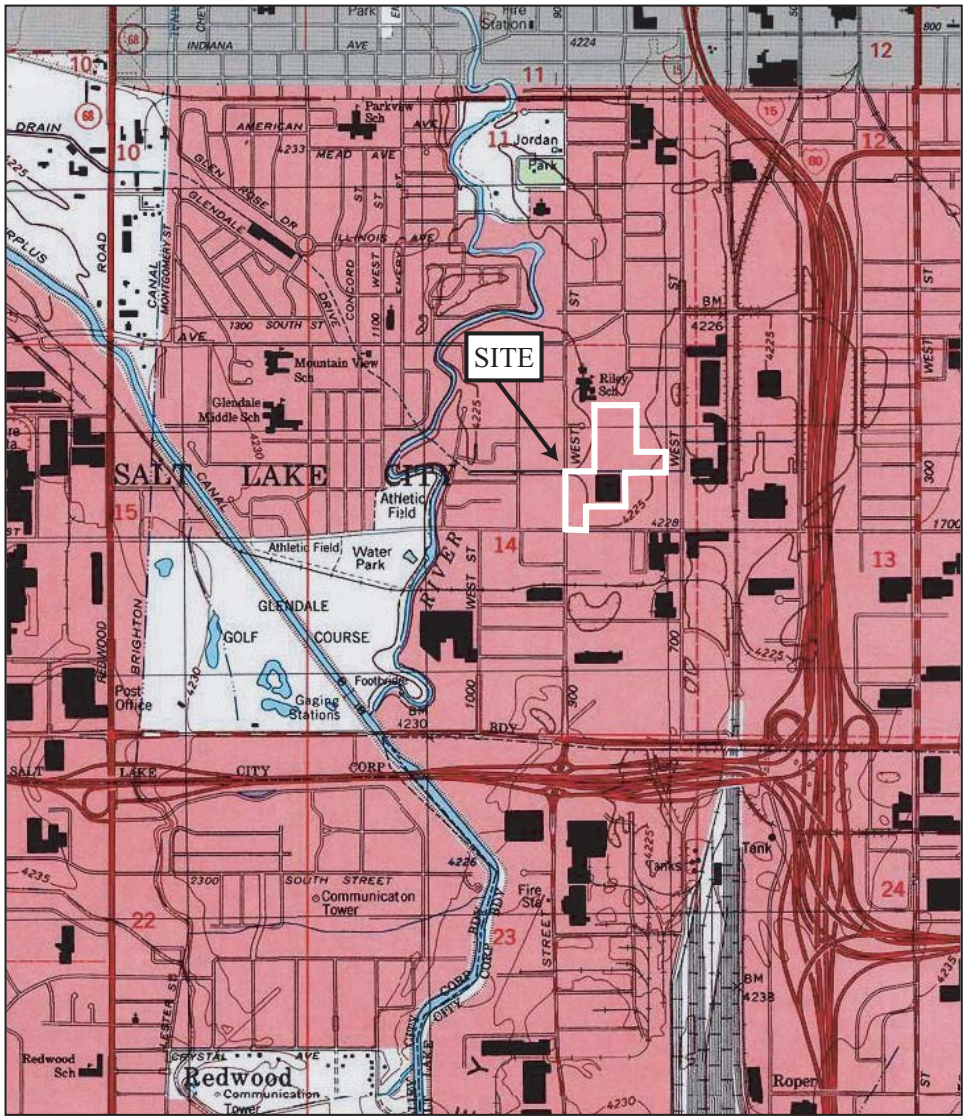
William J. Gordon, State of Utah No. 146417
Professional Engineer

WJG:sn

Encl.	Figure	1,	Vicinity Map
	Figure	2,	Area Map
	Figure	3,	Site Plan
	Figures	4A	through 4G, Log of Borings (This Study)
	Figures	4H	through 4J, Log of Borings (April 4, 2001 and August 3, 3001 Studies)
	Figure	5,	Unified Soil Classification System

Addressee (2 + email + 1 unbound and disk)
c: Mr. Mathias Mueller (1 + email + disk)
State of Utah
Division of Facilities Construction & Management
State Office Building, Suite 4110
P.O. Box 141160
Salt Lake City, Utah 84114

MHTN ARCHITECTS, INC.
JOB NO. 0128-044-09



SCALE IN FEET
1000 0 1000 2000

FIGURE 1
VICINITY MAP

REFERENCE:
USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAPS
TITLED "SALT LAKE CITY SOUTH, UTAH" DATED 1999
AND "SALT LAKE CITY NORTH, UTAH" DATED 1998

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FIGURE 2
AREA MAP

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Geotechnical Consultants, Inc.

NOT TO SCALE

REFERENCE:
ADAPTED FROM AERIAL PHOTOGRAPH
BY GOOGLE EARTH, DATED 2009

MHTN ARCHITECTS, INC.
JOB NO. 0128-044-09

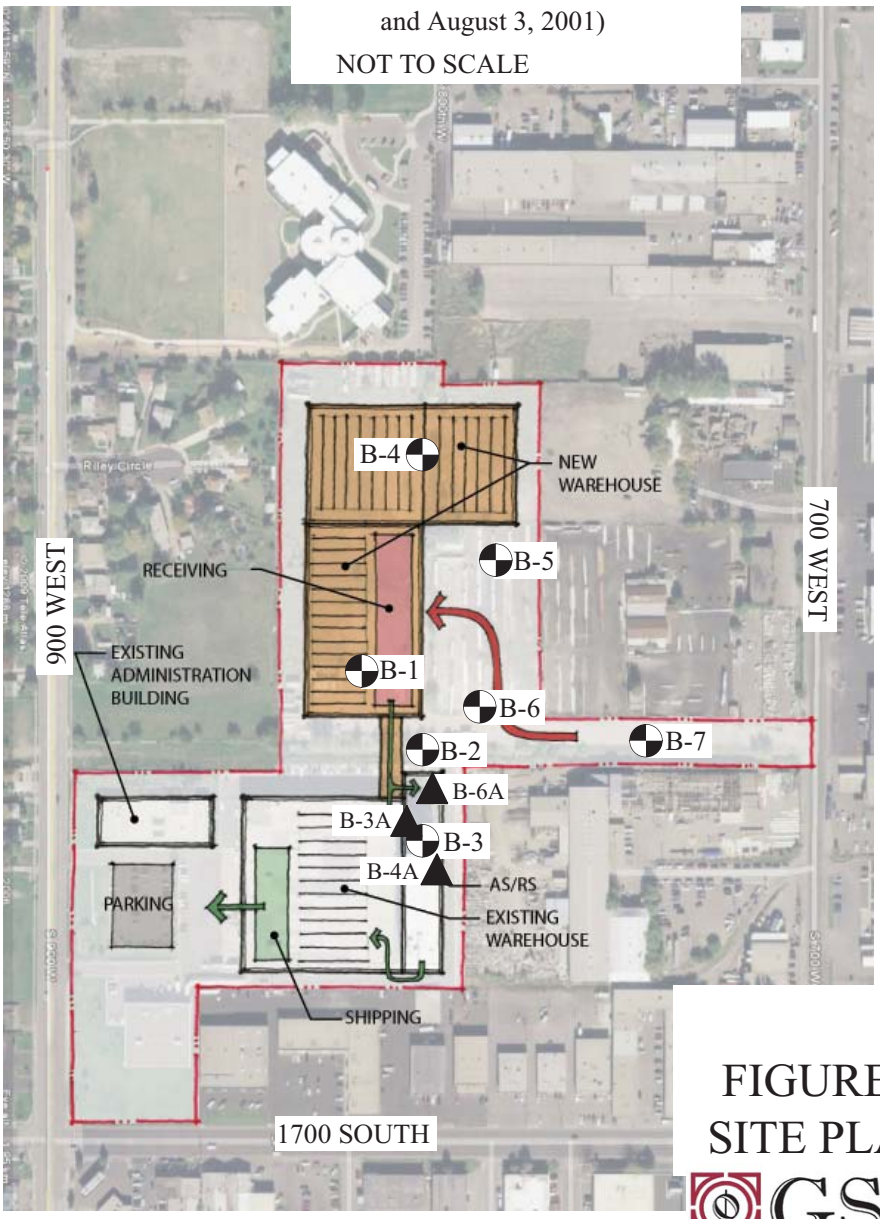

FIGURE 3
SITE PLAN

Geotechnical Report

BOREHOLE B-1

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 9.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface									
		4" LAYER OF GRAVEL, FILL (GP-FILL)	0								loose slightly moist "medium dense"
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL brown (SM/GM-FILL)									
		SILTY CLAY with trace fine sand and organics mottled; light gray and gray (CL)		7		44.1		62			moist medium stiff
			5	9		21.5					
		grades with soft zones to 1" thick	10	6		42.1		73			
			15	29							
		FINE TO COARSE SAND with trace silt; gray (SP)	20	1							saturated very loose/loose
		SILTY CLAY with trace fine sand, dark gray (CL)	25								saturated very soft

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4A

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-1

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 9.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
				1		29.1		66			
			30	1							
			35	3		47.2		74			soft
			40	7		30.4		102			medium stiff
		Stopped drilling at 40.0'. Stopped sampling at 41.5'. Installed 1-1/4" diameter slotted PVC pipe to 41.5'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4A
(con't)

Geotechnical Report

BOREHOLE B-2

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 9.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		4" LAYER OF GRAVEL, FILL (GP-FILL)									loose moist "medium dense"
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL brown (SM/GM-FILL)									
		SILTY CLAY with trace fine sand; brownish-gray, light gray, and gray (CL)		11							moist stiff
			5	7		34.5		79			medium stiff
		grades with occasional up to 2" thick layers of silty fine sand; oxidation mottling; brown	10	9		27.8		96			saturated
			15	17							
		grades with occasional up to 1" thick layers of silty fine sand		3							
		grades dark gray and black	20	P							
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4B

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-2

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 9.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		grades gray and dark gray		2							
			30	1		65.9		60			
			35	8		40.0		106			
				P							
			40	13							
		Stopped drilling at 40.0'. Stopped sampling at 41.5'. Installed 1-1/4" diameter slotted PVC pipe to 41.5'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4B
(con't)

Geotechnical Report

BOREHOLE B-3

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 10.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		3" ASPHALT CONCRETE									
		6" AGGREGATE BASE, FILL									
		CLAYEY FINE TO COARSE SAND, FILL with some fine and coarse gravel; brown (SC-FILL)									moist medium dense
				43							
		SILTY CLAY with trace fine sand; dark brown grading gray (CL)	5								moist stiff
				15							
		grades brown and gray	10	4		47.5		85			saturated
			15	9							
		SILTY FINE SAND gray (SM)									saturated medium dense
				31		22.3		105			
		SILTY CLAY with fine sand, trace organics; grayish-brown (CL/SC)	20	1		47.0					saturated soft/medium stiff
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4C

Geotechnical Report

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-3

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 10.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		grades dark gray		3		50.1		69			
			30	1		65.1		58			
		grades brown and gray	35	8							
		SILTY CLAY/CLAYEY SILT with occasional up to 1/4" thick layers of silty fine sand; brownish-gray (CL)	40	18							saturated stiff
		Stopped drilling at 40.0'. Stopped sampling at 41.5'. Installed 1-1/4" diameter slotted PVC pipe to 41.5'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4C
(con't)

Geotechnical Report

BOREHOLE B-4

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 8.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL brown (SM/GM-FILL)									slightly moist "medium dense"
		SILTY CLAY with trace fine sand;trace organics; brown grading gray with light gray mottling(CL)		15							moist
			5								stiff
		grades light brown with cemented nodules		11							very moist stiff saturated
			10	4		30.0		88			soft
		FINE TO MEDIUM SAND with trace silt; gray (SP)									saturated medium dense
			15	37		20.5		106			
											loose
				3		26.1					
		SILTY CLAY with trace fine sand, gray (CL)	20	5							
			25								soft

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4D

Geotechnical Report

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-4

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 06-30-09
GSH Field Rep.: RJG
Elevation: --
Water Level: 8.0' (06-30-09)
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		grades dark gray grading gray		3		59.4		65			
			30	2		54.5		68			
			35	7							
			40	6							
		Stopped drilling at 40.0'. Stopped sampling at 41.5'. Installed 1-1/4" diameter slotted PVC pipe to 41.5'.	45								
			50								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4D
(con't)

Geotechnical Report

BOREHOLE B-5

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 07-01-09
GSH Field Rep.: RJG
Elevation: --
Water Level: No groundwater encountered.
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface									
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL recycled concrete; brown (SM/GM-FILL)	0								slightly moist "medium dense"
		SILTY CLAY with trace fine sand; gray (CL)	5								moist "medium stiff"
		Stopped drilling at 6.0'. Stopped sampling at 2.0'. No groundwater encountered at time of drilling.	10, 15, 20, 25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4E

Geotechnical Report

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

BOREHOLE B-6

Page: 1 of 1

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 07-01-09
GSH Field Rep.: RJG
Elevation: --
Water Level: No groundwater encountered.
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface									
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL recycled concrete; brown (SM/GM-FILL)	0								moist "medium dense" moist "medium stiff"
		SILTY CLAY with trace fine sand; dark gray and gray (CL)	5								
		Stopped drilling at 6.0'. Stopped sampling at 5.0'. No groundwater encountered at time of drilling.	10 15 20 25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4F

Geotechnical Report

BOREHOLE B-7

Gordon Spilker Huber Geotechnical Consultants, Inc.
Salt Lake City, Utah 84123

Project Name: Proposed Expansion - ABC Distribution Center
Project No.: 0128-044-09
Location: NE of NE Cnr of 900 W & 1700 S, SLC, UT
Client: MHTN Architects, Inc.
Drilling Method: 3-3/4" ID Hollow-Stem Auger
Date Drilled: 07-01-09
GSH Field Rep.: RJG
Elevation: --
Water Level: No groundwater encountered.
Remarks:

Graphical Log	Water Level	DESCRIPTION	DEPTH FT.	BLOWS/FT	SAMPLE SYMBOL	MOISTURE (%)	% PASSING 200	DRY DENSITY (PCF)	Liquid Limit (%)	Plastic Limit (%)	REMARKS
		Ground Surface	0								
		SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL, FILL with cobbles; brown (SM/GM-FILL)									moist "medium dense"
											slightly moist "very dense"
		SILTY CLAY with some fine sand; gray (CL)	5								moist "soft"
		Stopped drilling at 5.0'.									
		Stopped sampling at 3.0'.									
		No groundwater encountered at time of drilling.	10								
			15								
			20								
			25								

The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary for a proper understanding of the nature of the subsurface material.

FIGURE 4G

Geotechnical Report

PROJECT Alcoholic Beverage Control Warehouse Expansion
1665 South 900 West, Salt Lake City, Utah

LOG OF TEST BORING NO. B-3

JOB NO. 1-817-003395 DATE 02-28-01

RIG TYPE CME 75
BORING TYPE 3-3/4" ID HOllow-Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								GP FILL	slightly moist medium dense	**FINE TO COARSE SANDY FINE AND COARSE GRAVEL** with some silt; major roots (topsoil) to 3"; brown, FILL
				D	44	110	3.7			
5				D	20	109	8.3	GC/ GM FILL	very moist to saturated loose	**CLAYEY AND SILTY FINE AND COARSE GRAVEL** with some fine to coarse sand; brown, FILL
								CL	saturated soft	**SILTY CLAY** with trace fine sand and occasional layers with some shells to 2" and occasional clayey silt layers to 1/2"; gray and dark gray
10				D	4	52	63.1			
15				D	4	87	33.0			grades without clayey silt layers and with some fine sand; brown and gray mottled
20										Stopped drilling at 15.0'. Stopped sampling at 16.5'. Installed 1-1/4" diameter slotted PVC pipe to 15.0'. Companion hole drilled to 10.0' and installed 1-1/4" diameter slotted PVC pipe to 10.0'. The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary to a proper understanding of the nature of the subsurface materials.
25										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	5.2		02-28-01
▼	7.5	12:00	03-05-01

Companion - 7.5

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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Page 1 of 2

PROJECT Alcoholic Beverage Control Warehouse Expansion
1665 South 900 West, Salt Lake City, Utah

LOG OF TEST BORING NO. B-4

JOB NO. 1-817-003395 DATE 02-28-01

RIG TYPE CME 75
BORING TYPE 3-3/4" ID HOllow-Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. Per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								GC/ GM FILL	slightly moist loose	**CLAYEY AND SILTY FINE AND COARSE GRAVEL** with some fine to coarse sand; major roots (topsoil) to 3"; dark brown, FILL
				D	20	102	10.5			
5				D	21	75	39.4	GM FILL	moist loose	**SILTY FINE AND COARSE GRAVEL** with some fine to coarse sand; brown, FILL
								CL	saturated soft to medium stiff	**SILTY CLAY** with trace fine to medium sand and trace cemented nodules to 1/4"; gray
10				D	5					
								SM/ SP	saturated loose	**SILTY FINE SAND/FINE SAND** with some silt; brown-gray
15				SPT	23					
								CL	saturated stiff	**SILTY CLAY** with some fine sand; gray
20				SPT	6					
										Stopped drilling at 20.0'. Stopped sampling at 21.5'. Installed 1-1/4" diameter slotted PVC pipe to 16.0'.
25										

GROUNDWATER

DEPTH	HOUR	DATE
5.2		02-28-01
6.2		03-29-01

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Alcoholic Beverage Control Warehouse Expansion
1665 South 900 West, Salt Lake City, Utah

LOG OF TEST BORING NO. B-4

JOB NO. 1-817-003395 DATE 02-28-01

RIG TYPE CME 75
BORING TYPE 3-3/4" ID HOllow-Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classifi-cation	REMARKS	VISUAL CLASSIFICATION
25										The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary to a proper understanding of the nature of the subsurface materials.
30										
35										
40										
45										
50										

GROUNDWATER

	DEPTH	HOUR	DATE
▽	5.2		02-28-01
▼	6.2		03-29-01

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Proposed Alcoholic Beverage Warehouse Expansion
1665 South 900 East, Salt Lake City

LOG OF TEST BORING NO. B-6

JOB NO. 1-817-003395 DATE 06/26/01

RIG TYPE CME 550
BORING TYPE 3-3/4" ID Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
0								GM/ SM FILL	dry to moist "loose" to "medium dense"	SILTY FINE TO COARSE SAND AND FINE AND COARSE GRAVEL; no topsoil; brown; FILL
5										
								CL	very moist to saturated soft to medium stiff	SILTY CLAY with trace fine sand; some cemented chunks; with occasional fine to medium sandy silt layers; dark brown to brown
10				D	5					
15										
20				D	17			SM/ SP	saturated loose	FINE TO MEDIUM SAND with some silt and occasional small organic pockets; gray
25										

GROUNDWATER

DEPTH	HOUR	DATE

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Proposed Alcoholic Beverage Warehouse Expansion
1665 South 900 East, Salt Lake City

LOG OF TEST BORING NO. B-6

JOB NO. 1-817-003395 DATE 06/26/01

RIG TYPE CME 550
BORING TYPE 3-3/4" ID Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
25										
								CL	saturated very soft	SILTY CLAY with trace fine sand and occasional fine sandy silt layers and seams to 1/4"; dark gray and black
30				D	1	66	59.2			
35										
								CL/ ML	saturated stiff to very stiff	ALTERNATING LAYERS TO 6" OF SILTY CLAY AND CLAYEY SILT with numerous fine sandy silt layers to 4"; gray and gray-brown
40				D	22					
								CL/ SM/ ML	saturated loose/medium stiff	ALTERNATING LAYERS TO 9" OF CLAYEY SILT, SILTY CLAY, FINE SANDY SILT, AND SILTY FINE SAND; gray
45										
50										

GROUNDWATER

DEPTH	HOUR	DATE

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Proposed Alcoholic Beverage Warehouse Expansion
1665 South 900 East, Salt Lake City

LOG OF TEST BORING NO. B-6

JOB NO. 1-817-003395 DATE 06/26/01

RIG TYPE CME 550
BORING TYPE 3-3/4" ID Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
50				D	9					
								SM	saturated loose	SILTY FINE SAND; gray
55				D	25		16.4			
								SM/ ML/ CL	saturated loose/stiff	ALTERNATING LAYERS TO 9" OF FINE SANDY SILT/SILTY FINE SAND, SILTY CLAY, AND CLAYEY SILT; gray
60										
65				D	19					
								CL	saturated medium stiff	SILTY CLAY with trace sand; with numerous fine sandy silt seams; gray
70										
75				D	7					

GROUNDWATER

DEPTH	HOUR	DATE

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Proposed Alcoholic Beverage Warehouse Expansion
1665 South 900 East, Salt Lake City

LOG OF TEST BORING NO. B-6

JOB NO. 1-817-003395 DATE 06/26/01

RIG TYPE CME 550
BORING TYPE 3-3/4" ID Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
75										
80								SM/ ML	saturated medium dense	SILTY FINE SAND/FINE SANDY SILT with occasional silty clay layers to 1/2"; gray
85				D	28					
90				D				SM/ SP	saturated dense	ALTERNATING LAYERS TO 4" OF SILTY FINE SAND AND FINE TO MEDIUM SAND with some silt; gray
95				D	94					
										Stopped drilling at 94.5'. Stopped sampling at 96.0'. Groundwater encountered but not measured.
100										

GROUNDWATER

DEPTH	HOUR	DATE

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

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PROJECT Proposed Alcoholic Beverage Warehouse Expansion
1665 South 900 East, Salt Lake City

LOG OF TEST BORING NO. B-6

JOB NO. 1-817-003395 DATE 06/26/01

RIG TYPE CME 550
BORING TYPE 3-3/4" ID Hollow Stem Auger
SURFACE ELEV.
DATUM

Depth in Feet	Continuous Penetration 3Resistance	Graphical Log	Sample	Sample Type	Blows/foot 140 lb. 30" free-fall drop hammer	Dry Density lbs. per cubic foot	Moisture Content Percent of Dry Weight	Unified Soil Classification	REMARKS	VISUAL CLASSIFICATION
100										
105										
110										
115										
120										The discussion in the text under the section titled, SUBSURFACE CONDITIONS, is necessary to a proper understanding of the nature of the subsurface materials.
125										

GROUNDWATER

DEPTH	HOUR	DATE

SAMPLE TYPE

A - Auger cuttings
S - 2" O.D. 1.38" I.D. tube sample.
U - 3" O.D. 2.42" I.D. tube sample.
T - 3" O.D. thin-walled Shelby tube.
D - 3 1/4" O.D. 2.42" I.D. tube sample.
C - California Split Spoon Sample

amec

UNIFIED SOIL CLASSIFICATION SYSTEM

FIELD IDENTIFICATION PROCEDURES				GRAPH SYMBOL	LETTER SYMBOL [1]	TYPICAL DESCRIPTIONS
COARSE GRAINED SOILS More than half of material is larger than No. 200 sieve size. [2] (The No. 200 sieve size is about the smallest particle visible to the naked eye)	GRAVELS More than half of coarse fraction is larger than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN GRAVELS (Little or no fines)	Wide range in grain size and substantial amounts of all intermediate particle sizes.		GW	Well graded gravels, gravel-sand mixtures, little or no fines.
			Predominantly one size or a range of sizes with some intermediate sizes missing.		GP	Poorly graded gravels, gravel-sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).		GM	Silty gravels, poorly graded gravel-sand-silt mixtures.
			Plastic fines (for identification procedures see CL below).		GC	Clayey gravels, poorly graded gravel-sand-clay mixtures.
	SANDS More than half of coarse fraction is smaller than No. 4 sieve size. (For visual classifications, the 1/4" size may be used as equivalent to the No. 4 sieve size.)	CLEAN SANDS (Little or no fines)	Wide range in grain sizes and substantial amounts of all intermediate particle sizes.		SW	Well graded sands, gravelly sands, little or no fines.
			Predominantly one size or a range of sizes with some intermediate sizes missing.		SP	Poorly graded sands, gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)	Non-plastic fines (for identification procedures see ML below).		SM	Silty sands, poorly graded sand-silt mixtures.
			Plastic fines (for identification procedures see CL below).		SC	Clayey sands, poorly graded sand-clay mixtures.

FINE GRAINED SOILS More than half of material is smaller than No. 200 sieve size. (The No. 200 sieve size is about the smallest particle visible to the naked eye)	IDENTIFICATION PROCEDURES ON FRACTION SMALLER THAN No. 40 SIEVE SIZE	DRY STRENGTH (CRUSHING CHARACTERISTICS)	DILATANCY (REACTION TO SHAKING)	TOUGHNESS (CONSISTENCY NEAR PLASTIC LIMIT)			
	SILTS AND CLAYS Liquid limit less than 50	None to slight	Quick to slow	None		ML	Inorganic silts and very fine sands, rock flour, silty or clayey fine sand with slight plasticity.
		Medium to high	None to very slow	Medium		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
		Slight to medium	Slow	Slight		OL	Organic silts and organic silt-clays of low plasticity.
	SILTS AND CLAYS Liquid limit greater than 50	Slight to medium	Slow to none	Slight to medium		MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
		High to very high	None	High		CH	Inorganic clays of high plasticity, fat clays.
		Medium to high	None to very slow	Slight to medium		OH	Organic clays of medium to high plasticity.
HIGHLY ORGANIC SOILS		Readily identified by color, odor, spongy feel and frequently by fibrous texture.				Pt	Peat and other highly organic soils.

[1] Boundary classifications: –Soils possessing characteristics of two groups are designated by combinations of group symbols. For example GW–GC, well graded gravel–sand mixture with clay binder.
[2] All sieve sizes on this chart are U.S. standard.

GENERAL NOTES

1. In general, Unified Soil Classification Designations presented on the logs were evaluated by visual methods only. There rore, actual designations (based on laboratory testing) may differ.

2. Lines seperating strata on the logs represent approximate boundaries only Actual transitions may be gradual.

3. Logs represent general soil conditions observed at teh point of exploration onthe date indicated.

4. No warranty is provided as to the continuity of soil conditions between individual sample locations.

FINE - GRAINED SOIL

CONSISTENCY	SPT (blows/ft)	TORVANE UNDRAINED SHEAR STRENGTH (tsf)	POCKET PENETROMETER UNCONFINED COMPRESSIVE STRENGTH (tsf)	FIELD TEST
Very Soft	<2	<0.125	<0.25	Easily penetrated several inches by Thumb. Squeezes through fingers.
Soft	2 - 4	0.125 - 0.25	0.25 - 0.5	Easily penetrated 1 " by Thumb . Molded by light finger pressure.
Medium Stiff	4 - 8	0.25 - 0.5	0.5 - 1.0	Penetrated over 1/2 " by Thumb with moerate effort. Molded by strong finger pressure.
Stiff	8 - 15	0.5 - 1.0	1.0 - 2.0	Indented about 1/2 " by Thumb but penetrated only with great effort
Very Stiff	15 - 30	1.0 - 2.0	2.0 - 4.0	Readily indented by Thumbnail
Hard	>30	>2.0	>4.0	Indented with difficulty by Thumbnail

LOG KEY SYMBOLS

- Bulk / Bag Sample
- Standard Penetration Split Spoon Sampler
- Rock Core
- Water Level
- Thin Wall
- No Recovery
- 3-3/4" ID D&M Sampler
- 3" ID D&M Sampler
- California Sampler

COARSE -GRAINDE SOIL

APPERENT DENSITY	SPT (blows/ft)	RELATIVE DENSITY (%)	FIELD TEST
Very Loose	<4	0 - 15	Easily penetrated with 1/2 " reinforcing rod pushed by hand
Loose	4 - 10	15 - 35	Difficult to penetrated with 1/2 " reinforcing rod pushed by hand
Medium Dense	10 - 30	35 - 65	Easily penetrated a foot with 1/2 " reinforcing rod driven with 5-lb hammer
Dense	30 - 50	65 - 85	Difficult to penetrated a foot with 1/2 " reinforcing rod driven with 5-lb hammer
Very Dense	>50	85 - 100	Penetrated only a few inches with 1/2 " reinforcing rod driven with 5-lb hammer

STRATIFICATION

DESCRIPTION	THICKNESS
SEAM	1/16 - 1/2 "
LAYER	1/2 - 12 "

DESCRIPTION	THICKNESS
Occasional	One or less per foot of thickness
Frequent	More than on per foot of thichness

CEMENTATION

DESCRIPTION	DESCRIPTION
Weakely	Crumbles or breaks with handling of slight finger pressure
Moderately	Crumbles or breaks with considerable finger pressure
Strongly	Will not crumbles or breaks with finger pressure

MODIFIERS

DESCRIPTION	%
Trace	<5
Some	5 - 12
With	>12

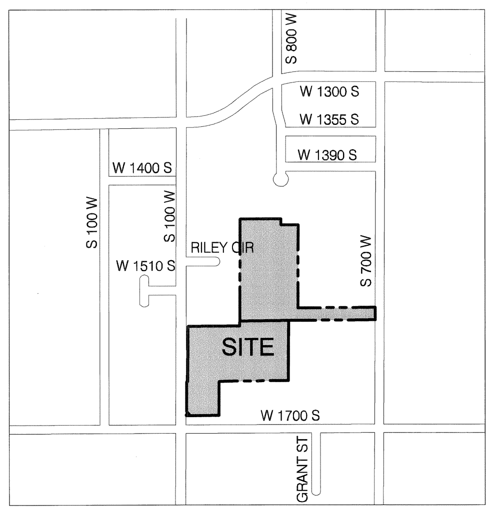
MOISTURE CONTENT

DESCRIPTION	FIELD TEST
Dry	Absence of moisture, dusty, dry to the touch
Moist	Damp but no visible water
Wet	Visible water, usually soil below Water Table

FIGURE 5

ALTA/ACSM LAND TITLE SURVEY

LOCATED IN BLOCK 5, 5 ACRE PLAT "B", IN THE NORTHEAST QUARTER OF SECTION 14, TOWNSHIP 1 SOUTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN



VICINITY MAP
SCALE: N.T.S.

EXISTING UTILITIES NOTE:

THE INFORMATION SHOWN ON THIS MAP AND HEREIN WITH REGARDS TO THE EXISTING UTILITES AND/OR IMPROVEMENTS WAS DERIVED FROM FIELD INVESTIGATION AND/OR RECORD INFORMATION. NO REPRESENTATION IS MADE AS TO THE ACCURACY OR COMPLETENESS OF SAID UTILITY INFORMATION.

GENERAL NOTES: FILE NO. D276179

1) THIS SURVEY IS BASED UPON THE TITLE REPORT ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, FILE NO. D276179, DATED FEBRUARY 28, 2001.

2) DOCUMENTS OF ADJOINING PROPERTIES OR OTHER DOCUMENTS NOT FURNISHED WITH THE REFERENCED TITLE REPORTS HAVE NOT BEEN USED IN THE PERFORMANCE OF THIS SURVEY. THEREFORE, ISSUES THAT MAY EXIST REGARDING GAPS OR OVERLAPS OF DESCRIPTIONS AND QUESTIONS AS TO UNDERLYING FEE OWNERSHIP, JUNIOR AND SENIOR RIGHTS OF OWNERSHIP PERTAINING TO ADJOINING PROPERTIES, ARE NOT ADDRESSED ON OR BY THIS MAP. THE INFLUENCE OF OTHER DOCUMENTS COULD RESULT IN THE VARIANCE OF PROPERTY LINES AS SHOWN HEREON.

3) NOTES PERTAINING TO EXCEPTIONS TO COVERAGE, SCHEDULE B-2 OF REFERENCED PRELIMINARY REPORT:

ITEMS 1 - 10 NOT ADDRESSED BY THIS MAP.

ITEM 11 RIGHT OF WAY FOR WATER PIPELINES DESCRIBED AS FOLLOWS:
BEGINNING AT A POINT ON THE EAST LINE OF 8TH WEST STREET (NOT KNOWN AS 9TH WEST STREET) 43.85 FEET SOUTH OF THE NORTHWEST CORNER OF LOT 3, BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY, RUNNING THENCE EAST 233.3 FEET.

AS DISCLOSED BY THAT CERTAIN SPECIAL WARRANTY DEED, DATED AUGUST 31, 1964, RECORDED SEPTEMBER 3, 1964, AS ENTRY NO. 2025088, IN BOOK 2232, AT PAGE 465, THE COUNTY RECORDER'S OFFICE.

(THE FOLLOWING AFFECTS A PORTION OF THE LAND, TOGETHER WITH OTHER PROPERTY)

ITEM 12 EASEMENT AND RIGHT OF WAY, DATED OCTOBER 29, 1964 FOR THE CONSTRUCTION, MAINTENANCE, REPLACEMENT AND REPAIR OF A CULINARY WATER PIPELINE OVER, UNDER AND ACROSS THE FOLLOWING DESCRIBED TRACT OF LAND SITUATED IN SALT LAKE COUNTY, UTAH, TO-WIT:

BEGINNING AT A POINT WHICH IS NORTH 00°23'09" EAST 530.50 FEET AND SOUTH 89°51'30" WEST 33.0 FEET FROM THE SALT LAKE CITY SURVEYOR'S MONUMENT IN THE INTERSECTION OF 6TH WEST (NOW KNOWN AS 7TH WEST) AND 1700 SOUTH STREETS, AND RUNNING THENCE SOUTH 89°51'30" WEST 697.47 FEET; THENCE NORTH 00°23'09" EAST 121.54 FEET; THENCE NORTH 45°14'30" WEST 84.85 FEET; THENCE SOUTH 89°45'30" EAST 378.00 FEET; THENCE SOUTH 44°45'30" WEST 25.46' FEET; THENCE SOUTH 00°23'09" WEST 150.30 FEET; THENCE SOUTH 88°08'06" WEST 369.00 FEET; MORE OR LESS, TO THE EAST LINE OF 8TH WEST STREET (NOW KNOWN AS 9TH WEST STREET); THENCE NORTH ALONG SAID EAST LINE 56.00 FEET; THENCE NORTH 88°08'06" EAST 318.00 FEET; THENCE NORTH 00°23'09" EAST 163.30 FEET; THENCE NORTH 89°45'30" EAST 470.19 FEET; THENCE SOUTH 45°14'30" EAST 123.89 FEET; THENCE SOUTH 00°23'09" WEST 93.57 FEET; THENCE NORTH 89°51'30" EAST 646.47 FEET, MORE OR LESS, TO THE WEST LINE OF 6TH WEST STREET (NOW KNOWN AS 7TH WEST STREET); THENCE SOUTH 00°23'09" WEST 50.00 FEET TO THE POINT OF BEGINNING.

SAID EASEMENT AND RIGHT OF WAY RECORDED NOVEMBER 20, 1964, AS ENTRY NO. 2042693, IN BOOK 2262, AT PAGE 460, SALT LAKE COUNTY RECORDER'S OFFICE.

(THE FOLLOWING AFFECTS A PORTION OF THE LAND)

ITEM 14 ANY EXISTING RIGHTS OF WAY AND EASEMENTS RESERVED IN THAT CERTAIN ORDINANCE NO. 67 OF 1967, DATED SEPTEMBER 14, 1967, WHEREIN THE LAND LIES WITHIN A PORTION OF THE VACATED ACADIA SUBDIVISION. SAID VACATION IS MADE EXPRESSLY SUBJECT TO ALL EXISTING RIGHTS OF WAY AND EASEMENTS OF ALL PUBLIC UTILITIES OF ANY AND EVERY DESCRIPTION NOW LOCATED IN, ON, UNDER OR OVER THE CONFINES OF THE ABOVE DESCRIBED PROPERTY, AND ARE ALSO SUBJECT TO THE RIGHTS OF ENTRY THEREON FOR THE PURPOSE OF INSPECTING, MAINTAINING, REPAIRING, REPLACING, REMOVING, ALTERING OR RE-ROUTING SAID UTILITIES.

SAID ORDINANCE RECORDED SEPTEMBER 21, 1967, AS ENTRY NO. 2216130, IN BOOK 2592, AT PAGE 518, SALT LAKE COUNTY RECORDER'S OFFICE.

(THE FOLLOWING AFFECTS A PORTION OF THE LAND, TOGETHER WITH OTHER PROPERTY)

ITEM 15 EASEMENT AND RIGHT OF WAY, DATED OCTOBER 13, 1967, IN FAVOR OF SALT LAKE CITY, A MUNICIPAL CORPORATION OF THE STATE OF UTAH, FOR A PERPETUAL RIGHT OF WAY AND EASEMENT FOR THE RELOCATION, CONSTRUCTION, MAINTENANCE, REPLACEMENT AND REPAIR OF AN 8-INCH CULINARY WATER PIPELINE, WATER MAIN EXTENSION NO. 3426, OVER, UNDER AND ACROSS THE FOLLOWING DESCRIBED TRACT OF LAND SITUATED IN SALT LAKE COUNTY, STATE OF UTAH, TO-WIT:

BEGINNING AT A POINT WHICH IS NORTH 00°23'09" EAST 580.50 FEET AND SOUTH 89°51'30" WEST 376.40 FEET FROM A SALT LAKE CITY SURVEYOR'S MONUMENT IN THE INTERSECTION OF 6TH WEST (NOW KNOWN AS 7TH WEST) AND 1700 SOUTH STREET; AND RUNNING THENCE NORTH 00°23'09" EAST 176.96 FEET; THENCE SOUTH 89°51'30" WEST 346.61 FEET; THENCE SOUTH 44°45'30" WEST 28.87 FEET; THENCE SOUTH 45°14'30" EAST 20.0 FEET; THENCE NORTH 44°45'30" EAST 20.57 FEET; THENCE NORTH 89°51'30" EAST 318.12 FEET; THENCE SOUTH 00°23'09" WEST 156.96 FEET; THENCE NORTH 89°51'30" EAST 20.0 FEET TO THE POINT OF BEGINNING.

SAID EASEMENT AND RIGHT OF WAY, RECORDED OCTOBER 23, 1967, AS ENTRY NO. 2220199, IN BOOK 2602, AT PAGE 9, SALT LAKE COUNTY RECORDER'S OFFICE.

(THE FOLLOWING AFFECTS A PORTION OF THE LAND, TOGETHER WITH OTHER PROPERTY)

ITEM 16 RIGHT OF WAY EASEMENT, DATED MAY 5, 1976, IN FAVOR OF THE MOUNTAIN STATED TELEPHONE AND TELEGRAPH COMPANY, A COLORADO CORPORATION, ITS SUCCESSORS, ASSIGNS, LESSEES, LINCENSEES, AND AGENTS, A RIGHT OF WAY EASEMENT AND THE RIGHT TO CONSTRUCT, OPERATE, MAINTAIN AND REMOVE SUCH COMMUNICATION AND OTHER FACILITIES, FROM TIME TO TIME, AS MAY BE REQUIRED UPON, OVER, UNDER AND ACROSS A PORTION OF THE LAND, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

AN EASEMENT EIGHT FEET (8) IN WIDTH DESCRIBED BY A CENTER LINE WITH FOUR FEET (4) ON EACH SIDE AS FOLLOWS:

COMMENCING NORTH 89°44'30" EAST 435 FEET FROM THE SOUTHWEST CORNER OF BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY; THENCE NORTH 281 FEET; THENCE NORTH 89°44'30" EAST 30 FEET, MORE OR LESS, TO END. ALSO COMMENCING NORTH 89°44'30" EAST 704.37 FEET AND NORTH 00°10'28" EAST 281 FEET FROM THE SOUTHWEST CORNER OF BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY; THENCE SOUTH 89°44'30" WEST 51 FEET; THENCE SOUTH 90 FEET, MORE OR LESS, TO END.

SAID RIGHT OF WAY EASEMENT RECORDED MAY 13, 1976, AS ENTRY NO. 2813779, IN BOOK 4197, AT PAGE 135, SALT LAKE COUNTY RECORDER'S OFFICE.

(THE FOLLOWING AFFECTS ALL OF THE LAND.)

ITEM 17 NOT ADDRESSED BY THIS MAP.

TITLE DESCRIPTIONS: FILE NO. D276179

BEGINNING AT A POINT NORTH 0°23109" EAST 798.53 FEET AND SOUTH 89°44'35" WEST 728.67 FEET FROM THE SALT LAKE CITY MONUMENT AT THE INTERSECTION OF 1700 SOUTH AND 700 WEST STREET; AND RUNNING THENCE SOUTH 0°23'09" WEST 457.9 FEET TO A POINT WHICH IS SOUTH 0°23'09" WEST 14.5 FEET FROM THE SOUTH LINE OF LOT 59, BLOCK 2, ARCADIA SUBDIVISION (VACATED); THENCE SOUTH 89°45'30" WEST 393.33 FEET TO A POINT WHICH IS SOUTH 0°23'09" WEST 14.5 FEET FROM THE SOUTHWEST CORNER OF LOT 44, BLOCK 2, ARCADIA SUBDIVISION (VACATED); THENCE SOUTH 0°23'09" WEST 18.5 FEET TO THE SOUTH LINE OF LOT 3, BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY; THENCE WEST 429 FEET ALONG SAID SOUTH LINE OF LOT 3, TO THE SOUTHWEST CORNER OF SAID LOT 3; THENCE NORTH 445.5 FEET ALONG THE WEST LINE OF LOTS 3, AND 4, SAID BLOCK 5; THENCE EAST 429 FEET TO THE WEST LINE OF LOT 43, BLOCK 1, ARCADIA SUBDIVISION (VACATED); THENCE NORTH 30.9 FEET, MORE OR LESS, TO A POINT WHICH IS SOUTH 89°45'30" WEST 393.33 FEET FROM THE POINT OF BEGINNING; THENCE NORTH 89°45'30" EAST393.33 FEET TO THE POINT OF BEGINNING.

LESS AND EXCEPTING THEREFROM, ANY PORTION LYING WITHIN THE BOUNDS OF THAT CERTAIN TRACT DEEDED TO SALT LAKE CITY CORPORATION BY SPECIAL WARRANTY DEED RECORDED SEPTEMBER 01, 1988, AS ENTRY NO. 4670763, IN BOOK 6060, AT PAGE 2687, THE COUNTY RECORDER'S OFFICE, AND BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS;

COMMENCING AT THE SOUTHWEST CORNER OF LOT 3, BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY AND RUNNING THENCE NORTH 445.50 FEET ALONG THE EXISTING STREET RIGHT OF WAY ; THENCE EAST 12.05 FEET; THENCE SOUTH 0°08'40" WEST 414.39 FEET; THENCE SOUTH 0°08'44" WEST 31.12 FEET; THENCE WEST 10.92 FEET TO THE POINT OF BEGINNING.

ALSO, TOGETHER WITH, THE LAND LOCATED IMMEDIATELY TO THE NORTH OF THE FOLLOWING DESCRIBED COMMON BOUNDARY LINE, PURSUANT TO THAT CERTAIN BOUNDARY LINE AGREEMENT, DATED APRIL 27, 1993, RECORDED MAY 6, 1993, AS ENTRY NO. 5497365, IN BOOK 6657, AT PAGE 2707, THE COUNTY RECORDER'S OFFICE, TO-WIT;

COMMENCING AT A POINT WHICH IS 635.93 FEET NORTH 0°23'09" EAST AND 728.67 FEET SOUTH 89°44'35" WEST FROM A CITY MONUMENT AT THE INTERSECTION OF 700 WEST STREET AND 1700 SOUTH STREET; SAID MONUMENT BEING 187.0 FEET WEST AND NORTH 99.0 FEET FROM THE NORTHEAST CORNER OF THE SOUTHEAST QUARTER OF SECTION 14, TOWNSHIP 1 SOUTH, RANGE 1 WEST, SAL LAKE BASE AND MERIDIAN, AND RUNNING THE SOUTH 0°23' 09" WEST 318.0 FEET TO THE TRUE OF BEGINNING OF THIS DESCRIPTION; THENCE SOUTH 89°44'35" WEST 393.33 FEET TO END.

TITLE DESCRIPTIONS: ORDER NO. 13474D

PROPOSED PARCEL 1 (PARCEL BEING PURCHASED)
A PARCEL OF LAND LOCATED IN BLOCK 5, 5 ACRE, PLAT "B", IN THE NORTHEAST QUARTER OF SECTION 14, TOWNSHIP 1 SOUTH, RANGE 1 WEST, SALT LAKE BASE AND MERIDIAN, COMPRISING OF 2 PARCELS OF LAND 1) SPECIAL WARRANTY DEED DATED FEBRUARY 17, 1998, AS ENTRY 6865606, IN BOOK 7881, AT PAGE 2273, ON FILE AT THE SALT LAKE COUNTY RECORDER'S OFFICE, SALT LAKE CITY, UTAH, 2) SPECIAL WARRANTY DEED DATED FEBRUARY 17, 1998, AS ENTRY 6865605, IN BOOK 7881, AT PAGE 2271, ON FILE AT THE SALT LAKE COUNTY RECORDER'S OFFICE, SALT LAKE CITY, UTAH, AND A PORTION OF LAND OUT OF THE FOLLOWING TWO PARCELS, 1) SPECIAL WARRANTY DEED DATED JULY 22, 1998, AS ENTRY 7033906, IN BOOK 8042, AT PAGE 2292 ON FILE AT THE SALT LAKE COUNTY RECORDER'S OFFICE, SALT LAKE CITY, UTAH, 2) SPECIAL WARRANTY DEED DATED FEBRUARY 17, 1998, AS ENTRY 6865607, IN BOOK 7881, AT PAGE 2275 ON FILE AT THE SALT LAKE COUNTY RECORDER'S OFFICE, SALT LAKE CITY, UTAH; BASIS OF BEARINGS IS NORTH 00°00'55" WEST ALONG THE MONUMENT LINE IN 700 WEST BETWEEN THE PI MONUMENTS AT THE INTERSECTION OF 1700 SOUTH STREET & 1300 SOUTH STREET, MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT A POINT ON THE EASTERLY LINE OF LOT 7, BLOCK 5, 5-ACRE, PLAT "B", SALT LAKE CITY SURVEY, SAID POINT BEING NORTH 00°10'28" EAST 144.70 FEET TO THE NORTHEAST CORNER OF SAID SPECIAL WARRANTY DEED, ENTRY 6865606, FROM THE SOUTHEAST CORNER OF SAID LOT 7, AND RUNNING: THENCE SOUTH 00°10'28" WEST 51.20 FEET ALONG THE EAST LINE OF SAID LOT 7; THENCE NORTH 89°44'35" EAST 217.62 FEET TO AND ALONG THAT CERTAN WARRANTY DEED (DIAMONDBACK CASTING - 2, LLC, A MINNESOTA LIMITED LIABILITY COMPANY) DATED OCTOBER 31, 2002, AS ENTRY 840533, IN BOOK 8676, AT PAGES 4264-4265, ON FILE AT THE SALT LAKE COUNTY RECORDERS OFFICE, SALT LAKE CITY, UTAH; THENCE SOUTH 00°10'28" WEST 698.62 FEET; THENCE NORTH 89°44'35" EAST 542.27 FEET TO THE EAST LINE OF SAID BLOCK 5; THENCE SOUTH 00°10'28" WEST 66.00 FEET ALONG SAID LINE TO THE NORTH LINE OF THAT CERTAIN SPECIAL WARRANTY DEED (SHADOW MOUNTAIN IV, LTD., A UTAH LIMITED PARTNERSHIP) DATED JULY 22, 1998, AS ENTRY 7033906, IN BOOK 8042, AT PAGES 2291-2292, ON FILE AT THE SALT LAKE COUNTY RECORDERS OFFICE, SALT LAKE CITY, UTAH; THENCE SOUTH 89°44'35" WEST 1089.89 FEET ALONG SAID LINE AND LINE EXTENDED; THENCE NORTH 00°10'28" EAST 815.82 FEET TO AND ALONG SAID SPECIAL WARRANTY DEED, ENTRY 6865606 AND TO THE SOUTH LINE OF THAT CERTAIN WARRANTY DEED (UTAH BOARD OF EDUCATION, A PUBLIC CORPORATION OF SALT LAKE CITY, UTAH) DATED JUNE 11, 1955 AS ENTRY 1430938, IN BOOK 1206, AT PAGE, 403, ON FILE AT THE SALT LAKE COUNTY RECORDERS OFFICE, SALT LAKE CITY, UTAH; THENCE NORTH 89°44'35" EAST 330.00 FEET ALONG SAID LINE TO THE POINT OF BEGINNING.

CONTAINS 10.822 ACRES, MORE OR LESS

GENERAL NOTES: ORDER NO. 13474D

1) THIS SURVEY IS BASED UPON THE TITLE REPORT ISSUED BY METRO NATIONAL TITLE, FILE NO. 13474D, DATED AUGUST 3, 2009.

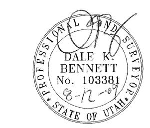
2) DOCUMENTS OF ADJOINING PROPERTIES OR OTHER DOCUMENTS NOT FURNISHED WITH THE REFERENCED TITLE REPORTS HAVE NOT BEEN USED IN THE PERFORMANCE OF THIS SURVEY. THEREFORE, ISSUES THAT MAY EXIST REGARDING GAPS OR OVERLAPS OF DESCRIPTIONS AND QUESTIONS AS TO UNDERLYING FEE OWNERSHIP, JUNIOR AND SENIOR RIGHTS OF OWNERSHIP PERTAINING TO ADJOINING PROPERTIES, ARE NOT ADDRESSED ON OR BY THIS MAP. THE INFLUENCE OF OTHER DOCUMENTS COULD RESULT IN THE VARIANCE OF PROPERTY LINES AS SHOWN HEREON.

SURVEYOR'S CERTIFICATE:

TO:

STATE OF UTAH, DEPARTMENT OF ADMINISTRATIVE SERVICES, DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT;
FIDELITY NATIONAL TITLE INSURANCE COMPANY;
ASSOCIATED TITLE COMPANY;
METRO NATIONAL TITLE COMPANY;

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT IS BASED WERE MADE IN ACCORDANCE WITH THE "MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/ACSM LAND TITLE SURVEYS," JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS IN 2005, AND INCLUDES ITEMS 1,2,3,5,7,11A, OF TABLE A THEREOF. PURSUANT TO THE ACCURACY STANDARDS AS ADOPTED BY ALTA AND NSPS AND IN EFFECT ON THE DATE OF THIS CERTIFICATION, UNDERSIGNED FURTHER CERTIFIES THAT IN MY PROFESSIONAL OPINION, AS A LAND SURVEYOR REGISTERED IN THE STATE OF UTAH, THE RELATIVE POSITIONAL ACCURACY OF THIS SURVEY DOES NOT EXCEED THAT WHICH IS SPECIFIED THEREIN.



TITLE DESCRIPTIONS: COMMITMENT NO. DE 111037

THE WEST 26 RODS OF LOT2, BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY.

LESS AND EXCEPTING THEREFROM ANY PORTION LYING EAST OF THE FOLLOWING DESCRIBED LINE TO-WIT:

BEGINNING AT A POINT NORTH 89°44'30" EAST 264.00 FEET FROM THE SOUTHWEST CORNER OF LOT 2, BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY, AND RUNNING THENCE NORTH 0° 10'28" EAST 285.00 FEET.

ALSO, LESS AND EXCEPTING THEREFROM, ANY PORTION LYING WITHIN THE BOUNDS OF THAT CERTAIN TRACT DEEDED TO SALT LAKE CITY CORPORATION BY QUIT CLAIM DEED RECORDED JULY 6, 1979, AS ENTRY NO. 3305136, IN BOOK 4896, AT PAGE 749, SALT LAKE COUNTY RECORDER'S OFFICE, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTHWEST CORNER OF LOT 2, BLOCK 5, 5 ACRE PLAT B, BIG FIELD SURVEY; THENCE NORTH 0°10'28" EAST, 13.50 FEET; THENCE NORTH 89°59'39" EAST 426.26 FEET; THENCE SOUTH 0°00'21" EAST 11.62 FEET; THENCE SOUTH 89°44'31" WEST 426.00 FEET TO THE POINT OF BEGINNING.

ALSO, LESS AND EXCEPTING THEREFROM, ANY PORTION LYING WITHIN THE BOUNDS OF CERTAIN TRACT DEEDED TO THE SALT LAKE CITY CORPORATION BY WARRANTY DEED RECORDED AUGUST 5, 1988, AS ENTRY NO. 4659188, IN BOOK 6053, AT PAGE 1149, SALT LAKE COUNTY RECORDER'S OFFICE, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT 23.50 FEET NORTH 0°10'28" EAST FROM THE SOUTHWEST CORNER OF BLOCK 5, FIVE ACRE PLAT "B", BIG FIELD SURVEY, THENCE NORTH 89°59'39" EAST 25.99 FEET; NORTH 45°00'25" WEST 31.22 FEET; NORTH 0°01'08" WEST 110.13 FEET; NORTH 0°19'12" EAST 136.41 FEET; SOUTH 89°44'30" WEST 10.92 FEET; SOUTH 0°10'28" WEST 261.50 FEET ALONG THE EXISTING STREET RIGHT OF WAY TO THE POINT OF BEGINNING.

GENERAL NOTES: COMMITMENT NO. DE111037

1) THIS SURVEY IS BASED UPON THE TITLE REPORT ISSUED BY ASOCIATED TITLE COMPANY, FILE NO. DE111037, DATED FEBRUARY 7, 1992.

2) DOCUMENTS OF ADJOINING PROPERTIES OR OTHER DOCUMENTS NOT FURNISHED WITH THE REFERENCED TITLE REPORTS HAVE NOT BEEN USED IN THE PERFORMANCE OF THIS SURVEY. THEREFORE, ISSUES THAT MAY EXIST REGARDING GAPS OR OVERLAPS OF DESCRIPTIONS AND QUESTIONS AS TO UNDERLYING FEE OWNERSHIP, JUNIOR AND SENIOR RIGHTS OF OWNERSHIP PERTAINING TO ADJOINING PROPERTIES, ARE NOT ADDRESSED ON OR BY THIS MAP. THE INFLUENCE OF OTHER DOCUMENTS COULD RESULT IN THE VARIANCE OF PROPERTY LINES AS SHOWN HEREON.

3) NOTES PERTAINING TO EXCEPTIONS TO COVERAGE, SCHEDULE B-2 OF REFERENCED PRELIMINARY REPORT:

ITEMS 1 - 9 NOT ADDRESSED BY THIS MAP.

ITEM 10 ANY EXISTING RIGHTS OF WAY AND EASEMENTS RESERVED IN THAT CERTAIN ORDINANCE NO.67 OF 1967, DATED SEPTEMBER 14, 1967, WHEREIN THE SUBJECT PROPERTY LIES WITHIN A PORTION OF VACATED ARCADIA SUBDIVISION, SAID VACATION IS MADE EXPRESSLY SUBJECT TO ALL EXISTING RIGHTS OF WAY AND EASEMENTS OF ALL PUBLIC UTILITIES OF ANY AND EVERY DESCRIPTION NOW LOCATED IN, ON, UNDER OR OVER THE CONFINES OF THE ABOVE DECRIBED PROPERTY, AND ARE ALSO SUBJECT TO THE RIGHTS OF ENTRY THEREON FOR THE PURPOSE OF INSPECTING, MAINTAINING, REPAIRING, REPLACING, REMOVING, ALTERING OR RE-ROUTING SAID UTILITIES.

SAID ORDINANCE RECORDED SEPTEBER 21, 1967, AS ENTRY NO. 2216130, IN BOOK 2592, AT PAGE 518, SALT LAKE COUNTY RECORDER'S OFICE.

ITEM 11 NOT ADDRESSED BY THIS MAP.

NARRATIVE OF BOUNDARY:

SCOPE OF SERVICES
BENCHMARK ENGINEERING & LAND SURVEYING, LLC WAS RETAINED BY MHTN ARCHITECTS TO PERFORM A ALTA/ACSM LAND TITLE SURVEY OF SUBJECT PROPERTY AS SHOWN HERON.

BASIS OF BEARINGS
THE BASIS OF BEARINGS FOR THIS SURVEY IS NORTH 00°00'55" WEST ALONG THE MONUMENT LINE IN 700 WEST BETWEEN THE PI MONUMENTS AT THE INTERSECTION OF 1700 SOUTH STREET & 1300 SOUTH STREET AS SHOWN HERE IN.

LIST OF REFERENCED DOCUMENTS

R1) ATLAS PLAT, BLOCK 5, FIVE ACRE PLAT "B" ON FILE AT THE SALT LAKE CITY ENGINEERS OFFICE, SALT LAKE CITY, UTAH.
R2) SURVEY DONE BY KIRK P. MORGAN (ESI ENGINEERING), DATED SEPTEMBER 22, 1998, SURVEY NO. S95-09-0699 ON FILE AT THE SALT LAKE COUNTY SURVEYORS OFFICE, SALT LAKE CITY, UTAH.
R3) TITLE REPORT ISSUED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, FILE NO. D 267179, DATED FEBRUARY 28, 2001.
R4) TITLE REPORT ISSUED BY ASSOCIATED TITLE COMPANY, COMMITMENT NO. DE111037, DATED FEBRUARY 7, 1992.
R5) TITLE REPORT ISSUED BY METRO NATIONAL TITLE COMPANY, ORDER NO. 13474D, DATED AUGUST 3, 2009.

DRAWN BY	FBA
CHECKED BY	DKB/DSJ
FIELD CREW	JG/KD
DATE	8-12-09
DWG. FILE	0904036a

No.	DATE	DESCRIPTION

0 0.5 1
SCALE MEASURES 1-INCH ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR REDUCED SIZE SHEETS

BENCHMARK ENGINEERING & LAND SURVEYING
9130 SOUTH STATE STREET SUITE # 100
SANDY, UTAH 84070 (801) 542-7192
www.benchmarkcivil.com

DFCM DABC WAREHOUSE EXPANSION
MHTN ARCHITECTS
1625 SOUTH 900 WEST
SALT LAKE CITY, UTAH 84104

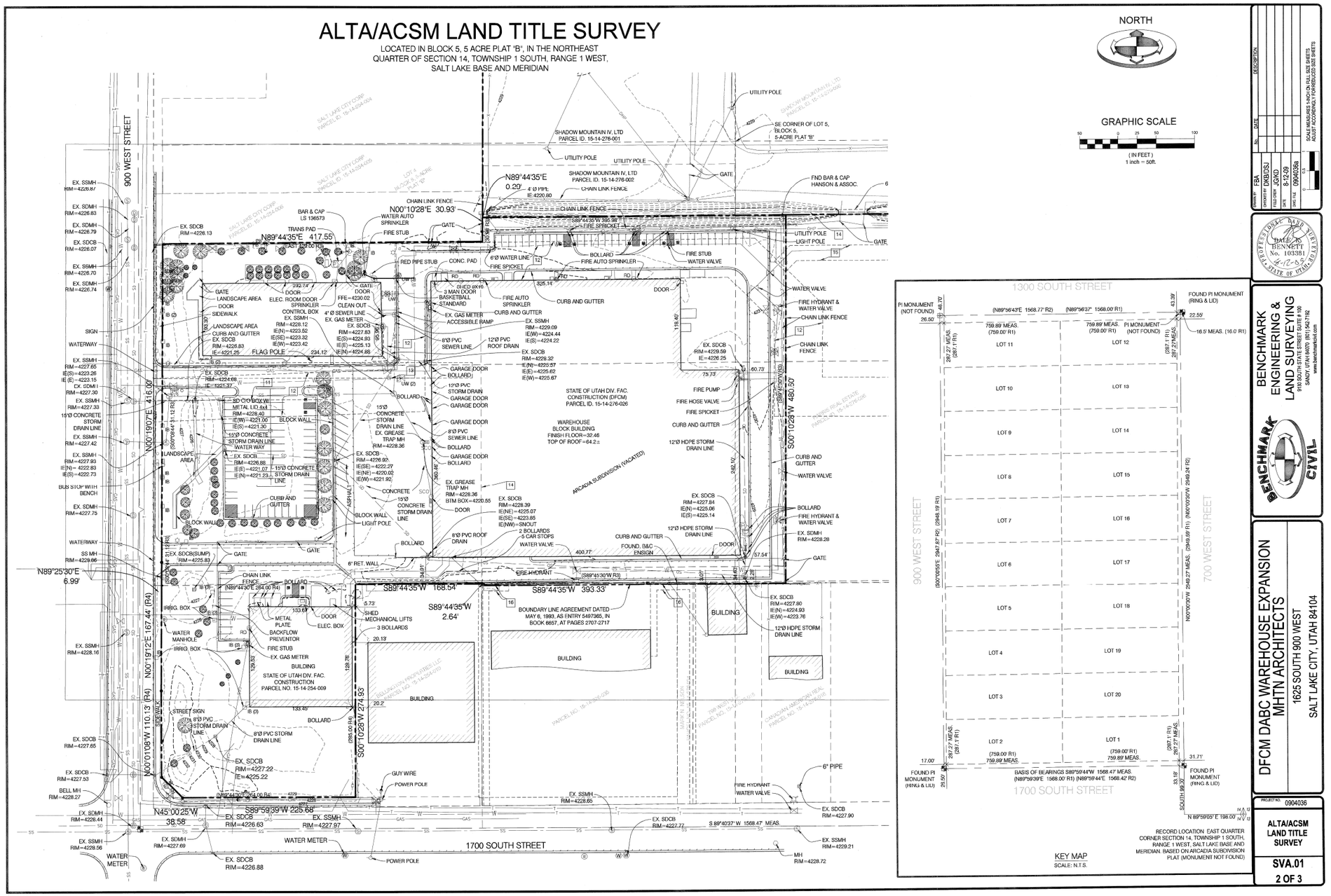
PROJECT NO. 0904036

ALTA/ACSM LAND TITLE SURVEY

SVA.01
1 OF 3

Images provided for references only.
See electronic file for full size images.

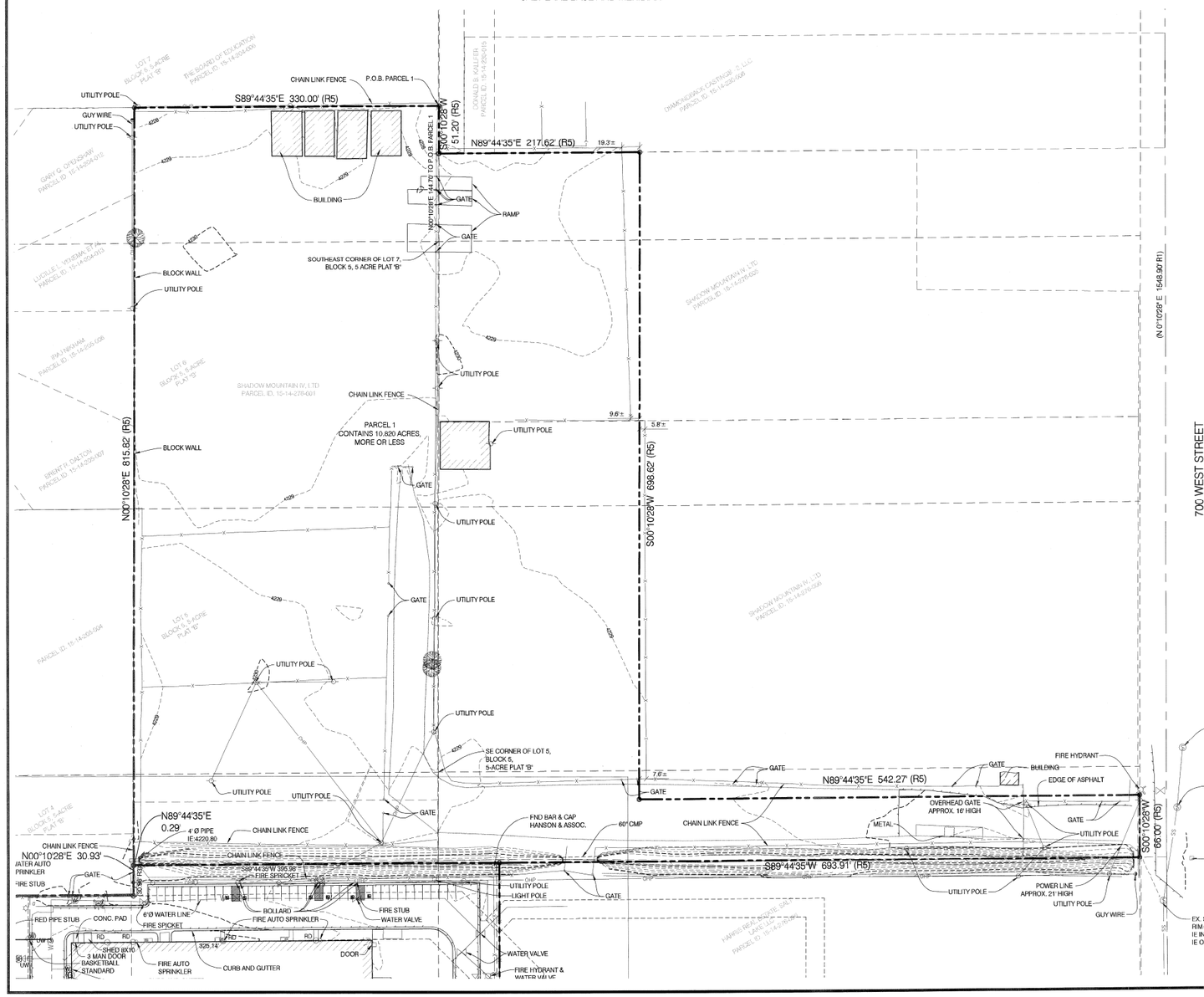
Site Survey



Site Survey

ALTA/ACSM LAND TITLE SURVEY

LOCATED IN BLOCK 5, 5 ACRE PLAT 'B', IN THE NORTHEAST
QUARTER OF SECTION 14, TOWNSHIP 1 SOUTH, RANGE 1 WEST,
SALT LAKE BASE AND MERIDIAN



NORTH

GRAPHIC SCALE

50 0 25 50 100

(IN FEET)
1 inch = 50ft.

LEGEND AND ABBREVIATIONS:

- N.A.D. 27 SECTION CORNER & LINE (NOT FOUND)
- N.A.D. 83
- STREET MON. (FOUND)
- SET 5/8 BAR & CAP @ PL
- FOUND PL MARKER (PLAT NOTED)
- DEFINITION POINT
- ADJACENT PL or LOT LINES
- CENTERLINE of ROAD
- CURB & GUTTER
- EDGE OF EXISTING ASPHALT
- INDEX CONTOUR LINE 4040
- INTERMEDIATE CONTOUR LINE 4041
- SANITARY SEWER MANHOLE & PIPE SS
- STORM DRAIN MANHOLE & PIPE SD
- CATCH BASIN
- MANHOLE & CULINARY PIPE LINE W
- WATER VALVE & WATER METER
- EXISTING FIRE HYDRANT
- GAS LINE & MANHOLE GAS
- LIGHT POLE
- UNDERGROUND TELEPHONE
- IRRIGATION MANHOLES, BOXES

CB	CATCH BASIN	SMH	SEWER MANHOLE
EOA	EDGE OF ASPHALT	SD	STORM DRAIN
I.E.	INVERT ELEVATION	TBC	TOP BACK OF CURB
FL	FLOW LINE	TOA	TOP OF ASPHALT
MH	MANHOLE	TOG	TOP OF GRATE

No.	DATE	DESCRIPTION

SCALE MEASURES 1-INCH ON FULL SIZE SHEETS
ADJUST ACCORDINGLY FOR REDUCED SIZE SHEETS

DRAWN BY FBA
CHECKED BY DABDCS
FIELD PARTY JS/KD
DATE 8-12-09
DWG. FILE 0904036B

DALE C. BENNETT No. 103381 8-12-09 STATE OF UTAH

BENCHMARK ENGINEERING & LAND SURVEYING
9138 SOUTH STATE STREET SUITE # 100
SANDY, UTAH 84070 (801) 542-7182
www.benchmarkcivil.com

DFCM DABC WAREHOUSE EXPANSION
MHTN ARCHITECTS
1625 SOUTH 900 WEST
SALT LAKE CITY, UTAH 84104

PROJECT NO. 0904036

ALTA/ACSM
LAND TITLE
SURVEY

SVA.01
3 OF 3

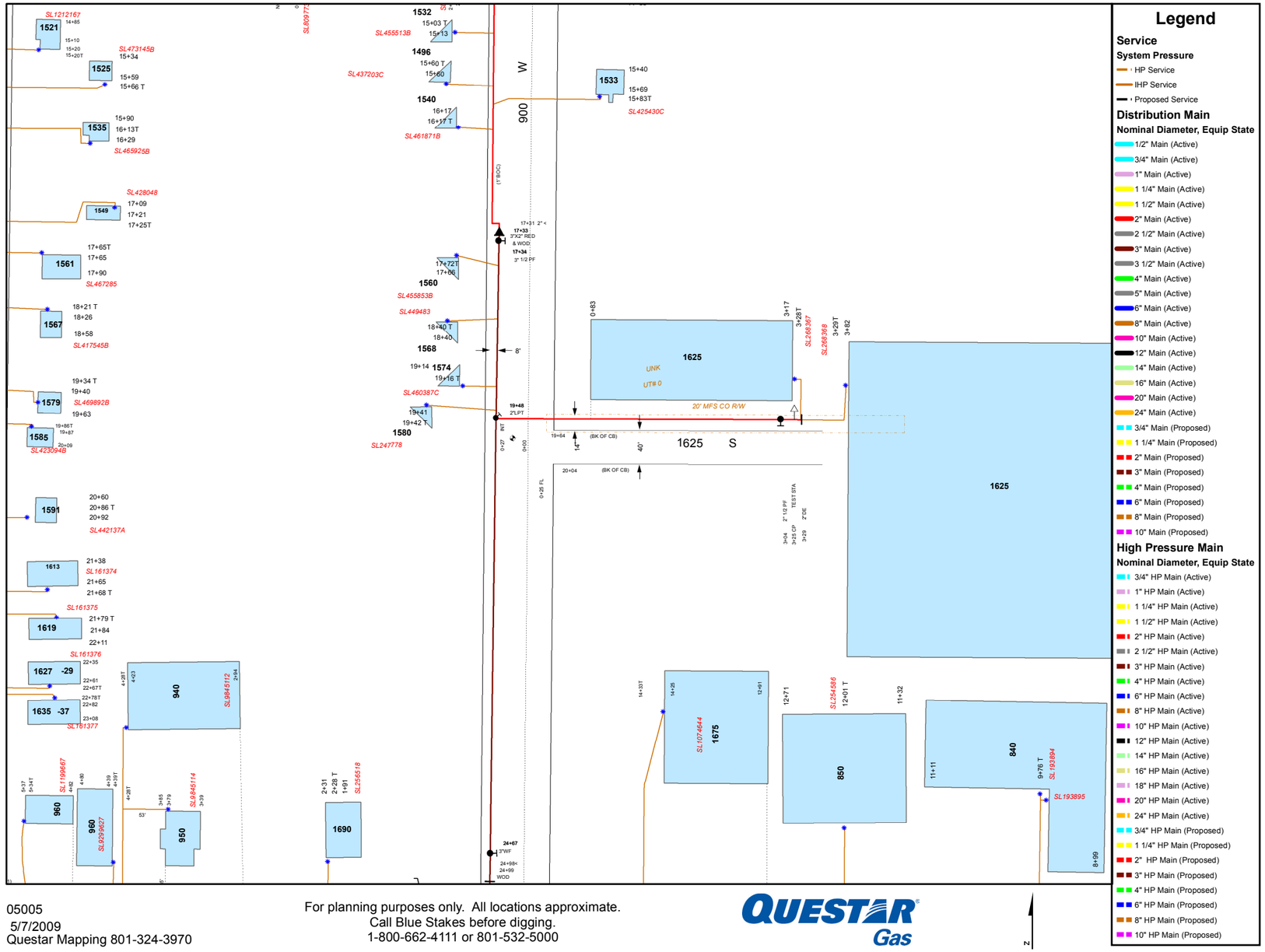
Site Survey

BENCHMARK
ENGINEERING & LAND SURVEYING, LLC
9130 South State Street, Suite 100
Sandy, Utah 84070
Office 801.542.7192
Fax 801.542.7195

0904036 - MHTN Architects - DFCM DABC Warehouse Expansion
Utility Contact List

Comcast	(Cable TV)	Gary Goldstein	801-401-3041	He said that Comcast does not have any cable in this area (received via email 5-7-09).
Questar	(Gas)	Ron Eavenson	801-401-3041	He provided a PDF utility map (received via email 5-7-09).
Qwest	(Phone)	Arlene Comstock	801-974-8130	She provided a PDF of the utility map (received via email 5-7-09).
Salt Lake Public Utilities	(Storm Drain, Sewer, Water)	Nick Kryger	801-483-6834	He provided a PDF utility map (received via email 5-26-09).
	(Canals)	Karryn Greenleaf	801-483-6769	The canal is storm water only, with detention per Karryn.
UDOT Region II	(Fiber Optics)	Steve Middleton	801-887-3403	Says he has nothing in the area (received via email 5/26/09) .
Rocky Mountain Power	(Electric)	Jim	503-813-7182	Got his phone number from Ken Staples voice mail. He transferred to Joel Simmons. Sent PDF of utiity map (receved via email 5/26/09).
		Blue Stakes	811	

Site Survey

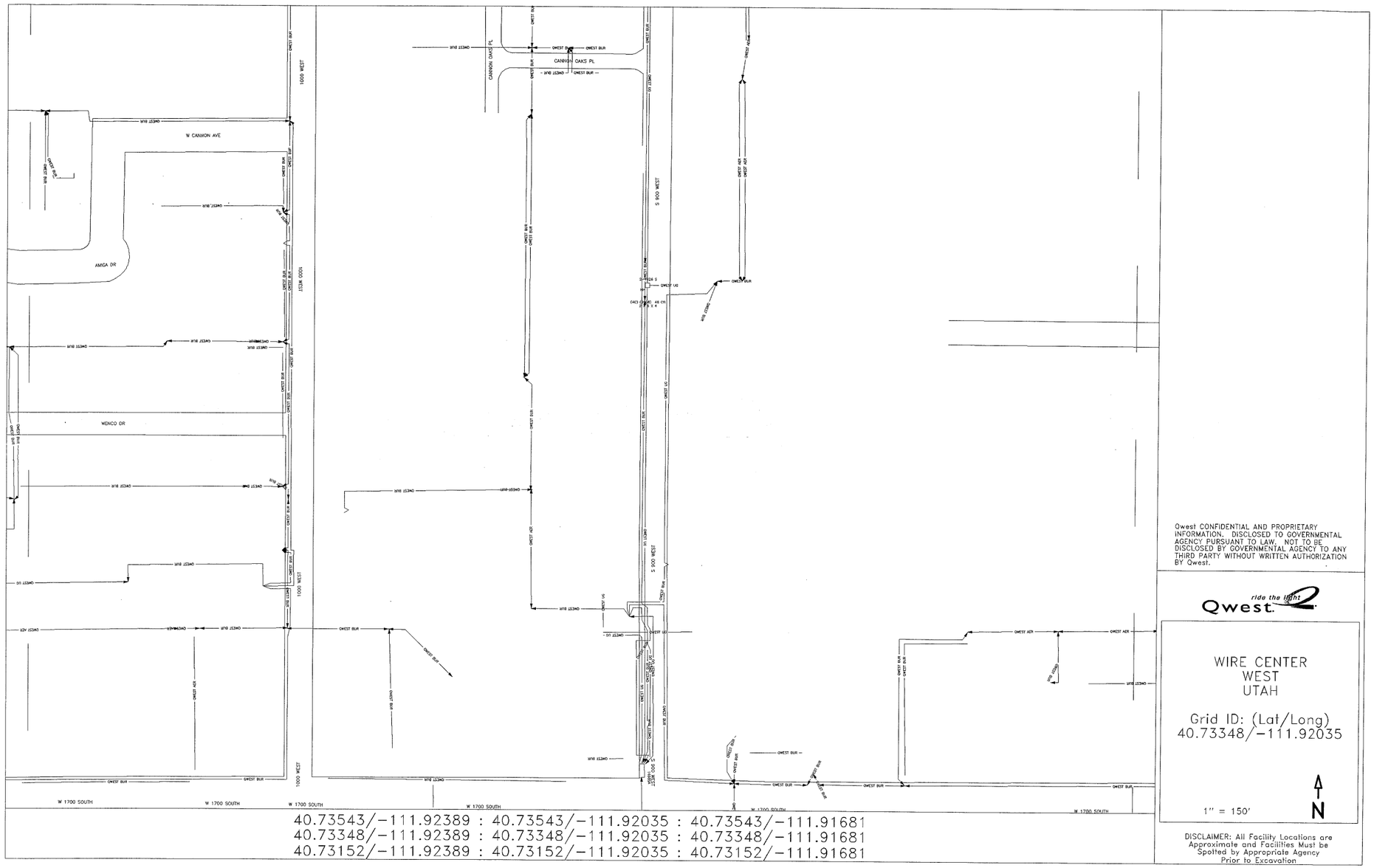


05005
5/7/2009
Questar Mapping 801-324-3970

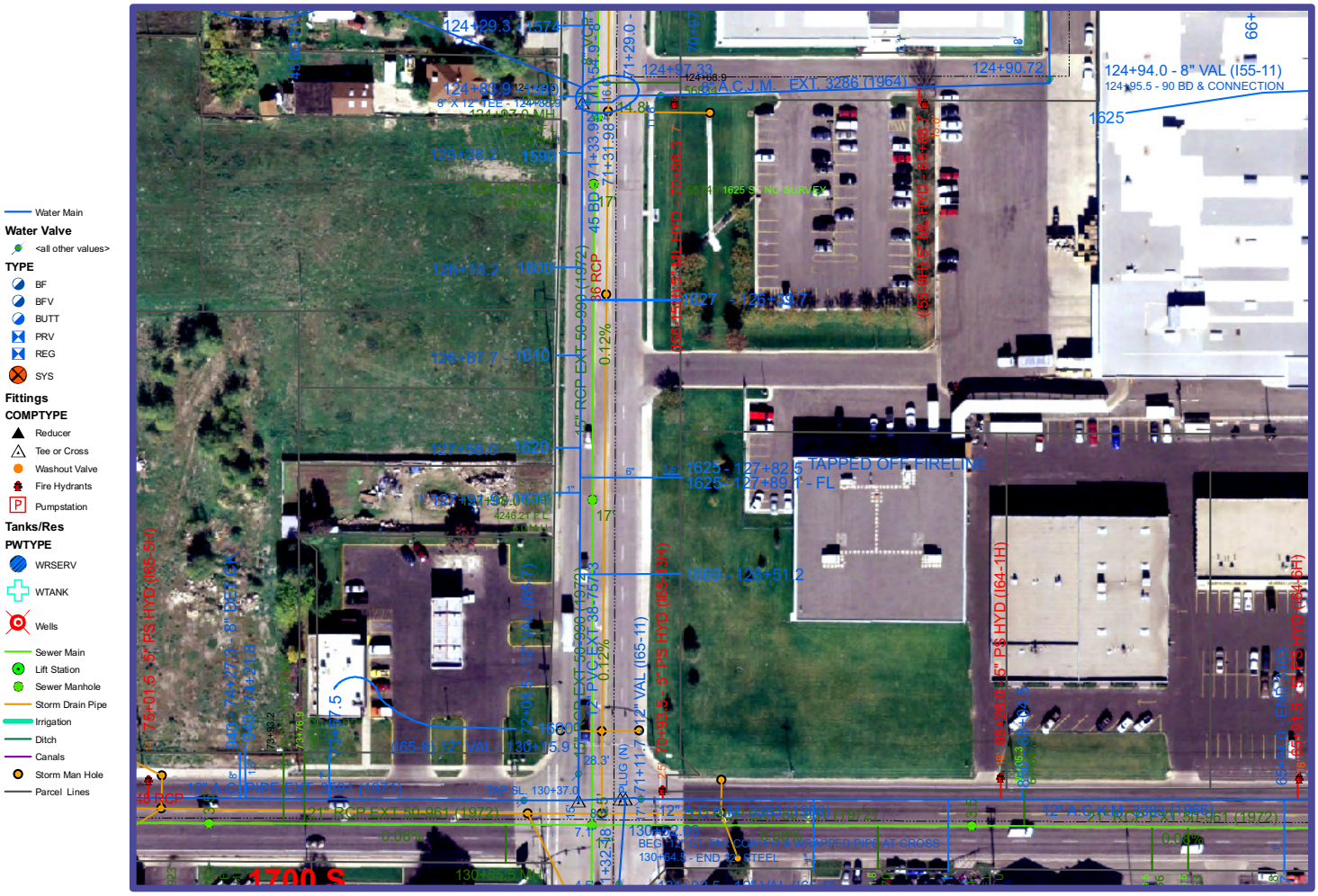
For planning purposes only. All locations approximate.
Call Blue Stakes before digging.
1-800-662-4111 or 801-532-5000

QUESTAR Gas

Site Survey


1000 WEST
W CANNON AVE
AMIGA DR
WENCO DR
CANNON OAKS PL
S 900 WEST
W 1700 SOUTH
40.73543/-111.92389 : 40.73543/-111.92035 : 40.73543/-111.91681
40.73348/-111.92389 : 40.73348/-111.92035 : 40.73348/-111.91681
40.73152/-111.92389 : 40.73152/-111.92035 : 40.73152/-111.91681
Qwest CONFIDENTIAL AND PROPRIETARY INFORMATION. DISCLOSED TO GOVERNMENTAL AGENCY PURSUANT TO LAW. NOT TO BE DISCLOSED BY GOVERNMENTAL AGENCY TO ANY THIRD PARTY WITHOUT WRITTEN AUTHORIZATION BY Qwest.
ride the light
Qwest
WIRE CENTER
WEST
UTAH
Grid ID: (Lat/Long)
40.73348/-111.92035
1" = 150'
N
DISCLAIMER: All Facility Locations are Approximate and Facilities Must be Spotted by Appropriate Agency Prior to Excavation
1

Site survey

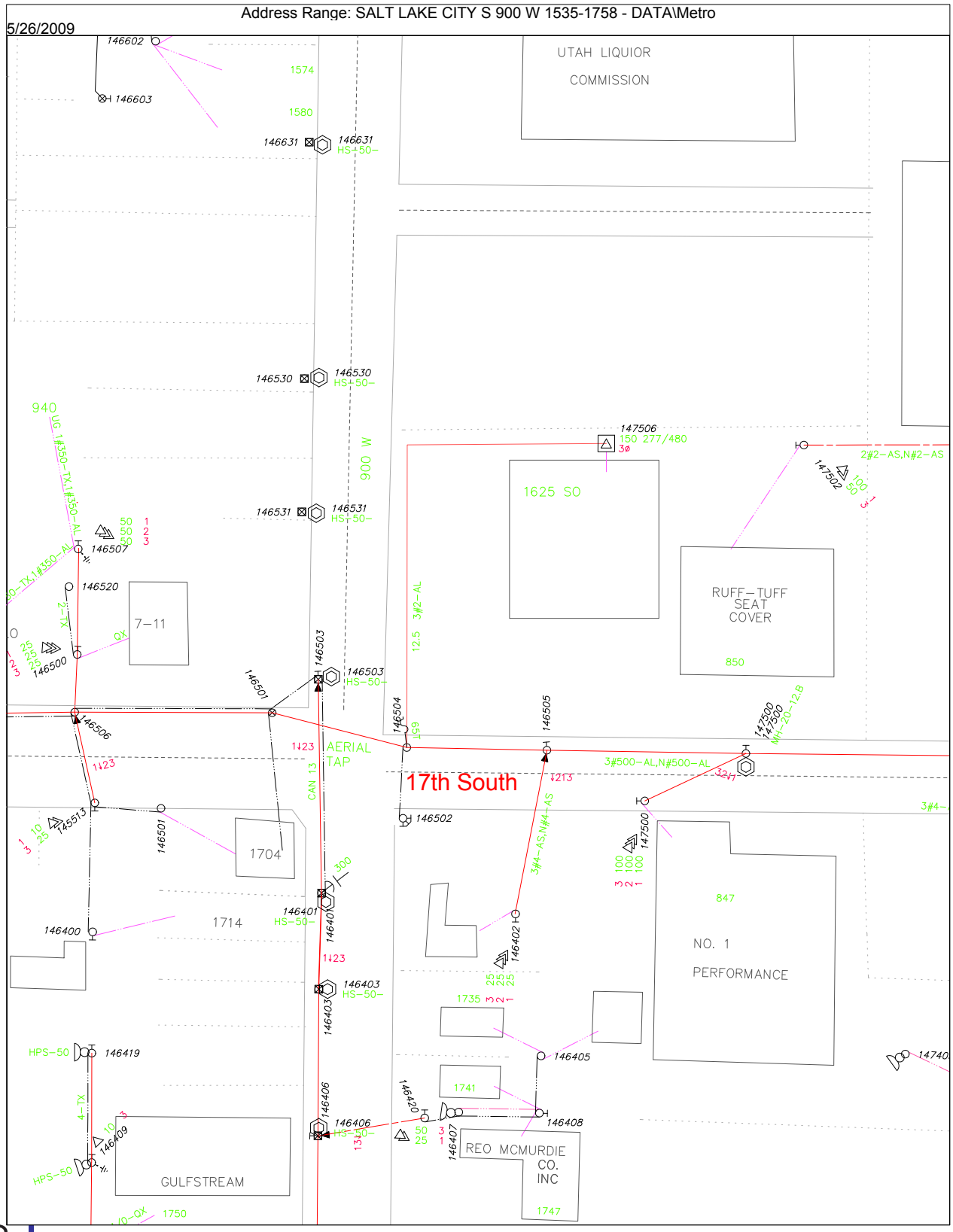


Tuesday, May 26, 2009
Nickdefault.mxd
Salt Lake City Public Utilities

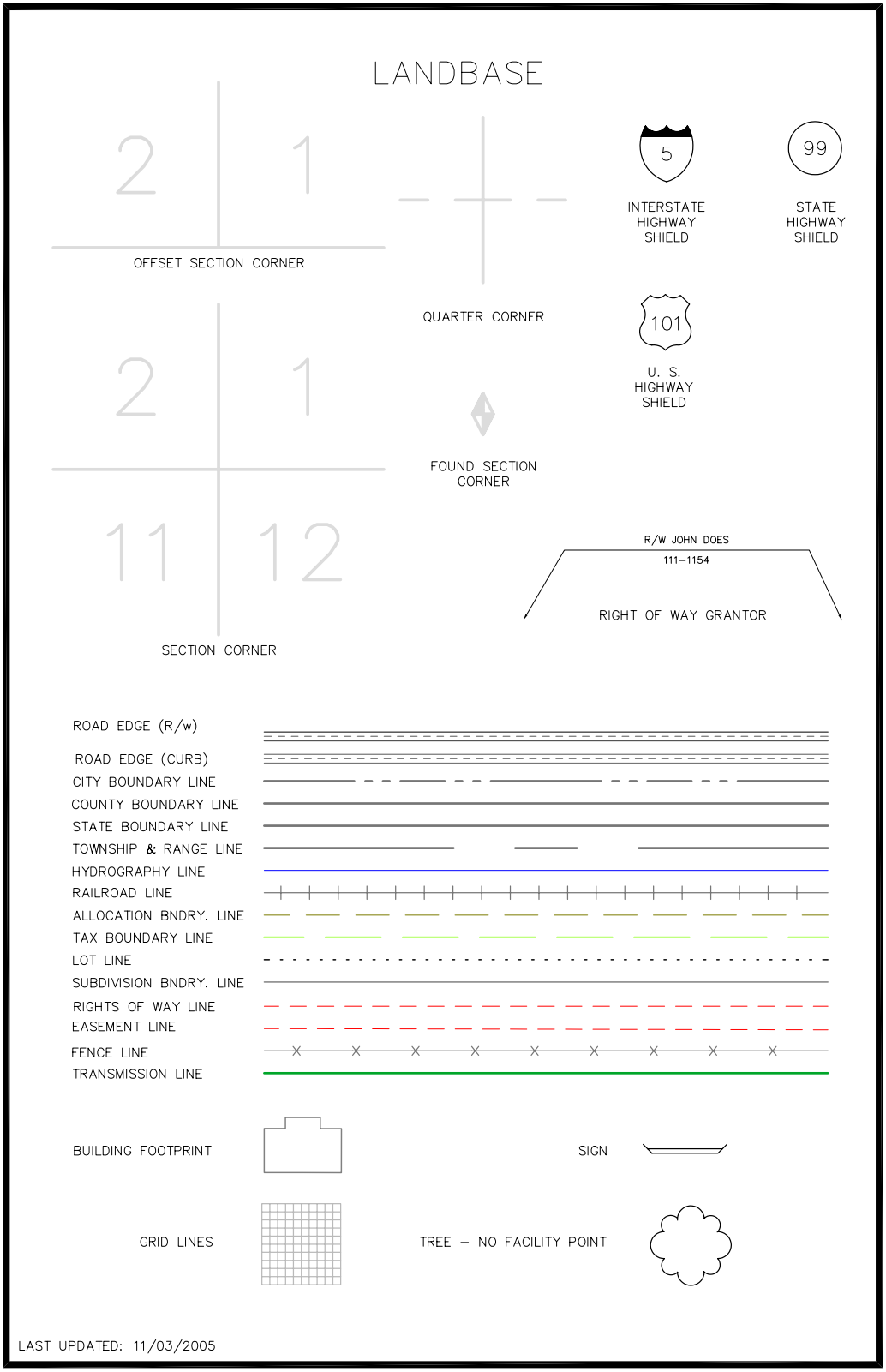
N
W E
S

Feet
0 25 50 100

Site survey


Address Range: SALT LAKE CITY S 900 W 1535-1758 - DATA\Metro
5/26/2009
UTAH LIQUIOR
COMMISSION
1625 SO
RUFF-TUFF
SEAT
COVER
850
7-11
1704
1714
AERIAL
TAP
17th South
900 W
847
NO. 1
PERFORMANCE
1735
1741
REO MCMURDIE
CO.
INC
1747
GULFSTREAM
1750
1574
1580
940

Site Survey


LANDBASE
2
1
OFFSET SECTION CORNER
QUARTER CORNER
5
INTERSTATE HIGHWAY SHIELD
99
STATE HIGHWAY SHIELD
101
U. S. HIGHWAY SHIELD
2
1
FOUND SECTION CORNER
11
12
SECTION CORNER
R/W JOHN DOES
111-1154
RIGHT OF WAY GRANTOR
ROAD EDGE (R/w)
ROAD EDGE (CURB)
CITY BOUNDARY LINE
COUNTY BOUNDARY LINE
STATE BOUNDARY LINE
TOWNSHIP & RANGE LINE
HYDROGRAPHY LINE
RAILROAD LINE
ALLOCATION BNDRY. LINE
TAX BOUNDARY LINE
LOT LINE
SUBDIVISION BNDRY. LINE
RIGHTS OF WAY LINE
EASEMENT LINE
FENCE LINE
TRANSMISSION LINE
BUILDING FOOTPRINT
SIGN
GRID LINES
TREE – NO FACILITY POINT
LAST UPDATED: 11/03/2005

ADAMS FIRE & LIFE SAFETY CONSULTANTS

July 1, 2009

Sarah Miller
MHTN Architects, Inc.
420 East South Temple, Suite 100
Salt Lake City, UT 84111
Telephone: (801) 326-3203
Company: (801) 595-6700
Tele-Fax: (801) 595-6717
E-mail: sarah.miller@mhtn.com

DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL (DABC) - WAREHOUSE EXPANSION & REMODEL

Ms. Miller:

Enclosed are the results of the Water Flow Analysis for the above project.

The water flow information that should be used, along with allowances made for fluctuations in the operation of the water system is as follows:

Static Pressure - 100 psi
Residual Pressure - 80 psi
Flow - 2,000 G.P.M.
Calculated Fire Flow of 4,200 G.P.M. @ 20 p.s.i.

The fire sprinkler designer will need to calculate the fire sprinkler design from the test hydrant located at the rear of the building (Northeast side), through the existing eight-inch PVC-C900 water line.

If I can be of any further assistance, please contact me.

Sincerely,

Scott W. Adams
Fire Protection Engineer

4728 South Redtail Hawk Bay • Salt Lake City, UT 84117 • (801) 685-2549 • Fax: (801) 685-2611

WATER FLOW ANALYSIS - DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL (DABC) WAREHOUSE EXPANSION & REMODEL

PROJECT NAME: DABC - Warehouse Expansion & Remodel
PROJECT ADDRESS: 1695 South 900 West, Salt Lake City, UT

BACKGROUND

The Alcoholic Beverage Control Warehouse is located in a commercial area of Salt Lake City.

Fire flow information was obtained by the performance of water flow testing on July 1, 2009 and April 10, 2003.

The existing DABC warehouse is supplied by an eight-inch PVC-C900 water main that connects to the on-site eight-inch water main, which connects back to the 12-inch PVC water main on 900 West. The site is also supplied by an eight-inch water main from 700 West, which is connected to the eight-inch PVC water main in the rear of the warehouse.

Adams Fire & Life Safety Consultants and the Utah State Fire Marshals Office performed a hydrant flow test to determine the available water supply for this area.

The test hydrant was located on the north side of the building in the west corner. The flow hydrant was located in the rear of the building, using the northeast hydrant, along the access road.

The existing fire sprinkler design for the DABC Warehouse requires a flow of 433.34 G.P.M. at 91.58 p.s.i.

The existing fire sprinkler design is also supplied by an Aurora 1,500 G.P.M. fire pump, rated at 127 feet (54.9 p.s.i.).

FIRE FLOW TESTING RESULTS

Date of Test: Wednesday, July 1, 2009 **Time of Test:** 12:30 pm

Test Hydrant: Northwest corner - North side of Warehouse - North Access Road
Static Pressure reading - 113 p.s.i.
Residual Pressure reading - 100 p.s.i.

Flow Hydrant: Northeast corner - East side of Warehouse - East Access Road
Flow Meter - 2-1/2 inch pitot - 78 p.s.i.
Coefficient - “C” Factor - 0.90

Total Flow measured - 1,597 G.P.M.
Calculated Fire Flow of 4,622 G.P.M. at 20 psi

Water Flow Analysis

WATER FLOW ANALYSIS - DEPARTMENT OF ALCOHOLIC BEVERAGE CONTROL (DABC)
WAREHOUSE EXPANSION & REMODEL

Date of Test: April 10, 2003 **Time of Test:** 9:15 am

Test Hydrant: Northeast corner - East side of Warehouse - East Access Road
Static Pressure reading - 105 p.s.i.
Residual Pressure reading - 85 p.s.i.

Flow Hydrant: Southeast corner - East side of Warehouse - East Access Road

Outlet Number One:
Flow Meter - 2-1/4 inch
Coefficient - "C" Factor - 0.97
Pitot reading - 41 p.s.i.

Outlet Number Two:
Diameter - 2-1/2 inch
Coefficient - "C" Factor - 0.97
Pitot Pressure Reading - 42 p.s.i.

Total Flow measured - 2,110 G.P.M.
Calculated Fire Flow of 4,609 G.P.M. at 20 psi

CONCLUSION

The results from Water Flow Test show that a good water supply is provided for this area. However, in our discussions with the Ray Eastman, Salt Lake City Water Department, it was decided that adjustments need to be made to account for seasonal fluctuations and operation of booster pumps during the summer months.

We have therefore adjusted the test results to account for these adjustments.

The following Water Flow Information, with allowances made for the operation of the water system, should be used:

Static Pressure - 100 psi
Residual Pressure - 80 psi
Flow - 2,000 G.P.M.
Calculated Fire Flow of 4,200 G.P.M. @ 20 p.s.i.

Note: The fire sprinkler designer will need to calculate the fire sprinkler design from the test hydrant at the rear of the building (Northeast side), through the existing eight-inch PVC-C900 water line.