APPENDIX E:
GEOTECHNICAL REPORTS

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June 30, 2005
Project No. AZ103.10.1

The Home Depot – Store Support Center West Coast
3800 West Chapman Avenue, Fifth Floor
Orange, California 92868

Attention: Mr. Chris King
Construction Project Manager

Subject: Report of Geotechnical Engineering Study
Proposed Home Depot Store
Yucca Valley, California

Sirs:

Southwest Geotech, Inc. has completed a geotechnical engineering study for the Home Depot store proposed for construction in Yucca Valley, California. Our geotechnical engineering study was accomplished in conformance with our Standard Agreement for Consultant Services with The Home Depot and in substantial conformance with the scope of geotechnical engineering services presented in our fee proposal to you dated June 6, 2004, later amended. The results of our study including our findings, conclusions and geotechnical engineering recommendations are presented in the following sections of this report.

We sincerely appreciate the opportunity to be of service to you on this project. Should you have any questions concerning this report, please do not hesitate to call.

Respectfully submitted,

SOUTHWEST GEOTECH, INC.

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Report of Geotechnical Engineering Study
Proposed Home Depot Store
Yucca Valley, California

INTRODUCTION

This report presents the results of a geotechnical engineering study performed on a 17.97 acre parcel of land located in Yucca Valley, California. The subject property is under consideration for development by The Home Depot as a home improvement retail center. Our fee proposal was submitted on June 6, 2004 and approved, with subsequent amendments, by The Home Depot, in May, 2005.

An interim geotechnical summary report was previously prepared and submitted by Southwest Geotech on June 10, 2005.

In addition, a geology and fault study of the site has been performed by Stephen E. Jacobs CEG. The study was summarized in two reports entitled, Seismic Hazards Study, Home Depot Parcel, Yucca Valley, California, dated August 25, 2004 and Report of Fault Investigation, Home Depot Parcel, Yucca Valley, California, dated April 6, 2005.

SITE DESCRIPTION

The project location is shown on the Vicinity Map, Figure A-1 in Appendix A of this report. The site is located about 1300 feet east of the intersection of State Highway 62 (Twenty Nine Palms Highway) and Avalon Avenue, in Yucca Valley, California. The site is bounded by Twenty Nine Palms Highway on the north and undeveloped land on the west, east and south.

The property slopes at a uniform gradient of approximately 2.5 percent down to the northeast, with a topographic differential across the site on the order of 35 feet. A relatively shallow, but prominent, drainage course crosses the middle of the site in a southwest to northeast direction.

A minor cut slope descends from the site to Twenty Nine Palms Highway on the north. The site is presently undeveloped and covered with Joshua trees and other high desert cactus and native vegetation. The site is intersected by various dirt paths and roads.

PROPOSED DEVELOPMENT

1. General Site Development

Based on a review of a project site plan prepared by Carter Burgess Architecture the general parameters of the site are as follows:

Total Parcel Area	17.97 Acres
Home Depot Store	102,083 square feet
Garden Center	33,821 square feet
Vestibules	2,267 square feet
Building Materials	2,268 square feet
Will Call	2,156 square feet
Paved Parking	690 stalls
Retention Basin	50,000 square feet

2. Home Depot Building

The building is anticipated to be a single-story, slab-on-grade structure, with masonry or concrete tilt-up walls, and wood or metal frame roof. Exterior walls may be load bearing with uniformly spaced interior columns or non-load bearing with uniformly spaced exterior and interior columns. Anticipated design loads are as follows:

Columns	120 kips
Load Bearing Walls	5,000 pounds per lineal foot
Floor Slab-on-Grade	12 kip rack loads on 42" x 90" grid with 8' aisles
General Floor Slab-on-Grade	650 psf maximum uniform live load

The design loads are general anticipated loads and are based on maximum live roof loads of 30 psf with a column tributary area of 2,700 square feet (maximum). The exterior wall height is 36 feet maximum above finish floor.

3. Pavements

Pavement loading for the site is based on the following criteria:

State Highway 62 Replacement, Widening, Decelerator and Accelerator Lanes: 20-year life. 46,000 vpd, two way. 23,000 vpd one way. 6% trucks with 4.4% 2-axle, 0.6% 3-axle and 1.0% 4-axle or more. Design TI = 10.0.

Palisade Drive Extension: Industrial collector street. Design life = 20 years.

Home Depot Parking: Design life = 10 years. Traffic per Home Depot criteria = 3500 vehicles per day, year-round. EAL = 50,000.

Home Depot Access Drives: Design life = 10 years. 26 semi trucks per day, year-round. EAL = 220,000.

4. On-Site Storm Water Disposal

Based on the plans provided, storm runoff water will be disposed of in a retention basin at the south end of the site.

5. On-Site Septic Disposal

Present plans also anticipate on-site septic disposal in seepage pits at the mid-east portion of the site.

6. Utilities

It is anticipated the facility will be serviced by water, electric, telephone, cable, storm, and sewer utilities.

SCOPE OF SERVICES

The following scope of services was performed for this study:

- Research and review of available published and unpublished geologic maps, soil maps, aerial photographs and geologic and geotechnical engineering reports.
- Detailed reconnaissance of the site and immediate surrounding property, mapping and photographing pertinent features.
- Layout of borings in the field. Boring layout was performed by Warner Engineering, Yucca Valley.

- Subsurface exploration consisting of drilling and sampling 43, 8-inch diameter borings ranging from 11 to 46 feet in depth. Drilling was accomplished using continuous flight, hollow-stem auger equipment powered by a truck-mounted CME 75HT drill rig supplied and operated by 2R Drilling Inc. of Chino, California.

- Percolation testing at three locations within the retention basin planned near the southerly property boundary and at two locations at the septic disposal location located in the mid east portion of the site.

- Laboratory testing consisting of moisture content, dry density, sieve analysis, corrosivity (pH, resistivity, sulfate content, chloride content), maximum dry density, R value, direct shear.

- Engineering analysis and develop recommendations for:

Site Preparation and Grading
-Preparation of existing surfaces
-Over-excavation of soils
-Building pad preparation
-Parking lot and access drive preparation
-Materials, placement and compaction of structural fill
-Material, placement and compaction of fill beneath footings, behind retaining walls and in trenches
-Compaction standards

Cut and Fill Slopes
-Slope inclination
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Foundation Design
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Retaining Walls
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Pavement Thickness Design
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Seismic Considerations

Corrosivity of Soils

- Preparation of this report presenting our findings, conclusions and geotechnical engineering recommendations for design and construction of the subject project.

SUBSURFACE EXPLORATION AND LABORATORY TESTING

Subsurface exploration of the site was performed during the period of May 25 through 27, 2005. The subsurface exploration consisted of drilling and sampling 43 borings to depths ranging from 11 to 46 feet. Fifteen, 11 to 16-feet deep borings were drilled in the pavement areas; six, 26 to 46-feet deep borings were drilled in the retention basin and septic areas, and twenty one, 26 to 31-feet deep borings were drilled in the building, garden center and lumber sales areas.

Drilling and sampling of the borings was accomplished using 8-inch diameter, continuous flight, hollow-stem auger equipment powered by a CME 75HT truck-mounted drill rig supplied and operated by 2R Drilling Inc of Chino, California. Boring locations are shown on the Plot Plan, Figure A-2, in Appendix A of this report.

Sampling of the subsurface materials was obtained using a Modified California ring sampler, an SPT split spoon sampler and by obtaining bulk samples from auger cuttings. Standard Penetration Testing (SPT) was accomplished at each sample interval throughout the depth of the borings. The SPT consists of driving a 2.0-inch outside diameter split spoon sampler into the subsurface soils using a 140-pound hammer free-falling a distance of 30-inches. The blow counts required to drive the sampler into the soils were recorded for each 6-inch increment and the blow counts for 12 inches were summated. Materials encountered and blow counts are shown on the Boring Logs presented in Appendix B of this report.

Samples of the materials recovered from each of the borings were classified in the field, placed in airtight containers and transported to the laboratory for further examination and testing. The laboratory testing program consisted of moisture content, dry density, sieve analysis, corrosivity (pH, resistivity, sulfate content, chloride content), maximum dry density, resistance "R" value, remolded direct shear. Laboratory test results are presented in Appendix C of this report.

FINDINGS

1. Subsurface Soils

As determined from our test borings, the site is underlain by sandy, alluvial soils to the maximum depth explored of 46 feet. The soils are typically well graded sands with some silt. The soils also contain intermittent layers of fine to coarse gravel and rock fragments

2. Groundwater

No groundwater or seepage was encountered. Groundwater is believed to exist at depths in excess of 100 feet.

3. Seismic Hazards

Based on the Report of Fault Investigation by Stephen E. Jacobs CEG, dated April 6, 2005, there are no faults crossing the site.

The closest known active fault is located 0.4 km from the site. However, the site is subject to ground shaking from nearby and distant active faults. The possibility of other geologic hazards such as liquefaction and landsliding is considered nil.

4. Seismic Design Parameters

Buildings should be designed using the following UBC seismic design values:

UBC SEISMIC DESIGN VALUES

SEISMIC PARAMETER	DESIGN VALUE	1997 UBC REFERENCE
Soil Profile	S_D	Table 16-J
Seismic Zone	4	Figure 16-2
Zone Factor, Z	0.40	Table 16-I
Distance to Closest Active Fault	0.4 km	Geologic Report
Seismic Source Type	B	Table 16-U
Near Source Factor, N_a	1.3	Table 16-S
Near Source Factor, N_v	1.6	Table 16-T
Seismic Coefficients, C_a	0.44 N_a	Table 16-Q
Seismic Coefficients, C_v	0.64 N_v	Table 16-R

5. Soil Collapse Potential

The on-site sandy soils are free-draining with little to no cohesion or cementation and hence are not subject to rapid hydro-consolidation upon moisture inundation.

6. Soil Expansion

The on-site sandy soils are not subject to expansion upon wetting.

7. Corrosion of Buried Metals

Resistivity and pH testing of three samples of the soils from the site was accomplished to assist in determining their corrosiveness potential. The laboratory tests were accomplished in accordance with Caltrans Test Method 643, with the following results:

RESULTS OF pH AND RESISTIVITY TESTS

SAMPLE LOCATION (Boring No.)	DEPTH (Ft.)	pH	RESISTIVITY (ohm-cm)
B-1	1-5	7.5	30,728
B-11	1-5	8.5	8,016
B-21	5-10	8.4	25,384

The American Iron and Steel Institute's "Handbook of Steel Drainage & Highway Construction Products" provides the following correlations of soil corrosion to electrical resistivity.

BURIED METAL CORROSION RESISTANCE

CORROSION RESISTANCE	ELECTRICAL RESISTIVITY (ohm-cm)
Excellent	10,000 – 6,000
Good	6,000 – 4,500
Fair	4,500 – 2,000
Bad	2,000 – 0

Based on the laboratory test results and the above correlations, the soils may be defined as non-corrosive for normal

lifespan metal features. More corrosivity information is provided in the lab testing summary in Appendix C.

8. Corrosion of Concrete

Sulfate and chloride content testing of three soil samples from the site was accomplished to determine the potential for corrosion of concrete. The laboratory tests were accomplished in accordance with California Test Methods 417 and 422 for sulfates and chlorides, respectively, with the following results:

RESULTS OF SULFATE AND CHLORIDE TESTS

SAMPLE LOCATION (Boring No.)	DEPTH (Ft.)	SULFATE CONTENT (%)	CHLORIDE CONTENT (%)
B-1	1-5	0.001	0.009
B-11	1-5	0.005	0.002
B-21	5-10	0.001	0.006

Table 19-A-4 of the Uniform Building Code (1997) presents the following table for the corrosion potential for concrete exposed to sulfate and chloride containing solutions.

CONCRETE CORROSION POTENTIAL

CORROSION POTENTIAL	WATER-SOLUBLE SULFATES (% by weight)
Negligible	0.00-0.10
Moderate	0.10-0.20
Severe	0.20-2.00
Very Severe	Over 2.00

Based on the above correlation, test results indicate the corrosion potential for the site soils to be negligible.

9. Soil Percolation Rates (Retention Basin)

The conceptual plan prepared for the project by Carter Burgess indicates a retention basin in the southerly portion of the property. To estimate infiltration rates for the subsurface soils we performed percolation testing in three borings located in the retention basin area, namely Borings B-29, B-30 and B-31. The borings were drilled and sampled to a depth of 26 feet. Perforated PVC pipe, 3 inches in diameter, enclosed in a filter fabric sleeve, were installed to a depth of approximately 25 feet inside the hollow flight augers. Due to heavy caving of the soils upon withdrawal of the flight augers, the annulus between the PVC pipe and boring sidewalls was backfilled to the surface with the on-site granular soils.

The borings were drilled on May 26, 2005 and were filled to the surface with water immediately after drilling to saturate the soils. The percolation testing was performed on the following day, May 27, 2005.

The holes were refilled to the surface with clean water and the water level (depth to water) measured and recorded at 10-minute intervals for a period of 1 hour using an electronic water level indicator. The results of the percolation testing are presented in Appendix D.

The results of our in-situ percolation testing in the retention basin area indicate the soils to a depth of 25 feet have a percolation rate of approximately 5.5 inches per hour per square foot of seepage pit depth.

10. Soil Percolation Rates (Septic Disposal)

The conceptual plan prepared for the project by Carter Burgess indicates a septic disposal area in the mid-east portion of the property. To estimate infiltration rates for the subsurface soils we performed percolation testing in two borings located in the retention basin area, namely Borings B-27 and B-28. A third boring, B-27A was drilled

nearby the percolation test holes, to a depth of 46 feet in accordance with County of San Bernardino Department of Public Health, Division of Environmental Health Services, requirements. Perforated PVC pipe, 3 inches in diameter, enclosed in a filter fabric sleeve was installed to a depth of approximately 35 feet in the hollow flight augers. Due to heavy caving of the soils upon withdrawal of the flight augers, the annulus between the PVC pipe and boring sidewalls was backfilled to the surface with the on-site granular soils.
The borings were drilled on May 26, 2005 and were filled to the surface with water immediately after drilling to saturate the soils. The percolation testing was performed on the following day, May 27, 2005.

The holes were refilled to the surface with clean water and the water level (depth to water) measured and recorded at 10-minute intervals for a period of 90 minutes using an electronic water level indicator. Three consecutive tests were performed to confirm the percolation rates, in accordance with County DEHS procedures. The results of our percolation testing are presented in Appendix D.

The County of San Bernardino Department of Public Health, DEHS, has specified procedures for calculating percolation rates and seepage pit sizes. These are outlined in the DEHS On-Site Wastewater Disposal System Manuel, dated August 1992. The estimated quantity of on-site sewage from the Home Depot facility is 4,000 gallons per day. The DEHS may require substantiation of sewage quantities.

CONCLUSIONS AND RECOMMENDATIONS

GENERAL

Based on our subsurface exploration, laboratory testing and engineering analysis, it is our opinion that the site is suitable for the proposed development provided the recommendations presented in this report are incorporated into the design and construction of the project.

The upper 10 to 15 feet of the soils at the site were found to consist of generally loose, sandy soils. These soils are potentially compressible and will require partial overexcavation and re-compaction in order to provide adequate support of fill, building loads, pavements and other structural improvements.

The project architect has determined that the finish floor of the building will be at elevation 3202.0 feet. A topographic survey of the site indicates the topographic elevation differential across the building area is 36 feet, with elevations ranging from a high of 3216 feet at the southwest corner to a low of 3180 feet at the northeast corner. Accordingly, cuts and fills to varying depths will be required. Within the building area, cuts and fills will be approximately 11 feet and 4 feet respectively.

Specific geotechnical engineering recommendations for design of the project, based on known site conditions and the proposed development are presented in the following sections of this report.

SITE PREPARATION AND GRADING

1. Site Clearing

All trees, cactus and other vegetation should be removed from the site. The near-surface soils at the site contain only limited organic material and as such, will not require stripping and removal. The contractor should be prepared to remove any buried obstructions, should they be encountered.

2. Surface Soil Removals

The upper 10 to 15 feet of the soils at the site are loose and potentially compressible beneath fill, building and

pavement loads. Accordingly, we recommend that the surface on-site soils in fill, building and pavement areas be removed a minimum depth of 2 feet below existing or design sub-grade (bottom of aggregate base) elevations. These soils may be stockpiled for later re-use as structural fill at the site. Upon completion of soil removals, the existing/exposed surface soils should be scarified to a depth of 8 to 12 inches, moisture conditioned to slightly above optimum moisture content and re-compacted to at least 95% relative compaction. Once the site has been re-compacted and approved by the soils engineer/testing agency, the previously stockpiled soils may be used to fill the site to design grades. Fill soils should be placed in 8-inch maximum compacted lifts, moisture conditioned to slightly above optimum moisture content and compacted to at least 95% relative compaction.

3. Over-Excavation of Foundation Soils

In addition to the surface soil removals described above, additional overexcavation will be required beneath building foundations. The minimum overexcavation depth should be 5 feet below bottom of footing elevations. The soils may be excavated in strips along footing or column lines, with a minimum width equal to the footing width plus 5 feet on either side of the footing. Once the footings have been over-excavated, the soils at the bottom of the excavation should be scarified to a depth of 8 to 12 inches, moisture conditioned to slightly above optimum moisture content and recompacted to at least 95% relative compaction. Should any areas of the footing excavation become excessively wet, soft or otherwise unstable we recommend over-excavating the material and replacing with suitable soil or imported crushed aggregate, compacted to at least 95 % relative compaction. The overexcavated soils should be replaced as compacted fill compacted to at least 95% relative compaction

4. Building Pad Preparation

Building pad areas should include the building pad, garden center, lumber sales area, parking decks, vestibules, utility pads, sidewalks, front lumber doors, front lumber canopy area, customer pickup area, stairs, ramps, stoops, loading docks, truck loading wells, and trash compactors, plus an additional 5 feet outside building limits.

The above-specified areas should be filled to design grades (bottom of aggregate base course below concrete slabs) with on site soils. Fill soils should be placed in 8-inch maximum thick compacted lifts, moisture conditioned to slightly above optimum moisture content and compacted to at least 95% relative compaction.

5. Pavement Subgrade Preparation

The parking lot, streets and access drives should be filled to design subgrade elevations (bottom of the aggregate base course of the pavement sections) using on site soils. Fill soils should be placed in 8-inch maximum compacted lifts, moisture conditioned to slightly above optimum moisture content and compacted to at least 95% relative compaction.

6. Materials, Placement and Compaction of Structural Fill

The site may be filled to design subgrade elevations utilizing the on-site sandy soils previously excavated, provided they are free of any debris, cobbles or rocks in excess of 6 inches in dimension. Fill should be moisture conditioned to slightly above optimum moisture content, placed in 8-inch thick maximum compacted lifts and compacted to at least 95% of the maximum dry density using a minimum 20-ton, static or vibratory roller. Any areas of fill that become wet, soft or otherwise unstable should be aerated and re-compacted or removed and replaced with suitable compacted fill material.

7. Suitability of On-Site Soils For Fill

The on-site excavated soils may be reused as compacted fill provided they are free of vegetation or debris or rocks, cobbles or lumps over 6 inches in dimension. Any potential import soil should be evaluated and approved by the Geotechnical Consultant prior to importing. At least two working days notice of a potential import source should be

provided so that appropriate testing can be accomplished. The type of material considered most desirable for import fill is a non-expansive granular soil with some silt or clay binder.

8. Compaction Standards

All fill placed in building areas, streets, access drives, parking lots, utility trenches, beneath curbs and sidewalks and slabs (interior and exterior) or behind retaining walls should be moisture conditioned to slightly above moisture content, placed in horizontal lifts having a maximum compacted thickness of 8 inches, with each lift compacted to at least 95% of the maximum dry density determined by ASTM D 1557.

All grading and compaction should be performed in accordance with the grading requirements of the County of San Bernardino, the Uniform Building Code, in addition to the requirements of this report.

9. Trench and Wall Backfill

Trench and wall backfill should be placed in 8-inch maximum thick compacted lifts, moisture conditioned to slightly above optimum moisture content and compacted by mechanical means to at least 95% relative compaction. Trench and wall backfill may consist of onsite soils or approved imported fill material.

10. Observation and Testing of Fill

Continuous observation by the Geotechnical Consultant is necessary during site grading operations, to confirm the soil conditions encountered in this investigation, to allow adjustments in design criteria to reflect actual field conditions, and to determine that the grading proceeds in accordance with the recommendations contained in this report.

11. Volume Shrinkage of Soils Due to Compaction

Volume shrinkage of on-site soils due to recompaction to 95% is estimated to be approximately 10 to 15 percent.

12. Anticipated Excavation Conditions

The site is underlain by alluvial deposits consisting of sandy soils with intermittent gravels and rock fragments. These soils should be readily excavated using conventional earthmoving equipment.

13. Temporary Slopes

Temporary slopes and trenches in excess of 5 feet in height or depth should be sloped or shored in accordance with CAL-OSHA requirements for Type C soils. Temporary slopes should be excavated be no steeper than 1-1/2:1.

CUT AND FILL SLOPES

Permanent cut and fill slopes should be constructed no steeper than 3:1 (horizontal to vertical). This applies to both general slopes and the proposed retention basin.

Compaction of fill slopes should be performed by back-rolling with a sheepsfoot roller at maximum vertical intervals of 4 feet as the fill is being placed, and track-walking the face of the slope when the slope is completed. As an alternative, fill slopes may be overfilled by at least 3 feet and then cut back to the compacted core at the design line and grade.

EROSION CONTROL

Appropriate erosion-control measures should be taken at all times during construction to prevent surface runoff water from entering footing excavations, ponding on finished building pads or pavement areas, or running uncontrolled over the tops of newly constructed cut or fill slopes. Appropriate permanent erosion control devices should be provided in accordance with local governing agencies. Slopes should be planted with drought resistant, low water usage, trees, bushes and ground cover.

FOUNDATION DESIGN

1. Foundation Type

The building may be supported on shallow, spread or continuous shallow foundations bearing in compacted fill soils.

2. Overexcavation of Foundation Soils

All building and wall foundations should be over-excavated at least 5 feet below bottom of footing elevations and to a distance of at least 5 feet on either side of the footing, as described previously under Overexcavation of Foundation Soils.

3. Foundation Depths and Dimensions

Foundations should be embedded a minimum of 24 inches below pad grade or lowest adjacent grade, whichever is deeper, and be a minimum of 24 inches wide.

4. Allowable Vertical Soil Bearing Values

Foundations bearing on compacted fill may be designed using the following allowable vertical soil bearing values:

Dead Load Plus Live Load	3,000 psf
Increase for Wind or Seismic Loads	1,000 psf
Total for All Loads	4,000 psf

5. Allowable Lateral Soil Bearing Values

Foundations bearing on compacted fill may be designed using the following allowable lateral soil bearing values:

Equivalent fluid passive soil pressure	350 pcf
Friction angle	0.45

When combining passive resistance and friction, friction should be reduced by 1/3.

6. Foundation Reinforcing

The recommendations presented in this report for foundations, retaining walls, and concrete slabs-on-grade are based on the assumption that all structural elements will be appropriately reinforced in accordance with structural considerations.

7. **Settlement Estimates**

The net allowable contact bearing pressures recommended for design of foundation elements are based on an assumed total and differential settlement of 1 inch and ½-inch, respectively. Because of the sandy nature of the onsite soils, most of the settlement should occur during construction.

8. **Retaining Walls**

- **Restrained Walls**

Equivalent fluid at rest soil pressure = 50 pcf. Any adjacent surcharge loads should be added to this value.

- **Unrestrained Walls**

Equivalent fluid active soil pressure = 35 pcf. Any adjacent surcharge loads should be added to this value.

- **Wall Foundations**

Wall foundations should be designed in accordance with the above recommendations for building foundations.

- **Wall Drainage**

Drainage behind the wall should consist of a drainage curtain, comprised of clean ¾ to 1-½ inch drain rock, placed at the back of the wall, from the base of the wall to within 6 inches of the top of the wall. In addition, back drainage should be collected by a 4-inch diameter perforated pipe, installed at the base of the wall and provided positive outfall. The drain rock curtain should be encased with a geotextile filter fabric to prevent migration of soil fines into the drain curtain material. Drainage through the wall should consist of installing weep holes through the wall at appropriately spaced intervals, both vertically and horizontally.

- **Wall Backfill**

Backfill placed behind retaining walls should be placed in maximum 8-inch thick horizontal lifts with each lift compacted to at least 95% relative compaction using light, manually operated compaction machinery.

SIGN PYLON FOUNDATION

1. **Spread Footing**

If a spread footing is utilized for support of the sign pylon, it should be designed using the allowable contact bearing pressures and lateral earth pressures presented previously in this report under the section, Foundation Design.

2. **Drilled Pier Footing**

Should a drilled pier be used for support of the sign pylon, it should be designed using the allowable vertical and lateral soil bearing pressures presented previously in this report. Lateral resistance may be calculated using the non-constrained procedure as presented under section 1806.8 of the 1997 Uniform Building Code.

It should be noted that caving of drilled pier excavations is likely, due to the sandy nature of the onsite soils.

CONCRETE SLAB AND PAVEMENT SECTIONS

1. Soil Modulus

Modulus of Subgrade Reaction, K, for on-site soils = 250 psi/in
Modulus of Subgrade Reaction, K, with 6 inch aggregate base rock layer = 350 psi/in

2. Building Floor Slabs

Slab section = 6 inches concrete over 6 inches Class 2 aggregate base rock or on-site sandy soils compacted to 95%.

3. Pedestrian Sidewalks

Slab section = 4 inches concrete over 4 inches Class 2 aggregate base rock or on-site sandy soils compacted to 95%.

4. Customer Driveway Pickup Lanes

Pavement section = 6 inches concrete over 6 inches Class 2 aggregate base rock.

5. Heavy Truck Lanes, Loading Wells and Access Areas

Pavement section = 7 inches concrete over 6 inches Class 2 aggregate base rock.

5. Slab Reinforcing

Slabs should be reinforced per the requirements of the structural engineer.

6. Slab Joints and Spacing

Construction joints and joint spacing should be designed by the structural engineer.

7. Moisture Barrier

In areas where moisture vapor through the slab could create problems, such as tiled or carpeted areas or other floor coverings, a vapor barrier is recommended. The vapor barrier should consist of a 10 mil impermeable membrane placed directly over the base course aggregate and overlain by 2 inches of clean sand. The onsite sandy soils may be used in lie of imported sand. The vapor barrier membrane should be resistant to tearing or punching and all seams overlapped and taped.

CEMENT TYPE AND CONCRETE STRENGTH

Type 2 cement may be used for foundations, slabs and other concrete elements in contact with the ground. To minimize concrete slab cracking due to drying shrinkage, slabs should be constructed with a minimum concrete compressive strength of 3,500 psi and a maximum slump of 4 inches. Slabs should be properly cured in accordance with the recommendations of the American Concrete Institute.

ASPHALT PAVEMENT SECTIONS

1. State Highway 62 (Twenty Nine Palms Highway)

Pavement Section (Option 1): Eight inches (8") of asphalt concrete over twelve inches (12") of 95% compacted subgrade (on-site soils).

Pavement Section (Option 2): Six inches (6") of asphalt concrete over six inches (6") of 95% compacted aggregate base rock (minimum R value of 78) over twelve inches (12") of 95% compacted subgrade (on-site soils)

The recommended sections are for the replacement and widening of the existing highway, and for decelerator and accelerator lanes. Our investigation has determined that the existing highway section consists of a wearing surface of about 1 inch of asphalt concrete with no aggregate base layer. The pavement is aging with little useful life left in it.

2. Palisade Drive Extension

Pavement Section: Three inches (3") of asphalt concrete over six inches (6") of 95% compacted aggregate base over twelve inches (12") of 95% compacted subgrade (on-site soils)

3. Home Depot Parking (Standard Duty Paving)

Pavement Section: Three inches (3") of asphalt concrete over four inches (4") of 95% compacted aggregate base over twelve inches (12") of 95% compacted subgrade (on-site soils).

4. Home Depot Access Drives

Pavement Section: Three inches (3") of asphalt concrete over six inches (6") of 95% compacted aggregate base over twelve inches (12") of 95% compacted subgrade (on-site soils)

The fill and aggregate base thicknesses recommended above are compacted thicknesses. Fill and aggregate base course materials should be compacted to at least 95% relative density in accordance with ASTM D 1557, and the asphalt concrete should be compacted to at least 92% relative density in accordance with AASHTO T 209.

PLAN REVIEW

The grading and foundation plans should be submitted to this office for review to verify that the recommendations provided in this report have been followed and that the assumptions used are still valid.

LIMITATIONS

This report is intended for the exclusive use of the addressee and their representatives to design and construct the proposed project and site improvements described herein and to prepare any construction documents required. The data, analysis, and recommendations presented herein may not be appropriate for other structures or purposes. We recommend that other parties contemplating other structures or purposes contact our office. In the absence of our written approval, we make no representation and assume no responsibility to other parties regarding this report.

Services performed by the geotechnical engineer for this project have been conducted with the level of care and skill normally exercised by members of the profession currently practicing in the area under similar budget and time constraints. No warranty, expressed or implied, is made.

It is highly recommended that the design geotechnical engineer, or his representative, be retained to provide consulting services during construction of the subject project. Fees for additional services would be in addition to the fees charged for this geotechnical engineering study. Additional services would include, but not be limited to, plan and specification review and professional geotechnical engineering consulting during construction.

It is the responsibility of the Owner and/or Builder to ensure that the recommendations contained in this report are implemented during construction.

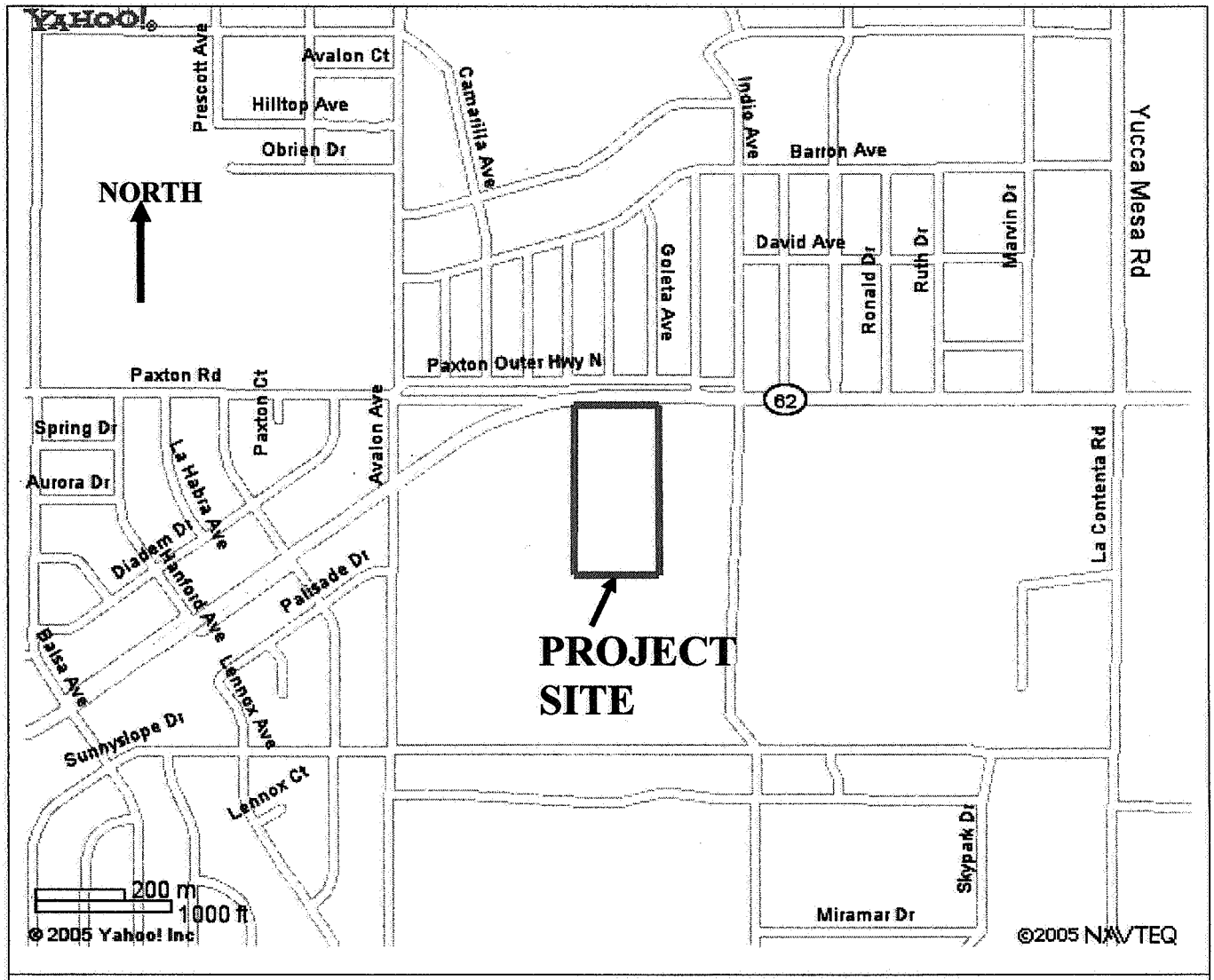
Southwest Geotech Inc. does not practice or consult in the field of safety engineering. We do not direct the Builder's operations, and cannot be responsible for the safety of personnel other than their own on the site; the safety of others is the responsibility of the Builder. The Builder should notify the Owner if he considers any of the recommended actions contained in this report to be unsafe.

This report has been prepared for the exclusive use of the current owner and design consultants relative to the subject project. Should the project be modified, the conclusions and recommendations presented in this report should be reviewed by Southwest Geotech Inc. to determine if additional subsurface investigation, laboratory testing and/or recommendations are necessary. Our professional services have been performed, our findings and conclusions determined, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties, expressed or implied.

The conclusions and recommendations contained in this report have been based on all available data obtained from our field investigation and laboratory testing, as well as our experience with the soils located in the area. Of necessity, one must assume a certain degree of continuity between test borings and/or natural exposures. It is, therefore, necessary that all observations, conclusions, and recommendations be verified at the time grading operations begin or when footing excavations are made.

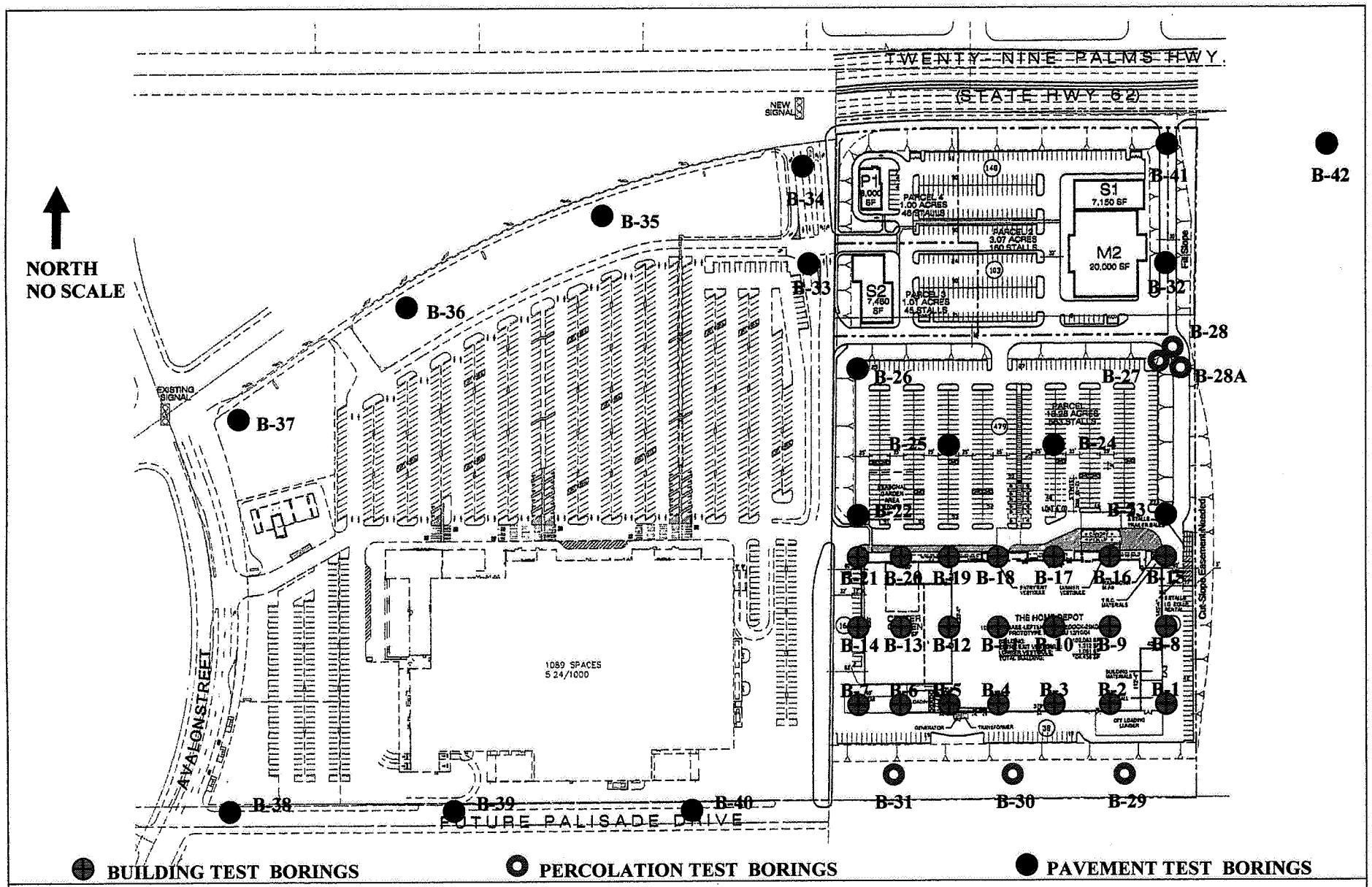
This report should be considered valid for a period of three (3) years, and is subject to review by Southwest Geotech Inc. following that time. If significant modifications are made to the building and/or grading plans, especially with respect to the height and location of any buildings and the height and location of any cut and fill slopes, these modifications must be presented to this office for immediate review.

The firm of Southwest Geotech Inc. shall not be held responsible for changes to the physical condition of the property, such as addition of fill soils or changing drainage patterns, which occur subsequent to the issuance of this report.



VICINITY MAP
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

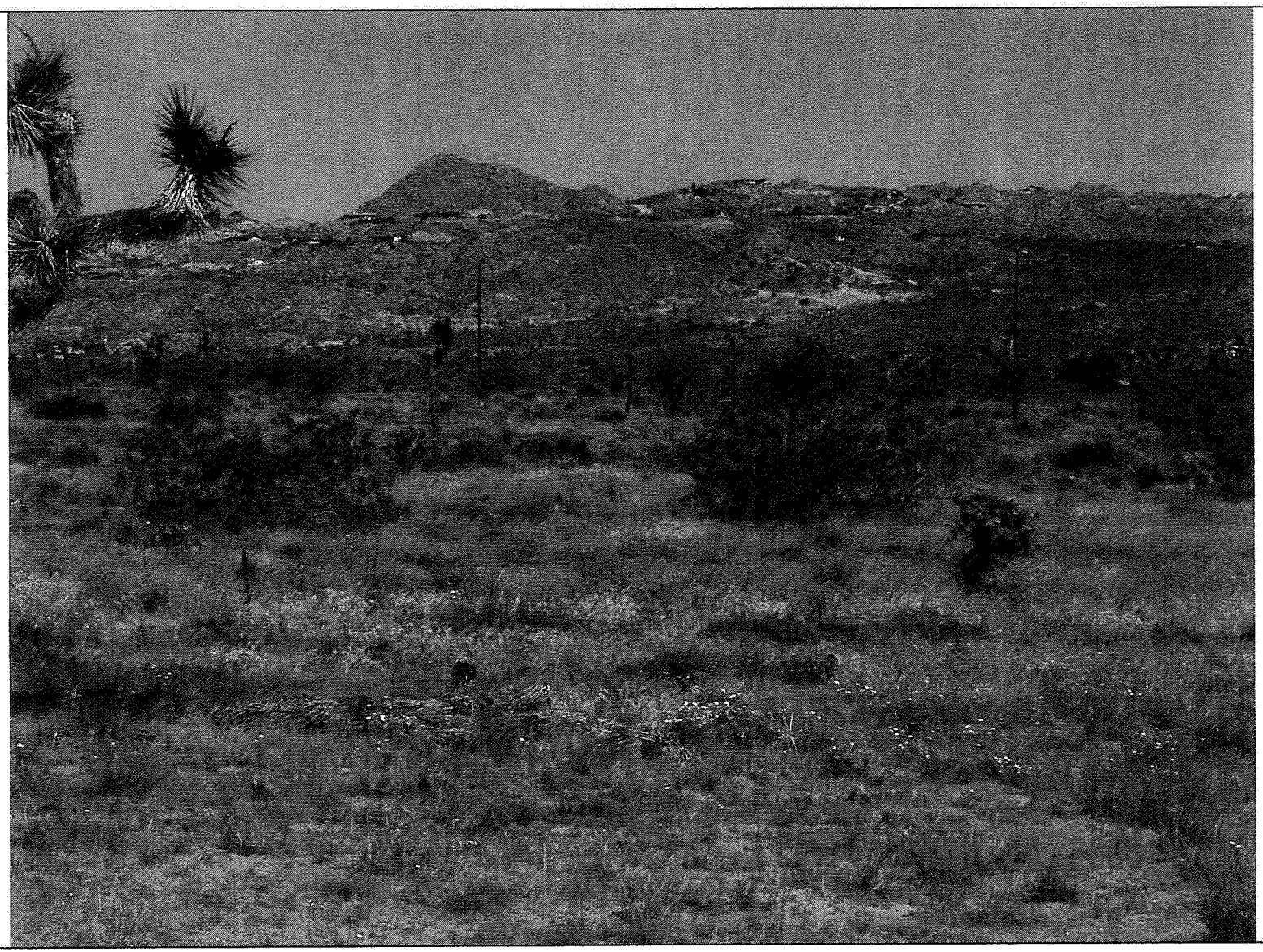
PROJECT NO. AZ103.10.1 **FIGURE A-1**



PLOT PLAN
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

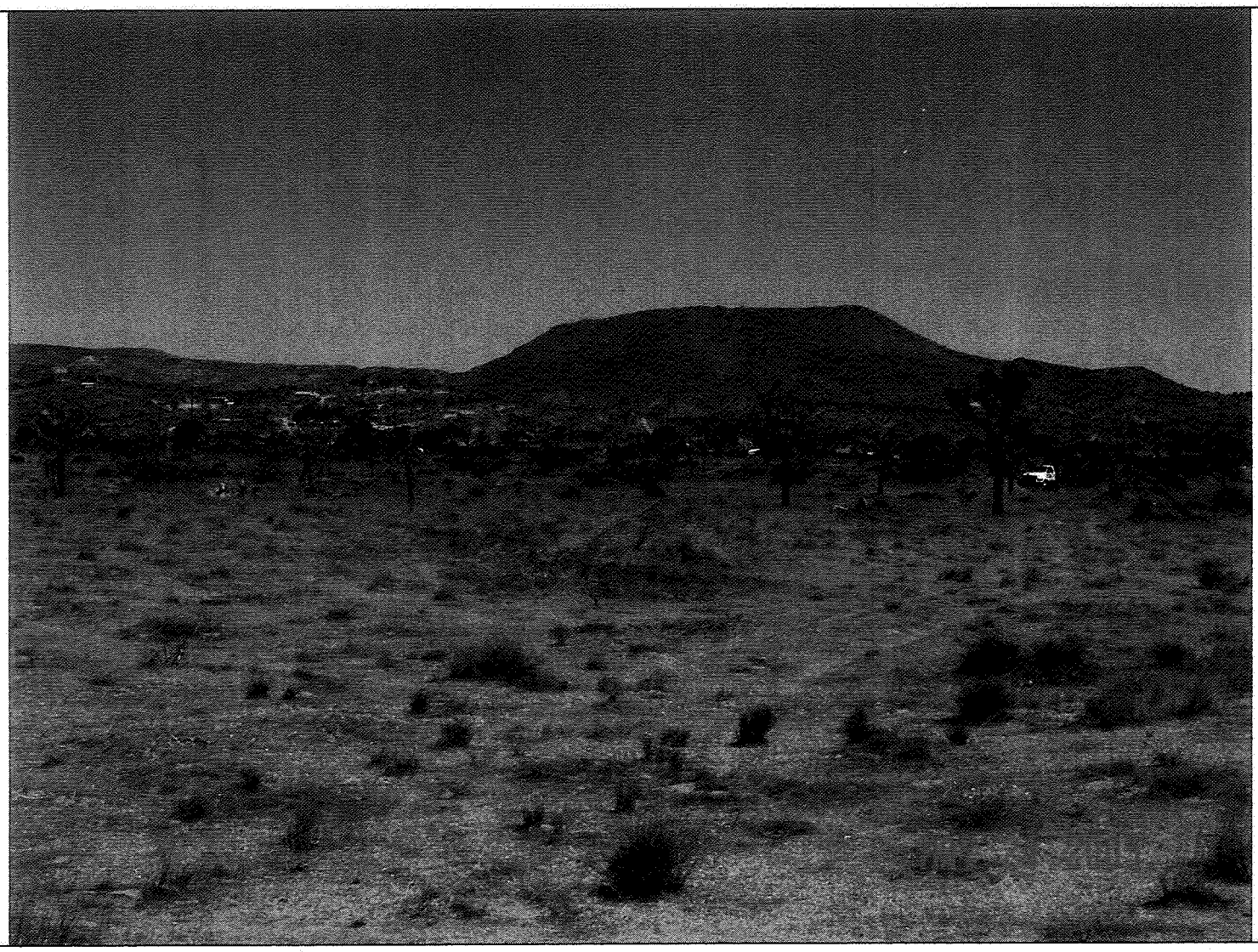
PROJECT NO. AZ103.10.1

FIGURE A-2



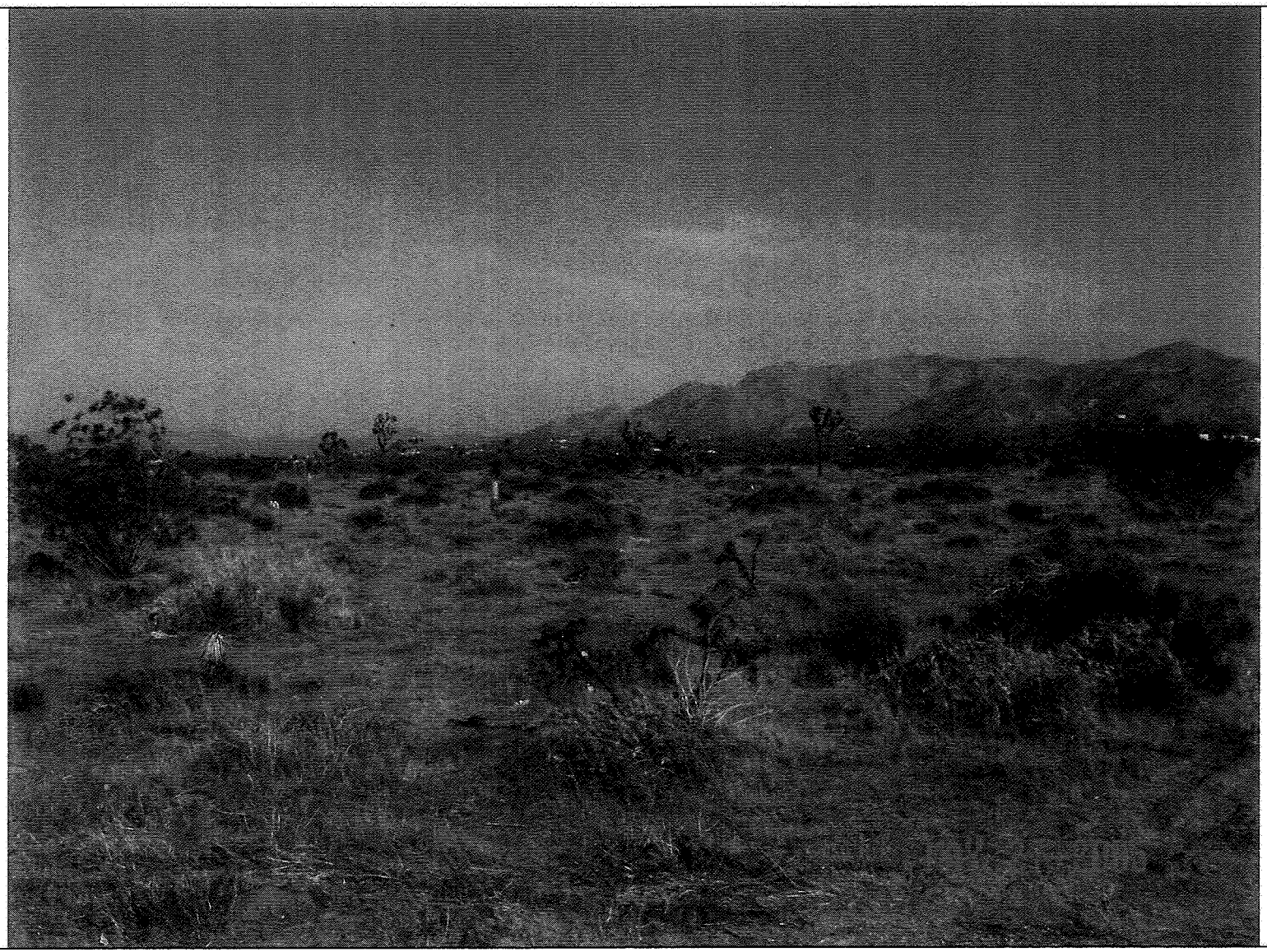
PHOTOGRAPH OF SITE
VIEW FROM SOUTHEAST CORNER LOOKING NORTHWEST
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

PROJECT NO. AZ103.10.1 **FIGURE A-3**



PHOTOGRAPH OF SITE
VIEW FROM NORTH PROPERTY LINE LOOKING SOUTH
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

PROJECT NO. AZ103.10.1 **FIGURE A-4**



PHOTOGRAPH OF SITE
VIEW FROM WEST PROPERTY LINE LOOKING EAST
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

PROJECT NO. AZ103.12.1 **FIGURE A-5**

PHOTOGRAPH OF SITE
SE CORNER OF AVALON AVENUE AND HIGHWAY 62 LOOKING EAST
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

PROJECT NO. AZ103.12.1

FIGURE A-6

APPENDIX B

SUBSURFACE EXPLORATION

The subsurface exploration was performed during the period of May 25 through 27, 2005 and consisted of drilling and sampling 42 borings as follows: 21 borings to 31 feet maximum depth in the building area, five borings to 45 feet maximum depth in the retention basin and septic areas, and 15 borings to a maximum depth of 16 feet in pavement areas. The borings were drilled using an 8-inch diameter, truck mounted, hollow stem, continuous flight auger. Representative samples of the subsurface materials were collected from selected borings. Samples were collected using a Modified California ring sampler and a Standard Penetration Split Spoon sampler, and by collecting bulk samples of auger cuttings. A professional engineer from our office directed the subsurface exploration and maintained a written log of the drilling and sampling activities; classified and described the materials encountered; recorded Standard Penetration Test (SPT) results; and prepared the samples for transport to the testing laboratory.

The locations of the test borings are shown on the Plot Plan, Figure 2. Boring logs are presented in the following pages.

LOG OF TEST BORING B-1

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.6 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	slightly moist, medium dense	CAL	BULK	16	2.7	113.2	SIEVE MAX DX COR
4							
6	moist, fine to coarse gravel and rock fragments	CAL		18	5.7	108.2	
8							
10	slightly moist	CAL		15	3.3	110.4	
12							
14							
16		CAL		29			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-1

LOG OF TEST BORING B-1 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.6 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, dense	CAL		62	4.3	102.1	
22							
24							
26	very dry	CAL		44	0.7	117.9	
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO.: AZ103.10.1	FIGURE NO.:	B-2

LOG OF TEST BORING B-2

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3206.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		9			
4							
6		SPT		7			
8		SPT		9			
10	medium dense	SPT		12			
12							
14							
16	dry	SPT		19			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-3

LOG OF TEST BORING B-2 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3206.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, medium dense	SPT		19			
22							
24							
	fine to coarse gravel and rock fragments, dry, dense	SPT		42			
26	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-4

LOG OF TEST BORING B-3

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3205.9 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist	SPT		8	4.8		
8		SPT		9			
10	slightly moist, medium dense	SPT		10	4.1		
12							
14							
16		SPT		13	2.5		
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-5

LOG OF TEST BORING B-3 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3205.9 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		14	2.4		
22							
24							
26	with fine rock fragments	SPT		18	1.4		
28							
30		SPT		16	2.7		
32	Bottom of Boring = 31 Feet						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-6

LOG OF TEST BORING B-4

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3206.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist	SPT		8			
6							
		SPT		9			
8							
10	with fine rock fragments	SPT		9			
12							
14							
	dry to moist, medium dense	SPT		21			
16							
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.	**HOME DEPOT** Yucca Valley, California		
	BY: MRO	DATE:	May-June 2005
	JOB NO.: AZ103.10.1	FIGURE NO.:	B-7

LOG OF TEST BORING B-4 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3206.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		18			
22							
24							
26	with fine rock fragments	SPT		23			
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-8

LOG OF TEST BORING B-5

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3207.6 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist, medium dense	SPT		14	3.0		
8		SPT		11	2.8		
10	loose to medium dense	SPT		9	3.4		
12							
14							
16	slightly moist, medium dense	SPT		11	2.5		
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-9

LOG OF TEST BORING B-5 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3207.6 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		2.2			
22							
24							
26							
28							
30	with fine rock fragments, very dry, dense	SPT		0.9			
32	Bottom of Boring = 31 Feet						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-10

LOG OF TEST BORING B-6

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3209.1 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist, medium dense						
6							
8							
10	loose to medium dense	SPT		11			
12							
14							
16	dry to moist, medium dense	SPT		11			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-11

LOG OF TEST BORING B-6 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3209.1 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		21			
22							
24							
26	medium dense to dense	SPT		31			
28							
30	medium dense	SPT		24			
32	Bottom of Boring = 31 Feet						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** Yucca Valley, California		
	BY: MRO	DATE:	May-June 2005
	JOB NO.: AZ103.10.1	FIGURE NO.:	B-12

LOG OF TEST BORING B-7

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3212.4 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist, medium dense						
8							
10	loose to medium dense	CAL		15			
12							
14							
16	dry to moist, medium dense	CAL		39			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-13

LOG OF TEST BORING B-7 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3212.4 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	CAL		37	1.1	110.0	
22							
24							
26							
28							
30	very dense	CAL		51	0.6		
32	Bottom of Boring = 31 Feet						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-14

LOG OF TEST BORING B-8

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		6			
4							
6		SPT		5			
8		SPT		8			
10		SPT		8			
12							
14							
16	slightly moist, medium dense, some fine rock fragments	SPT		19			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-15

LOG OF TEST BORING B-8 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		21			
22							
24							
26		SPT		25			
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-16

LOG OF TEST BORING B-9

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.0 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		6	4.4		
4							
6		SPT		7	3.8		
8		SPT		8	3.7		
10		SPT		9	4.9		
12							
14							
16	slightly moist, medium dense, some fine rock fragments	SPT		12			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.	**HOME DEPOT** Yucca Valley, California		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-17

LOG OF TEST BORING B-9 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.0 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		25	2.1		
22							
24							
26	very dry	SPT		34	1.5		
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-18

LOG OF TEST BORING B-10

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.3 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		7			
4							
6		SPT		7			
8		SPT		7			
10		SPT		6			
12							
14							
16	slightly moist, medium dense	SPT		17			
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-19

LOG OF TEST BORING B-10 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3201.3 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist,medium dense	SPT		19			
22							
24							
	very dry, some fine rock fragments	SPT		22			
26	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-20

LOG OF TEST BORING B-11

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.5 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	dry	CAL	BULK	6	2.0	102.8	SIEVE MAX DX CORR
4							
6	slightly moist, medium dense	CAL		10	3.3	110.4	
8							
10	moist, medium dense	CAL		17	6.0	106.4	
12							
14							
16	very dry	CAL		23	0.8	111.9	
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-21

LOG OF TEST BORING B-11 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.5 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	CAL		31	1.2	111.5	
22							
24							
26	dense to very dense	CAL		73	1.0	112.9	
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-22

LOG OF TEST BORING B-12

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3205.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist	SPT		5			
8		SPT		7			
10		SPT		8			
12							
14							
16	slightly moist, medium dense	SPT		13			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-23

LOG OF TEST BORING B-12 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3205.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		19			
22							
24							
	dense, some fine rock fragments	SPT		42			
26	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.	**HOME DEPOT** **Yucca Valley, California**		
	BY: MRO	DATE:	May-June 2005
	JOB NO. : AZ103.10.1	FIGURE NO.:	B-24

LOG OF TEST BORING B-13

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3207.7 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6		SPT		3	0.9		SIEVE
8		SPT		7	1.9		
10	fine to coarse rock fragments (SP-SM)	SPT		9	2.7		SIEVE
12							
14							
16	slightly moist, medium dense	SPT		19	1.9		
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-25

LOG OF TEST BORING B-13 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3207.7 Feet	Boring Depth:	31 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		19	1.1		SIEVE
22							
24							
26	some fine rock fragments	SPT		27	1.2		
28							
30		SPT		29			SIEVE
32	Bottom of Boring = 31 Feet						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-26

LOG OF TEST BORING B-14

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3209.8 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10		SPT		5			
12							
14							
16	slightly moist, medium dense	SPT		23			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-27

LOG OF TEST BORING B-14 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3209.8 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		14			
22							
24							
	dense	SPT		34			
26	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-28

LOG OF TEST BORING B-15

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3197.0 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	medium dense	CAL		12	2.7	113.2	
4							
6		CAL		17	3.9	107.4	
8							
10		CAL		26	4.1	110.6	
12							
14							
16	slightly moist. No sample recovery	CAL		25			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-29

LOG OF TEST BORING B-15 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3197.0 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	CAL		44			
22							
24							
26	dense to very dense	CAL		51	1.2	113.7	
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-30

LOG OF TEST BORING B-16

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3197.7 Feet	Boring Depth:	21 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		6			
4							
6	slightly moist, loose	SPT		9			
8							
10	medium dense	SPT		12			
12							
14							
16	dry, medium dense	SPT		17			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-31

LOG OF TEST BORING B-16 (Continued)

Date Excavated:	5/24/05	Logged By:	MRO
Elevation:	3197.7 Feet	Boring Depth:	21 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown fine to coarse sand with some silt (SW-SM), dry, medium dense	SPT		33			
22	Bottom of Boring = 21 Feet						
24							
26							
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-32

LOG OF TEST BORING B-17

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3198.7 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	dry	SPT		3	3.0		
4							
6	slightly moist, loose	SPT		4	4.2		
8		SPT		7			
10	medium dense	SPT		10	4.2		
12							
14							
16	very dry, medium dense	SPT		10	0.6		
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-33

LOG OF TEST BORING B-17 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3198.7 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		17	1.3		
22							
24							
26	very dry	SPT		26	0.6		
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-34

LOG OF TEST BORING B-18

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3200.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	dry	SPT		3			
4							
6	slightly moist, loose	SPT		4			
8		SPT		7			
10	medium dense	SPT		10			
12							
14							
16		SPT		10			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-35

LOG OF TEST BORING B-18 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3200.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		17			
22							
24							
26		SPT		26			
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-36

LOG OF TEST BORING B-19

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		5			
4							
6	slightly moist, loose	SPT		5			
8		SPT		9			
10	medium dense	SPT		13			
12							
14							
16	loose to medium dense	SPT		9			
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-37

LOG OF TEST BORING B-19 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3203.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		17	1.3		
22							
24							
26		SPT		21	3.0		
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-38

LOG OF TEST BORING B-20

Date Excavated:	5	Logged By:	MRO
Elevation:	3 ... et	Boring Depth:	26 Feet
Equipment:	H ... em Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	1	Hammer Drop:	30 Inches

DEPTH (feet)	SUM ... OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to c ... with some silt (SW-SM), with intermittent fine to coarse gravel a ... gments, moist, loose						
2							
4							
6	slightly moist, loose	SPT		4			
8	No sample recovery	SPT		5			
10		SPT		6			
12		SPT		9			
14							
16	medium dense	SPT		18			
18							
20							

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SOUTHWEST GE ... CH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-39

LOG OF TEST BORING B-20 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3204.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	SPT		12			
22							
24							
26		SPT		33			
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-40

LOG OF TEST BORING B-21

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3204.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist, medium dense	CAL	BULK	18	2.1	104.7	SIEVE MAX DX CORR
8							
10	moist	CAL		19	4.1	109.5	
12							
14							
16	dry, medium dense	CAL		35	1.3	119.8	
18							
20							

Continued on Next Page

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-41

LOG OF TEST BORING B-21 (Continued)

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3204.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, medium dense	CAL		27	1.6	114.1	
22							
24							
26	dense	CAL		46	1.9	117.7	
	Bottom of Boring = 26 Feet						
28							
30							
32							
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-42

LOG OF TEST BORING B-22

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3202.0 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	slightly moist	SPT		7			
4							
6	fine gravel and rock fragments	SPT		6			
8							
10		SPT		9			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-43

LOG OF TEST BORING B-23

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3195.0 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2	slightly moist	SPT		5			
4							
6		SPT		4			
8							
10		SPT		7			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-44

LOG OF TEST BORING B-24

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3195.0 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6	slightly moist	SPT		6			
8							
10		SPT		9			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-45

LOG OF TEST BORING B-25

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3196.0 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		4			
4							
6	slightly moist	SPT		8			
8							
10		SPT		8			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-46

LOG OF TEST BORING B-26

Date Excavated:	5/25/05	Logged By:	MRO
Elevation:	3199.5 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2			BULK				R-VAL
4							
6	slightly moist	SPT		5			
8							
10	medium dense	SPT		10			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-47

LOG OF TEST BORING B-27
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3204.4 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown fine to coarse sand with some silt (SW-SM), moist, loose						
2							
4							
6	slightly moist, medium dense	CAL	BULK	18	2.1	104.7	
8							
10	moist	CAL		19	4.1	109.5	
12							
14							
16	dry	CAL		35	1.3	119.8	
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-48

LOG OF TEST BORING B-27 (Continued)
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3189.5 Feet	Boring Depth:	35 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist to dry, loose						
22							
24							
26							
28							
30	Notes: Set 3-inch dia. perforated pipe to 35 feet						
32	Hole caved around pipe to 10 feet						
	Remainder of hole backfilled with on-site soil						
34							
36	Bottom of Boring = 35 Feet						
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-49

LOG OF TEST BORING B-28
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3189.5 Feet	Boring Depth:	35 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist to dry, loose						
2							
4							
6							
8							
10							
12							
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-50

LOG OF TEST BORING B-28 (Continued)
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3189.5 Feet	Boring Depth:	35 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist to dry, loose						
22							
24							
26							
28							
	Notes: Set 3-inch dia. perforated pipe to 35 feet						
30	Hole caved around pipe to 12 feet						
	Remainder of hole backfilled with on-site soil						
32							
34							
36	Bottom of Boring = 35 Feet						
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-51

LOG OF TEST BORING B-28A

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3189.5 Feet	Boring Depth:	46 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist to slightly moist, loose						
2							
4							
6		SPT		5			
8							
10		SPT		7			
12							
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-52

LOG OF TEST BORING B-28A (Continued)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3189.5 Feet	Boring Depth:	46 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, medium dense	SPT		19			
22							
24							
26							
28							
30	dense	SPT		36			
32							
34	same soil conditions from 34 to 44 feet						
44							
		SPT		39			
46	Bottom of Boring = 46 Feet						
	No Groundwater						
48							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-53

LOG OF TEST BORING B-29
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3207.7 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10	slightly moist	SPT		9			
12							
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-54

LOG OF TEST BORING B-29 (Continued)
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3207.7 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, medium dense						
22							
24							
		SPT		19			
26	Bottom of Boring = 26 Feet						
28							
30	Notes: Set 3-inch dia. perforated pipe to 25 feet Hole caved around pipe to 9 feet						
32	Remainder of hole backfilled with on-site soil						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO.:	AZ103.10.1	FIGURE NO.:	B-55

LOG OF TEST BORING B-30
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3210.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10	slightly moist	SPT		6			
12							
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-56

LOG OF TEST BORING B-30 (Continued)
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3210.2 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, medium dense						
22							
24							
		SPT		16			
26	Bottom of Boring = 26 Feet						
28							
30	Notes: Set 3-inch dia. perforated pipe to 25 feet						
	Hole caved around pipe to 10 feet						
32	Remainder of hole backfilled with on-site soil						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-57

LOG OF TEST BORING B-31
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3213.8 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10	slightly moist	SPT		10			
12							
14							
16							
18							
20							

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SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-58

LOG OF TEST BORING B-31 (Continued)
(PERCOLATION TEST HOLE)

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3213.8 Feet	Boring Depth:	26 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
20	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, slightly moist, medium dense						
22							
24							
26		SPT		23			
	Bottom of Boring = 26 Feet						
28							
30	Notes: Set 3-inch dia. perforated pipe to 25 feet						
	Hole caved around pipe to 8 feet						
32	Remainder of hole backfilled with on-site soil						
34							
36							
38							
40							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-59

LOG OF TEST BORING B-32

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3185.0 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2		SPT		6			
4							
	slightly moist	SPT		6			
6							
8							
10		SPT		9			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-60

LOG OF TEST BORING B-33

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3198.0 Feet	Boring Depth:	16 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist, medium dense	SPT		11			
6							
8							
10							
12							
14							
	loose	SPT		8			
16							
	Bottom of Boring = 16 Feet						
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-61

LOG OF TEST BORING B-34

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3193.1 Feet	Boring Depth:	16 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10	slightly moist	SPT		9			
12							
14							
16	medium dense	SPT		19			
	Bottom of Boring = 16 Feet						
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-62

LOG OF TEST BORING B-35

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3200.8 Feet	Boring Depth:	16 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
6							
8							
10	slightly moist	SPT		4			
12							
14							
	medium dense	SPT		11			
16	Bottom of Boring = 16 Feet						
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-63

LOG OF TEST BORING B-36

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3203.4 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist	SPT		6			
6							
8							
10	medium dense	SPT		11			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-64

LOG OF TEST BORING B-37

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3211.7 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist	SPT		3			
6							
8							
10		SPT		7			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-65

LOG OF TEST BORING B-38

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3232.2 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist	SPT		9			
6							
8							
10	medium dense	SPT		13			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-66

LOG OF TEST BORING B-39

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3226.5 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2			BULK				R-VAL
4							
	slightly moist, medium dense	SPT		10			
6							
8							
10	loose	SPT		8			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-67

LOG OF TEST BORING B-40

Date Excavated:	5/26/05	Logged By:	MRO
Elevation:	3221.2 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist						
6		SPT		8			
8							
10		SPT		8			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-68

LOG OF TEST BORING B-41

Date Excavated:	5/27/05	Logged By:	MRO
Elevation:	3182.6 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2			BULK				R-VAL
4							
	slightly moist	SPT		5			
6							
8							
10		SPT		9			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT
Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-69

LOG OF TEST BORING B-42

Date Excavated:	5/27/05	Logged By:	MRO
Elevation:	3171.4 Feet	Boring Depth:	11 Feet
Equipment:	Hollow Stem Continuous Flight Auger	Diameter:	8 Inches
Hammer Weight:	140 lbs.	Hammer Drop:	30 Inches

DEPTH (feet)	SUMMARY OF SUBSURFACE CONDITIONS	SAMPLES: DRIVE TYPE	SAMPLES: BULK	BLOW COUNT (Blows/Foot)	MOISTURE (%)	DRY DENSITY (pcf)	OTHER LAB TESTS
	Light brown, fine to coarse sand with some silt (SW-SM), with intermittent fine to coarse gravel and rock fragments, moist, loose						
2							
4							
	slightly moist	SPT		4			
6							
8							
10		SPT		5			
12	Bottom of Boring = 11 Feet						
14							
16							
18							
20							

SOUTHWEST GEOTECH INC.

HOME DEPOT

Yucca Valley, California

BY:	MRO	DATE:	May-June 2005
JOB NO. :	AZ103.10.1	FIGURE NO.:	B-70

APPENDIX C

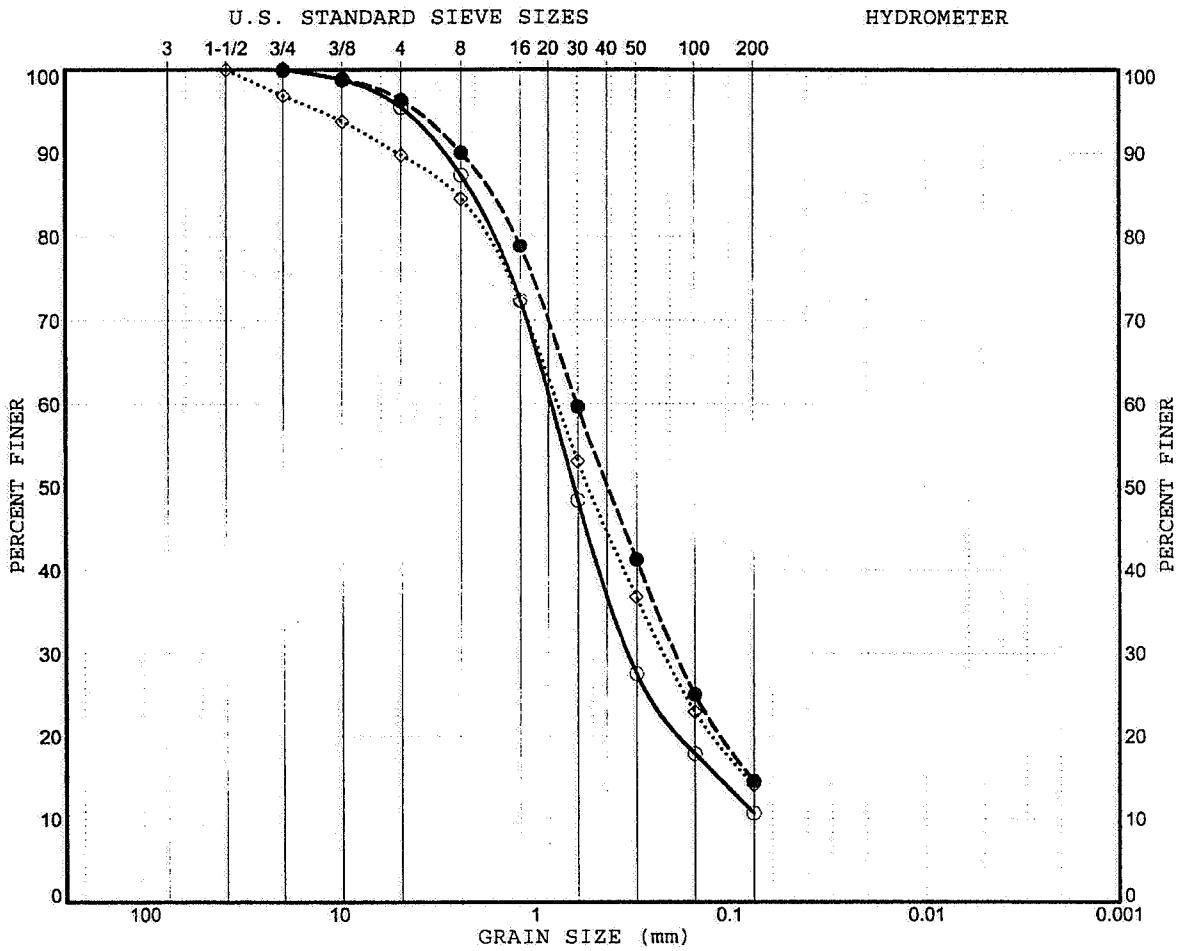
LABORATORY TESTING

Laboratory testing was performed on selected samples of the materials collected from the site to assist with determining their physical and engineering characteristics. A complete description of the subsurface conditions encountered in our borings is presented on the Boring Logs in Appendix B of this report.

Laboratory testing was conducted in conformance with current ASTM, UBC, Caltrans, or other appropriate test methods and standards and included the following:

Moisture Content
Dry Density
Sieve Analysis
Maximum Dry Density
Remolded Direct Shear
Resistance "R" Value
Soil Corrosivity
(pH, Resistivity, Sulfate and Chloride Tests)

Moisture content and dry density tests are recorded on the Boring Logs in Appendix B. Other laboratory test results are summarized on the following pages.

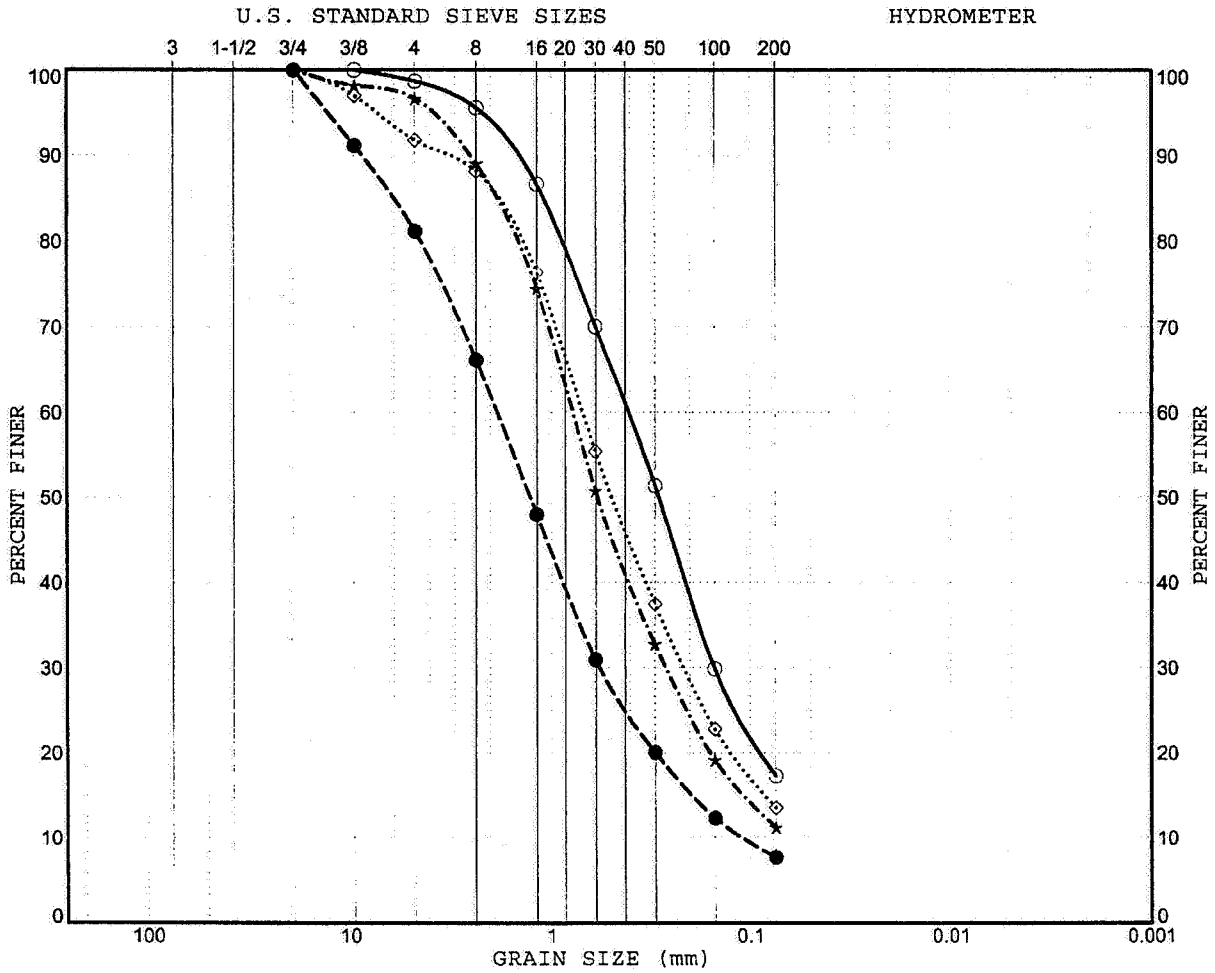


COBBLES	GRAVEL		SAND			SILT and CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	SAMPLE LOCATION	% PASSING NO. 4 SIEVE	% PASSING NO. 200 SIEVE	% FINER 2 MICRONS	UNIFIED SOIL CLASSIFICATION
○	B-1 at 1.0	96	11		SW-SM
●	B-11 at 1.0	96	15		SW-SM
◇	B-21 at 5.0	90	14		SW-SM

SIEVE ANALYSIS TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-1**

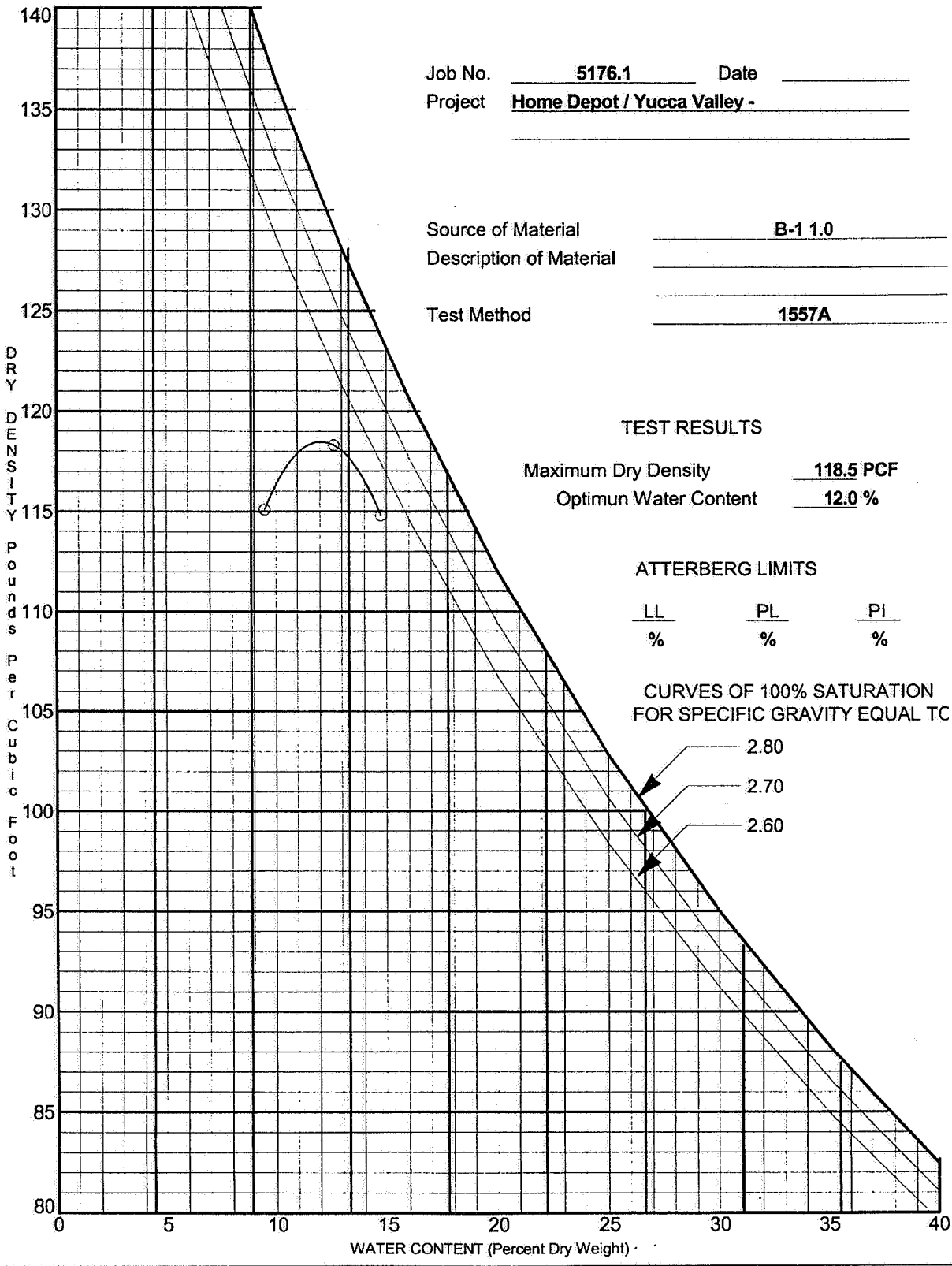


COBBLES	GRAVEL		SAND			SILT and CLAY
	Coarse	Fine	Coarse	Medium	Fine	

SYMBOL	SAMPLE LOCATION	% PASSING NO. 4 SIEVE	% PASSING NO. 200 SIEVE	% FINER 2 MICRONS	UNIFIED SOIL CLASSIFICATION
○	B-13 at 5.0	99	17		SW-SM
●	B-13 at 10.0	81	8		SP-SM
◇	B-13 at 20.0	92	14		SW-SM
★	B-13 at 30.0	97	11		SW-SM

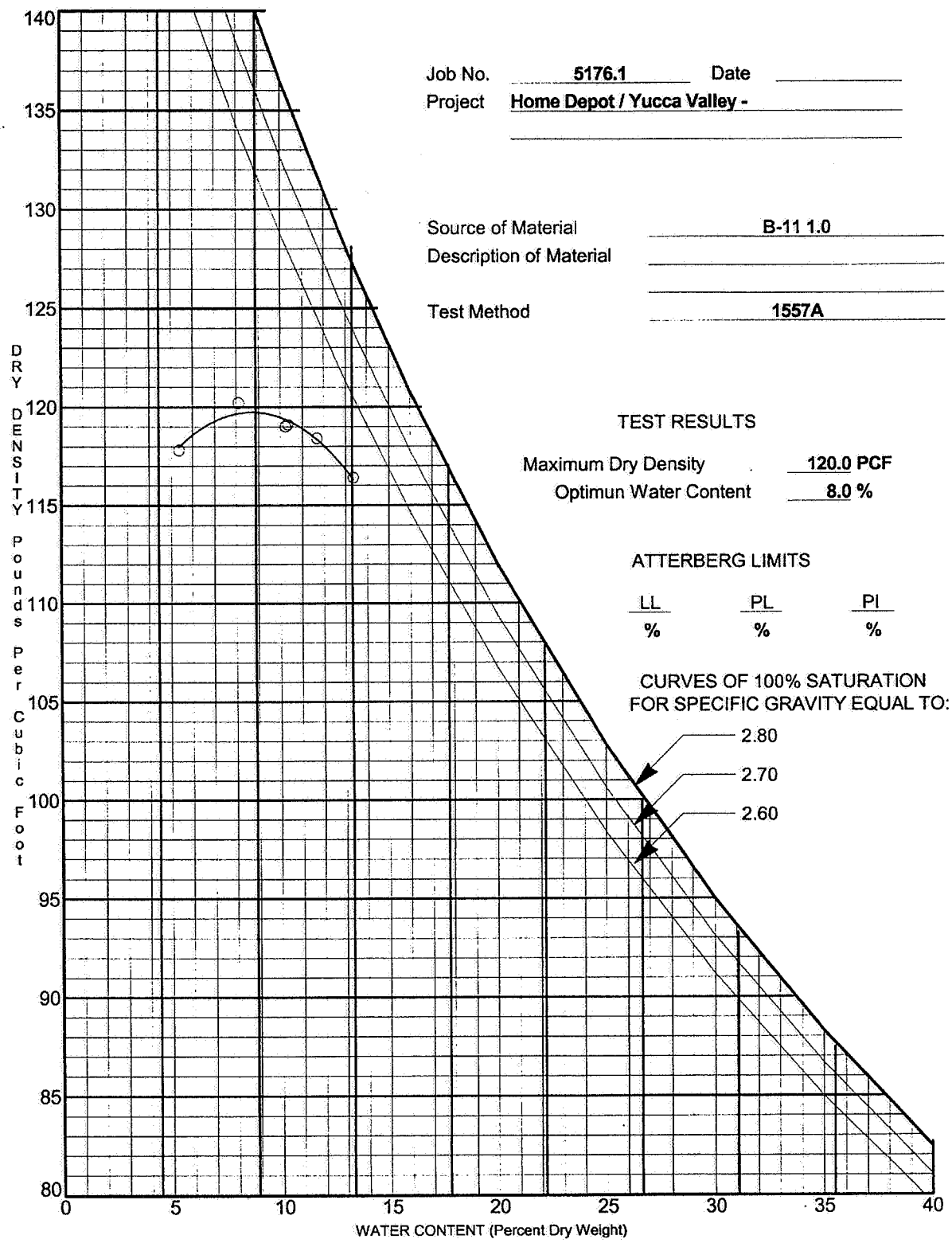
SIEVE ANALYSIS TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-2**



MAXIMUM DENSITY TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-3**



Job No. 5176.1 Date

Project Home Depot / Yucca Valley -

Source of Material B-11 1.0

Description of Material

Test Method 1557A

TEST RESULTS

Maximum Dry Density 120.0 PCF

Optimun Water Content 8.0 %

ATTERBERG LIMITS

LL	PL	PI
%	%	%

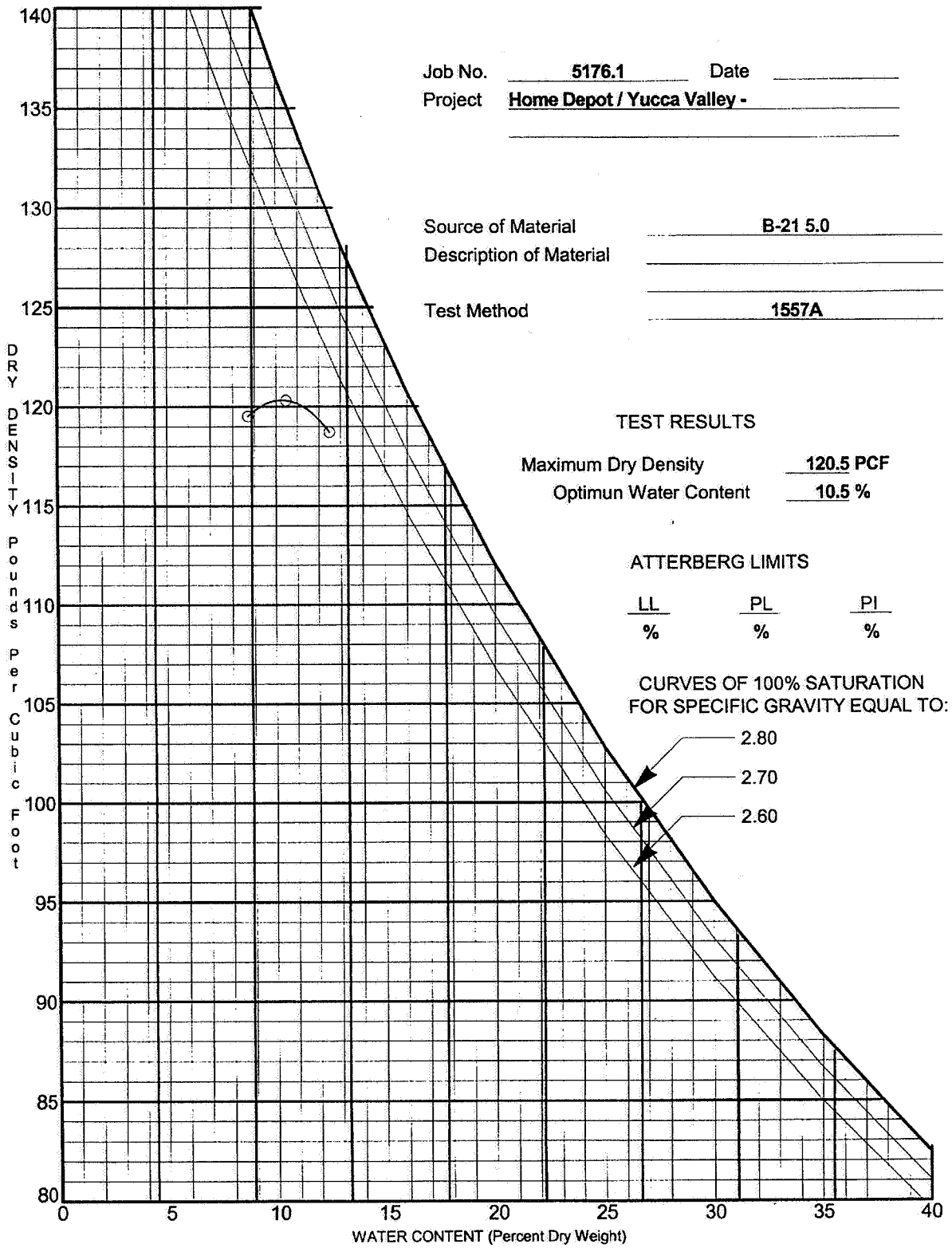
CURVES OF 100% SATURATION FOR SPECIFIC GRAVITY EQUAL TO:

MAXIMUM DENSITY TEST RESULTS

HOME DEPOT STORE
YUCCA VALLEY

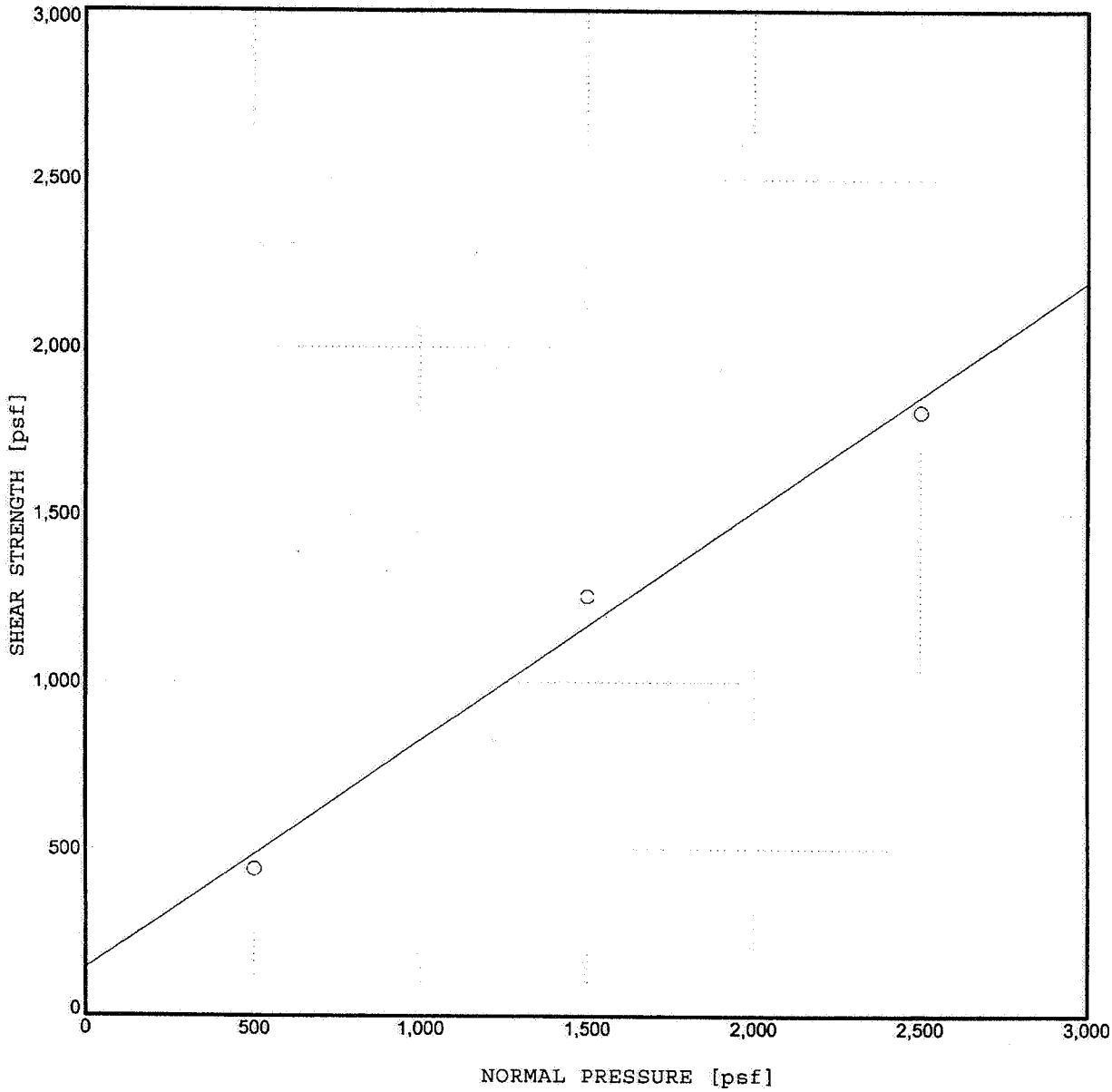
PROJECT NO. AZ103.10.1

FIGURE C-4



MAXIMUM DENSITY TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

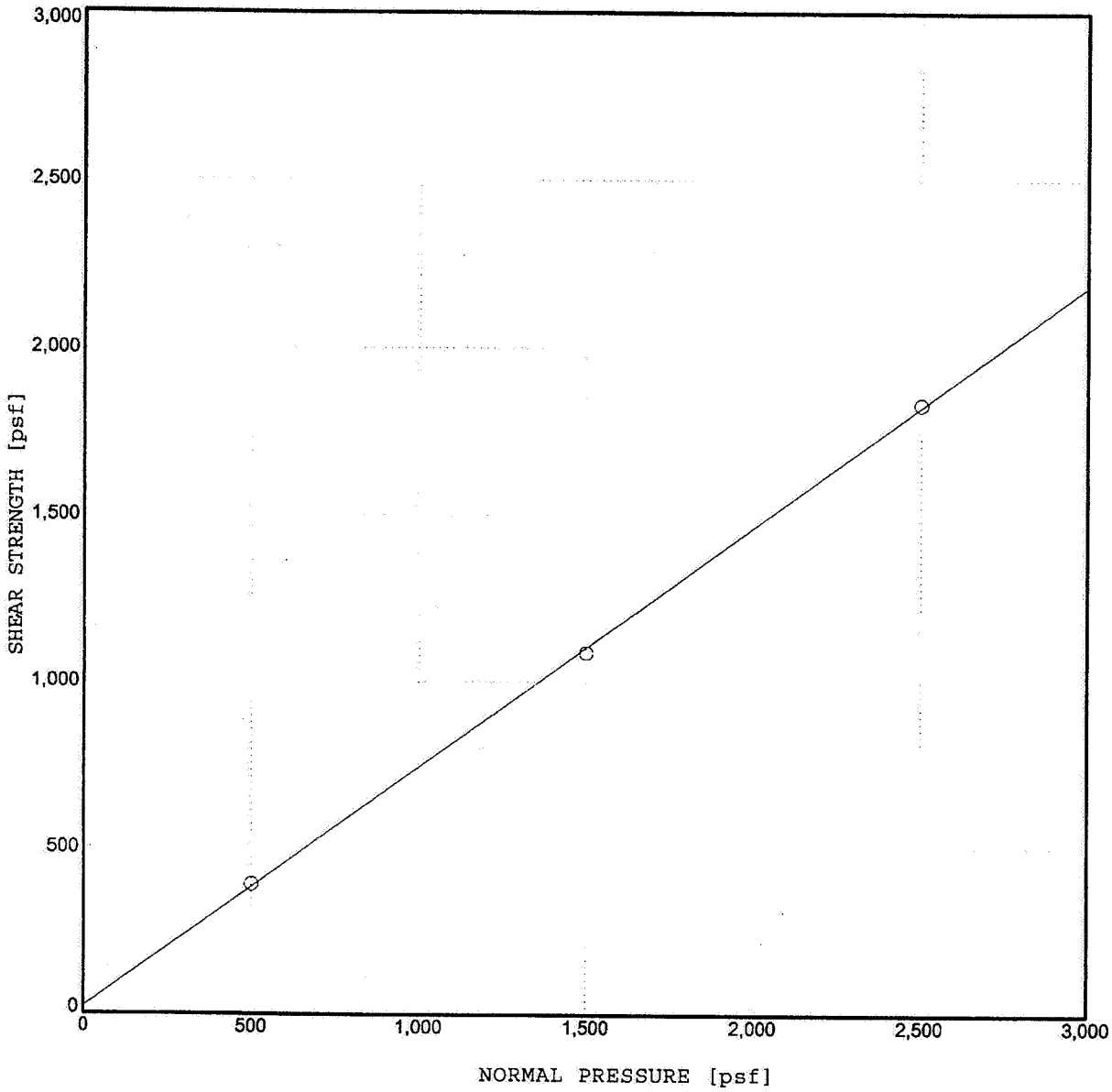
PROJECT NO. AZ103.10.1 **FIGURE C-5**



SYMBOL	SAMPLE LOCATION	COHESION	FRICTION ANGLE	REMARKS
○	B-1 at 1.0	125	34	Direct Shear 2 1/2 " Remolded Ring Sample, Saturated,Consolidated, Drained

REMOLDED DIRECT SHEAR TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-6**

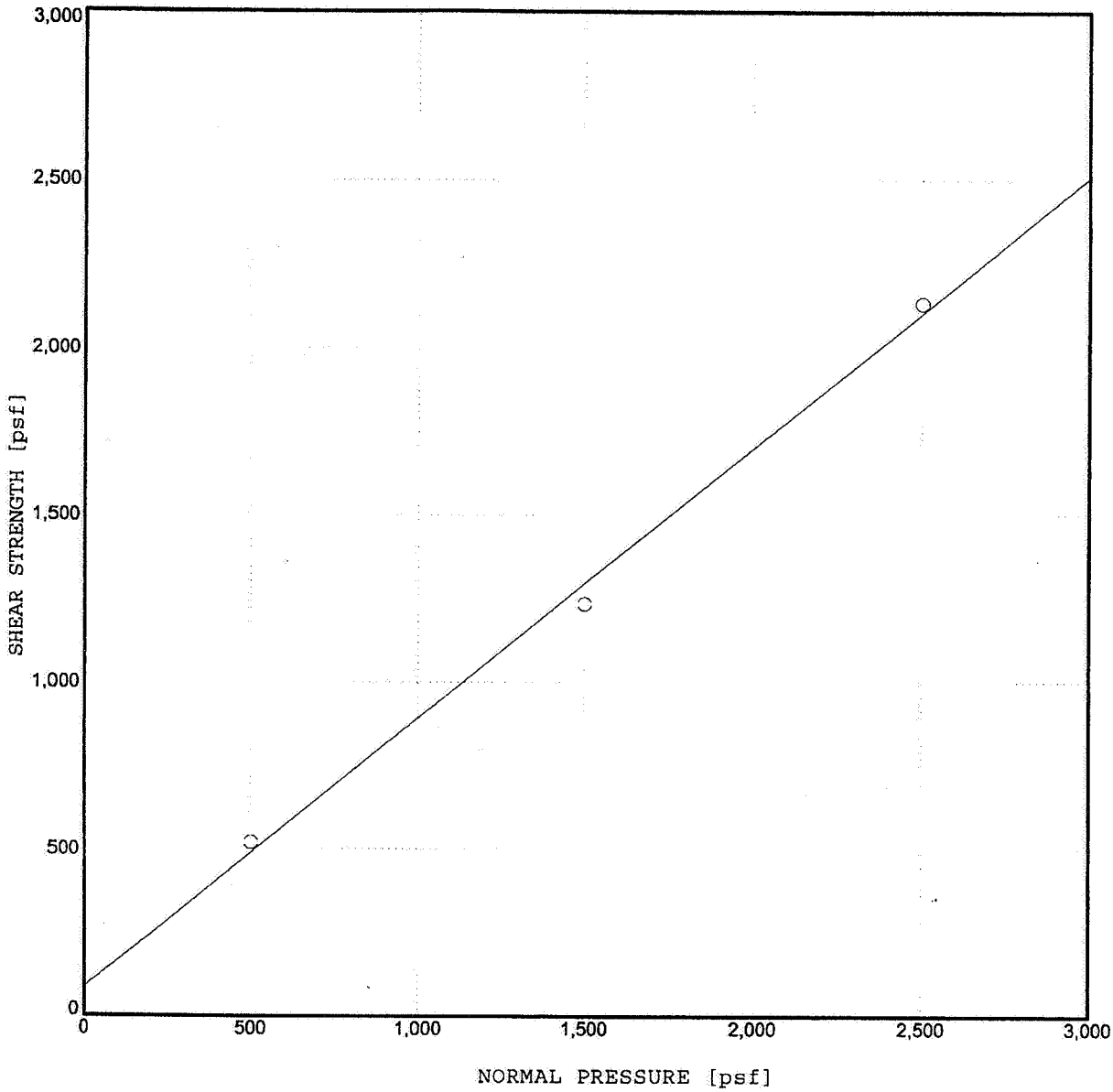


SYMBOL	SAMPLE LOCATION	COHESION	FRICTION ANGLE	REMARKS
○	B-11 at 1.0	0	36	Direct Shear 2 1/2 " Remolded Ring Sample, Saturated,Consolidated, Drained

REMOLDED DIRECT SHEAR TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1

FIGURE C-7



SYMBOL	SAMPLE LOCATION	COHESION	FRICTION ANGLE	REMARKS
○	B-21 at 5.0	75	39	Direct Shear 2 1/2 " Remolded Ring Sample, Saturated,Consolidated, Drained

REMOLDED DIRECT SHEAR TEST RESULTS

HOME DEPOT STORE

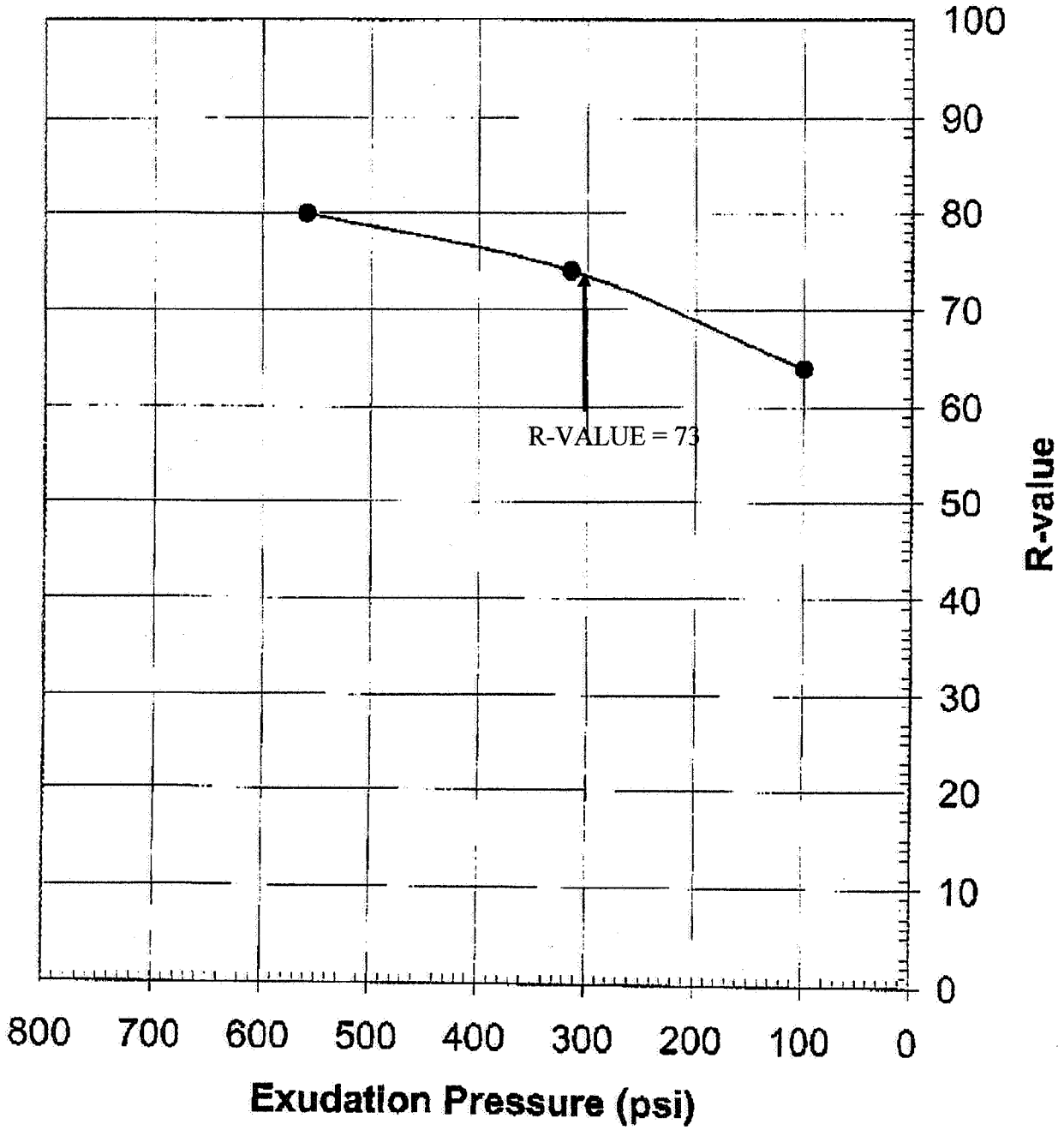
YUCCA VALLEY

PROJECT NO. AZ103.10.1

FIGURE C-8

R-VALUE BY EXUDATION PRESSURE

B-26 @ 1-5'

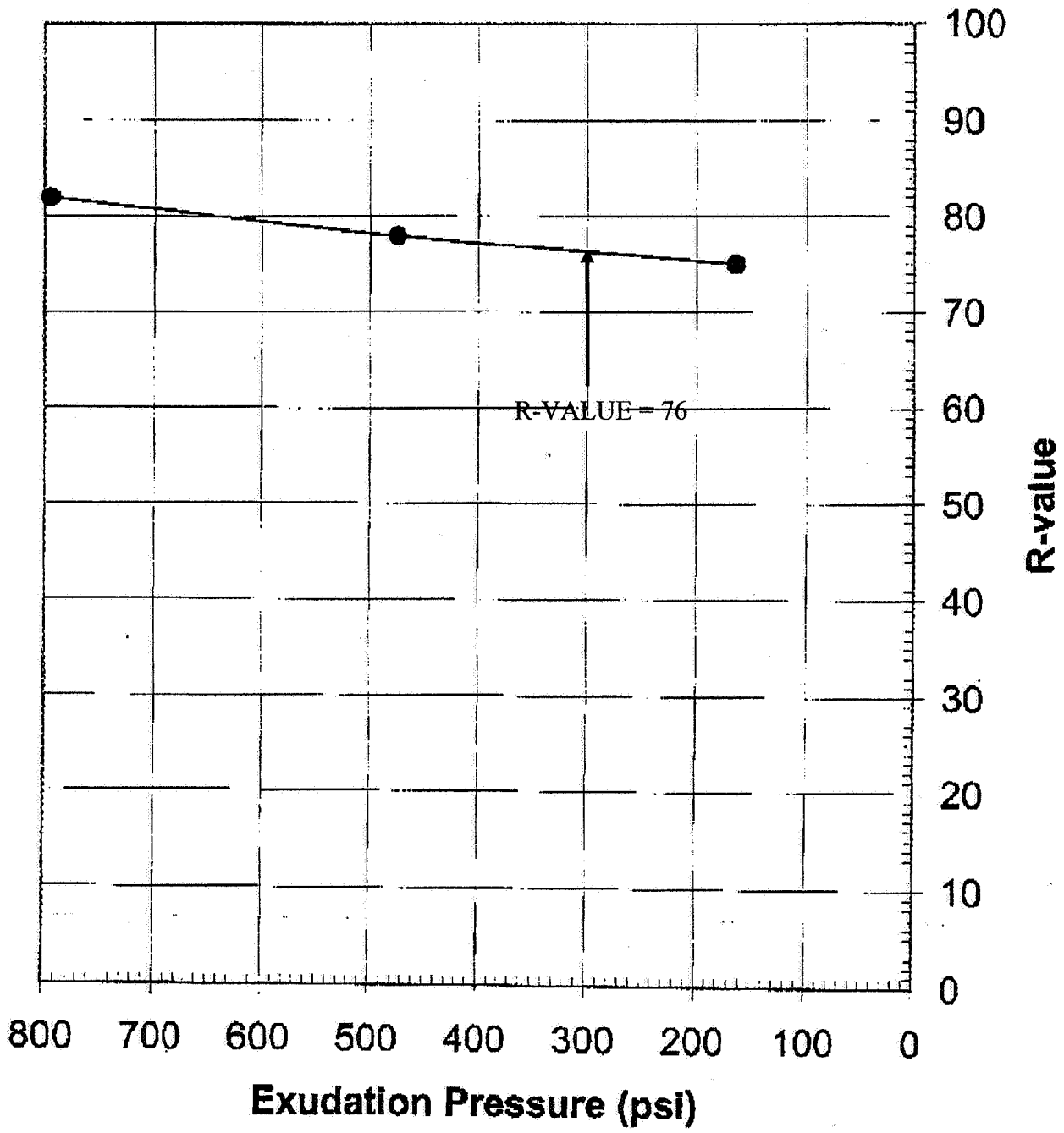


R-VALUE TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-9**

R-VALUE BY EXUDATION PRESSURE

B-39 @ 1-5'

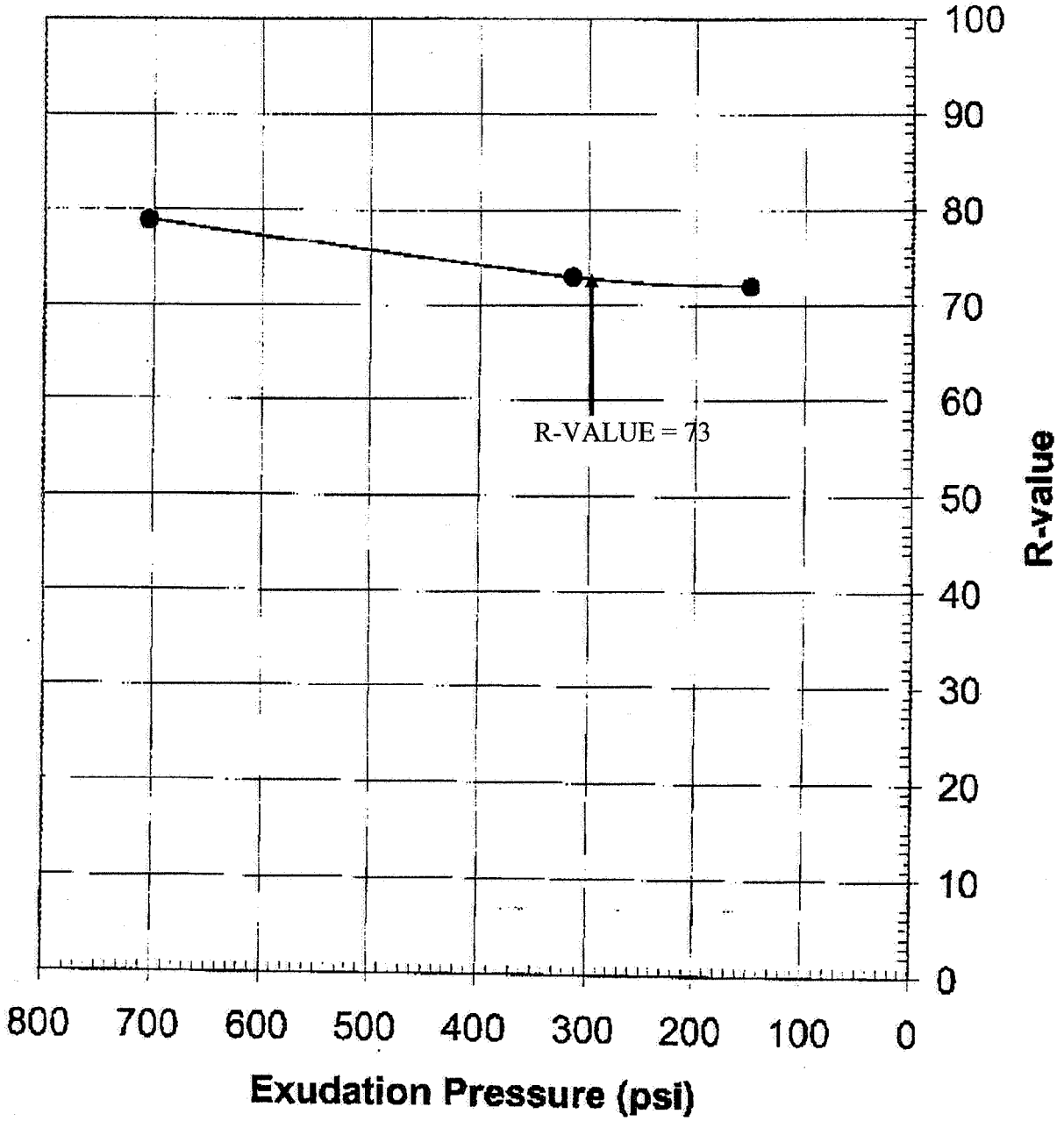


R-VALUE TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-10**

R-VALUE BY EXUDATION PRESSURE

B-26 @ 1-5'



R-VALUE TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE C-11**

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: June 3, 2005
Purchase Order Number: NONE
Sales Order Number: 79177
Account Number: MARO

To:

Martin R. Owen PE, GE
4730 Noyes Street #402
San Diego, Ca 92109

Laboratory Number: S08012 Customers Phone: 619-813-8462
Fax: 858-273-1652

Sample Designation:

One soil sample received on 6/2/05,taken from Home Depot Yucca Valley marked as B-1 @ 1-5'.

Analysis By California Test 643, 1993, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 7.5

Water Added (ml)	Resistivity (ohm-cm)
50	57,448
50	53,440
50	40,080
50	30,728
50	24,716
50	28,056
50	30,728

114 years to perforation for a 16 gauge metal culvert.
148 years to perforation for a 14 gauge metal culvert.
205 years to perforation for a 12 gauge metal culvert.
262 years to perforation for a 10 gauge metal culvert.
319 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate	Calif. Test 417	0.001%
Water Soluble Chloride	Calif. Test 422	0.009%

Jeff Shannon
JS/arr

CORROSIVITY TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 FIGURE C-12

LABORATORY REPORT

Telephone (619) 425-1993 Fax 425-7917 Established 1928

CLARKSON LABORATORY AND SUPPLY INC.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
ANALYTICAL AND CONSULTING CHEMISTS

Date: June 3, 2005
Purchase Order Number: NONE
Sales Order Number: 79177
Account Number: MARO

To:

Martin R. Owen PE, GE
4730 Noyes Street #402
San Diego, Ca 92109

Laboratory Number: SO8011 Customers Phone: 619-813-8462
Fax: 858-273-1652

Sample Designation:

One soil sample received on 6/2/05, taken from Home Depot Yucca Valley marked as B-11 @ 1-5'.

Analysis By California Test 643, 1993, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.5

Water Added (ml)	Resistivity (ohm-cm)
50	18,036
50	14,028
50	10,020
50	6,480
50	5,544
50	7,348
50	8,016

62 years to perforation for a 16 gauge metal culvert.
80 years to perforation for a 14 gauge metal culvert.
111 years to perforation for a 12 gauge metal culvert.
142 years to perforation for a 10 gauge metal culvert.
173 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417	0.005%
Water Soluble Chloride Calif. Test 422	0.002%

Jeff Shannon
JS/arr

CORROSIVITY TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY, CALIFORNIA

PROJECT NO. AZ103.10.1

FIGURE C-13

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: June 3, 2005
Purchase Order Number: NONE
Sales Order Number: 79177
Account Number: MARO

To:

Martin R. Owen PE, GE
4730 Noyes Street #402
San Diego, Ca 92109

Laboratory Number: SO8013 Customers Phone: 619-813-8462
Fax: 858-273-1652

Sample Designation:

One soil sample received on 6/2/05,taken from Home Depot Yucca Valley marked as B-21 @ 5-10'.

Analysis By California Test 643, 1993, Department of Transportation Division of Construction, Method for Estimating the Service Life of Steel Culverts.

pH 8.4

Water Added (ml)	Resistivity (ohm-cm)
50	47,428
50	34,068
50	26,052
50	18,036
50	17,368
50	17,368
50	16,700
50	24,048
50	25,384

97 years to perforation for a 16 gauge metal culvert.
126 years to perforation for a 14 gauge metal culvert.
175 years to perforation for a 12 gauge metal culvert.
223 years to perforation for a 10 gauge metal culvert.
271 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate	Calif. Test 417	0.001%
Water Soluble Chloride	Calif. Test 422	0.006%

Jeff Shannon
JS/arr

CORROSIVITY TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 FIGURE C-14

APPENDIX D

PERCOLATION TESTING

1. Soil Percolation Rates (Retention Basin)

The conceptual plan prepared for the project indicates a retention basin in the southerly portion of the property. To estimate infiltration rates for the subsurface soils we performed percolation testing in three borings located in the retention basin area, namely Borings B-29, B-30 and B-31. The borings were drilled and sampled to a depth of 26 feet. Perforated PVC pipe, 3 inches in diameter, enclosed in a filter fabric sleeve, were installed to a depth of approximately 25 feet inside the hollow flight augers. Due to heavy caving of the soils upon withdrawal of the flight augers, the annulus between the PVC pipe and boring sidewalls was backfilled to the surface with the on-site granular soils.

The borings were drilled on May 26, 2005 and were filled to the surface with water immediately after drilling to saturate the soils. The percolation testing was performed on the following day, May 27, 2005.

The holes were refilled to the surface with clean water and the water level (depth to water) measured and recorded at 10-minute intervals for a period of 1 hour using an electronic water level indicator. The results of the percolation testing are presented in the following pages.

The results of our in-situ percolation testing in the retention basin area indicate the soils to a depth of 25 feet have a percolation rate of approximately 5.5 inches per hour per square foot of seepage pit depth.

2. Soil Percolation Rates (Septic Disposal)

The conceptual plan prepared for the project indicates a septic disposal area in the mid-east portion of the property. To estimate infiltration rates for the subsurface soils we performed percolation testing in two borings located in the retention basin area, namely Borings B-27 and B-28. A third boring, B-27A was drilled nearby the percolation test holes, to a depth of 46 feet in accordance with County of San Bernardino Department of Public Health, Division of Environmental Health Services, requirements. Perforated PVC pipe, 3 inches in diameter, enclosed in a filter fabric sleeve was installed to a depth of approximately 35 feet in the hollow flight augers. Due to heavy caving of the soils upon withdrawal of the flight augers, the annulus between the PVC pipe and boring sidewalls was backfilled to the surface with the on-site granular soils.

The borings were drilled on May 26, 2005 and were filled to the surface with water immediately after drilling to saturate the soils. The percolation testing was performed on the following day, May 27, 2005.

The holes were refilled to the surface with clean water and the water level (depth to water) measured and recorded at 10-minute intervals for a period of 90 minutes using an electronic water level indicator. Three consecutive tests were performed to confirm the percolation rates, in accordance with County DEHS procedures. The results of our percolation testing are presented in the following pages.

The County of San Bernardino Department of Public Health, DEHS, has specified procedures for calculating percolation rates and seepage pit sizes. These are outlined in the DEHS On-Site Wastewater Disposal System Manuel, dated August 1992. The estimated quantity of on-site sewage from the Home Depot facility is 4,000 gallons per day. The percolation values from the test are presented in the fiolwing pages

PERCOLATION TESTING IN RETENTION BASIN AREA

RESULTS OF PERCOLATION TESTS
(MAY 27, 2005)

BORING B-29			BORING B-30			BORING B-31		
ELAPSED TIME (Mins.)	WATER DEPTH (Ft.)	WATER HEAD (Ft)	ELAPSED TIME (Mins.)	WATER DEPTH (Ft.)	WATER HEAD (Ft)	ELAPSED TIME (Mins.)	WATER DEPTH (Ft.)	WATER HEAD (Ft)
0	0	25.0	0	0	25.0	0	0	25.0
10	21.2	3.8	10	21.5	3.5	10	20.3	4.7
20	23.3	1.7	20	23.4	1.6	20	21.5	3.5
30	23.9	1.1	30	24.0	1.0	30	22.7	2.3
40	24.6	0.4	40	24.5	0.5	40	23.2	1.8
50	25.0	0	50	25.0	0	50	24.0	1.0
60			60			60	25.0	0

Note: Percolation test hole diameter = 0.67 feet.

PERCOLATION TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE D-1**

PERCOLATION TESTING IN SEPTIC AREA

RESULTS OF PERCOLATION TESTS NO. 1
(MAY 27, 2005)

BORING 27			BORING 28		
ACTUAL TIME	ELAPSED TIME (Mins.)	WATER DEPTH (Ft)	ACTUAL TIME	ELAPSED TIME (Mins.)	WATER DEPTH (Ft)
13:25	0	0	13:28	0	0
13:35	10	30.0	13.38	10	30.0
13:45	20	32.0	13:48	20	31.5
13:55	30	32.7	13:58	30	32.6
14:05	40	33.4	14:08	40	33.6
14:15	50	34.0	14:18	50	33.9
14:25	60	34.2	14:28	60	34.0
14:35	70	34.4	14:38	70	34.2
14:45	80	34.6	14:48	80	34.4
14:55	90	34.8 (Empty)	14:58	90	34.6

RESULTS OF PERCOLATION TESTS NO. 2
(MAY 27, 2005)

BORING 27			BORING 28		
ACTUAL TIME	ELAPSED TIME (Mins.)	DEPTH (Ft)	ACTUAL TIME	ELAPSED TIME (Mins.)	DEPTH (Ft)
15:05	0	4.0	15:08	0	4.0
15:15	10	31.0	15:18	10	31.0
15:25	20	32.3	15:28	20	32.6
15:35	30	33.0	15:38	30	33.2
15:45	40	33.7	15:48	40	33.8
15:55	50	34.2	15:58	50	34.2
16:05	60	34.5	15:08	60	34.4
16:15	70	34.7	15:18	70	34.6
16:25	80	34.8 (Empty)	15:28	80	34.7
16:35	90		15:38	90	34.8

RESULTS OF PERCOLATION TESTS NO. 3
(MAY 27, 2005)

BORING 27			BORING 28		
ACTUAL TIME	ELAPSED TIME (Mins.)	DEPTH (Ft)	ACTUAL TIME	ELAPSED TIME (Mins.)	DEPTH (Ft)
16:45	0	4.0	16:48	0	4.0
16:55	10	30.5	16:58	10	32.0
17:05	20	32.0	17:08	20	33.1
17:15	30	32.5	17:18	30	33.7
17:25	40	32.8	17:28	40	34.1
17:35	50	33.3	17:38	50	34.3
17:45	60	33.5	17:48	60	34.5
17:55	70	34.0	17:58	70	34.7
18:05	80	34.2	18:08	80	34.8
18:15	90	34.4	18:18	90	34.8

PERCOLATION TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1

FIGURE D-2

PERCOLATION TESTING IN SEPTIC AREA

Numerical Test Values From Percolation Testing in Septic Area
County of San Bernardino DEHS

ti –tf = 1.5 hours
t (test interval) = 0.166 hours
db= 35.0 feet
di = 0 feet
df = 35.0 feet
Lave = 17.5 feet
D = 0.67 feet

Please note that heavy caving was encountered during drilling and perforated pipe installation and should be expected during seepage pit construction.

PERCOLATION TEST RESULTS
HOME DEPOT STORE
YUCCA VALLEY

PROJECT NO. AZ103.10.1 **FIGURE D-3**

YUCCA VALLEY
441341.012
(GEO)

SOUTHWEST GEOTECH, INC.

30134 N. Royal Oak Way
Queen Creek, Arizona 85242

Telephone: (480) 888-1921 Facsimile: (480) 888-1922

March 3, 2005
Project No. AZ103.10.1

The Home Depot-Store Support Center West Coast
3800 Chapman Avenue, Fifth Floor
Orange, California 92868

RECEIVED
MAR - 7 2005
HOME DEPOT CONSTRUCTION

Attention: Mr. Chris King
Project Manager

Subject: Geologic Study
The Home Depot Store #881
Yucca Valley, California

Sir:

Immediately after receiving the "Executed Project Authorization" for the subject project, dated August 20, 2004, I ordered a seismic hazards study of the proposed site. I utilized a California certified engineering geologist, Mr. Stephen E. Jacobs, C.E.G. #1307 to accomplish the study. I have attached a copy of Mr. Jacobs' report for your perusal. I specifically direct your attention to the Conclusions and Recommendations presented on page 4 of the report.

Should you have any questions, please call.

SOUTHWEST GEOTECH, INC.

Jerry M. Sessums

Jerry M. Sessums, P.E., Ph.D.
(Arizona P.E. #38802)
President

STEPHEN E. JACOBS, C.E.G. 1307
Engineering Geologist
2871 Sanford Lane, Carlsbad, CA 92008-6553

Phone & Fax (760) 434-8503 • Alt. Fax (323) 464-5116 • Cell (760) 458-5574
Email sejacobs@aabol.com

August 25, 2004 Project No. SJJS-04002

Mr. Jerry M. Sessums, P.E., Ph.D., President
Southwest Geotech, Inc.
30134 N. Royal Oak Way
Queen Creek, Arizona 85242

Subject: **Seismic Hazards Study**
Proposed Home Depot Building Complex
Tax Assessors Parcel #0601-201-37-0000
17.97 Acre Parcel
58501 29 Palms Highway (Highway 62)
Yucca Valley, California

Dear Mr. Sessums:

At your request, I performed a study of the potential seismic hazards that could affect the subject property.

The scope of work performed for this study consisted of the following:

- Gathering and review of available published reports, maps and data (listed in Appendix A) pertaining to the geologic, fault and seismic hazard conditions at the site and vicinity according to the guidelines presented by CDMG (1997).

- Preparation of this report with my findings, conclusions and recommendations.

This report has been prepared for the exclusive use of Mr. Jerry M. Sessums of Southwest Geotech, Inc. and his direct client. This report is not to be provided to any other third party without my authorization. Should this report be provided to another third party without my authorization, then **Stephen E. Jacobs, CEG** will assume no liability, whatsoever.

Geologic and Tectonic Setting

The site is located near the southern edge of the Mojave Desert Geomorphic Province and near the northern edge of the Little San Bernardino Mountains of the Transverse Ranges

Geomorphic Province. The Mojave Desert Province contains prominent NW-SE trending to locally north-south trending right-lateral strike-slip faults such as the Landers, Burnt Mountain, and Eureka Peak faults, which pass within 10 kilometers of the site. The Transverse Ranges Provinces contains prominent east-west trending reverse/thrust faults such as the North Frontal fault and left-lateral strike-slip faults such as the Pinto Mountain fault, which is nearest to the site (see Figure 1, Appendix B and Table D-1, Appendix D).

The site topography is gently sloping ground toward Highway 62.

The site is underlain by Quaternary age alluvium consisting of mainly sand and gravel (Dibblee, 1967)

Earthquake Fault Zone

The subject property is not located within the Pinto Mountain Earthquake Fault (formerly Alquist-Priolo Special Studies) Zone (CDMG, 1988; 1993; Hart and Bryant, 1997), but is located approximately 0.25 km east of the eastern boundary of a fault zone (see Figure 2, Appendix B). It is possible the mapped trace of the zoned Pinto Mountain fault shown in Figure 2 may extend further east and cross the property, and faults may be exposed in excavations during construction.

Historical Seismic Analysis

Earthquakes on one of the major active faults in Southern California will probably cause moderate to severe ground shaking at the subject site during the life of the property. The locations and magnitudes of past earthquakes (magnitudes 5.0 or greater) in the southern California region within about 160 kilometers of the site are listed in Table C-1 (Appendix C).

Table 1 lists two earthquakes that have affected the subject site.

TABLE 1
EARTHQUAKES THAT HAVE AFFECTED THE SITE

Earthquake Date	Approx. Distance to Earthquake Epicenter (km)	Moment Magnitude	Estimated Peak Ground Acceleration (g) (CISN,2004)	Estimated Intensity (CISN,2004)
October 16, 1999	53 NNE	7.1	0.16	VI-VII
June 28, 1992	8 NNW	7.3	0.45	IX-X

Deterministic Seismic Analysis

The Pinto Mountain fault, whose nearest known segment is approximately 0.4 km west of the subject site, is considered the design active fault because of its known Holocene displacement at locations close to the property. Based on the attenuation curves for strike-slip faults of Campbell (1994), a maximum credible earthquake (MCE) magnitude of 7.2 on this fault yields a peak horizontal ground acceleration (PHGA) value of 0.52g for alluvium. The mean PHGA is considered to be two-thirds of the 0.52g value, which becomes 0 35g. The estimate of the PHGA was derived from Campbell and Bozorgnia (1994), Campbell (1994) and Abrahamson and Shedlock (1997) and based on MCE's and site-fault distances. The MCE's were derived from Wells and Coppersmith (1994), Petersen and others (1996) and Cao and others (2003).

A list of Quaternary faults within about 160 km of the site and other parameters are listed in Table D-1 (Appendix D).

Probabilistic Seismic Hazard Evaluation

The use of the interactive ground motion map from CGS (2003) yields a peak-ground acceleration (PGA) value of approximately 0.50g with a 10% probability of being exceeded in 50 years. This PGA value is for evaluation of site probabilistic seismic hazard only and may not be adequate for site-specific design or analysis.

Seismic Design Criteria

The Pinto Mountain fault is a Seismic Source Type B fault, because the slip rate = 2.50 mm/yr (which is less than the 5.00 mm/yr value required for a Seismic Source Type A, according to Table 16-U of the 1997 UBC). Based on Table 16-S of the 1997 UBC, and a Seismic Source Type B, at a seismic source distance 0.4 km, $N_a = 1.46$ and $N_v = 1.78$. Therefore C_a in Table 16-Q of the 1997 UBC is $0.44N_a$.for assumed Soil Profile S_D (stiff soil) and C_v is $0.64N_v$ (ICBO, 1997). A full list of the seismic coefficients for this site is presented in Table D-2 (Appendix D).

Liquefaction

Liquefaction-related hazards include (a) flow slides or large translational or rotational site failures mobilized by existing static stresses, (b) limited lateral spreads of the order of feet or less triggered and sustained by earthquake ground shaking, (c) ground settlement, and (d) surface manifestation of underlying liquefaction (CDMG, 1997).

Most liquefaction hazards are associated with sandy soils and silty soils of low plasticity, and to a lesser extent cohesive soils with a clay content less than 15 percent, a liquid limit less than 35 percent, and a moisture content of the in-place soil that is greater than 0.9

times the liquid limit (i.e., sensitive clays) that are vulnerable to significant strength loss under relatively minor strains (Seed and others, 1983; CDMG, 1997).

Potentially liquefiable soils must be saturated or nearly saturated. Liquefaction hazards are generally most severe in the upper 50 feet of the ground surface (CDMG, 1997). Groundwater depth near the subject site in Yucca Valley is reportedly greater than 200 feet (Smith, 2003). Therefore, liquefaction is considered not a potential hazard to the site.

Conclusions And Recommendations

- The subject property lies within a seismically active region of southern California. Therefore earthquake resistant structural design is recommended.
- The subject property lies along a projected trend of the zoned Pinto Mountain fault. Although no zoned faults cross the property according to geologic literature, the possibility of faults crossing the property cannot be ruled out. I recommend that, before construction, an exploratory trench be excavated in a north-south direction across the entire property in order to verify (or rule out) the presence of any faults on the property, so that further recommendations can be made if necessary. This office should be present to geologically log the exploratory excavation and any excavations exposed during construction.

Limitations

This is a professional study report prepared for the exclusive use of Mr. Jerry M. Sessums of Southwest Geotech, Inc. and his direct client. The opinions expressed herein are for the purpose of evaluating the seismic hazard conditions on and in the vicinity of the subject property. This report is intended for use only by the client named above and his client for the purpose stated; no other use of this report is authorized, and transfer to any other person or agency without my notification and authorization is not advisable. No site visit, surface or subsurface explorations were made to verify conditions on or underlying the lot. No warranties, either express or implied, are given as to the geologic, soils, or foundation conditions of the subject property.

This opportunity to be of professional service is greatly appreciated. If you have any questions regarding this report, please call me.

Very truly yours,

Stephen E. Jacobs.
RG-3978. CEG-1307

CERTIFIED ENGINEERING GEOLOGIST
STEPHEN E. JACOBS
No. 1307
Exp. 9/30/05
ENGINEERING GEOLOGY
STATE OF CALIFORNIA

Appendix A

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Appendix B
Figures

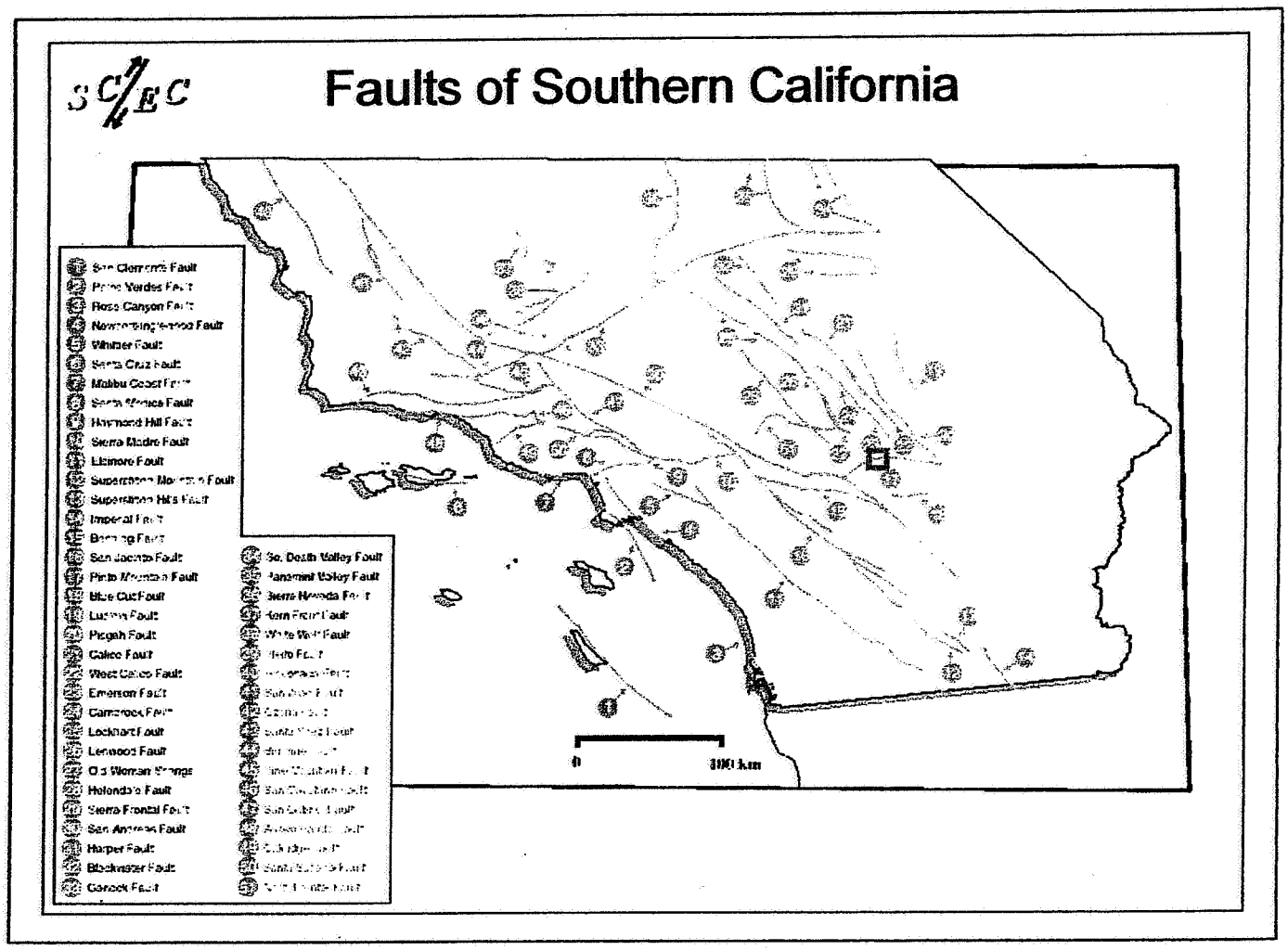

Figure 1. Regional fault map of southern California (SCEC) showing location of subject property ☐

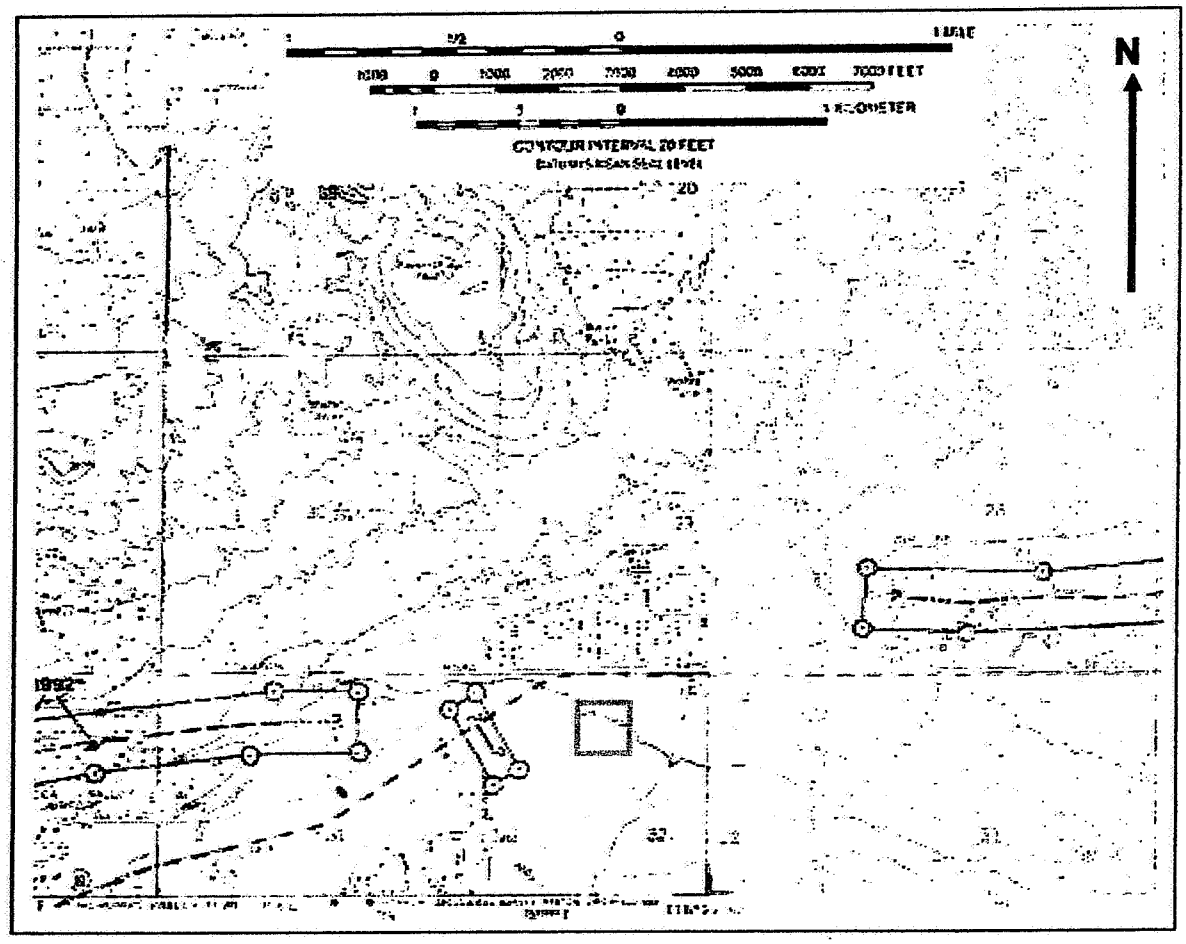

Figure 2. Portions of earthquake fault zones maps of Yucca Valley North and Joshua Tree North 7½-minute quadrangles (CDMG, 1988, 1993) showing locations of zoned segments of the Pinto Mountain fault zone and subject property

Appendix C

TABLE C-1: Earthquake History of Regional Vicinity of Subject Site in Yucca Valley, California

Compiled from:
T. Toppozada and others, 2000, Epicenters of and areas damaged by M ≥ 5 California earthquakes, 1800-1999 (CDMG Map Sheet 49);
National Earthquake Information Center (http://neic.usgs.gov/neis);
and loss information from C. Stover and J. Coffman, 1993, Seismicity of the United States (USGS Professional Paper 1527).

Approximate Site Coordinates: Latitude 34.14, Longitude -116.40

Year	Month	Day	Latitude	Longitude	Magnitude [M_w][1]	Name, Location, or Region Affected	Loss of Life and Property
1800	11	22	33.00	-117.30	6.5		
1812	12	8	33.70	-117.90	6.9	Wrightwood	
1852	11	29	32.50	-115.00	6.5		
1858	12	16	34 0.	-117.50	6.0	San Bernardino region	
1862	5	27	32.70	-117.20	5.9		
1872	5	3	33.00	-115.00	5.5		
1889	2	7	34.10	-116.70	5.3		
1889	8	28	34.10	-117.90	5.2		
1890	2	9	33.40	-116.30	6.3	San Jacinto fault?	Little damage
1892	2	24	32.70	-116.30	6.7		
1892	5	28	33.20	-116.20	6.3		
1894	7	30	34.30	-117.60	5.9		
1894	10	23	32.80	-116.80	5.7		
1899	7	22	34.20	-117.40	5.5		
1899	7	22	34.30	-117.50	6.5	Wrightwood	Chimneys knocked down; landslides reported
1899	12	25	33.80	-117.00	6.6	San Jacinto and Hemet	6 dead; $50,000 in property damage
1906	4	19	32.50	-115.50	6.0		
1907	9	20	34.20	-117.10	6.0		
1908	11	4	36.00	-117.00	6.5		
1910	4	11	33.70	-117.40	5.0		
1910	5	13	33.70	-117.40	5.0		
1910	5	15	33.70	-117.40	6.0		
1915	6	23	32.80	-115.50	6.2		
1915	6	23	32.80	-115.50	6.2		
1916	9	30	33.50	-116.50	5.0		
1916	11	10	36.00	-117.00	5.5		
1917	5	28	32.80	-115.30	5.5		
1918	4	21	33.75	-117.00	6.8	San Jacinto	1 dead; several injuries; $200,000 in property damage
1918	5	1	32.50	-115.50	5.0		
1918	6	6	33.75	-117.00	5.0		
1920	1	1	33.20	-116.70	5.0		

[1] [M_w] value in brackets denotes moment magnitude

Year	Month	Day	Latitude	Longitude	Magnitude [M_w]	Name, Location, or Region Affected	Loss of Life and Property
1921	9	8	32.50	-115.50	5.0		
1923	7	23	34.00	-117.25	6.2	San Bernardino region	
1923	11	5	32.50	-115.50	5.0		
1923	11	7	32.50	-115.50	5.5		
1926	4	3	34.00	-116.00	5.5		
1927	1	1	32.50	-115.50	5.7		
1927	1	1	32.50	-115.50	5.5		
1928	9	5	34.00	-116.00	5.0		
1928	10	2	32.90	-115.70	5.0		
1929	9	26	34.83	-116.52	5.1		
1930	1	16	34.18	-116.92	5.2		
1930	1	16	34.18	-116.92	5.1		
1930	2	26	33.00	-115.50	5.0		
1933	3	11	33.62	-117.97	6.3	Long Beach	115 dead; $40 million in property damage
1933	3	11	33.75	-118.08	5.0		
1933	3	11	33.75	-118.08	5.1		
1933	3	11	33.75	-118.08	5.0		
1933	3	11	33.70	-118.07	5.1		
1933	3	11	33.58	-117.98	5.2		
1933	3	11	33.68	-118.05	5.5		
1933	3	11	33.70	-118.07	5.1		
1933	3	11	33.75	-118.08	5.1		
1933	3	13	33.75	-118.08	5.3		
1933	3	14	33.62	-118.02	5.1		
1933	10	2	33.78	-118.13	5.4		
1935	9	8	32.90	-115.22	5.0		
1935	10	11	32.90	-115.22	5.0		
1935	10	24	34.10	-116.80	5.1		
1935	12	20	33.17	-115.50	5.0		
1937	3	25	33.41	-116.26	6.0		
1938	5	31	33.70	-117.51	5.5		
1938	6	6	32.90	-115.22	5.0		
1938	9	17	35.63	-117.51	5.0		
1939	5	4	35.97	-114.82	5.0		
1940	5	18	34.08	-116.30	5.4		
1940	5	18	34.07	-116.33	5.2		
1940	5	18	34.07	-116.33	5.0		
1940	5	19	32.73	-115.50	6.7	Imperial Valley	9 dead; $6 million in property damage
1940	5	19	32.76	-115.48	5.5		
1940	5	19	32.76	-115.48	5.5		
1940	5	19	32.76	-115.48	5.0		
1940	5	19	32.76	-115.48	5.5		
1940	6	4	33.00	-116.43	5.1		

Year	Month	Day	Latitude	Longitude	Magnitude [M_w]	Name, Location, or Region Affected	Loss of Life and Property
1941	11	14	33.78	-118.25	5.4		
1942	3	3	34.00	-115.75	5.0		
1942	5	23	32.98	-115.98	5.0		
1942	10	21	32.97	-116.00	6.5	About 25 miles W of Westmoreland	
1942	10	21	32.97	-116.00	5.0		
1942	10	21	32.97	-116.00	5.0		
1942	10	22	33.23	-115.72	5.5		
1942	10	22	32.97	-116.00	5.0		
1943	8	29	34.27	-116.97	5.5		
1943	12	22	34.33	-115.80	5.5		
1944	6	12	33.98	-116.72	5.1		
1944	6	12	33.99	-116.71	5.3		
1945	3	20	34.25	-116.17	5.0		
1945	8	15	33.22	-116.13	5.7		
1946	1	8	33.00	-115.83	5.4		
1946	3	15	35.75	-117.99	5.2		
1946	3	15	35.72	-118.06	6.3		
1946	3	15	35.72	-118.07	5.3		
1946	3	15	35.71	-117.98	5.4		
1946	3	15	35.75	-118.03	5.2		
1946	3	16	35.74	-118.04	5.1		
1946	3	18	35.75	-117.91	5.3		
1946	7	18	34.53	-115.98	5.6		
1946	9	28	33.95	-116.85	5.0		
1947	4	10	34.98	-116.55	6.2	East of Yermo	
1947	4	10	34.97	-116.55	5.1		
1947	4	10	34.95	-116.53	5.0		
1947	4	11	34.97	-116.55	5.0		
1947	7	24	34.02	-116.50	5.5		
1947	7	25	34.02	-116.50	5.0		
1947	7	25	34.02	-116.50	5.2		
1947	7	26	34.02	-116.50	5.1		
1948	12	4	33.93	-116.38	6.5	Desert Hot Springs (East of Yermo)	
1949	5	2	34.02	-115.68	5.9		
1950	7	28	33.12	-115.57	5.4		
1950	7	29	33.12	-115.57	5.5		
1951	1	24	32.98	-115.73	5.6		
1952	8	23	34.52	-118.20	5.0		
1953	6	14	32.95	-115.72	5.5		
1954	3	19	33.28	-116.18	6.2		
1954	3	19	33.28	-116.18	5.0		
1954	3	19	33.28	-116.18	5.5		
1954	3	23	33.28	-116.18	5.1		

Year	Month	Day	Latitude	Longitude	Magnitude [M_w]	Name, Location, or Region Affected	Loss of Life and Property
1955	12	17	33.00	-115.50	5.4		
1957	4	25	33.22	-115.81	5.2		
1957	4	25	33.18	-115.85	5.1		
1957	5	26	33.23	-116.00	5.0		
1961	1	28	35.78	-118.05	5.3		
1961	10	19	35.83	-117.76	5.2		
1963	9	23	33.71	-116.93	5.0		
1965	9	25	34.71	-116.50	5.2		
1965	9	26	34.71	-116.03	5.0		
1968	4	9	33.19	-116.13	6.4	Borrego Mountain	
1968	4	9	33.11	-116.04	5.2		
1969	4	28	33.34	-116.35	5.8		
1970	9	12	34.27	-117.54	5.4		
1971	9	30	33.03	-115.82	5.1		
1975	1	12	32.80	-117.97	5.1		
1975	6	1	34.52	-116.53	5.4		
1976	11	4	33.08	-115.60	5.3		
1977	11	14	32.82	-115.47	5.0		
1979	3	15	34.30	-116.43	5.3		
1979	3	15	34.32	-116.45	5.7		
1979	3	15	34.33	-116.43	5.0		
1979	10	15	32.63	-115.33	7.0	Imperial Valley	9 injured; $30 million in property damage
1979	10	16	32.91	-115.53	5.1		
1979	10	16	33.02	-115.57	5.6		
1979	10	16	32.93	-115.54	5.5		
1979	10	16	33.02	-115.58	6.1		
1979	10	16	32.90	-115.55	5.2		
1979	10	16	33.07	-115.57	5.5		
1979	10	17	33.10	-115.55	5.0		
1980	2	25	33.52	-116.55	5.6		
1981	4	26	33.13	-115.65	6.3	Westmoreland	
1982	3	7	35.75	-117.77	5.0		
1982	10	1	35.73	-117.75	5.4		
1985	7	16	34.54	-116.84	5.2		
1986	7	8	34.00	-116.61	6.0		
1986	7	13	32.97	-117.87	5.8		
1987	10	1	34.06	-118.08	6.1		
1987	10	4	34.07	-118.10	5.6		
1987	11	24	33.08	-115.78	6.5 [6.2]	Superstition Hills; Elmore Ranch fault	$3 million in property damage
1987	11	24	33.01	-115.84	6.7 [6.6]	Superstition Hills	part of above damage
1988	11	20	33.51	-118.07	5.0		
1988	12	3	34.15	-118.13	5.0		
1988	12	16	33.98	-116.68	5.2		

Year	Month	Day	Latitude	Longitude	Magnitude [M_w]	Name, Location, or Region Affected	Loss of Life and Property
1989	4	7	33.62	-117.90	5.0		
1990	2	28	34.14	-117.70	6.2		
1991	6	28	34.26	-118.00	5.8		
1992	4	23	33.96	-116.32	6.3 [6.5]	Big Bear	Included with Landers losses, below
1992	6	28	34.20	-116.44	7.6 [7.3]	Landers	1 dead; 402 injured; $91.1 million in property damage
1992	6	28	34.14	-116.43	5.1		
1992	6	28	34.34	-116.53	5.2		
1992	6	28	34.16	-116.86	5.5		
1992	6	28	34.20	-116.83	6.7		
1992	6	28	34.18	-116.92	5.0		
1992	6	29	34.11	-116.40	5.4		
1992	6	29	33.88	-116.27	5.2		
1992	6	30	34.00	-116.36	5.1		
1992	7	1	34.33	-116.46	5.4		
1992	7	5	34.58	-116.32	5.4		
1992	7	9	34.24	-116.84	5.7		
1992	7	11	35.21	-118.07	5.7		
1992	7	24	33.90	-116.28	5.0		
1992	8	17	34.19	-116.86	5.3		
1992	9	15	34.06	-116.36	5.6		
1992	11	27	34.34	-116.90	5.6		
1992	12	4	34.37	-116.90	5.4		
1993	8	21	34.03	-116.32	5.0		
1994	4	6	34.19	-117.10	5.0		
1994	6	16	34.27	-116.40	5.3		
1995	5	7	33.90	-116.29	5.0		
1995	8	17	35.78	-117.66	5.4		
1995	9	20	35.76	-117.64	6.1		
1995	9	25	35.81	-117.62	5.3		
1996	1	7	35.77	-117.65	5.4		
1996	1	8	35.78	-117.64	5.0		
1997	3	18	34.97	-116.82	5.1		
1999	10	16	34.59	-116.27	7.4 [7.1]	Bullion Mountains (Hector Mine)	Minimal injuries and damage due to sparse population in affected area
1999	10	16	34.68	-116.28	5.8		
1999	10	16	34.44	-116.25	5.7		
1999	10	21	34.80	-116.41	5.0		
1999	10	21	34.86	-116.39	5.0		
1999	10	22	34.86	-116.41	5.0		
2001	2	10	34.29	-116.95	5.3		
2001	10	31	33.51	-116.51	5.2		
2003	2	22	34.31	-116.85	5.2		

Appendix D

TABLE D-1: SEISMICITY FOR QUATERNARY FAULTS				
Fault Name (Geometry)[2]/Type[3]	Approx. Distance From Site (km)[4]	Maximum Credible Earthquake Magnitude[5]	Slip Rate (mm/yr)[6]	Peak Ground Acceleration, g[7] (alluvium)
Bicycle Lake	123 N			
Blackwater (rl-ss)/B	113 NW	7.1	0.60	
Blake Ranch	19.5 NW			
Blue Cut (ll-ss)	26 SSE			
Brawley Seismic Zone (rl-ss)/B	108 SE	6.4	25.00	
Broadwell Lake (rl-ss)	73 NE			
Burnt Mountain (rl-ss)/B	2.5 WSW	6.5	0.60	0.46
Cady (ll-ss)	86 N			
Calico-Hidalgo (rl-ss)/B	20 ENE	7.3	0.60	
Camp Rock-Emerson-Copper Mountain (rl-ss)	15.4 NE	7.3	1.00	
Chino-Central Ave. (rl-r-o)/B	114 WSW	6.7	1.00	
Cleghorn (ll-ss)/B	82 WNW	6.5	3.00	
Cleghorn Lake (rl-ss?)	57 NE			
Coyote Lake	114 NNW			
Cucamonga (r, 45 N)/B	98 W	6.9	5.00	
Elsinore-Glen Ivy segment (rl-ss)/A	98 SW	6.8	5.00	
Elmore Ranch (ll-ss)	104 SE	6.5	0.50-1.50	
Eureka Peak (rl-ss)/B	1.4 WSW	6.4	0.60	0.46
Gallway Lake (rl-ss)	42 NNW	6.0	0.50	
Garlic Spring	118 NNW			
Gravel Hills-Harper Lake (rl-ss)/B	96 NW	7.1	0.60	
Helendale (Southern Extension) (rl-ss)	22 NW			
Helendale-S. Lockhart (rl-ss)/B	45 NW	7.3	0.60	
Hidden Springs	73 SE			
Homestead Valley (rl-ss)	18 N	7.0	0.50	
Hot Springs (rl-ss)	91 SE			
Imperial (rl-ss)/A	154 SE	7.0	20.00	
TABLE D-1: SEISMICITY FOR QUATERNARY FAULTS (continued)				

[2] rl=right-lateral, ll=left-lateral, ss=strike-slip, r=reverse, n=normal, o=oblique
[3] Bortugno and Spittler (1986), CDMG (1993), Jennings (1994), Table 1 of ICBO (1998), Cao and others (2003) and website http://www.data.scec.org
[4] Fault distances measured from fault maps (Bortugno and Spittler, 1986; CDMG, 1993; Jennings, 1994)
[5] Maximum moment magnitude calculated from relationships (rupture area) derived from Wells and Coppersmith (1994); values listed in Appendix A of Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org
[6] Maximum value in a group of fault segments within the fault zone; values from Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org
[7] Interpolated (or extrapolated) value estimated from Campbell and Bozorgnia (1994), Campbell (1994) and Abrahamson and Shedlock (1997) (site is assumed to be underlain by stiff soil)

Fault Name (Geometry)[8]/Type[9]	Approx. Distance From Site (km)[10]	Maximum Credible Earthquake Magnitude[11]	Slip Rate (mm/yr)[12]	Peak Ground Acceleration, g[13] (alluvium)
Johnson Valley (Northern) (rl-ss)/B	22 NNW	6.7	0.60	
Kramer Hills	136 NW			
Lavic Lake (rl-ss)	36 NE			
Landers (rl-ss)/B	4.2 NW	7.3	0.60	0.48
Lenwood-Lockhart-Old Woman Springs (rl-ss)/B	35 NW	7.5	0.60	
Leuhman	131 NW			
Llano	134 WNW			
Long Canyon	9.6 SW	6.2		
Ludlow (rl-ss)	59 NE			
Manix (ll-ss)	94 NNW			
Mill Creek (rl-ss)	34 WSW			
Mirage Valley	119 NW			
Mission Creek (rl-ss)	22 SW			
Morongo Valley (ll-ss)	3.2 W	6.8	<0.50	0.47
Newport-Inglewood (rl-ss)/B	143 SW	7.1	1.00	
North Frontal Fault Zone (Western) (r, 45 S)/B	52 NW	7.2	1.00	
North Frontal Fault Zone (Eastern) (r, 45 S)/B	23 NW	6.7	0.50	
Pinto Mountain (ll-ss)/B	0.4 W	7.2	2.50	0.52
Pipes Canyon (rl-ss)	17.5 WNW	6.5		
Pisgah-Bullion Mt.-Mesquite Lk. (rl-ss)/B	30 NE	7.3	0.60	
Raymond (ll-r-o, 75 N)/B	151 W	6.5	1.50	
Rodman (rl-ss)	57 N	6.5		
Salton Creek (ll-ss?)	86 SE			
San Andreas-San Bernardino segment (rl-ss)/A	45 WSW	7.5	24.00	
San Andreas-Coachella segment (rl-ss)/A	27 SW	7.2	25.00	
San Jacinto-San Jacinto Valley segment (rl-ss)/A	63 SW	6.9	12.00	
San Jacinto-San Bernardino segment (rl-ss)/A	61 SW	6.7	12.00	
San Jacinto-Coyote Creek segment (rl-ss)/A	74 SSW	6.8	4.00	
Santa Ana (San Bernardino Mts.) (ll-r-o)	58 WNW	7.0		

TABLE D-1: SEISMICITY FOR QUATERNARY FAULTS (continued)

[8] rl=right-lateral, ll=left-lateral, ss=strike-slip, r=reverse, n=normal, o=oblique

[9] Bortugno and Spittler (1986), Jennings (1994), Table 1 of ICBO (1998), Cao and others (2003) and website http://www.data.scec.org

[10] Fault distances measured from fault maps (Jennings, 1994; CDMG, 1993; Bortugno and Spittler, 1986; Dibblee, 1967)

[11] Maximum moment magnitude calculated from relationships (rupture area) derived from Wells and Coppersmith (1994); values listed in Appendix A of Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org

[12] Maximum value in a group of fault segments within the fault zone; values from Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org

[13] Interpolated (or extrapolated) value estimated from Campbell and Bozorgnia (1994) and Campbell (1994) (site is assumed to be underlain by stiff soil)

Fault Name (Geometry) /Type	Approx. Distance From Site (km)[16]	Maximum Credible Earthquake Magnitude[17]	Slip Rate (mm/yr)[18]	Peak Ground Acceleration, g[19] (alluvium)
Sierra Madre (r, 45 N)/B	131 W	7.2	2.00	
S. Bristol Mountains (rl-ss)	82 NE	7.0		
S. Emerson-Copper Mountain (rl-ss)/B	15.4 NE	7.0	0.60	
Spring	131 NW			
Superstition Hills (rl-ss)/A	133 SSE	6.6	4.00	
Superstition Mountain (rl-ss)/A	132 SSE	6.6	5.00	
Whittier (rl-r-o)/A	118 WSW	6.8	2.50	

TABLE D-2: SEISMIC COEFFICIENTS		
Parameter	**Value or Designation**	**1997 UBC Reference**
Soil Profile	S_D[20]	Table 16-J
Seismic Zone	4	Figure 16-2
Zone Factor, Z	0.4	Table 16-I
Seismic Source	Pinto Mountain Fault[21]	Figure Q-32
Seismic Source Type	B	Table 16-U
Distance to Seismic Source	0.4 km[22]	Figure Q-32
Slip Rate	2.5 mm/yr	Table 1*
Maximum Magnitude (M_W)	7.2	Table 1*
Near Source Factor, N_a	1.46	Table 16-S
Near Source Factor, N_v	1.78	Table 16-T
Seismic Coefficients, C_a	$0.44N_a$	Table 16-Q
Seismic Coefficients, C_v	$0.64N_v$	Table 16-R

[14] rl=right-lateral, ll=left-lateral, ss=strike-slip, r=reverse, n=normal, o=oblique

[15] Bortugno and Spittler (1986), Jennings (1994), Table 1 of ICBO (1998), Cao and others (2003) and website http://www.data.scec.org

[16] Fault distances measured from fault maps (Jennings, 1994; CDMG, 1993; Bortugno and Spittler, 1986; Dibblee, 1967)

[17] Maximum moment magnitude calculated from relationships (rupture area) derived from Wells and Coppersmith (1994); values listed in Appendix A of Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org

[18] Maximum value in a group of fault segments within the fault zone; values from Peterson and others (1996), Cao and others (2003) and website http://www.data.scec.org

[19] Interpolated (or extrapolated) value estimated from Campbell and Bozorgnia (1994) and Campbell (1994) (site is assumed to be underlain by stiff soil)

20 The soil profile type S_D for stiff soil is assumed for the site.

21 Pinto Mountain fault is the design fault because of its known Holocene activity as the nearest active fault to the site.

[22] Fault source from "Maps of Known Active Fault Near-Source Zones in California and Adjacent Portions of Nevada", prepared by California Department of Conservation, Division of Mines and Geology, February 1998 (ICBO, 1998). Fault-site distance measured from CDMG (1993).

YV1
441341.012
(GEO)

STEPHEN E. JACOBS, C.E.G. 1307
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April 6, 2005

The Home Depot, Inc.
3800 West Chapman Ave.
Orange, CA 92868

Fax No. (714) 940-3579

Attention: Mr. George Ray
Real Estate Manager

Subject: Report of Fault Investigation
12.83-Acre Home Depot Parcel
58501 29 Palms Highway (Highway 62)
Yucca Valley, CA

Your Proj. No.: 441341.012

Dear Mr. Ray:

According to your request and that of Jerry M. Sessums, P.E. of Southwest Geotech, Inc., I performed a fault investigation on the subject property on March 16, 2005. This report is a follow-up to my previous seismic hazard study and addendum (Jacobs, 2004a, b). The purpose of the investigation was to identify features that could indicate the presence of faulting affecting the property. I communicated my preliminary fault trench observations in my previous letter dated March 17, 2005.

This report has been prepared for the exclusive use of Home Depot, Inc., their representatives and direct clients, and because conditions may change over time due to earthquakes, rainstorms, construction, and other causes, this report may require an updated investigation. This report is not to be provided to any other third party without my authorization and my on-site inspection. Should this report be provided to another third party without my authorization and my on-site inspection, then **Stephen E. Jacobs, CEG,** the undersigned, will assume no liability, whatsoever.

The scope of work performed for this investigation consisted of the following:

- Excavation of an approximately 1200-foot long exploratory trench to examine the subsurface soils for possible fault(s) crossing the property.
- Preparation of this report with my findings, conclusions and recommendations.

GEOLOGIC AND TECTONIC SETTING

Geologic references cited in this investigation are listed in Appendix A.

The site is located on a slightly dissected alluvial surface that slopes gently toward Twentynine Palms Highway (Highway 62). The northern edge of the subject parcel is approximately 25 feet lower than the southern edge. An approximately 100-foot wide, 5-foot deep channel traverses the parcel.

The site is located near the southern edge of the Mojave Desert Geomorphic Province and near the northern edge of the Little San Bernardino Mountains of the Transverse Ranges Geomorphic Province. The Mojave Desert Province contains prominent northwest-southeast trending to locally north-south trending right-lateral strike-slip faults. The Transverse Ranges Provinces contains prominent east-west trending reverse/thrust faults and left-lateral strike-slip faults such as the Pinto Mountain fault, which is nearest to the site (see Figure 1, Appendix B).

Earthquake Fault Zone

The subject property is not located within the Pinto Mountain Earthquake Fault (formerly Alquist-Priolo Special Studies) Zone (CDMG, 1988; 1993; Hart and Bryant, 1997), but is located approximately 0.25 km east of the eastern boundary of a fault zone (see Figure 2, Appendix B).

GEOLOGIC FINDINGS RELATIVE TO EXPLORATORY TRENCH

The location of my exploratory trench is shown on Plate 1, Trench Location Map (Appendix B). No faults or offset sedimentary units were observed in the exploratory trench (see Log of Exploratory Trench, Plate 2).

OTHER GEOLOGIC FINDINGS FROM EXPLORATORY TRENCH

1. Geologic Units

- ***Alluvium***

  Alluvium was encountered in the natural channel exposed in the trench to depths explored. The alluvium consists of coarse- to very coarse-grained sand, clean to slightly silty, brown to dark brown, with abundant pebbles, numerous cobbles and common boulders up to about 2 feet maximum dimension. The alluvium was loose to medium dense with caving and moist at the time of my exploration.

- ***Older Alluvium***

  Older alluvium was encountered throughout the trench to the depths explored. The older alluvium consists of medium to coarse-grained sand, clean to slightly silty, brown to dark brown, slightly micaceous, with numerous roots and rootlets in upper 2 feet, common very coarse-grained sand lenses, common gravelly lenses with boulders up to about 3 feet maximum dimension. Older alluvium locally consists of a lens of very fine- to fine-grained micaceous sand, slightly silty to silty, dark brown. The older alluvium was loose to medium dense with caving and moist at the time of my exploration.

Conclusions And Recommendations

- The results of my subsurface exploration indicate that active strands of the Pinto Mountain Fault Zone do not cross the site.

- The subject property lies within a seismically active region of southern California. Therefore earthquake resistant structural design for the proposed buildings is recommended due to the increased level of seismic risk.

- Based on my geologic fault investigation, I believe that the site is probably safe from any geologic hazards within the expected lifetime of the proposed structures.

Limitations

This is a fault investigation report prepared for the exclusive use of The Home Depot, Inc. The opinions expressed herein are for the purpose of investigating the presence of faults on the subject property. This report is intended for use only by the client named above for the purpose stated; no other use of this report is authorized, and transfer to any other person or agency without my notification and authorization is not advisable. No warranties, either express or implied, are given as to the geologic, soils, or foundation conditions of the subject property.

This opportunity to be of professional service is greatly appreciated. If you have any questions regarding this report, please call me.

Very truly yours,

Stephen E. Jacobs

Stephen E. Jacobs,
RG-3978, CEG-1307

CERTIFIED ENGINEERING GEOLOGIST
STEPHEN E. JACOBS
No. 1307
Exp. 8/31/05
ENGINEERING GEOLOGY
STATE OF CALIFORNIA

Attachment: Plate 2 (Log of Exploratory Trench)

Copies: (4) Addressee

(1) Mr. Jerry M. Sessums, P.E., Ph.D., President
Southwest Geotech, Inc.
30134 N. Royal Oak Way
Queen Creek, Arizona 85242

Appendix A

References

California Division of Mines and Geology (CDMG), 1988, Earthquake Hazard Zones (formerly Alquist-Priolo Special Studies Zone) Map of the Joshua Tree North 7½-minute quadrangle, scale 1:24,000.

California Division of Mines and Geology (CDMG), 1993, Earthquake Hazard Zones (formerly Alquist-Priolo Special Studies Zone) Map of the Yucca Valley North 7½-minute quadrangle, scale 1:24,000.

Hart, E.W. and Bryant, W.A, 1997 (revised), Fault-rupture hazard zones in California: California Department of Conservation, Division of Mines and Geology Special Publication 42, 38 p.

Jacobs, S.E., 2004a, Seismic Hazards Study, Proposed Home Depot Building Complex Tax Assessors Parcel #0601-201-37-0000, 17.97 Acre Parcel, 58501 29 Palms Highway (Highway 62), Yucca Valley, California, report dated August 16, 2004,, Project No. SJJS-04002.

Jacobs, S.E., 2004b, Addendum Seismic Hazards Study, Proposed Home Depot Building Complex, Tax Assessors Parcel #0601-201-37-0000, 17.97 Acre Parcel, 58501 29 Palms Highway (Highway 62), Yucca Valley, California, dated August 20, 2004, Project No. SJJS-04002.

Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas with locations and ages of recent volcanic eruptions: California Division of Mines and Geology Geologic Data Map No. 6, scale 1:750,000.

Appendix B
Figures and Plates

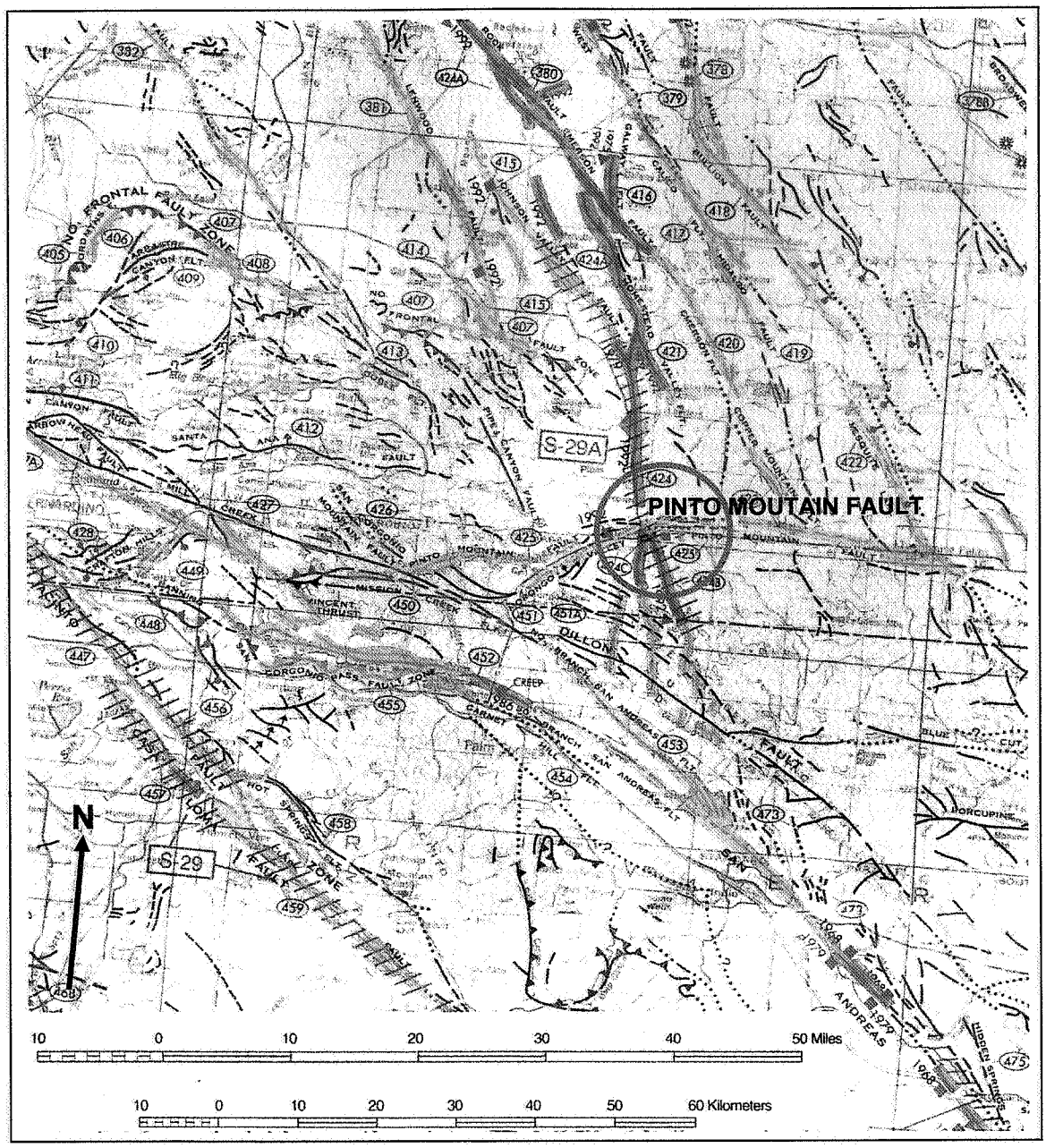


Figure 1. **Regional Fault Map:** Portion of fault activity map of California (Jennings, 1994) showing locations of the Pinto Mountain fault, other nearby faults and subject property

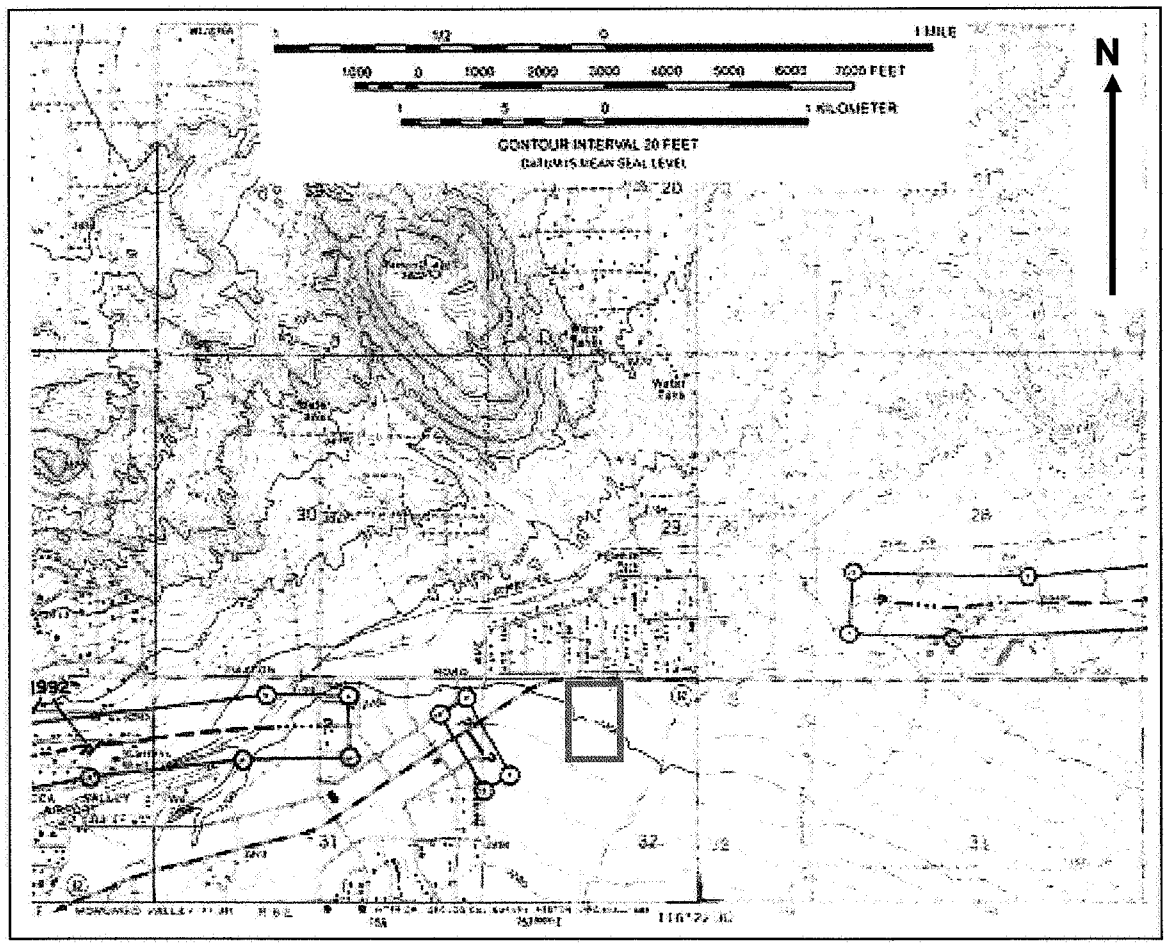


Figure 2. **Fault Zones Map:** Portions of earthquake fault zones maps of Yucca Valley North and Joshua Tree North 7½-minute quadrangles (CDMG, 1988, 1993) showing locations of zoned segments of the Pinto Mountain fault zone and subject property

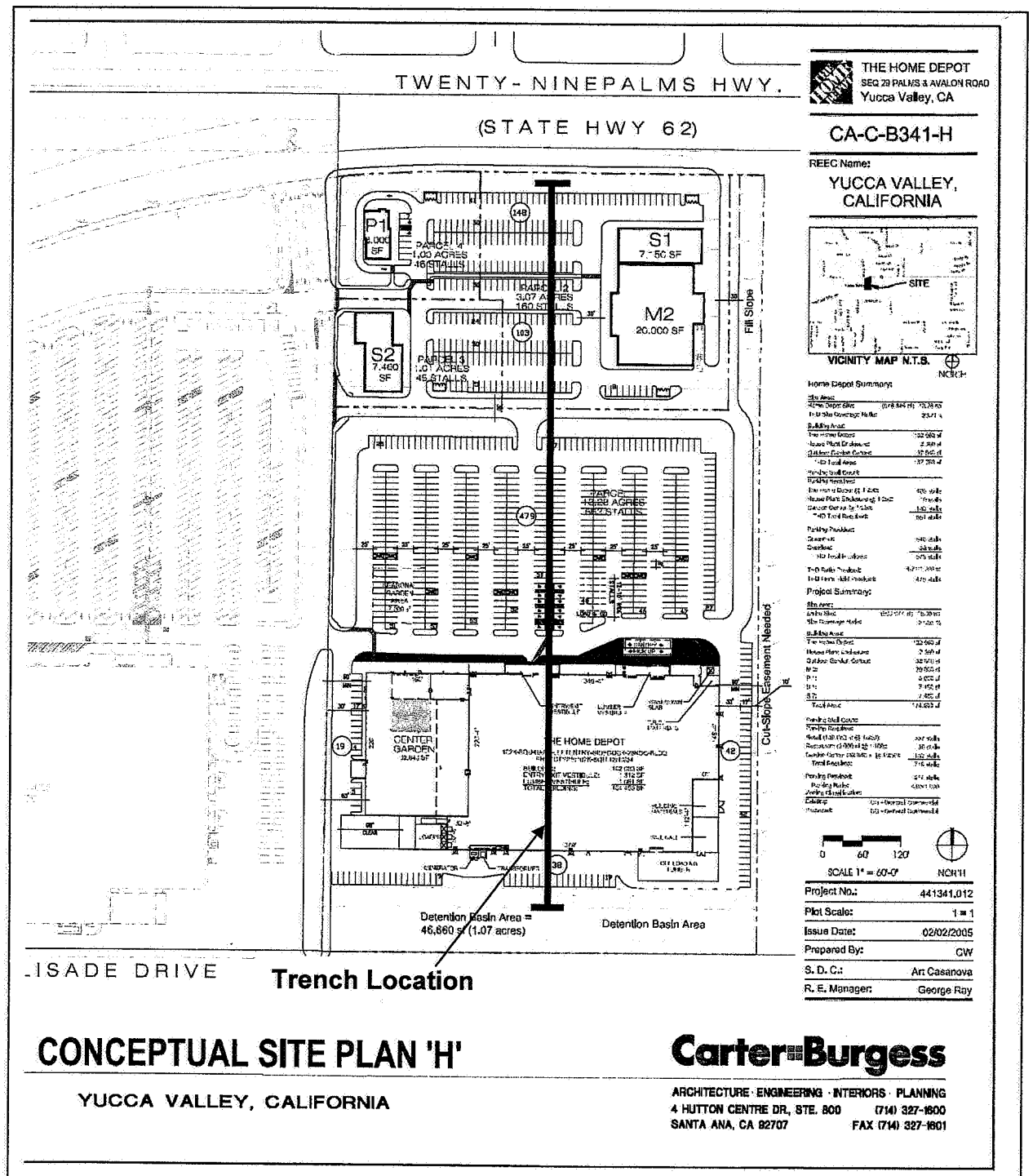
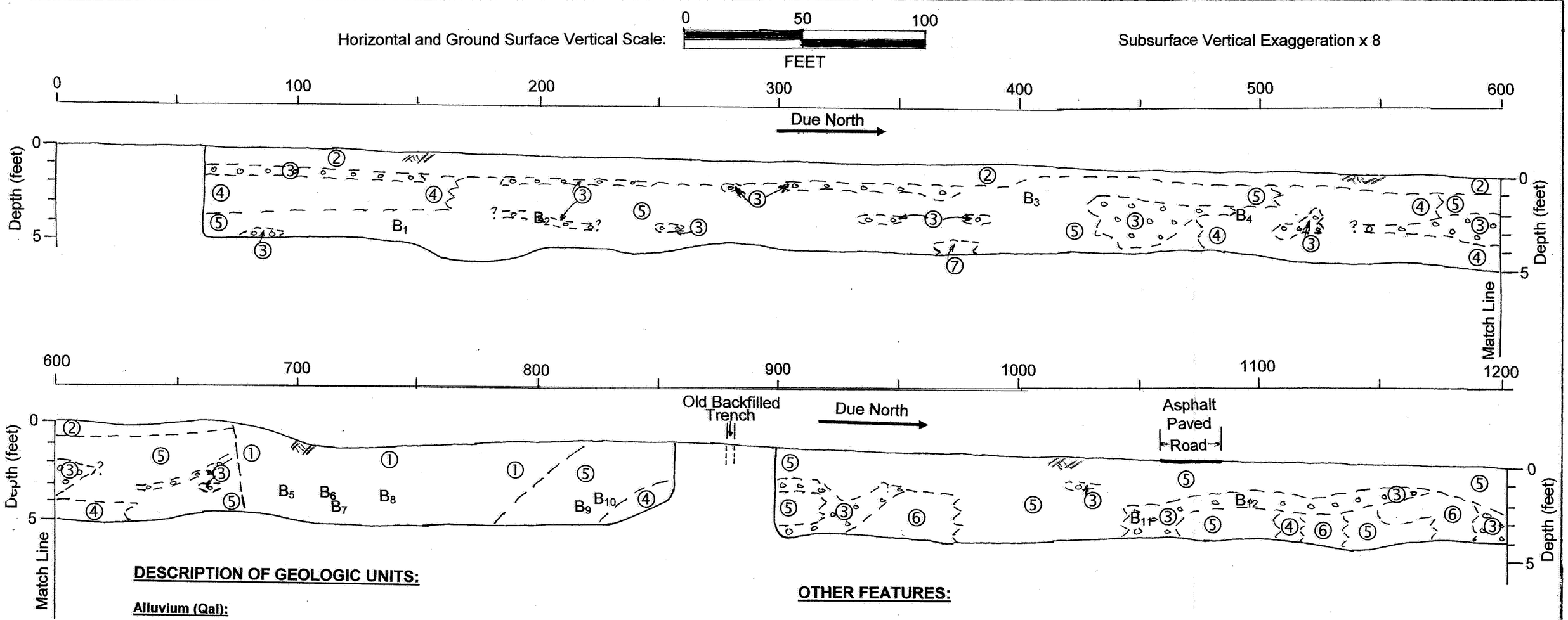


Plate 1: Trench Location Map



DESCRIPTION OF GEOLOGIC UNITS:

Alluvium (Qal):

① Sand, coarse- to very coarse-grained, clean to slightly silty, 50-75% pebbles (SW/GP), numerous cobbles, brown to dark brown (10YR-5/3 to 10YR-4/3), less and finer gravel and sand toward flank of deposit, moist, loose.

Older Alluvium (Qoa)

② Sand, medium to coarse-grained, slightly silty to silty (SW-SP/SM), common very coarse-grained sand, brown to dark brown (10YR-5/3 to 10YR-4/3), numerous roots and rootlets moist, loose to medium dense.

③ Sand, medium to very coarse-grained, clean to slightly silty (SW/GP), brown to dark brown (10YR 4/3 to 10YR-3/3), abundant (25-50%) pebbles and cobbles to 3", few rootlets, moist.

④ Sand, medium- to coarse-grained, slightly silty (SP/SW) dark brown to dark grayish brown (10YR-4/3 to 10YR-4/2), slightly micaceous, common very coarse-grained sand, some scattered pebbles, moist.

⑤ Sand, medium to very coarse-grained, clean to slightly silty (SW), dark brown to dark grayish brown (10YR-3.5/2.5), numerous pebbles (10-15%) to ¼-½" mostly, few cobbles to 5", moist

⑥ Sand, coarse- to very coarse-grained, clean to slightly silty (SW) dark brown to dark grayish brown (10YR-3.5/2.5), numerous pebbles (10-15%) to ¼-½" mostly, few cobbles to 5", moist.

⑦ Sand, very fine- to fine-grained, slightly silty (SP/SM), dark brown (10YR-4/3 to 10YR-3/3), micaceous, moist.

Note: Caving common in upper 2-3 of soil

OTHER FEATURES:

Boulders Dimensions (B1 denotes boulder location):

B_1: 14"x 12"
B_2: 19" x 12"
B_3: 34" x 18"
B_4: 23" x 18"
B_5: 14" x 12"
B_6: 14" x 13", 19" x 12"
B_7: 34" x 34", 16" x 14"
B_8: 23" x 11"
B_9: 30" x 22"
B_{10}: 36" x 31", 24" x 18", 34" x 29", 25" x 19"
B_{11}: 24" x 18"
B_{12}: 26" x 12", 21" x 12"

— — — Approx. contact between lithologic units

Log of Exploratory Trench
Home Depot-Yucca Valley
Log by SEJ on 3/16/2005
Plate 2

Stephen E. Jacobs, CEG

Geotechnics
Incorporated

Principals:
Anthony F. Belfast
Michael P. Imbriglio
W. Lee Vanderhurst

September 15, 2005

Home Depot
3800 Chapman Avenue, 5th Floor
Orange, California 92868

Project No. 0110-003-00
Document No. 05-0981

Attention: George Ray

SUBJECT: REPORT OF PRELIMINARY FAULT RUPTURE HAZARDS EVALUATION
Proposed Home Depot
Portions of APN 601-231-31 and 601-231-32
Yucca Valley, California

Dear Mr. Ray:

In accordance with your request, we have completed our preliminary fault rupture evaluation for the proposed subdivision. The site consists of approximately 20 acres of undeveloped land located along Highway 62 in Yucca Valley, California. The purpose of this evaluation was to provide preliminary geologic information regarding potential fault rupture hazards that might affect the project based on available Earthquake Fault Zone Maps and published geologic maps. The conclusions and recommendations presented in this report are based on the scope of work presented below. Our evaluation of the site did not include subsurface exploration or laboratory testing. The results are intended to aid in project planning, and should be considered subject to modification based on a more detailed geotechnical investigation.

1.0 SCOPE OF SERVICES

The scope of services was as described in our Proposal No. 05-292 dated September 6, 2005. The scope of work for our evaluation included the following items:

9245 Activity Rd., Ste. 103 • San Diego, California 92126
Phone (858) 536-1000 • Fax (858) 536-8311

- Review of available Alquist-Priolo Earthquake Fault Zone and geologic maps, available site plans. References are presented at the end of this report.
- Preparation of this report presenting our conclusions.

2.0 SITE DESCRIPTION

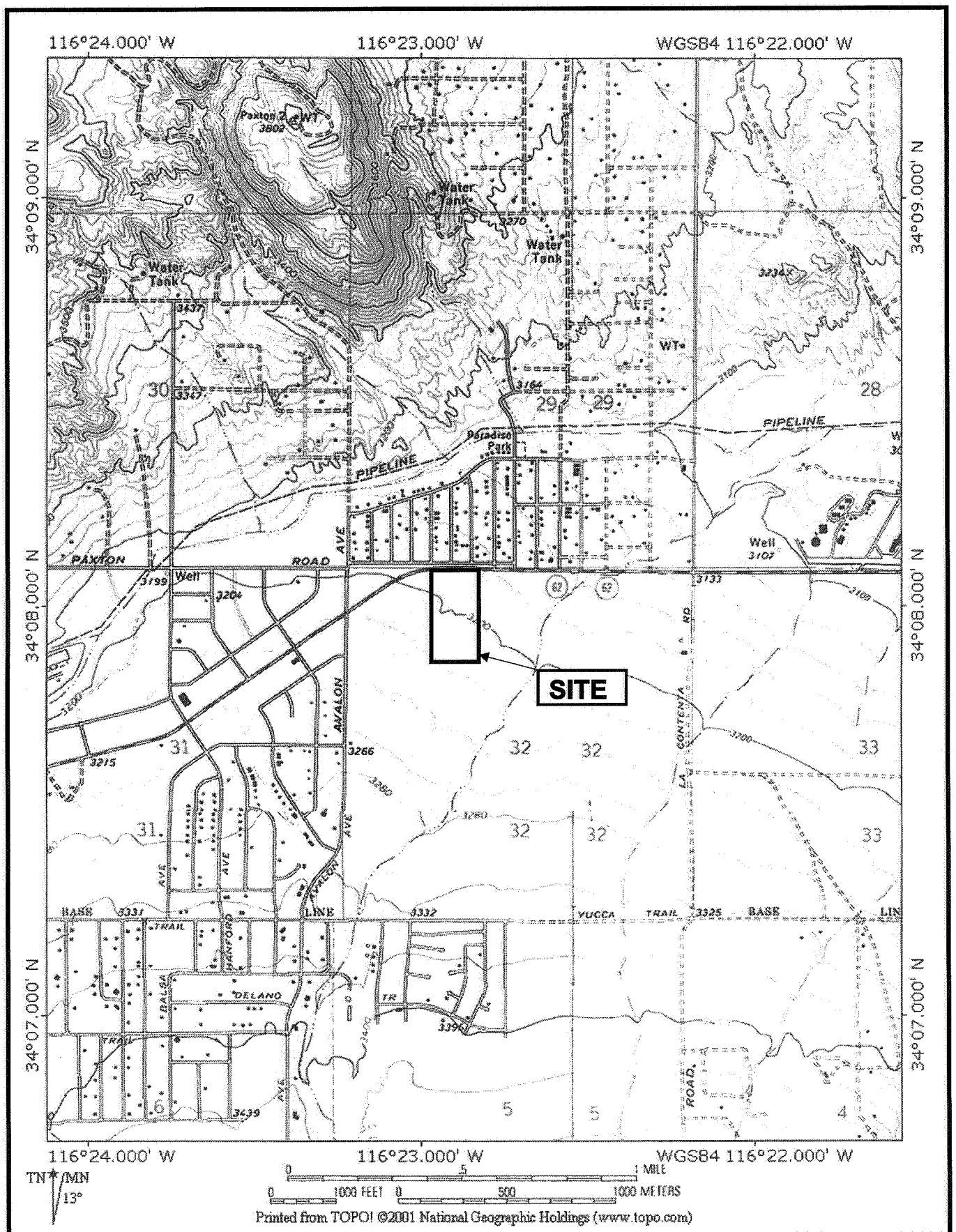
The approximately 20 acre site is located adjacent to Highway 62 and east of Avalon Avenue within the eastern portion of Yucca Valley, California as shown on the Site Location Map, Figure 1. The site is relatively flat-lying and contains a drainage gullies that flows northeasterly across the site. Elevations across the site range from approximately 3,215 feet above mean sea level (MSL) near the southwestern corner of the site to approximately 3,180 feet MSL near the northeastern corner. The site is currently unimproved. A sparse growth of shrubs, cacti, grasses and Joshua trees covers the site.

3.0 PROPOSED DEVELOPMENT

Site development plans were not available at the time of this study. We anticipate that development may include minor earthwork construction to create a level building pad and parking areas.

4.0 GEOLOGIC SETTING

The subject site is located at the northernmost boundary of the Transverse Ranges Geomorphic Province of California near the boundary with the Mojave Desert Geomorphic Province. This province stretches from the Channel Islands off the California coast to the eastern end of the Pinto Mountains and is characterized as a series of east-west trending mountain ranges separated by subparallel fault zones.



Geotechnics Incorporated

SITE PLAN

Project No. 0110-003-00
Document No. 05-0981

FIGURE 1

\Drafting\CorelDraw\Site-Plan Rev. 6/99

Based our review of published geologic maps and literature, the geologic units underlying the site consist of older alluvial deposits within most of the site and relatively thin younger alluvium within active wash channels. These sediments are derived from the nearby little San Bernardino Mountains located south of the site. The alluvial deposits are underlain by Mesozoic-age granitic rocks and Precambrian-age gneiss at a depth of several hundred to possibly several thousand feet.

5.0 TECTONIC SETTING

The site is located in close proximity to previously mapped traces of the active Pinto Mountain fault, which is a major east-west trending fault forms the boundary between the Transverse Ranges Geomorphic Province and the Mojave Desert Geomorphic Province in this area. The Pinto Mountain fault is generally considered to be a strike slip fault with left-lateral offset. The Pinto Mountain fault is characterized by east-west trending vegetation lineations and fault scarps that are observable on aerial photographs and topographic maps. At many locations the fault acts as an effective groundwater barrier forming springs and sag ponds, such as those located at the Oasis of Mara near Twentynine Palms. Surface cracks occurred along strands of the Pinto Mountain fault during the 1992 Landers earthquake. These surface cracks were mapped west of the site within Yucca Valley and are reportedly a result of "triggered slip" (movement from stress relief along a fault associated within an earthquake on a nearby fault). The maximum offset measured along these cracks was 2.4 inches of vertical displacement.

Other faults in the site vicinity are the Burnt Mountain fault and Eureka Peak fault, which were previously unknown prior to the Landers Earthquake. Extensive surface cracks associated with fault surface rupture during the Landers earthquake occurred along both of these faults. The Burnt Mountain fault consists of a north-south trending zone of left-stepping en echelon cracks that extends south of Highway 62 for approximately 3 miles. A maximum of 2.2 inches of right lateral displacement at the ground surface was measured along this fault. The Eureka Peak fault consist of several zones of northwest trending en echelon cracks extending for approximately 6.5 miles south of Yucca Trail. A maximum of 4 inches of right lateral displacement and up to 2.2 of vertical displacement at the ground surface was measured along this fault.

6.0 CONCLUSIONS

Based on our review of published geologic maps and official Alquist-Priolo Earthquake Fault Zone maps prepared by the State of California, there are no known active faults mapped within the site nor is the site located within a currently established Alquist-Priolo Earthquake Fault Zone. Alquist - Priolo Earthquake Fault Zones are linear zones established by the State of California Geological Survey to encompass faults that are deemed by the State to be "sufficiently active and well defined." The site is in close proximity to several active fault splays and Earthquake Fault Zones. All of the closest mapped active fault splays are located within Earthquake Fault Zones. The closest active fault is a northwest trending short fault segment that may be associated with the Eureka peak fault zone. The Earthquake Fault Zone associated with this fault splay is located approximately 800 feet west-southwest of the site.

Two mapped splays of the Pinto Mountain fault zone are located near the site. The closest Earthquake Fault Zone associated with this fault is located approximately 3,400 feet west of the site and projects toward the site. Surface cracks associated with the Landers Earthquake where observed along portions of this fault splay in 1992. The other nearby fault splay associated with the Pinto Mountain fault is located approximately 4,000 feet northeast of the site and projects several hundred feet to the north of the site.

7.0 LIMITATIONS OF EVALUATION

This evaluation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. No warranty, expressed or implied, is made as to the conclusions and professional opinions included in this report.

This report is issued with the understanding that it is the responsibility of the owner, or of his representative, to ensure that the information and recommendations contained herein are brought to the attention of the design consultants for the project and incorporated into the plans, and the necessary steps are taken to see that the contractors carry out such recommendations in the field.

Changes in the condition of a property can occur with the passage of time, whether due to natural processes or the work of man on this or adjacent properties. In addition, changes in applicable or appropriate standards of practice may occur from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.

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