September 14, 2005

Mr. Virgil Clark
UTAZ Development
3850 E. Baseline Road, #128
Mesa, Arizona 85206

Geotechnical Report
Vista Quinta
SEC Greenfield Rd & Baseline
Mesa, Arizona

Project No. A05-0068G

Acura ENGINEERING

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Dear Mr. Clark:

Submitted herewith is the report of the geotechnical investigation for the subject project. In brief, the report includes a plan of borings, boring logs, laboratory test results, and a description of subsurface conditions. Based on the findings, recommendations are set forth for the design and construction of foundations and pavement.

We appreciate this opportunity to be of service to you. If you have any questions regarding this report, please contact us.

Respectfully submitted,
ACURA ENGINEERING ARIZONA, LLC

Prabhakar (Peter) Rupal, P.E.
President

Registered Professional Engineer (Civil)
CERTIFICATE NO
30524
PRABHAKAR
RUPAL
Date Signed 9.14.05
ARIZONA, U.S.A.

Enclosure
Copies submitted: 4

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PURPOSE AND SCOPE

This report presents the results of a geotechnical engineering study for the proposed Vista Quinta development to be constructed at the southeast corner of Greenfield Road and Baseline Road in Mesa, Arizona. The study was conducted for the purpose of developing foundation and pavement recommendations for design and construction, and was conducted in general accordance with Proposal Number P05-057 dated July 21, 2005.

Our field exploration program consisted of exploratory borings drilled to obtain information on subsurface conditions. The locations of the borings are shown on the Site Plan included in Appendix A. Samples were tested to determine physical and engineering characteristics. Results of the field exploration and laboratory tests were analyzed to develop earthwork and foundation design recommendations for the project, and to determine appropriate bearing pressures for foundations supporting the new structure. Our results and recommendations are presented herein.

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

PROPOSED CONSTRUCTION

Development of the approximately 13-acre site is to consist of the construction of about 86,000 square feet of office condominiums. The structures are single story with slab-on-grade and masonry and/or wood frame walls. Structural loads are anticipated to be light to moderately heavy. Paved areas will be subject to a moderate volume of passenger and occasional truck traffic. Landscaped area may be used for storm water retention and disposal.

If locations or conditions are significantly different from those described, or as depicted in this report, we should be notified so that we may re-evaluate the recommendations provided herein.

SITE DESCRIPTION

At the time of this investigation the site was fallow agricultural land. The site is bound on the east by North Quinn Ave., to the north is Baseline Road, and to the west is vacant agricultural land and Greenfield Road. A residential development and Pioneer Elementary School are located south of the site. The site itself is relatively flat and featureless. There was no apparent evidence of the presence of former structures on the site, nor of silage pits or irrigation tailwater ponds.

FIELD EXPLORATION

Borings were drilled at the locations shown on the Site Plan included in Appendix A to explore the subsurface conditions. Locations of the exploratory borings were established by standard taping and/or pacing techniques. A total of six borings were drilled across the site.

The drill crew advanced the borings through the on-site soils with a CME-75 truck-mounted drill rig using a 7-inch diameter hollow stem auger. Our field technician logged the borings and obtained samples for laboratory analysis. The exploratory borings were backfilled with auger cuttings upon completion of all drilling activities.

Samples of the subsurface materials were obtained with either a 2.0-inch standard split spoon sampler or a 2.42-inch inside diameter, ring-lined barrel sampler in general accordance with ASTM Method D1586, Split Barrel Sampling. The samplers were driven into the various strata using a 140-pound hammer falling 30 inches. The number of blows required to advance each respective sampler was recorded as the penetration resistance (SPT or N) value. Penetration resistance values provide an indication of the relative density of granular soils or consistency of fine-grained soils. Depths at which the samples were obtained and the penetration resistance values are shown on the attached exploratory boring logs.

SUBSURFACE PROFILE AND ENGINEERING PROPERTIES

Subsurface Profile

The subsurface profile consisted of sandy clay and clayey sand from the ground surface to the total drilled depths of 11.5 to 20 feet. Standard penetration resistance (N) values ranged from about 14 to 50+ blows per foot. The majority of blow counts were in the 23 to 50+ range. The soils sampled are described as being 'damp' based on visual and tactile evaluation at the time of investigation. Groundwater was not encountered in the test borings during the investigation.

The boring logs should be referenced for complete soil descriptions and classifications, interpolated thickness of the strata, and penetration resistance (N) values.

Laboratory Test Results

Samples of soil obtained during the field exploration were observed and visually classified in accordance with ASTM D2487, which is based on the Unified Soil Classification System. Samples were selected for testing to determine the engineering and physical properties in general accordance

with ASTM or other generally recognized procedures. Results of all laboratory tests are presented in Appendix B.

In summary, in-place dry densities of the upper soils are on the order of 99 to 119 pcf, having natural water contents of about 6 to 13 percent at the time of investigation. Liquid limits of the upper soils were 29 to 38 percent and plasticity indices ranged from 12 to 16 percent. Undisturbed samples of the upper soils displayed additional compression due to inundation under typical foundation loading conditions. A sample of the upper sandy clay soil remolded to density and moisture levels typically expected during construction, displayed volume increase due to wetting of 2.3 percent under a 100 psf surcharge load.

ENGINEERING ANALYSIS AND RECOMMENDATIONS

Analysis

Analysis of the field and laboratory data indicates that subsoils at the site are suitable for support of the proposed structure on shallow spread foundations and for slab-on-grade construction subject to remedial work.

The site has been cultivated and irrigated in the past and is currently fallow with the appearance of having been disked. These activities usually result in the upper 12 to 18 inches being disturbed by plowing. In addition, the potential for compressible soils is a concern. Laboratory testing indicates that the upper soils are capable of post-construction settlement when subjected to inundation. This could cause excessive settlement resulting in cracking problems. Accordingly, recommendations are made to over-excavate and re-compact the bearing soils to increase density and reduce the potential for collapse. Attention must be paid to provide proper drainage to limit the potential for water infiltration of deeper soils. The balance of the site will require re-compacting the plowed soils prior to placing fills.

The swell potential of the sandy clay soils is a concern. The potential is usually strong enough to cause differential movements of slabs-on-grade such as floors and sidewalks but not enough to cause damage to structures, unless lightly loaded. Accordingly, attention must be paid to provide proper drainage to limit the potential for water infiltrating under slabs. A minimum slope of at least 5 percent for a distance of 10 feet is recommended for unpaved landscaped areas. Typical recommendations to reduce the swell potential include reducing the compaction requirements and requiring higher moisture contents during pad preparation and requiring at least 12 inches of non-expansive material to be placed directly beneath the building slabs and slabs contiguous to the structure such as sidewalks.

For exterior slabs on grade, frequent jointing is recommended to control cracking and reduce tripping hazards should differential movement occur. It is also recommended to pin the landing slab to the building floor/stem wall. This will reduce the potential for the exterior slab lifting and blocking the

operation of out-swinging doors. Pinning typically consists of 24 inch long No. 4 reinforcing steel dowels placed at 12 inch centers.

Excavation operations are expected to be relatively problem-free. Slouging may occur in fills (compacted and uncompacted), sandy or loose deposits, requiring the laying back of side slopes. The contractor should make his own independent assessment in regard to excavation methods. All excavations should be constructed in accordance with relevant governmental regulations including but not limited to OSHA. Maintenance of safe trenches is solely the responsibility of the contractor.

Groundwater is not expected to be a factor in the design and construction of foundations and underground utilities to the depths anticipated.

The site is located within an area that has undergone considerable subsidence due to groundwater removal. Total subsidence of several feet has been recorded in the valley. In addition, earth fissuring has affected off-site areas within one or more miles from the site. Recent investigations have indicated that the rate of subsidence is decreasing due to reduced groundwater withdrawal as a result of urbanization and subsequent lowered agricultural demand for groundwater. There was no evidence of fissure gullies on this site or reported in the immediate area. Fissure gullies form over subsurface irregularities such as soil-rock contacts which cause tensional stresses and differential subsidence. Where such anomalies are not present, subsidence tends to be uniform over a wide area, this having no effect on surficial structures.

It is not known if subsidence at this site has stopped, if it is continuing, or at what rate it may be occurring. However, the absence of subsidence fissures indicates that structural effects to buildings should be minimal. Subsidence is a basin wide phenomenon that would result in differential elevation changes over long distances which would not affect the type of buildings proposed for this site.

Foundation Recommendations

We determined a foundation depth and bearing pressure for the design of footings that should provide against bearing failure and excessive settlement. We estimate the total settlement for the shallow footings on engineered fill will be less than 1 inch for the conditions presented below. We estimate differential settlement will be about half the total settlement. Additional localized settlements of the same magnitude or more could occur if supporting soils were to experience a significant increase in moisture content. Positive drainage away from structures, and controlled routing of roof runoff, must be provided to prevent ponding adjacent to foundations.

It is recommended that the single story structures be founded on shallow spread footings bearing a minimum depth of 18 inches below lowest finished exterior grade within 5 feet of the structure, on at

least 2 feet of engineered fill (plus 8 inches of scarified and recompacted soil). If site preparation is carried out as set forth herein, an allowable bearing pressure of 2,500 psf may be utilized for design purposes.

This bearing pressure refers to the total of all loads, dead and live, and is a net pressure. It may be increased one-third for wind, seismic or other loads of short duration. All footing excavations should be level and cleaned of all loose or disturbed materials. Positive drainage away from the proposed buildings **must** be maintained at all times.

Although borings were not advanced to 100 feet, Soil Profile Type S_C, (per Table 16-J, 1997 UBC) or Soil Site Class C (per Table 1615.1.1, 2000 IBC) may be used for design of the structure based on the nature of the subsoils encountered in the borings and geology in the area.

Continuous wall footings and isolated rectangular footings should be designed with minimum widths of 16 and 24 inches, respectively, regardless of the resultant bearing pressure. Lightly loaded interior partitions (less than 800 pounds per linear foot) may be supported on reinforced thickened slab sections (minimum 12 inches of bearing width).

Continuous masonry wall footings and stem walls should be reinforced to distribute stresses arising from small differential movements, and long walls should be provided with control joints to accommodate these movements. Reinforcement and frequent control joints are suggested to allow slight movement and prevent minor floor slab cracking especially in floor areas to be covered with hard tile.

Lateral Design Parameters

The following tabulation presents recommendations for lateral stability analyses:

[1]Foundation Toe Pressures	1.33 x max. allowable
[2]Equivalent Fluid Pressures (Drained Condition):	
Restrained walls	60 psf/ft
Unrestrained walls	35 psf/ft
Lateral Passive Pressures:	
Continuous walls/footings	350 psf/ft
Spread columns/footings	400 psf/ft
Coefficient of Base Friction:	
Independent of passive resistance	0.45
In conjunction with passive resistance	0.35

[1]Increase in allowable foundation bearing pressure previously tabulated for foundation toe pressures due to eccentric or lateral loading. The entire bearing surface of the footing should remain in compression.
[2]Equivalent fluid pressures for vertical walls and horizontal backfill surfaces (maximum 10 feet in height). Backfill material must be well-graded, free-draining gravel with less than 8 percent passing the No. 200 sieve. Pressures do not include temporary forces imposed during compaction of the backfill, swelling pressures developed by over-compacted clayey backfill, hydrostatic pressures from inundation of backfill, or surcharge loads. Walls should be suitably braced during backfilling to prevent damage and excessive deflection.

Compaction of the backfill soils against embedded footings or walls designed to provide passive resistance should be accomplished to a minimum of 95 percent of the material's maximum dry density (ASTM D-698) to develop this resistance with low strains.

SITE PREPARATION AND GRADING

Site Preparation

The entire area to be occupied by the proposed construction should be stripped of all vegetation, rubble, surficial fill, fill piles, obviously loose surface soils, and any other undesirable materials or conditions not revealed by this investigation. A representative of the geotechnical engineer should examine the subgrade once sub-excavation is complete and prior to backfilling to ensure removal of deleterious materials. Engineered fill placement and quality should be as defined in the "Fill and Backfill" section of this report.

Oversize material such as concrete irrigation lining may be broken and placed in landscape area fills. If the plant stalks are still present, they, and the major root system, should be brushed from the site (i.e. do not turn them into the surface soil).

Due to the disturbance of the surface soils, at least the upper 12 inches of native soils should be compacted prior to placing fills. Depending on the type of equipment used, partial over-excavation may be required to attain the required moisture conditioning and compaction.

Subsoils directly beneath shallow foundation elements should be over-excavated to a depth of at least 2 feet below proposed footing bottom elevation, or existing grade, whichever results in the deeper excavation, extending at least 5 feet beyond footing edges and recompacted as set forth herein. The entire building pad does not require deep over-excavation provided that footing lines can be accurately located during earthwork operations and that final grades allow for at least 1 foot of non-expansive material directly beneath the building slab and slabs contiguous to the structure, in addition to the typical 4 inches of aggregate base course.

Prior to placing structural fill below footing bottom elevation, the exposed grade should be scarified to a depth of 8 inches, moisture- conditioned to optimum (±2 percent) and compacted to at least 95 percent of maximum dry density as determined by ASTM D-698. The depth of "pre-compaction" should be increased to 12 inches in the balance of the developed areas (i.e. parking areas) where grading has not resulted in the removal of the upper loose soils. Asphalt pavement areas should be scarified, moisture conditioned and recompacted in a similar manner.

All cut areas and areas above footing bottom elevation that are to receive only floor slab fill should be scarified 8 inches (12 inches in un-cut areas), moisture-conditioned to at least optimum to 3 percent above optimum and lightly but uniformly compacted to at least 90 but not more than 95 percent of maximum dry density as determined by ASTM D-698.

Fill and Backfill

The native clay soils are considered suitable for use in general grading fills but should not be used in the upper 12 inches of pad fill or as retaining wall backfill. The top 12 inches of pad fill should be completed with an approved low or non-expansive soil. Import can be common borrow (as specified below) or select granular soil. If select granular is used, the 4 inches of under slab aggregate base may be included as part of the 12 inches. Otherwise, a full 12 inches of common borrow should be used in addition to the normal 4 inches of aggregate base.

Retaining walls should be backfilled with a well-graded granular material with no particles greater than 3 inches in size and not less than 8 percent passing the No. 200 sieve. If retaining walls are anticipated, this office should be consulted for additional details.

If import material is required to achieve the desired finished ground surface elevations, it should consist of non-expansive, imported fill free of organics and deleterious material, meeting all of the following specification requirements:

Maximum particle size	3 inches
Maximum percent passing #200 sieve	50
Maximum plasticity index (PI)	10
Maximum liquid limit (LL)	30
Maximum swell (under 100 psf surcharge)	1.5 percent

Fill should be placed on subgrade that has been properly prepared and approved by a Soils Engineer. Fill must be wetted and thoroughly mixed to achieve moisture content within 2 percent of optimum moisture (optimum to +3 percent for underslab fill). Fill should be placed in horizontal lifts of 8-inch thickness (or as dictated by compaction equipment) and compacted to the percent of its maximum dry density per ASTM D-698 set forth as follows:

A.	Building Areas		
	1.	Below footing level	95
	2.	Below slabs-on-grade, non-expansive soils	95
	3.	Below slabs-on-grade, expansive soils,	90-95 (max)
	4.	Exterior foundation wall backfill	95
B.	Pavement Subgrade or Fill		95
C.	Utility Trench Backfill		
	1.	More than 2.0 feet below finish subgrade	95
	2.	Within 2.0 feet of finish subgrade (non-granular)	95
	3.	Within 2.0 feet of finish subgrade (granular)	100
D.	Aggregate Base Course		
	1.	Below floor slabs	95
	2.	Below asphalt paving	100
E.	Landscape Areas		
	1.	Miscellaneous fill	90

2.	Utility trench - more than 1.0 foot below finish grade	85
3.	Utility trench - within 1.0 foot of finish grade	90

Surface Drainage

The ground surface adjacent to the exterior foundations should be sloped to drain away from the foundation in all directions. We recommend a minimum slope of 6 inches in the first 10 feet in landscaped areas, and 3 inches in the first 10 feet in paved areas. Planters requiring heavy watering should not be placed adjacent to or within 5 feet of the structure. Hardscape adjacent the structure can be useful in promoting runoff and minimizing infiltration of water.

Roof downspouts and drains should discharge well beyond the limits of all foundation backfill. Care should be taken in design and construction to insure that domestic and interior storm drain water is contained to prevent seepage.

A shallow percolation test was conducted in the proposed retention area adjacent Baseline Road. A stabilized percolation rate of 90 minutes per inch (0.67 inches/hour) was achieved. The test was run at an approximate depth of 3.5 feet below existing grade. This percolation rate is likely to deteriorate over time. Accordingly, a conservative factor of safety should be applied.

Note that the actual percolation rate may vary from the measured rate depending on the design basin bottom elevation relative to the elevation the test was run at.

UTILITY INSTALLATION

All trench excavations should be constructed in accordance with relevant governmental regulations including but not limited to OSHA. Maintenance of safe trenches is solely the responsibility of the contractor. Slouging may occur in fills (uncompacted and compacted), sandy or loose deposits, requiring the laying back of side slopes. The contractor should make his own independent assessment in regard to excavation methods.
Backfill of utility trenches outside of the pipe bedding zone may be carried out with native excavated material provided particles in excess of 3 inches are first removed. This material should be moisture-conditioned, placed in 8-inch lifts and mechanically compacted. Compaction requirements are summarized in the "Fill and Backfill" section of this report.

FLOOR SLAB CONSTRUCTION

To facilitate fine grading operations and aid in concrete curing, a 4-inch thick layer of granular material conforming to the gradation for Aggregate Base (AB) as per M.A.G. Specification Section 702 should be utilized beneath the slab.

To reduce the effects of some differential movement, floor slabs should be separated from all bearing walls and columns with expansion joints, which allow unrestrained vertical movement. The joints should be sealed. Floor slab control joints should be used to reduce damage due to shrinkage cracking. Joints should be spaced in accordance with ACI guidelines. The joints should be sealed. The requirements for slab reinforcement and thickness should be established by the designer based on experience and the intended use of the slabs.

If moisture sensitive flooring and/or adhesive are planned, the use of a vapor barrier or low permeability concrete should be considered. Vapor barriers do increase the potential for slab curling and water entrapment under the slab. Accordingly, if a vapor barrier is used, additional precautions such as low slump concrete, frequent jointing and proper curing will be required and detailed to reduce curling potential and prevent the entrapment of outside water sources. Placement of moisture sensitive materials should be delayed until concrete floor slabs have dried to a very low moisture condition that is verified by testing.

PAVEMENT DESIGN

The primary purpose of a pavement section is the distribution of concentrated wheel loads to the subgrade in a manner such that the subgrade is not over-stressed. Performance of the pavement section is directly related to the strength of the subgrade soils, and the characteristics of the traffic loading. For purposes of designing a pavement section, subgrade soils are represented by a soil support value for flexible pavements (asphalt concrete) or by a modulus of subgrade reaction value for rigid pavements (Portland cement concrete). Both of these representative values are empirically related to strength.

Pavement design procedures are based upon strength properties of the subgrade soils and pavement materials, along with the design traffic conditions (especially truck traffic). Subgrade strength decreases when the subgrade is wetted, and is further reduced when saturated. Therefore, proper drainage, both surface and subsurface, is essential for adequate pavement performance on such a subgrade.
We analyzed pavement requirements for anticipated uses within the parking lots and driveways. We anticipate that traffic will consist of cars, pickups, and occasional delivery trucks.

Recommended Pavement Sections

If earthwork in paved areas is carried out to finish subgrade elevation as set forth herein, the subgrade will provide adequate support for pavements.

For lot pavement areas to be used primarily for automobile traffic and parking, our experience in the area indicates that a minimum of 2.0 inches of asphalt over 6.0 inches of aggregate base course will provide satisfactory service. Heavy duty areas subject to occasional truck traffic (such as delivery and refuse trucks) should be 3.0 inches of asphalt over 6.0 inches of base. We recommend a rigid section made up of 6.5 inches of concrete (PCCP) on 4 inches of aggregate base for dumpster pads and their approaches.

This assumes that all subgrades are prepared in accordance with the recommendations contained in the "Site Preparation" and "Fill and Backfill" sections of this report, and paving operations carried out in a proper manner. If pavement subgrade preparation is not carried out immediately prior to paving, the entire area should be proof-rolled at that time with a heavy pneumatic-tired roller to identify locally unstable areas for repair.

Asphalt Pavement

Pavement materials should be in accordance with the requirements of the Maricopa Association of Governments Standard Specifications for Asphalt Concrete (Section 710, MAG Type C-¾ inch or 19 mm). While a ¾ inch (19.0mm) mix may have a somewhat rougher texture, it offers more stability and resistance to scuffing, particularly in truck turning areas. Pavement installation should be carried out under applicable portions of M.A.G. Section 321 and municipality standards. The asphalt supplier should be informed of the pavement use and required to provide a mix that will provide stability and be aesthetically acceptable. Some of the newer M.A.G. mixes are very coarse and could cause placing and finish problems. A mix design should be submitted for review to determine if it will be acceptable for the intended use.

Portland Cement Concrete Pavement

Pavement materials should be in accordance with the requirements of the Maricopa Association of Governments Standard Specifications for Portland Cement Concrete (Section 725, MAG Class AA). Placement requirements for rigid paving should be in general conformance with the Arizona Department of Transportation Standard Specifications for Portland Cement Concrete Pavement (Section 401).

Base Course

Base course materials for use beneath interior floor slabs and pavements should be well-graded sand and gravel materials meeting the Maricopa Association of Governments Specifications for Aggregate Base Materials (Section 702, MAG AB).

CONTINUING SERVICE

Two additional elements of geotechnical engineering service are important to the successful completion of this project.

Consultation with design professionals during the design phases. This is important to ensure that the intentions of our recommendations are properly incorporated in the design, and that any changes in the design concept properly consider geotechnical aspects.

Observation and monitoring during construction. A geotechnical engineer or technician from our firm should observe the excavation, earthwork, and foundation phases of the work to determine that subsurface conditions are compatible with those used in the analysis and design. During site grading, placement of structural fill should be observed and tested to confirm that the proper density has been achieved.

BUILDING MAINTENANCE

It is extremely critical that proper maintenance be performed over the life of the structure. It is very important that positive site drainage be maintained to ensure overall performance of the foundation and floor systems as presented herein. The owner must be provided with a copy of this report.
Maintaining positive site drainage will require periodic maintenance to ensure roof gutters and roof downspouts are properly maintained and properly discharged away from the foundation in all directions. All landscaping or surface re-grading must take into consideration the positive drainage recommendations presented herein. Changing the surface drainage could have a negative impact on surface flow and create a source of water and the development of perched water conditions.

LIMITATIONS

This study has been conducted in accordance with generally accepted geotechnical engineering practices in this area for use by the client for design purposes. The conclusions and recommendations submitted in this report are based upon the design data submitted to Acura Engineering, data obtained from the exploratory borings drilled at the location indicated on the Site Plan included in Appendix A,

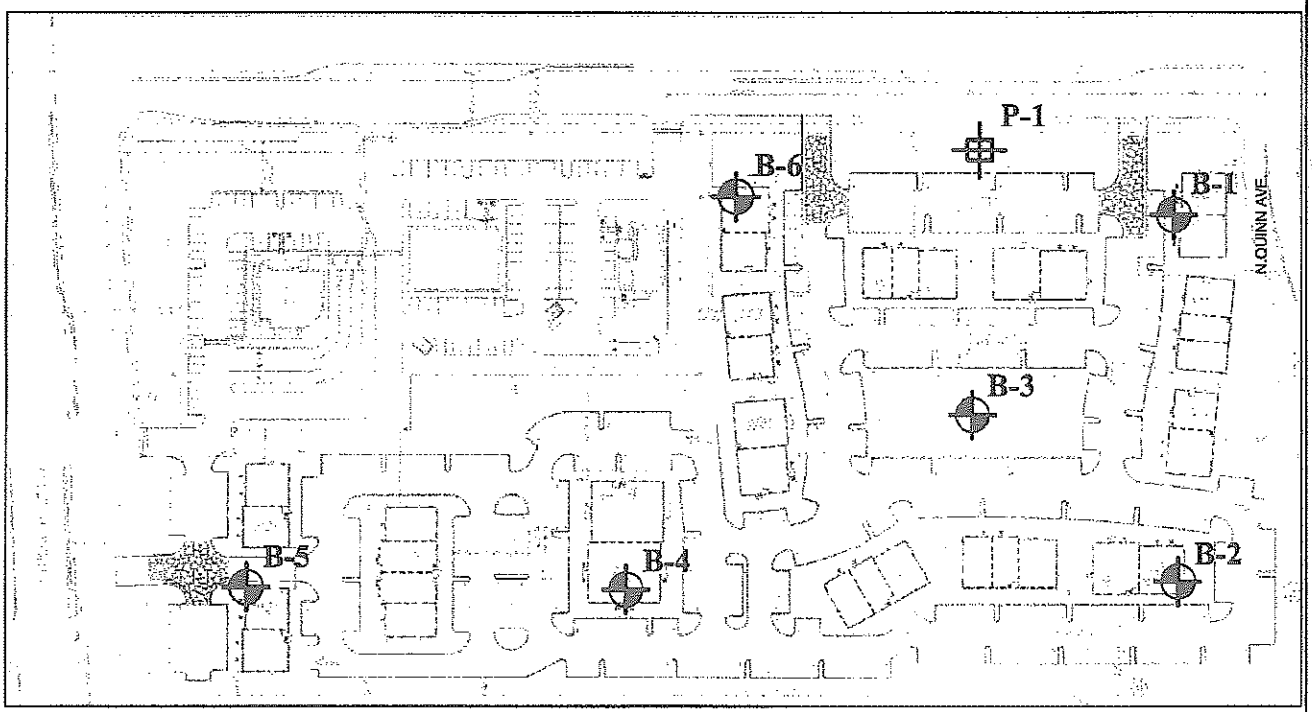
and the proposed construction discussed in this report. No other warranty, expressed or implied, is made as to the professional advice set forth.

Acura's scope of work does not include the investigation, detection, or design related to the presence of any biological pollutants. The term 'biological pollutants' includes, but is not limited to mold, fungi, spores, bacteria, and viruses, and the byproducts of any such biological organisms. The scope of this investigation and report does not include regional considerations such as seismic activity and ground fissures resulting from subsidence due to groundwater withdrawal, nor any considerations of hazardous releases or toxic contamination of any type.

The nature and extent of subsurface variations across the site may not become evident until construction. If during construction fill, soil, rock, or water conditions appear to be different from those described herein, this office should be advised at once so that we may re-evaluate the recommendations made.

This report has been prepared for the exclusive use by our client for design purposes. We are not responsible for technical interpretations by others of our exploratory information that has not been described or documented in this report. This report should not be used by the contractor as the sole tool for bidding quantities or establishing construction/excavation methods. The contractor should make his own independent assessment in these regards. As the project evolves, we should provide continued consultation and field services during construction to review and monitor the implementation of our recommendations, and to verify that the recommendations have been appropriately interpreted. Significant design changes may require additional analysis or modifications of the recommendations presented herein. We recommend on-site observation of excavations and foundation bearing strata and testing of structural fill by a representative of the geotechnical engineer.

Appendix A
Field Results



LEGEND

BORING LOCATION

PERCOLATION TEST

BORING LOCATION PLAN

VISTA QUINTA
SEC GREENFIELD ROAD & BASELINE ROAD
MESA, ARIZONA

Acura ENGINEERING

DRAWN BY: JJP	SCALE: VERTICAL N/A
CHECKED BY: REW	HORIZONTAL NTS
DATE: 08/30/05	ACURA PROJECT NO. A05-0068G

LEGEND AND NOTES

SOIL TYPE


GW, Well-Graded Gravel


SW, Well-Graded Sand


ML, Silt


GP, Poorly-Graded Gravel


SP, Poorly-Graded Sand


CL, Lean Clay


GM, Silty Gravel


SM, Silty Sand


CH, Fat Clay


GC, Clayey Gravel


SC, Clayey Sand


Fill, Unclassified

SAMPLER TYPES


Split-Spoon


Modified Dames and Moore


Auger

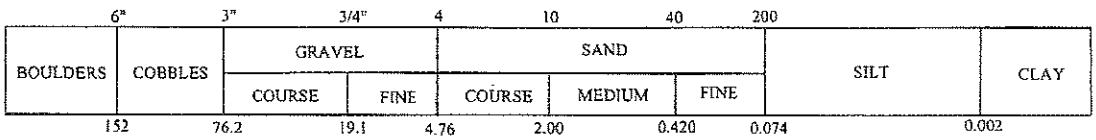

Shelby Tube

GROUNDWATER


Groundwater Level

SOIL GRAIN SIZE

U.S.STANDARD SIEVE



SOIL GRAIN SIZE IN MILLIMETERS

STRENGTH OF COHESIVE SOILS

CONSISTENCY	NUMBER OF BLOWS PER FT., N	UNDRAINED SHEAR STRENGTH Kips Per Sq. Ft.
Very Soft	0 - 2	Less Than 0.25
Soft	3 - 4	0.25 to 0.50
Firm	5 -8	0.50 to 1.00
Stiff	9 - 15	1.00 to 2.00
Very Stiff	16 - 30	2.00 to 4.00
Hard	Over 30	Greater Than 4.00

DENSITY OF NON-COHESIVE SOILS

NUMBER OF BLOWS PER FT., N	RELATIVE DENSITY
0 - 4	Very Loose
4 - 10	Loose
11 - 30	Medium Dense
31 - 50	Dense
Over 50	Very Dense

Criteria for Describing Moisture Condition

Description	Criteria
Damp	Dusty, dry to the touch
Moist	Damp but no visible of water
Wet	Visible free water, usually soil is below water table

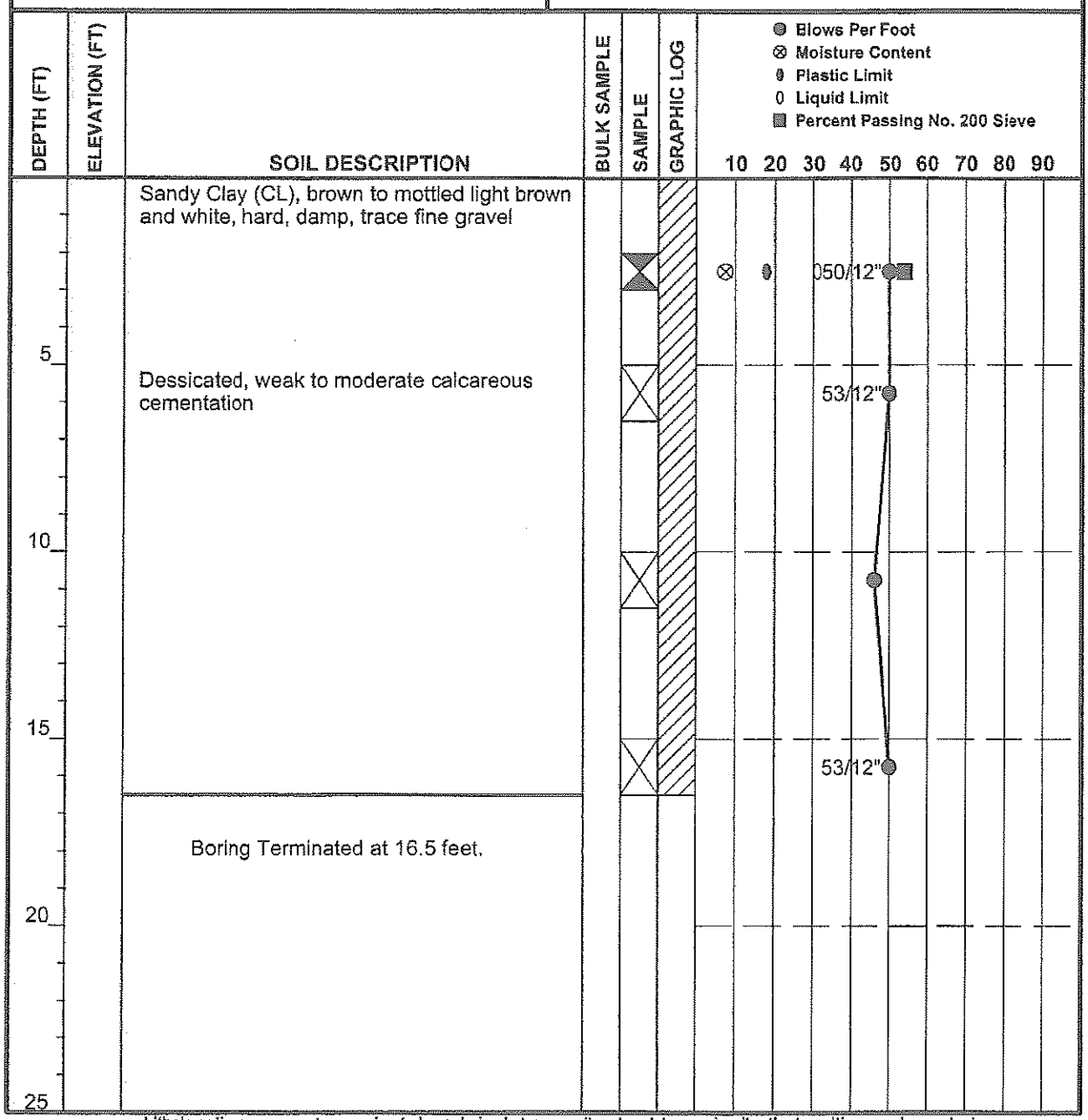
ASTM D 2488 Note 16 Criteria for Describing Percentages of Gravel, Sand and Fines

Description	Criteria
Trace	Particles are present but estimated to be less than 5 %
Few	5 to 10 %
Little	15 to 25 %
Some	30 to 45 %
Mostly	50 to 100 %

Exploratory Boring Log

Boring No. B-1
Sheet 1 of 1

Logged By: JH	Project No.: A05-0068G
Driller: Boart Longyear	Project Name: Vista Quinta
Auger/Core Type: Hollow Stem Auger	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 16.5	
Special Requirements: None	Date Started: 7/29/2005 Date Completed: 7/29/2005
	Depth to Groundwater (ft): No Water

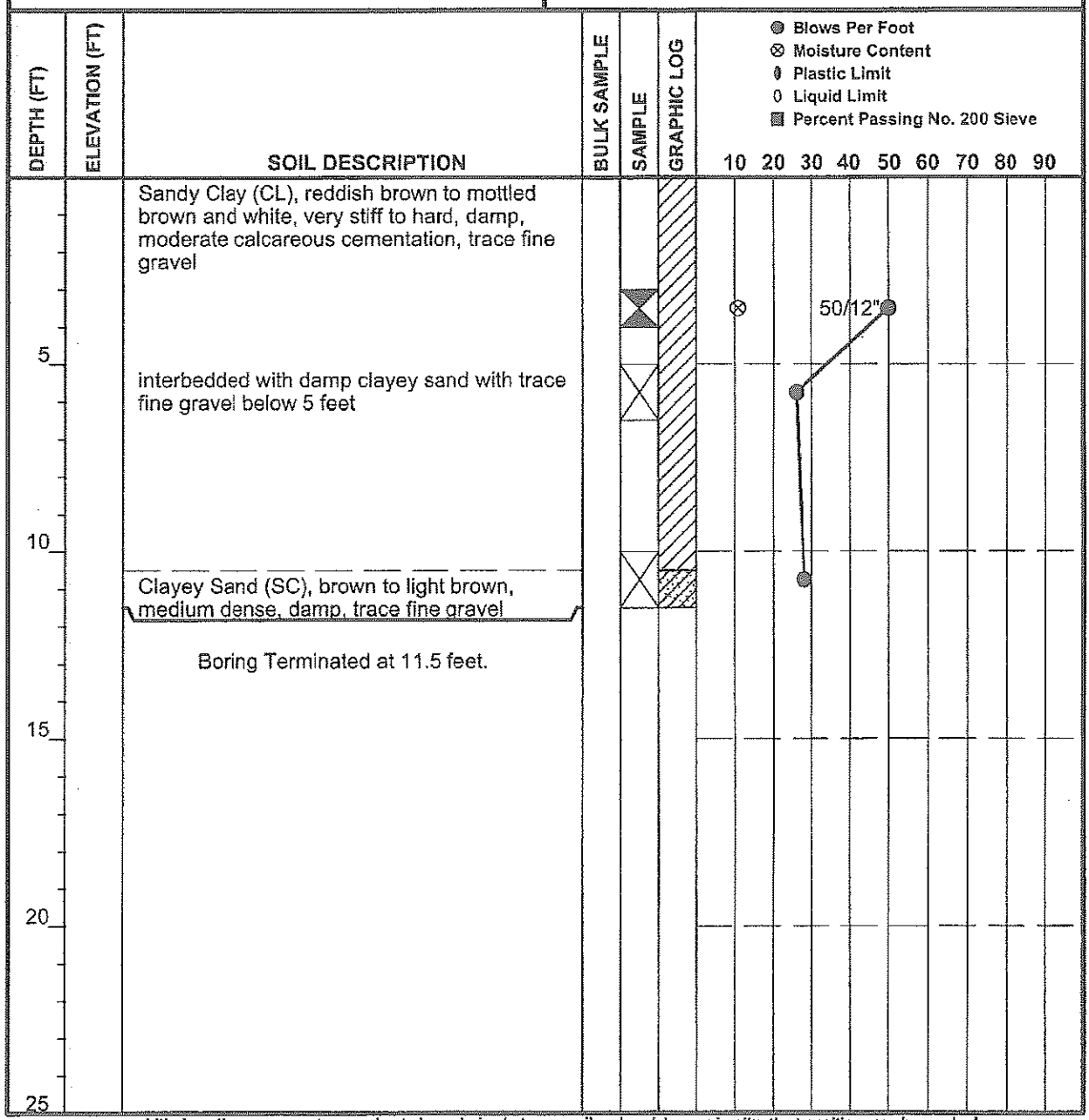


Lithology lines represent approximate boundaries between soil and rock layers; in-situ, the transition may be gradual.
The Exploratory Boring Log should not be used separately from the interpretations and recommendations presented in the report.

Exploratory Boring Log

Boring No. B-2
Sheet 1 of 1

Logged By: JH	Project No.: A05-0068G
Driller: Boart Longyear	Project Name: Vista Quinta
Auger/Core Type: Hollow Stem Auger	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 11.5	
Special Requirements: None	Date Started: 7/29/2005 Date Completed: 7/29/2005
	Depth to Groundwater (ft): No Water



Lithology lines represent approximate boundaries between soil and rock layers; in-situ, the transition may be gradual.
The Exploratory Boring Log should not be used separately from the interpretations and recommendations presented in the report.

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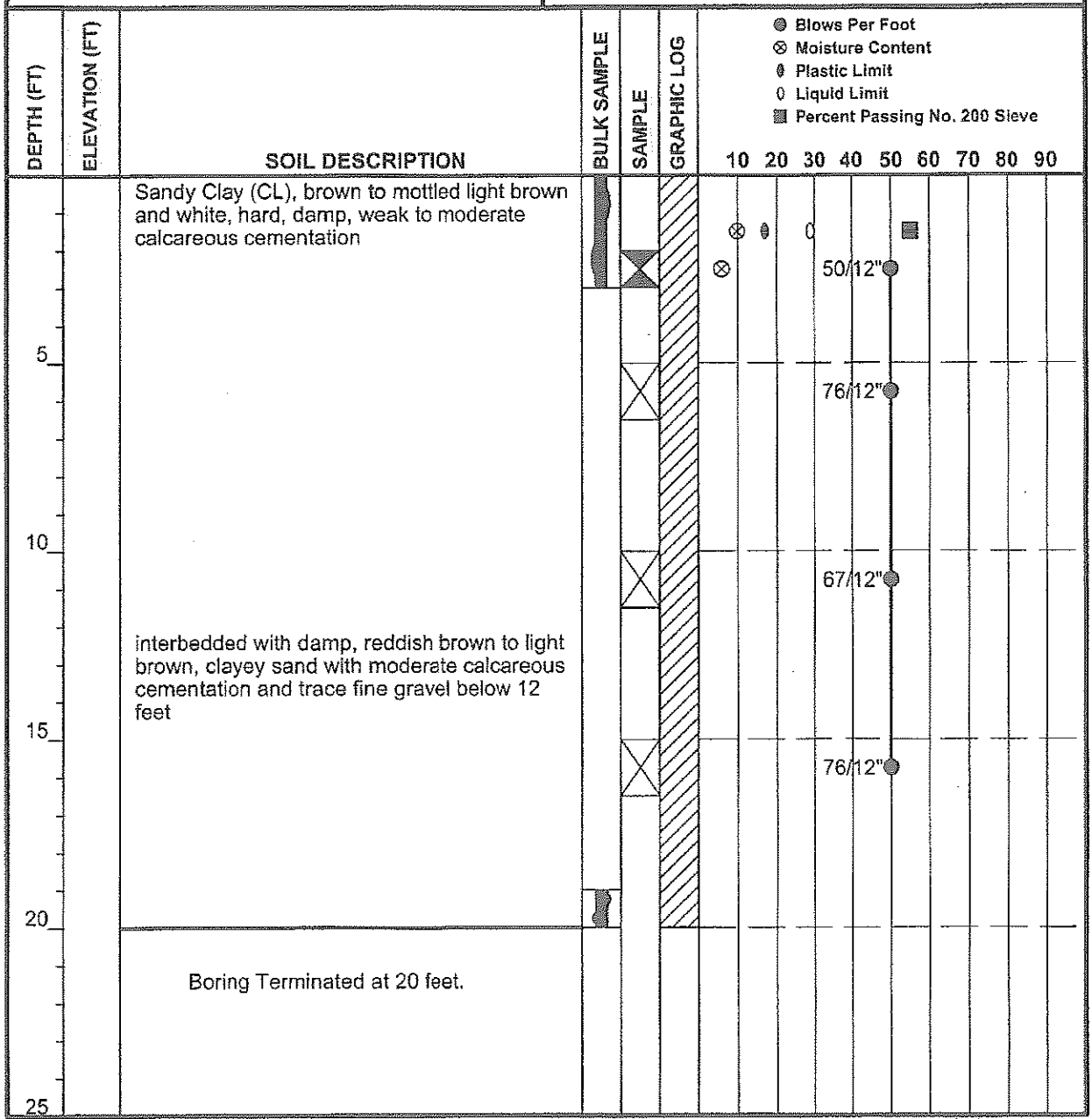
Exploratory Boring Log

Boring No. B-3
Sheet 1 of 1

Logged By: JH	Project No.: A05-0068G
Driller: Boart Longyear	Project Name: Vista Quinta
Auger/Core Type: Hollow Stem Auger	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 20	
Special Requirements: None	Date Started: 7/29/2005 Date Completed: 7/29/2005
	Depth to Groundwater (ft): No Water



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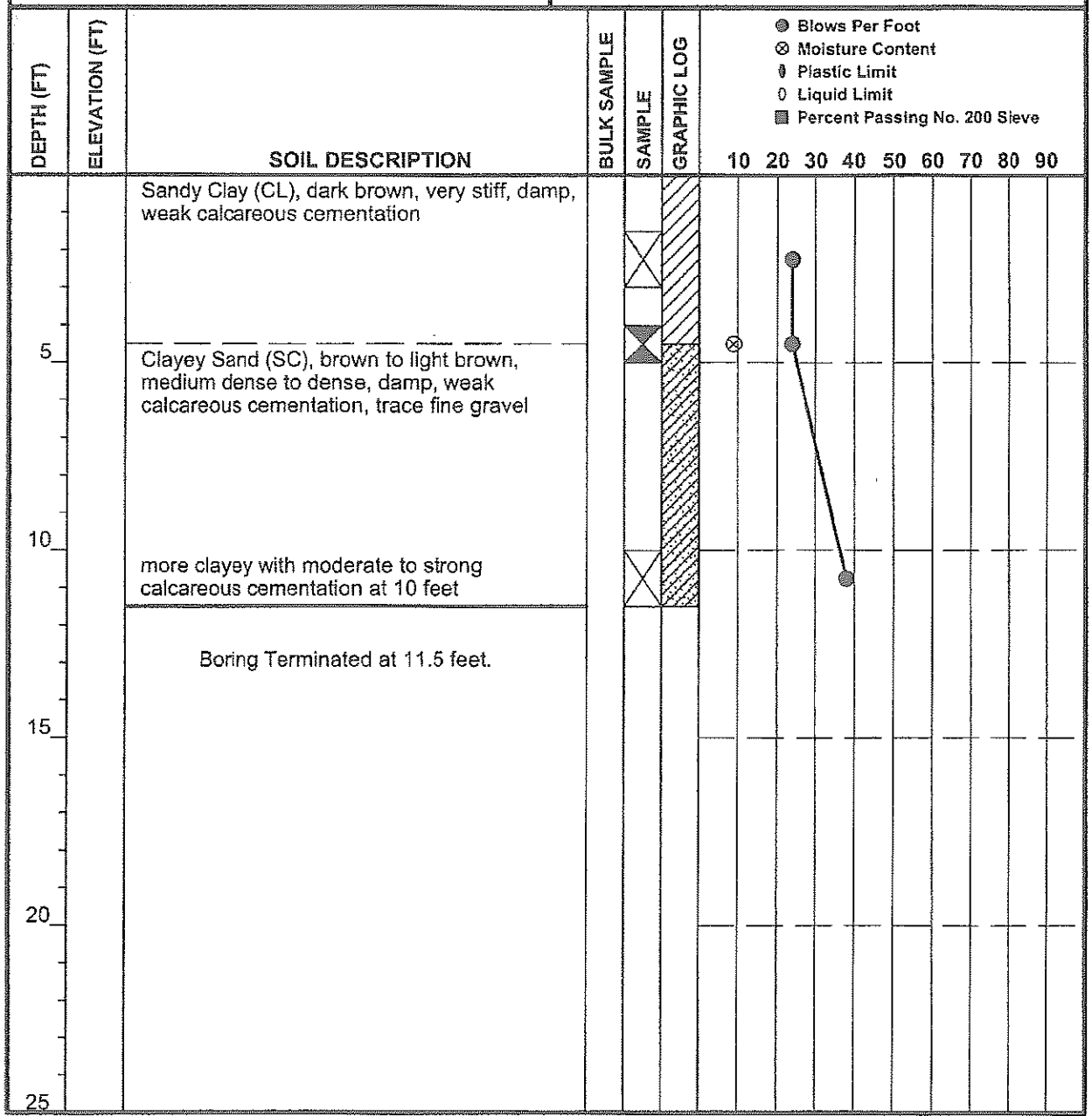
Exploratory Boring Log

Boring No. B-4
Sheet 1 of 1

Logged By: JH	Project No.: A05-0068G
Driller: Boart Longyear	Project Name: Vista Quinta
Auger/Core Type: Hollow Stem Auger	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 11.5	
Special Requirements: None	Date Started: 7/29/2005 Date Completed: 7/29/2005
	Depth to Groundwater (ft): No Water



Lithology lines represent approximate boundaries between soil and rock layers; in-situ, the transition may be gradual.
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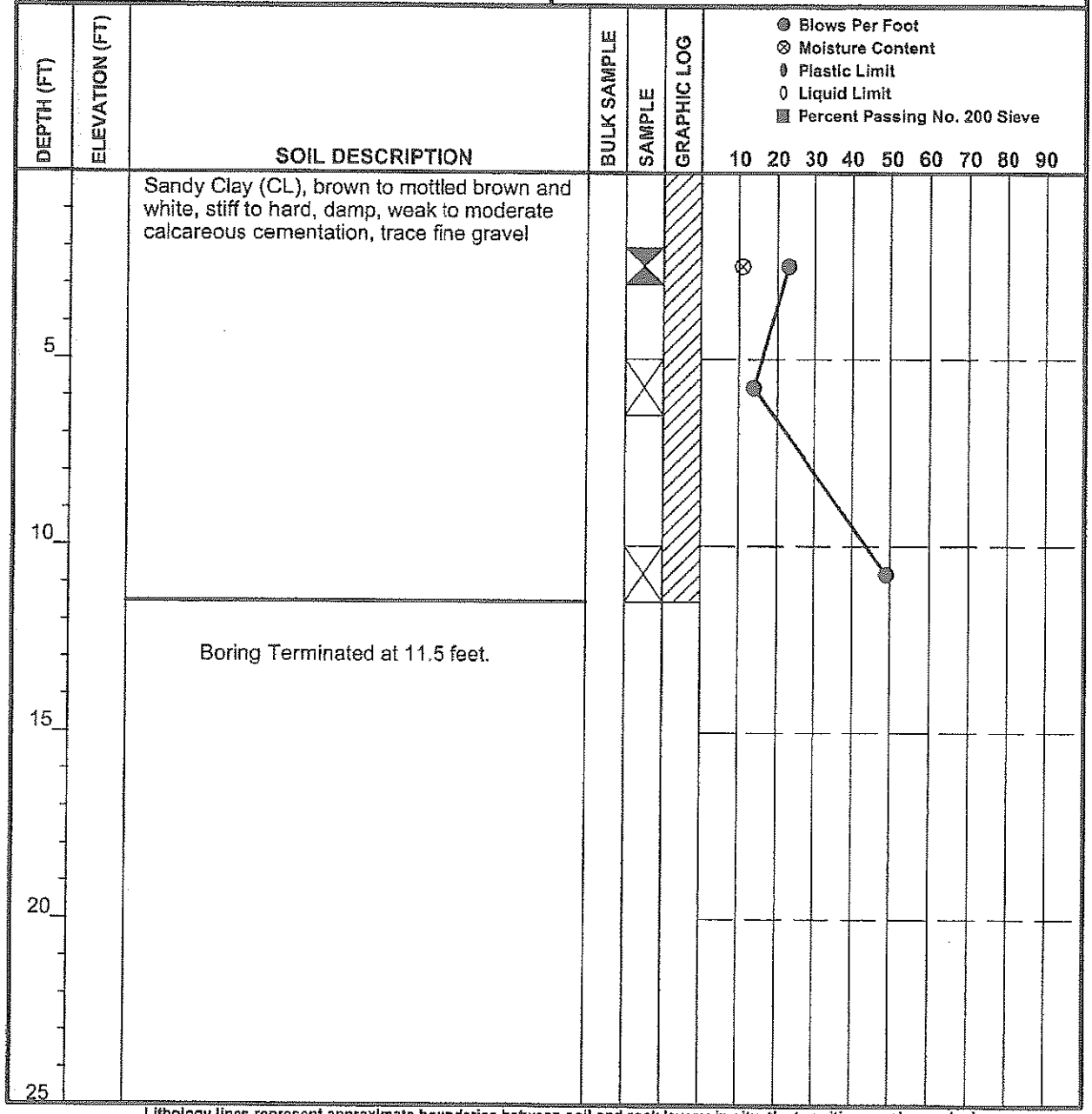
Exploratory Boring Log

Boring No. B-5
Sheet 1 of 1

Logged By: JH	Project No.: A05-0068G
Driller: Boart Longyear	Project Name: Vista Quinta
Auger/Core Type: Hollow Stem Auger	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 11.5	
Special Requirements: None	Date Started: 7/29/2005 Date Completed: 7/29/2005
	Depth to Groundwater (ft): No Water



Lithology lines represent approximate boundaries between soil and rock layers; in-situ, the transition may be gradual.
The Exploratory Boring Log should not be used separately from the interpretations and recommendations presented in the report.

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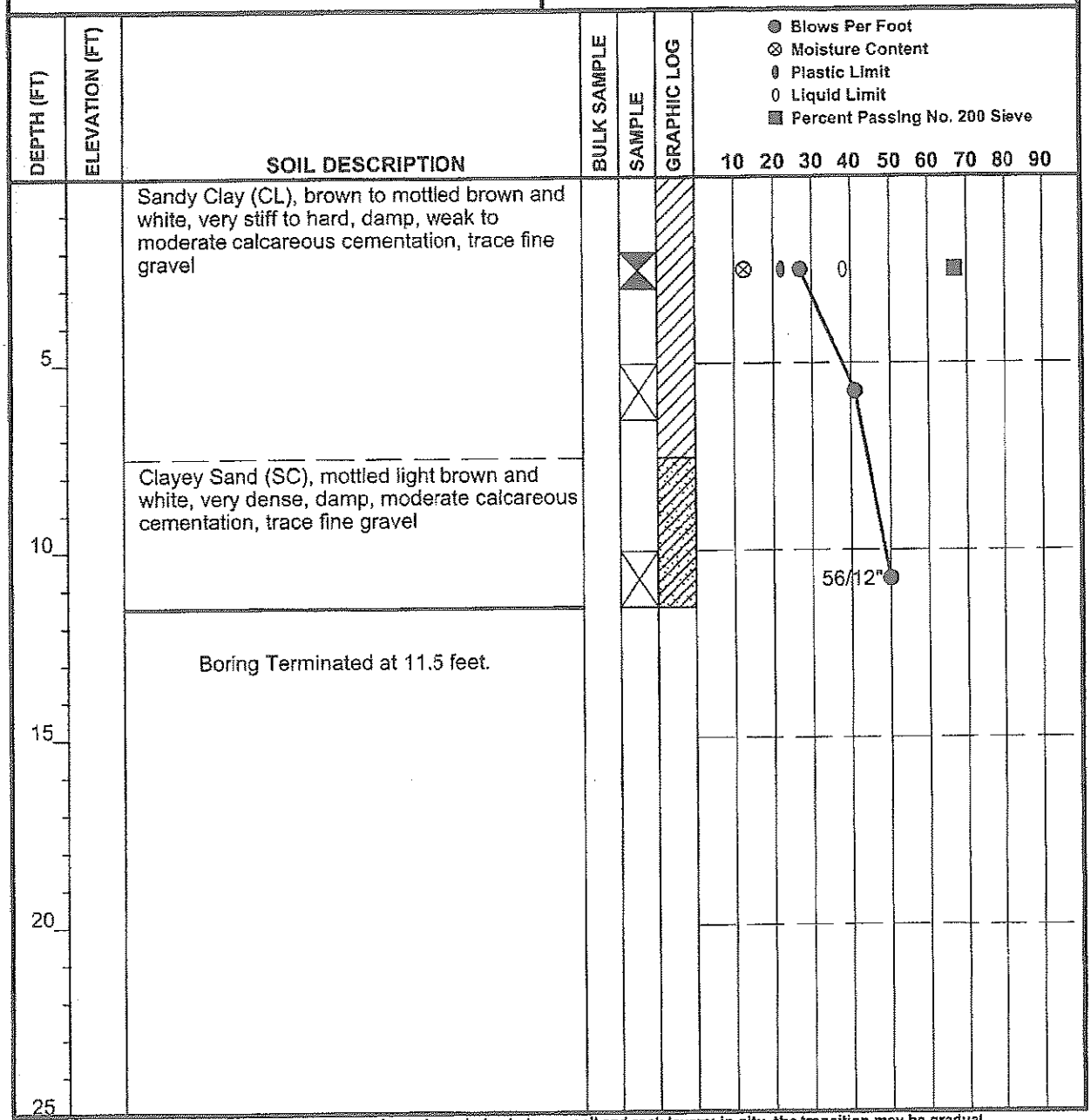
Exploratory Boring Log

Boring No. B-6
Sheet 1 of 1

Logged By:	Project No.: A05-0068G
Driller:	Project Name: Vista Quinta
Auger/Core Type:	
Approximate Elevation (ft): Not Available	Location: SEC Greenfield & Baseline Gilbert, Arizona
Total Boring Depth (ft): 11.5	
Special Requirements:	Date Started: Date Completed:
	Depth to Groundwater (ft): No Water



Lithology lines represent approximate boundaries between soil and rock layers; in-situ, the transition may be gradual.
The Exploratory Boring Log should not be used separately from the interpretations and recommendations presented in the report.

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Appendix B
Laboratory Test Results

REPORT OF SIEVE ANALYSIS AND PLASTICITY INDEX

Vista Quinta
SEC Greenfield Rd. & Baseline
Mesa, Arizona
Acura Project No. A05-0068G

SAMPLE:

Source: As Noted Below
Type: Bulk Sample
Material: On-site Soils
Sampled By: JH

Test Results

Sample	Natural Moisture (%)	In-Place Dry Density (pcf)	Atterberg Limits		Sieve Size - Accumulative % Passing							
			LL	PI	#200	#40	#10	#4	3/8"	3/4"	1"	CLASS *
B-1 @ 2-3'	7.4	108.2	31	13	54	83	97	99	100	-	-	CL
B-2 @ 3-4'	10.8	104.6	-	-	-	-	-	-	-	-	-	CL
B-3 @ 0-3'	9.8	-	29	12	55	87	96	99	100	-	-	CL
B-3 @ 2-3'	5.9	98.6	-	-	-	-	-	-	-	-	-	CL
B-4 @ 4-5'	8.9	119.4	-	-	-	-	-	-	-	-	-	SC
B-5 @ 2-3'	11.0	99.0	-	-	-	-	-	-	-	-	-	CL
B-6 @ 2-3'	12.6	101.2	38	16	67	88	97	99	100	-	-	CL

* - Unified Soil Classification System (USCS)

NP – non-plastic

NOTE: Sieve analysis results do not include particle sizes greater than 3" in diameter. Refer to boring logs for notes on presence of cobble and boulder-sized particles.

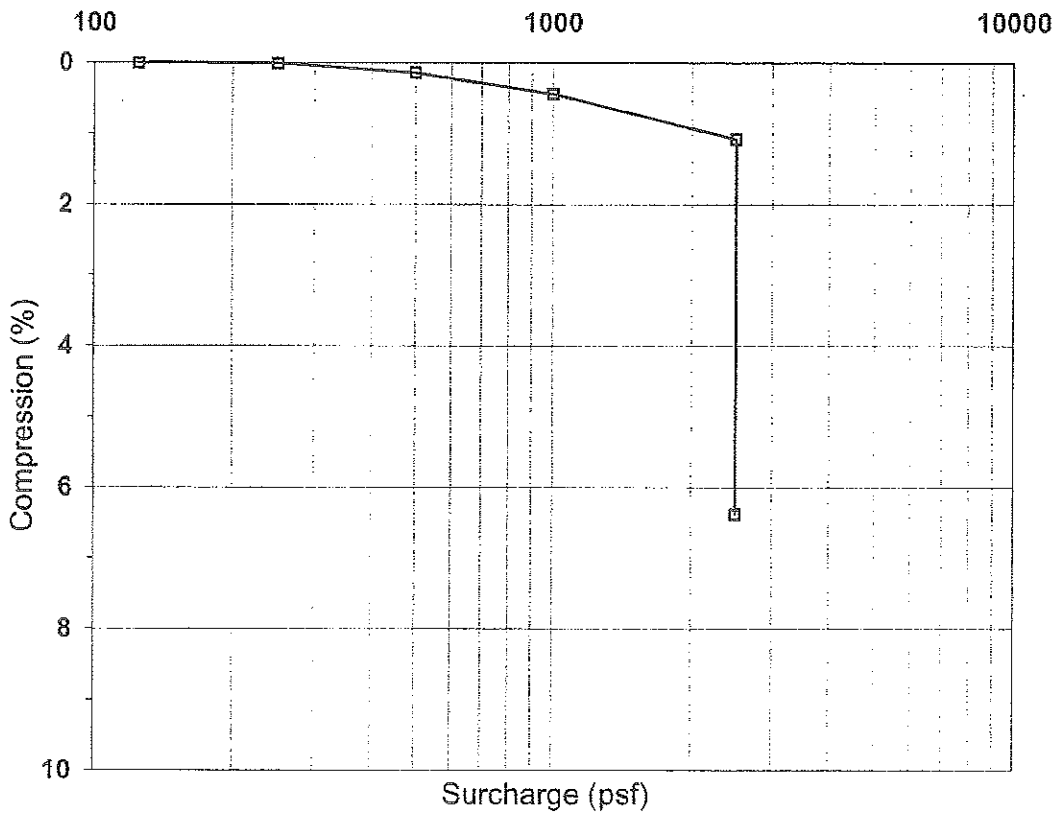
RESULTS OF CONSOLIDATION TEST

SAMPLE:

Project:	Vista Quinta
Project No.:	A05-0068G
Source:	B-1 @ 2-3'
Type:	Driven Ring; 108.2 pcf Dry Density; 7.4% Field Moisture
Material:	Sandy Clay (CL)
Sampled By:	JH

TESTED: ASTM D2435 : Sample soaked at approximately 2,500 psf.

RESULTS:



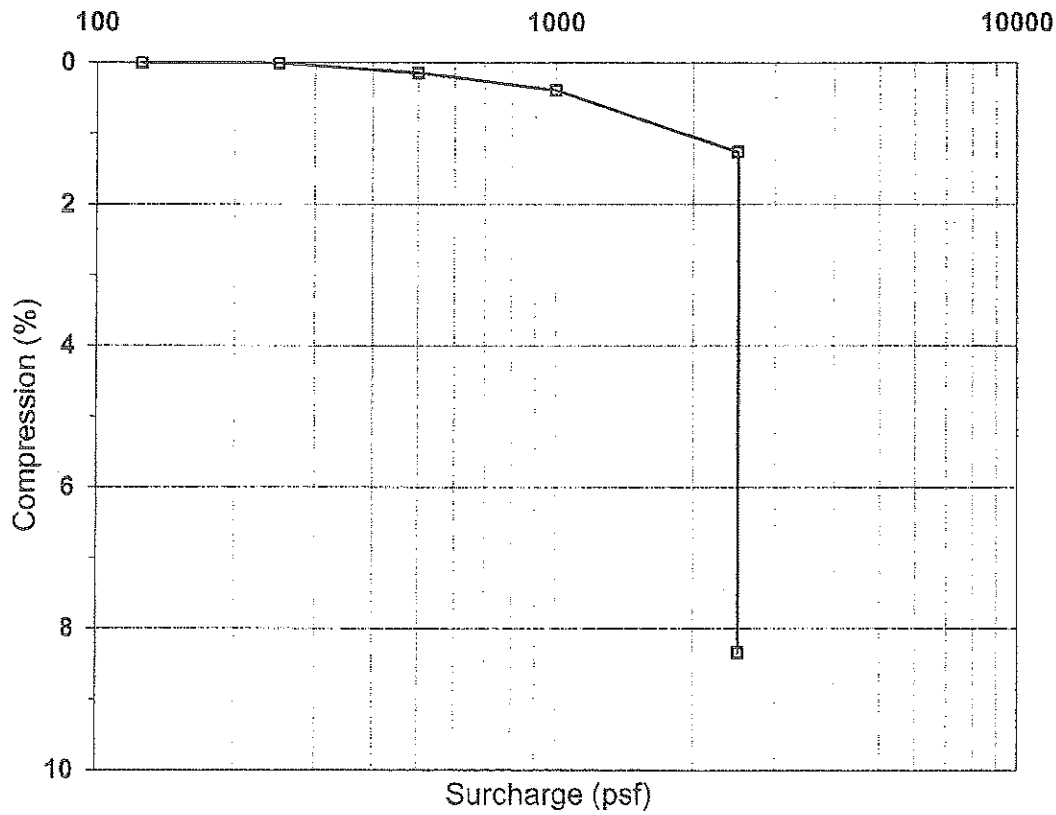
RESULTS OF CONSOLIDATION TEST

SAMPLE:

Project:	Vista Quinta
Project No.:	A05-0068G
Source:	B-6 @ 2-3'
Type:	Driven Ring; 101.2 pcf Dry Density; 12.6% Field Moisture
Material:	Sandy Clay (CL)
Sampled By:	JH

TESTED: ASTM D2435 : Sample soaked at approximately 2,500 psf.

RESULTS:



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REPORT OF REMOLDED EXPANSION TEST

Vista Quinta
SEC Greenfield Rd. & Baseline Rd.
Mesa, Arizona
Acura Project No. A05-0068G

SAMPLE:

Source: B-3 @ 0-3'
Type: Bulk Grab Sample from Auger Cuttings
Material: Sandy Clay (CL)
Sampled by: JH

TESTED: Percent expansion upon soaking of a remolded sample compacted to approximately 95 percent of the maximum ASTM D698 density, at about 2% less than optimum moisture content, with a 100 psf surcharge.

Test Results

Sample I.D.	Dry Density (pcf)	Initial Moisture Content	Surcharge Pressure (psf)	Expansion % Upon Soaking
B-3 @ 0-3'	107.2	12.2%	100	2.3

A moisture-density relations test (ASTM D698, Method A) was conducted on the minus #4 portion of the above sample to qualify the results of the expansion test. The results were determined to be:

B-2 (1.0'-5.0') – 112.8 pcf @ 14.2% moisture

MAXIMUM DENSITY - OPTIMUM MOISTURE

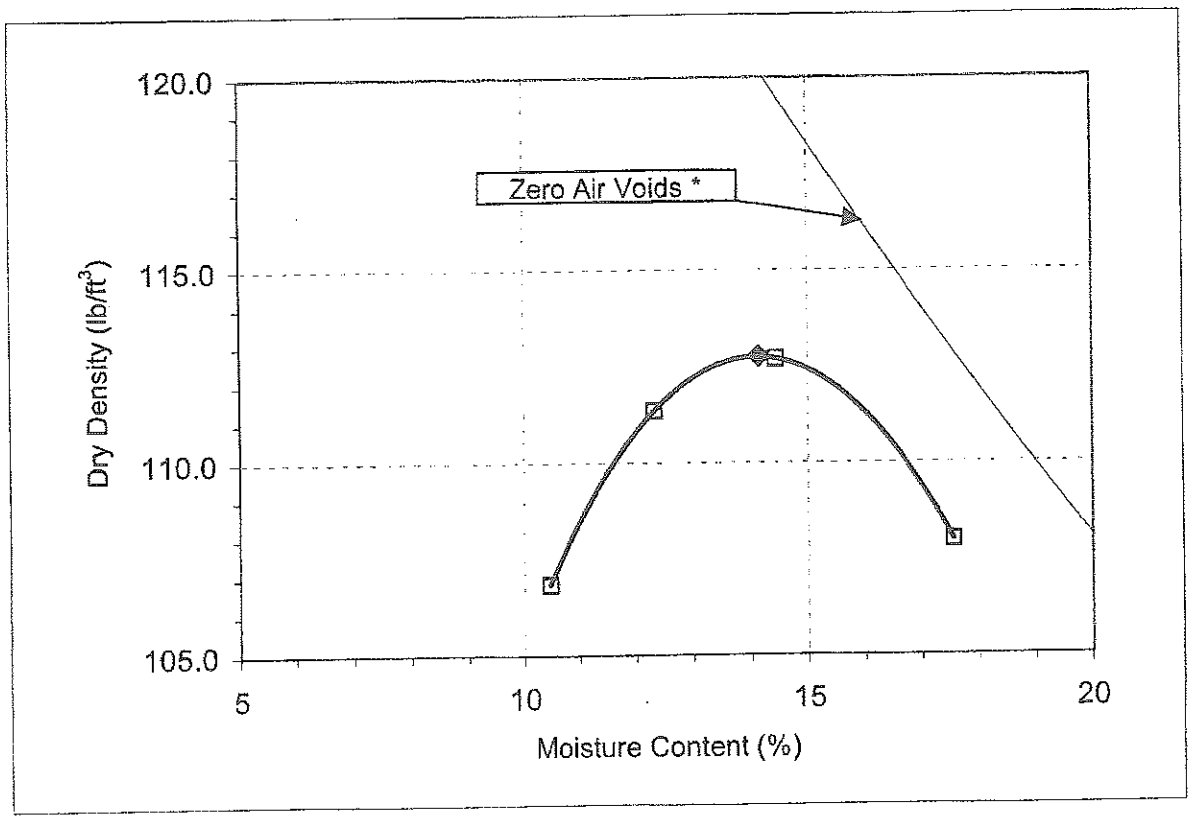
(ASTM D698, METHOD A)

SAMPLE:

Project:	Vista Quinta
Source:	B-3 @ 0-3 feet
Type:	Bulk Sample
Material:	Sandy Clay (CL)
Sampled By:	JH 07-29-05

RESULTS:

Maximum Dry Density (pcf) =	112.8
Optimum Moisture Content (%) =	14.2



* Assumed Gs = 2.65

Project No. A05-0068G

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