GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

Western Technologies Inc.
The Quality People
Since 1955

ALBUQUERQUE – NEW MEXICO
8305 Washington Place N.E.
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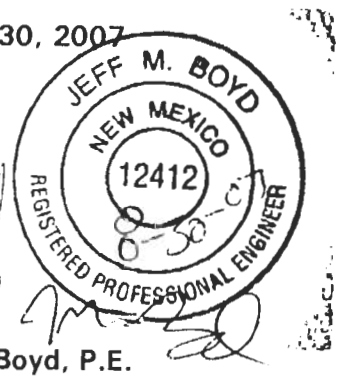
Prepared for:

DEL REY INVESTMENTS LLC

August 30, 2007



Carlton Pine
Geotechnical Specialist

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

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August 30, 2007

Del Rey Investments, LLC
6300 Riverside Plaza Lane NW, Suite 200
Albuquerque, New Mexico 87120

Attn: Mr. Daniel B. Clemmer, Vice President Construction

Re: Geotechnical Evaluation
Monterra Del Rey
7311 Louisiana Boulevard NE
Albuquerque, New Mexico

Job No. 3227JJ167

Western Technologies, Inc. (WT) has completed the geotechnical evaluation for the proposed mixed used site with manufactured homes, commercial/retail, townhomes, single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. This study was performed in general accordance with our proposal number 3226PJ097, dated July 03, 2007. The results of our evaluation, including the boring location diagram, boring logs, laboratory test results, and geotechnical recommendations are attached.

We appreciate being of service to you in the geotechnical engineering phase of this project and are prepared to assist you during the construction phases as well. If design conditions change, or if you have any questions concerning this report or any of our materials testing, special inspection, or consulting services, please do not hesitate to contact us. We look forward to working with you on future projects.

Sincerely,
WESTERN TECHNOLOGIES, INC.
Geotechnical Engineering Services

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Copies to: Addressee (5)

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GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed 58-acre site as a mixed-use site with 8.2 acres as manufactured homes, 2.4 acres commercial/retail, 17.3 acres of townhomes, and 30.6 acres for single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. The purpose of these services is to provide information and recommendations regarding:

- Foundation design parameters
- Seismic considerations
- Drainage
- Earthwork
- Lateral earth pressures
- Slabs-on-grade
- Pavement sections
- Excavation conditions

Results of the field exploration, field-tests, and laboratory tests are presented in the Appendices.

2.0 PROJECT DESCRIPTION

Project information supplied by Mr. Daniel B. Clemmer on July 07, 2007 indicates that the proposed 58-acre site will be developed into a mixed used development that well consist of manufactured homes, commercial/retail, townhomes, and single family homes. The buildings will be one and two-story, slab-on-grade structures using wood frame construction with stucco veneer. The maximum wall and column loads are assumed to be three kips per linear foot and 50 kips, respectively. We anticipate that the ground floor level will be at or slightly above existing site grade and that no extraordinary slab criteria are required. On-site asphalt paved areas for parking and driveways and rigid pavement sections for loading and dumpster areas will be constructed. Final site grading plans were not available at the time of this report. Should our assumptions not be correct, we should be notified immediately.

3.0 SCOPE OF SERVICES

3.1 Field Exploration

Thirty borings were drilled to depth of 21.5 feet below existing grade in the proposed development area. The borings were at the approximate locations shown on the attached Boring Location Diagram. A field log was prepared for each boring. These logs contain visual classifications of the materials encountered during drilling as well as interpolation of the subsurface conditions between samples. Final logs included in Appendix A, represent our interpretation of the field logs and may include modifications based on laboratory observations and tests of the field samples. The final logs describe the materials encountered, their thicknesses, and the locations where samples were obtained.

The Unified Soil Classification System was used to classify soils. The soil classification symbols appear on the boring logs and are briefly described in Appendix A. Local and regional geologic characteristics were used to estimate the seismic design criteria.

3.2 Laboratory Analysis

Laboratory analyses were performed on representative soil samples to aid in material classification and to estimate pertinent engineering properties of the on-site soils for preparation of this report. Testing was performed in general accordance with applicable ASTM test methods. The following tests were performed and the results are presented in Appendix B.

- Water Content
- Minus #200 Sieve
- Compression
- Dry Density
- Plasticity

3.3 Analyses and Report

Analyses were performed and this report was prepared for the exclusive purpose of providing geotechnical engineering and/or testing information and recommendations. The scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken. We are available to discuss the scope of such studies with you.

This geotechnical engineering report includes a description of the project, a discussion of the field and laboratory testing programs, a discussion of the subsurface conditions, and design recommendations as required to satisfy the purpose previously described.

4.0 SITE CONDITIONS

4.1 Surface

At the time of our exploration, the site was a partially developed subdivision, with approximately one half of the lots currently being occupied by mobile homes. The remaining lots were relatively flat, and contained a sparse to moderate growth of grass and weeds, with scattered large cottonwood trees. Streets and other infrastructure improvements were already in place. Site drainage trended to the west as surface sheet flow.

4.2 Subsurface

As presented on Logs of Borings, site soils throughout the depths explored were found to consist of interbedded loose to medium dense silty sand with gravel, and clayey sand with gravel. Near surface soils are of non-plastic to low plasticity. Groundwater was not encountered in any of the borings at the time of exploration.

4.3 Geology

The site is located in the Rio Grande Rift, which is located near the southeastern confluence of the Colorado Plateau, and Southern Rocky Mountain Geologic Provinces. The Rio Grande Rift lies properly within the Southern Rocky Mountain Province. The general geology of the surrounding area is complex and includes Quaternary Age Volcanics west of the Rio Grande River, with Precambrian Age Granite, and Pennsylvanian Age Sandstone and Limestone of the Madera and Sandia Formations on the east side of the river. The rift was formed during the Tertiary Period, more than seven million years ago, when the Sandia-Manzano fault block was uplifted and tilted. The steep western face of the Sandia Mountains is a weathered fault scarp. The center of the rift, through which the Rio Grande River flows, consists of Recent Age alluvial deposits of the Rio Grande River and tributary streams and washes. The alluvial deposits generally consist of interbedded silt, clay, sand and gravel. The depth of the alluvial deposits is as much as 10,000 feet near the center of the Rift.

5.0 GEOTECHNICAL PROPERTIES & ANALYSIS

5.1 Laboratory Tests

Laboratory test results (see Appendix B) indicate that native subsoils near shallow foundation level exhibit a small amount of compressibility at existing water contents. A moderate amounts of additional compression occurs when the water content is increased.

Near-surface soils are of low to non-plastic. These soils will not exhibit a significant shrink/swell potential upon moisture content changes.

6.0 RECOMMENDATIONS

6.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in Section 2.0, Project Description, and the assumption that the soil and subsurface conditions are those disclosed by the borings. Others may change the plans, final elevations, number and type of structures, foundation loads, and floor levels during design or construction. Substantially different subsurface conditions from those described herein may be encountered or become known. Any changes in the project criteria or subsurface conditions shall be brought to our attention in writing.

6.2 Foundations

Conventional spread-type footings may be used to support the proposed homes and buildings. Since the native soils exhibit substantial settlement potentials, the footings should bear on engineered fills achieved by removal and recompaction of the soils below footings. The depth and lateral extent of the engineered fills is presented in the **Earthwork** section of this report. Alternative footing depths and allowable bearing capacities are presented in the following tabulation:

Footing Depth Below Finished Grade (ft)[1]	Allowable Bearing Capacity (psf)[2]
1.5	2500
2.0[3]	3000

Note 1: Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

Note 2: Allowable bearing capacities assume fulfillment of **Earthwork** recommendations.

Note 3: Minimum-footing depth based on anticipated frost penetration.

The allowable bearing capacities apply to dead loads plus design live load conditions. The allowable bearing capacity may be increased by one-third when considering total loads that include wind or seismic. Recommended minimum widths of column and wall footings are 24 inches and 16 inches, respectively.

Thickened slab sections can be used to support interior partitions, provided that:

- loads do not exceed 900 plf,
- thickened sections have a minimum width of 12 inches, and
- thickness and reinforcement are consistent with structural requirements.

We anticipate that differential movement of the proposed homes and buildings, supported as recommended, should be three-quarters of one inch or less. Additional foundation movements could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

All footings, retaining walls, and masonry walls should be reinforced to reduce the potential for distress caused by differential foundation movements. The use of joints at openings or other discontinuities in masonry walls is recommended.

We recommend that the geotechnical engineer or his representative observe the footing excavations before reinforcing steel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated for support of the footings. Any soft, loose or unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials or lean concrete. Soil backfill should be properly compacted.

6.3 Lateral Design Criteria

Earth retaining structures less than six feet in height, above any free water surface, with level backfill and no surcharge loads may be designed using the equivalent fluid pressure method. Recommended equivalent fluid pressures and coefficients of base friction for unrestrained elements are:

- Active:
  - Undisturbed subsoil ..... 35 psf/ft
  - Compacted granular backfill ..... 30 psf/ft

- Passive:
  Shallow wall footings ..... 250 psf/ft
  Shallow column footings..... 400 psf/ft

- Coefficient of base friction 0.40*

  *The coefficient of base friction should be reduced to 0.30 when used in conjunction with passive pressure.

The equivalent fluid pressures presented herein do not include the lateral pressures arising from the presence of:

- hydrostatic conditions, submergence or partial submergence
- sloping backfill, positively or negatively
- surcharge loading, permanent or temporary
- seismic or dynamic conditions

We recommend a free-draining soil layer or manufactured geosynthetic material, be constructed adjacent to the back of any retaining walls. A filter may be required between the soil backfill and drainage layer. This drainage zone should help prevent development of hydrostatic pressure on the wall. This vertical drainage zone should be tied into a gravity drainage system at the base of the wall. It is important that all backfill be properly placed and compacted. Backfill should be mechanically compacted in layers. Flooding or jetting should not be permitted. Care should be taken not to damage the walls when placing the backfill. Backfills should be observed and tested during placement.

Fill against footings, and retaining walls should be compacted to densities specified in **Earthwork**. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures that could result in wall movements.

6.4 Seismic Considerations

For structural designs based upon the International Building Code 2000, the following criteria will apply. The site class is D. S_s, the spectral acceleration for short periods, is 0.6g. S_1, the spectral acceleration for a one-second period, is 0.2g. F_a and F_v, in accordance with Table 1615.1.2 (1) and 1615.1.2 (2), are 1.3 and 2.4, respectively.

6.5 Conventional Slab-on-Grade Support

Floor slabs can be supported on properly placed and compacted fill or approved natural soils. The slab subgrade should be prepared by the procedures outlined in this report. A

minimum four-inch layer of base course should be provided beneath all slabs to help prevent capillary rise and a damp slab.

The use of vapor retarders is desirable for any slab-on-grade where the floor will be covered by products using water based adhesives, wood, vinyl backed carpet, impermeable floor coatings (urethane, epoxy, acrylic terrazzo, etc.) or where the floor will be in contact with moisture sensitive equipment or product. When used, the design and installation should be in accordance with the recommendation given in ACI 302.1R-04. Final determination on the use of a vapor retarder should be left to the slab designer.

All concrete placement and curing operations should follow the American Concrete Institute manual recommendations. Improper curing techniques and/or high slump (high water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be allowed to cure adequately before placing vinyl or other moisture sensitive floor covering.

6.6 Drainage

The major cause of soil problems in this vicinity is moisture increase in soils below homes and buildings. Therefore, it is extremely important that positive drainage be provided during construction and maintained throughout the life of the proposed development. Infiltration of water into utility or foundation excavations must be prevented during construction. No planters, retention basins, or other surface features that could retain water adjacent to the building should be constructed.

In areas where sidewalks or paving do not immediately adjoin the homes and buildings, protective slopes should be provided with an outfall of about five percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to minimize the possibility of moisture infiltration.

If retention basins, planters and/or landscaping are adjacent to or near the structures, we recommend the following:

- Such features should be sealed.
- Grades should slope away from the structures.
- Only shallow rooted landscaping should be used.
- Watering should be kept to a minimum.

6.7 Pavements

The on-site soils are considered as good quality materials for support of pavements. The correlated R-Values range from 11 to 55, however, based upon our experience, actual tested R-Values will probably range higher than the lower correlated values. Based upon

this information, we believe that the R-Value of 50 minimum is suitable for use for most of the on-site near surface soils. The pavements can be designed in accordance with the current City of Albuquerque minimum standards. The City of Albuquerque minimum pavement section for residential streets is three inches of asphalt over 12 inches of compacted subgrade with a minimum R-Value of 50. We recommend that the pavement subgrade be tested for correlated R-Values prior to paving. Where the correlated value falls below 50, either an actual R-Value test should be performed. Where the actual R-Value test indicates an R-Value of 50 or more, the material is suitable to be left in place. If the actual R-Value is less than 50 the material should be overexcavated and replaced with material meeting the minimum R-Value.

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

Bituminous surfacing should be constructed of dense-graded, central plant-mix, asphalt concrete. Base course, portland cement, and asphalt concrete should conform to City of Albuquerque specifications.

Material and compaction requirements should conform to recommendations presented under **Earthwork**. The gradient of paved surfaces should ensure positive drainage. Water should not pond in areas directly adjoining paved sections.

7.0 EARTHWORK

7.1 General

The conclusions contained in this report for the proposed construction are contingent upon compliance with recommendations presented in this section. Any excavating, trenching, or disturbance that occurs after completion of the earthwork must be backfilled, compacted, and tested in accordance with the recommendations contained herein. It is not reasonable to rely upon our conclusions and recommendations if any future unobserved and untested trenching, earthwork activities or backfilling occurs.

Fills or underground facilities such as septic tanks, cesspools, basements, utilities, and dry wells will be encountered during construction. These features should be demolished in accordance with the recommendations of the geotechnical engineer. Any loose or disturbed soils resulting from demolition should be removed or recompacted as engineered fill and any excavations should be backfilled in accordance with recommendations presented herein.

7.2 Site Clearing

Strip and remove any existing vegetation, organic topsoils, debris, foundation remnants, utilities, and any other deleterious materials from the building and pavement areas. The building area is defined as that area within the building footprint plus five (5) feet beyond the perimeter of the footprint. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

7.3 Excavation

We anticipate that excavations for shallow foundations and utility trenches for the proposed construction can be accomplished with conventional equipment.

7.4 Building Pad Preparation

Remove existing soils throughout the entire building area to a minimum depth of six feet below the bottom of footing elevation or six feet below the existing grade which ever is deeper. This includes both foundation and interior floor slab areas. Following the removal, the base of the excavation should be watered to above optimum moisture content and proof rolled using a minimum 25 ton steel drum vibratory roller with at least three passes made across the entire foot print. Remove any soft, loose, or otherwise unstable deposits to a suitable bearing subgrade. scarify, moisten or dry as required, and recompact the bottom of the excavation to a minimum depth of 10 inches. Refill the excavation with properly compacted engineered fill material. The removal, proof rolling and replacement should extend laterally a minimum of five feet beyond the perimeter of the buildings.

7.5 Pavement Preparation

The subgrade should be scarified, moistened as required, and recompacted for a minimum depth of 10 inches prior to placement of fill and pavement materials.

7.6 Materials

Clean on-site native soils with low-expansive potentials or imported materials may be used as fill material for the following:

- foundation areas
- interior slab areas
- pavement areas*
- backfill

*On-site and imported materials within the upper 12 inches of subgrade should meet an R-Value of 50 minimum.

Imported soils should conform to the following:

- Gradation (ASTM C136):

	percent finer by weight
6"	100
4"	70-100
No. 4 Sieve	50-100
No. 200 Sieve	40 (max)

- Maximum expansive potential (%)* 1.5
- Maximum soluble sulfates (%) 0.10

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about three percent below optimum water content. The sample is confined under a 100-psf surcharge and submerged.

Base course should conform to the City of Albuquerque specifications.

7.7 Placement and Compaction

a. Place and compact fill in horizontal lifts, using equipment and procedures that will produce recommended water contents and densities throughout the lift.

b. Uncompacted fill lifts should not exceed 10 inches.

c. No fill should be placed over frozen ground.

d. Materials should be compacted to the following:

Material	Minimum Percent Compaction (ASTM D1557)
On-site soil, reworked and fill	95
Imported soil	95
Aggregate base course below slabs-on-grade	95
Aggregate base below pavement	100
Nonstructural backfill	90

On-site and imported soils should be compacted within a water content range of three percent below to three percent above optimum.

7.8 Compliance

Recommendations for slabs-on-grade, foundation, and pavement elements supported on compacted fills or prepared subgrade depend upon compliance with **Earthwork** recommendations. To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer.

8.0 LIMITATIONS

This report has been prepared based on our understanding of the project criteria as described in Section 2.0. Others may make changes in the project criteria during design or construction, and substantially different subsurface conditions may be encountered or become known. The conclusions and recommendations presented herein shall not continue to be valid unless all variations are brought to our attention in writing, and we have had an opportunity to assess the effect such variations may have on our conclusions and recommendations and respond in writing.

The recommendations presented are based upon data derived from a limited number of samples obtained from widely spaced borings. The attached logs are indicators of subsurface conditions only at the specific locations and times noted. The geotechnical engineer necessarily makes assumptions as to the uniformity of the geology and soil structure between borings/test pits, but variations can exist. Accordingly, whenever any deviation or change is encountered or become known during design or construction, WT shall be notified in writing. WT shall review the matter, and issue a written response regarding the validity of the conclusions and recommendations presented herein.

This report does not provide information relative to construction methods or sequences. Any person reviewing this report must draw his/her own conclusions regarding site conditions as they relate to the employment or development of construction techniques. This report is valid for one year after the date of issuance unless there is a change in circumstances or discovered variations justifying an earlier expiration of validity. After expiration, no person or entity has any right to rely on this report without further review and reporting by WT under a separate contract.

The recommendations contained herein may be based upon government regulations in effect at the time of this report. Future changes or modifications to these regulations may require modification of this report.

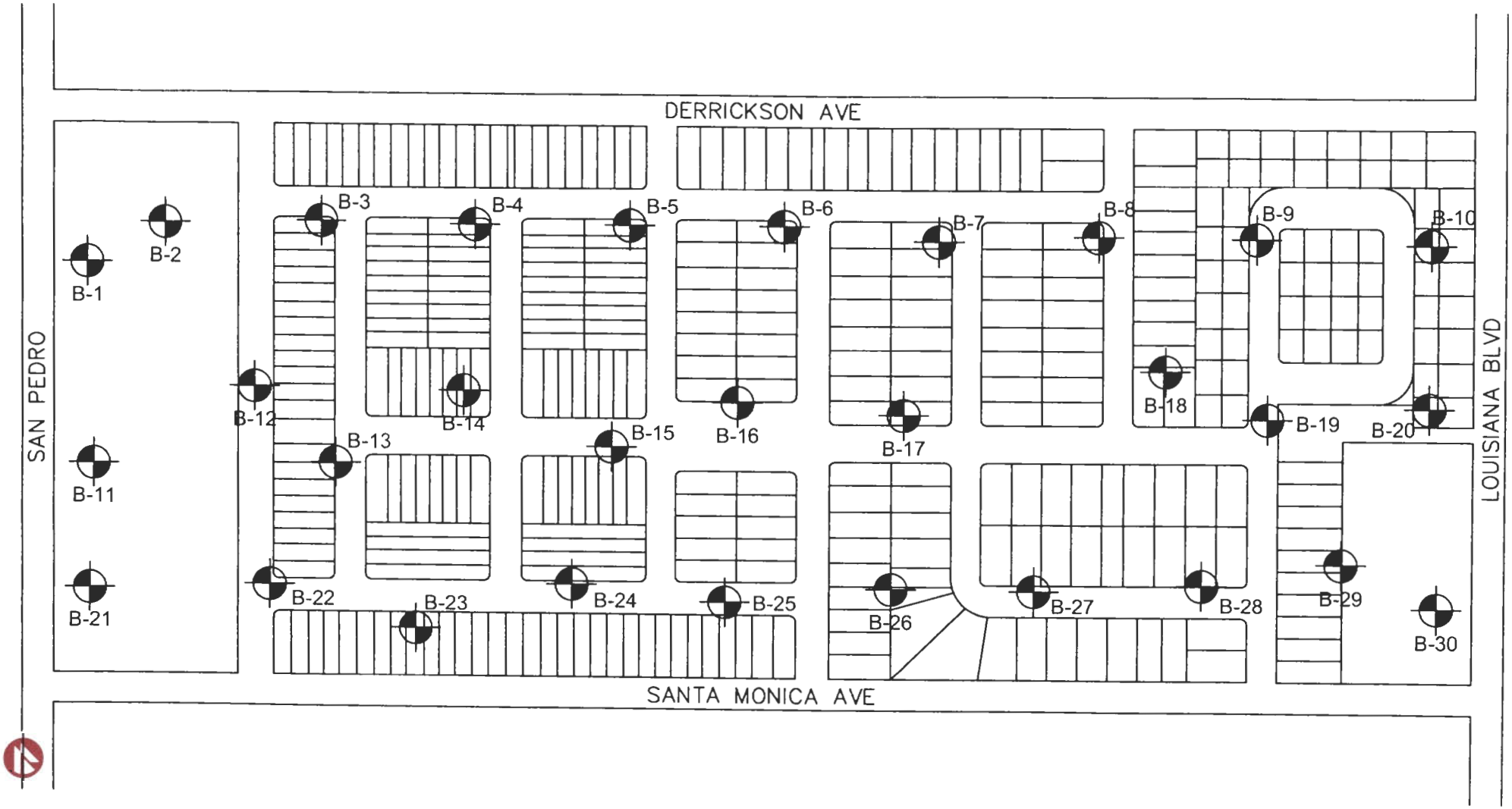
9.0 OTHER SERVICES

The geotechnical engineer should be retained for a general review of final plans and specifications to evaluate compliance with our recommendations.

The geotechnical engineer should also be retained to provide observation and testing services during excavation, earthwork operations, foundation, and construction phases of the project. Observation of footing excavations should be performed prior to placement of reinforcing and concrete to confirm that satisfactory bearing materials are present.

10.0 CLOSURE

We prepared this report as an aid to the designers of the proposed project. The comments, statements, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon conditions at the location of specific tests, observations and data developed to satisfy the scope of services defined by the contract documents. Work on your project was performed in accordance with generally accepted industry standards and practices by other professionals providing similar services in this locality. No other warranty, express or implied, is made.



NOT TO SCALE

-- Approximate Boring Location

MONTERRA DEL REY	
Boring Location Diagram	
Western Technologies, Inc.	
Job No. : 3227JJ167	Plate: 1

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified material placed on a subgrade or subbase.
Base Course Grade	Top of base course.
Bench	A horizontal surface in a sloped deposit.
Caisson	A concrete foundation element cast in a circular excavation which may have an enlarged base. Sometimes referred to as a cast-in-place pier.
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon a base, subbase or subgrade.
Crushed Rock Base Course	A base course composed of crushed rock of a specified gradation.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Engineered Fill	Specified material placed and compacted to specified density and/or moisture conditions under observations of a representative of a soil engineer.
Existing Fill	Materials deposited through the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.
Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Fill	Materials deposited by the actions of man.
Finished Grade	The final grade created as a part of the project.
Gravel Base Course	A base course composed of naturally occurring gravel with a specified gradation.
Heave	Upward movement
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Sand and Gravel Base	A base course of sand and gravel of a specified gradation.
Sand Base Course	A base course composed primarily of sand of a specified gradation.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Soil	Any unconsolidated material composed of discrete solid particles, derived from the physical and/or chemical disintegration of vegetable or mineral matter, which can be separated by gentle mechanical means such as agitation in water.
Strip	To remove from present location.
Subbase	A layer of specified material placed to form a layer between the subgrade and base course.
Subbase Grade	Top of subbase.
Subgrade	Prepared native soil surface.

MONTERRA DEL REY	
Definition of Terminology	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-1

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE
GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	
GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% FINES	
GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% FINES	
SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE
SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	
SM	SILTY SANDS, SAND-SILT MIXTURES, MORE THAN 12% FINES	
SC	CLAYEY SANDS, SAND-CLAY MIXTURES, MORE THAN 12% FINES	

NOTE: Coarse-grained soils receive dual symbols if they contain 5% to 12% fines (e.g., SW-SM, GP-GC).

FINE-GRAINED SOILS

MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
OL	ORGANIC SILTS OR ORGANIC SILT-CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	
PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics.

MODIFIERS

FINE-GRAIN PORTION		COARSE-GRAIN PORTION	
Trace	0%-5%	Trace	0%-5%
With	5%-12%	Some	5%-15%
As An Adjective	Over 12%	With	15%-30%
		As An Adjective	Over 30%

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY SOFT	0-2	0-2
SOFT	2-4	2-4
FIRM	4-8	4-9
STIFF	8-16	9-18
VERY STIFF	16-30	18-42
HARD	Over 30	Over 42

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	Above 12 in.
COBBLES	3 in. - 12 in.
GRAVEL	No. 4 - 3 in.
Coarse	3/4 in. - 3 in.
Fine	No. 4 - 3/4 in.
SAND	No. 200 - No. 4
Coarse	No. 10 - No. 4
Medium	No. 40 - No. 10
Fine	No. 200 - No. 40
*Fines (Silt or Clay)	Below No. 200

NOTE: Only sizes smaller than three inches are used to classify soils

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY LOOSE	0-4	0-8
LOOSE	4-10	8-19
MEDIUM DENSE	10-30	19-57
DENSE	30-50	57-94
VERY DENSE	Over 50	Over 94

† Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8" I.D.) split spoon (ASTM D1586).

‡ Number of blows of 140 pound hammer falling 30 inches to drive a 3 inch O.D (2 ½" I.D.) ring-lined barrel (ASTM D3550).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	Non-Plastic
1 - 7	Low
8 - 25	Medium
Over 25	High

DEFINITION OF MOISTURE CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

MONTERRA DEL REY

Method of Soil Classification

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-2

The number shown in **"BORING NO."** refers to the approximate location of the same number indicated on the "Boring Location Diagram" as positioned in the field by pacing from property lines and/or existing features.

"AUGER TYPE/SIZE" refers to the exploratory equipment used in the boring wherein **HSA = hollow stem auger, SSA = solid-stem auger, RW = rotary wash, RA = rotary air, RAF = rotary air with foam, CNX = NX-size diamond core, CBX = BX-size diamond core, CHQ = HQ-size diamond core.**

"N" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot, Standard Penetration Test (ASTM D1586). Refusal to penetration is defined as more than 100 blows per foot.

"'PN' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot. Refusal to penetration is defined as more than 50 blows per foot.

"R" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"'PR' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"Sample Type" refers to the form of sample recovery, in which **N = Split-barrel sample, R = Ring sample, G = Grab Sample, B = Block Sample, T = Thin-walled tube sample, CR = Core Run.**

"Dry Density, pcf" refers to the laboratory-determined dry density in pounds per cubic foot. The symbol **"NR"** indicates that no sample was recovered. The symbol **"DU"** indicates that determination of dry density was not possible.

"Water Content, %" refers to the laboratory-determined moisture content in percent ASTM D2216.

"Unified Classification" refers to the soil type as defined by "Method of Soil Classification". The soils were classified visually in the field and, where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

These notes and boring logs are intended for use in conjunction with the purposes of our services defined in the text. Boring log data should not be construed as part of the construction plans nor as defining construction conditions.

Boring logs depict our interpretations of subsurface conditions at the locations and on the dates noted. Variations in subsurface conditions and soil characteristics may occur between borings. Groundwater levels may fluctuate due to seasonal variations and other factors.

The stratification lines shown on the boring logs represent our interpretation of the approximate boundary between soil types based upon visual field classification. The transition between materials is approximate and may be far more or less gradual than indicated.

MONTERRA DEL REY	
Boring Log Notes	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-3

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 1

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	19		0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N	■	5		5			
		N	■	7		10	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	6		15	SP		POORLY GRADED SAND; with gravel, brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, loose, moist
		N	■	8		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-4

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 2

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; trace gravel, brown, medium dense, moist
8.0	125	R		26					
6.0	113	R		10		5			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; brown, medium dense, moist
9.8	114	R		12		10			
							SC		CLAYEY SAND; trace gravel, brown, loose, moist
		N		4		15	SM		SILTY SAND; brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-5

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 3

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; trace gravel, brown, loose, moist
		N		4					
		N		5		5			
		N		3		10			
									gravel stop, loose to medium dense
		N		12		15			
									medium dense to dense
		N		46		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-6

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 4

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
1.4	108	R		15					
2.0	111	R		23		5			
3.1	112	R		16		10			
		N		11		15			
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, dense, moist
		N		34		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-7

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 5

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	5		0	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	2		5	SM		SILTY SAND; brown, loose, moist
		N	■	8		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N	■	11		15	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	15		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-8

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 6

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SC		CLAYEY SAND; with gravel, brown, medium dense, moist
4.4	126	R G		17					
4.7	119	R		14		5			
7.0	116	R		13		10			
		N		11		15	SM		SILTY SAND; brown, medium dense, moist
							SC		CLAYEY SAND; trace gravel, light brown, dense, moist
		N		53/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-9

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 7

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N		15					
							SM-SC		SILTY SAND; with clay, trace gravel, brown, loose, moist
		N		3		5			
		G							
		N		8		10			
		N		5		15			
							SC		CLAYEY SAND; trace gravel, brown, dense, moist
		N		44		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-10

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 8

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
5.6	125	R		15					
1.7	113	R		9		5			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
7.5	115	R		10		10			
							SM		SILTY SAND; brown, medium dense, moist
		N		19		15			
									with gravel
		N		17		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-11

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 9

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose, moist
		N		4					
		N		3		5			
		N		5		10			
		N		34		15			medium dense
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-12

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 10

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
2.6		R		50/12"					
2.6	115	R		22		5			
		G							medium dense
1.6	118	R		14		10			
									gravels end
		N		30		15			
									trace gravel
		N		10		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-13

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 11

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
7.1	122	R		13					
3.6	108	R		6		5			
		G					SC		CLAYEY SAND; with gravel, brown, loose, moist
							SP		POORLY GRADED; with gravel, brown, loose to medium dense, moist
2.4	116	R		10		10			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		15		15			
		N		32		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-14

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 12

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		14					
		N		4		5			
		N		11		10			trace clay lens
		N		5		15			trace clay lens
		N		51/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-15

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 13

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, medium dense, moist
3.3	111	R	■	17					
2.6	112	R	■	11		5			trace gravel
1.5	116	R	■	19		10			
		N	■	10		15	SC		CLAYEY SAND; trace gravel, brown, medium dense to dense, moist
		N	■	32		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-16

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 14

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense to dense, moist
		N		12					
		N		20		5			
		G							
		N		25		10			
									trace gravel
		N		11		15			
		N		35		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-17

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 15

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
3.3	113	R	■	19		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
2.6	111	R	■	22		5			
1.5	104	R	■	7		10			loose
		N	■	9		15	SC		CLAYEY SAND; brown, loose, moist
							SM		SILTY SAND; trace gravel, brown, medium dense, moist
		N	■	14		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-18

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 16

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	13		0	SM		SILTY SAND; with gravel, brown, loose to medium dense to loose, moist
		N	■	5		5			trace gravel
		N	■	4		10			
		N	■	9		15			loose to dense
		N	■	38		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-19

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 17

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
9.9	106	R	■	14					
6.5	93	R	■	11		5			
3.1	113	R	■	16		10			
									trace gravel
		N	■	8		15			
		N	■	41		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-20

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 18

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		49		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N		15		5			
		G							
		N		15		10			
		N		13		15			
		N		41		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-21

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 19

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
4.0	128	R		34					
6.3	117	R		18		5			
		G							
5.4	117	R		9		10			loose
									trace gravel
		N		8		15			
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-22

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 20

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							*		* TOP OF BORING: 2" Asphalt
		G					SC		CLAYEY SAND; with gravel, dark brown, dense, moist
		N		15					
		G							
		N		17		5			
		N		20		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		11		15			
							SM		SILTY SAND; with gravel, brown, dense, moist
		N		22		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-23

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 21

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
6.8		R		50/11"					
4.9	120	R		29		5	SP		POORLY GRADED SAND; with course gravel, light brown, dense, damp
							SM		SILTY SAND; brown, medium dense, moist
9.8	113	R		13		10			
		N		20		15			with gravel
		N		11		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-24

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 22

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		10					
		N		8		5			
		G							
		N		8		10			
		G					SC		SILTY CLAY; with gravel, brown, stiff, moist
		N		17		15			
		N		17		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-25

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 23

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, dense, moist
8.9	115	R		27					
							SP		POORLY GRADED SAND; with gravel, light brown, medium dense, damp
0.9	11	R		15		5			
							SM-SC		SILTY SAND; with clay and gravel, brown, medium dense, moist
8.0	106	R		19		10			
		G							
		N		9		15			loose
		N		14		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-26

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 24

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24					
		N		7		5			loose
		G							
							SP		POORLY GRADED SAND; with gravel, brown, loose, moist
		N		6		10			
		N		7		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-27

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 25

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
6.8	125	R		31					
7.5	110	R		18		5			
		G							
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
4.5	119	R		14		10			
		N		7		15	SM		SILTY SAND; with gravel, brown, loose, moist
		N		9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-28

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 26

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	14		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	14		5			
		N	■	13		10			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N	■	13		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N	■	9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-29

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 27

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
8.0	127	R		33		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
0.9	117	R		19		5			
1.3	113	R		30		10			
		N		18		15	CL		SILTY CLAY; trace gravel, brown, medium stiff, moist
		N		17		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-30

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 28

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		10		0	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		5		5	SM		SILTY SAND; with gravel, brown, loose, moist
		G							
		N		10		10	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		8		15			
		N		6		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-31

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007
DRILL RIG TYPE: CME-75
BORING TYPE/SIZE: 8"/HSA

BORING NO. 29

LOCATION: See Boring Location Diagram
ELEVATION: Not Determined
FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
6.3	127	R		44					
							SM		SILTY SAND; with gravel, brown, dense, moist
3.0	111	R		31		5			
		G							
8.8	100	R		22		10			
									trace gravel
		N		13		15			
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY
Boring Log
Western Technologies Inc.
Job No.: 3227JJ167 | Plate: A-32

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 30

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		15		0	SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
		N		12		5	SM		SILTY SAND; with gravel, brown, medium dense, moist
		G							
		N		9		10			medium dense to loose
		N		4		15			trace clay lens
		N		9		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-33

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
2	0-5	SM								NV	NP	25	50	5
2	5-6	SM	109	6.0	0.5	0.3								
					1.0	0.8								
					2.0	1.1	2.1							2
					4.0		3.7							
7	0-3	SC								22	8	41	26	5
7	5-10	SM-SC								23	6	38	31	5
8	2-3	SM	124	5.6	0.5	0.6								
					1.0	0.7								
					2.0	1.1	1.7							2
					4.0		2.5							
8	5-6	SM	127	1.7	0.5	0.3								
					1.0	0.4								
					2.0	0.7	0.9							2
					4.0		1.4							

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-1

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Vaue	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
11	2-3	SM	119	7.1	0.5	0.1								
					1.0	0.4								
					2.0	0.9	1.6							2
					4.0		2.6							
11	5-6	SM	108	3.6	0.5	0.2								
					1.0	0.5								
					2.0	1.0	4.9							2
					4.0		6.4							
14	5-6	SM								NV	NP	10	55	5
17	5-6	SM	100	6.5	0.5	0.7								
					1.0	1.9								
					2.0	2.5	6.7							2
					4.0		8.1							
20	0-2	SC								27	11	42	11	5
20	2-5	SC								25	13	44	11	5
22	0-5	SM								NV	NP	10	55	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-2

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
22	5-10	SM								NV	NP	25	55	5
23	10-15	SM-SC								22	6	46	31	5
24	0-2	SM								20	NP	21	55	5
27	0-5	SM								NV	NP	14	55	5
28	2-3.5	SM-SC								21	4	28	45	5
30	0-5	SM-SC								24	6	42	31	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-3

Western Technologies Inc.
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Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

November 8, 2011

Broadstone Santa Monica, LLC.
C/O. Titan Development
6300 Riverside Plaza Lane NW
Suite 200
Albuquerque, NM 87120

Attn : Kurt Browning, P.E.

Re : Broadstone Santa Monica
San Pedro & Santa Monica
Albuquerque, NM

Job No. 3227JJ167
Addendum No. 1

As you requested, Western Technologies Inc. is presenting this addendum to our geotechnical evaluation report number 3227JJ167, dated August 30, 2007 (the report) for the project then known as Montera Del Ray, located between San Pedro and Louisiana Boulevards, between Derrickson and Santa Monica Avenues. The site was a 58 acre site. The purpose of this addendum letter is to address questions presented in an e-mail (and via phone conversations) by the project structural engineer, Sandy Herd, P.E. of Caruso Turley Scott Inc.

The current project, Broadstone Santa Monica, is located in the southwest portion of the original site, an occupies 14 acres. The project will include 2 and 3-story multi-family garden-style apartments using wood frame and stucco construction, with slab-on-grade floors. We understand that the maximum wall and column loads will be 4 klf and 50 kips, respectively.

The allowable bearing pressures presented in the report are applicable for the proposed structures on the project. The minimum embedment for frost protection is 18 inches. Where the structural design is either a post-tensioned slab, or a BRAB Type II Slab, once the overexcavation and recompaction recommended in the original report has been accomplished, the site may be classified as a stable soil site. The overexcavation recommended in the original report should be measured from the base of the post-tenioned slab for interior areas, and from the bottom of the turn-down edges for the perimeter of the foundation.

The original report recommended a minimum 4-inch thick layer of base course as a capillary break to help prevent damp slab conditions. Where drainage conditions are appropriate and/or non-moisture sensitive floor coverings are used, the base course may be omitted. Final determination of the use of vapor retarders should be left to the slab designer.

Site retaining walls may utilize the given bearing pressures, however, if the overexcavation and recompaction recommended in the report is not performed, the foundations should be stiffened to resist differential movements caused by the collapsible soil. Differential settlement potential of foundations bearing on un-treated soil is estimated to be on the order of 2 to 3 inches. The recommended equivalent fluid pressure for at-rest conditions is 55 psf/ft.

For structural designs based upon the International Building Code 2006 and 2009 Editions, the following criteria will apply. The site class is D. S_s, the spectral acceleration for short periods, is 0.548g. S_1, the spectral acceleration for a one (1)-second period, is 0.167g. F_a and F_v, in accordance with Table 1615.1.2 (1) and 1615.1.2 (2), are 1.362 and 2.132, respectively.

We understand that the streets within Broadstone Santa Monica will be private streets. The pavement recommendations contained in the original report were based upon the streets transitioning turned over to the City of Albuquerque for maintenance. For private streets, the following will apply. The on-site soils are considered as good quality materials for support of pavements. The types of traffic anticipated to use the facility include passenger vehicles and small to medium size trucks. On this basis, a daily traffic value of two Equivalent 18-kip Single Axle Loads (ESAL) was estimated for passenger car parking and drives (light duty) and a daily traffic value of five ESALS were used for major access drives. A resilient modulus (M_r) of 15,000 pounds per square inch was assigned to the on-site soil. A reliability value of 85 percent was assigned to the facility that corresponds to occasional interruption of traffic for pavement repairs. Based upon these parameters, the resulting pavement sections according to the AASHTO procedure for a 20-year design life are:

Traffic Area	Asphaltic Concrete Pavement (inches)	Base Course (inches)
Light Duty	2.0	4.0
Major access drives	3.0	4.0

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

Due to the high static loads imposed by parking trucks in loading and unloading areas and at dumpster locations, we recommend that a rigid pavement section be considered for these areas. A minimum six inch thick Portland cement concrete pavement is recommended.

Titan Development
Job No. 3227JJ167
Addendum No. 1

Bituminous surfacing should be constructed of dense-graded, central plant-mix, asphalt concrete. Base course, portland cement, and asphalt concrete should conform with New Mexico Department of Transportation (NMDOT) or City of Albuquerque specifications.

Material and compaction requirements should conform to recommendations presented in the **Earthwork** section of this report. The gradient of paved surfaces should ensure positive drainage. Water should not pond in areas directly adjoining paved sections.

Pavement subgrade preparation should consist of scarification of the upper 10 inches, moisture conditioning to near optimum moisture, and recompaction as recommended in our original report.

All remaining recommendations and conclusions contained in our original report remain valid. This addendum should be attached to our original report, and be made part thereof.

We appreciate working with you on this project. If you have any additional questions, or require further consultation, please contact us.

Sincerely,
WESTERN TECHNOLOGIES INC.

JEFF M. BOYD NEW MEXICO 12412 REGISTERED PROFESSIONAL ENGINEER 11-0-2011

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Reviewed by:

for Bruce M. MacIlroy, P.E.
Technical Director

Copies: Addressee (3)
Kieth A. Coleman (1) Via e-mail
Sandy Hert (1) Via e-mail

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January 10, 2012

Broadstone Santa Monica, LLC.
C/O. Titan Development
6300 Riverside Plaza Lane NW
Suite 200
Albuquerque, NM 87120

Attn : Kurt Browning, P.E.

Re : Broadstone Santa Monica
San Pedro & Santa Monica
Albuquerque, NM

Job No. 3227JJ167
Addendum No. 2

As requested by the project structural engineering firm, Caruso-Turley-Scott, Inc., Western Technologies Inc. is providing this addendum letter to our referenced report.

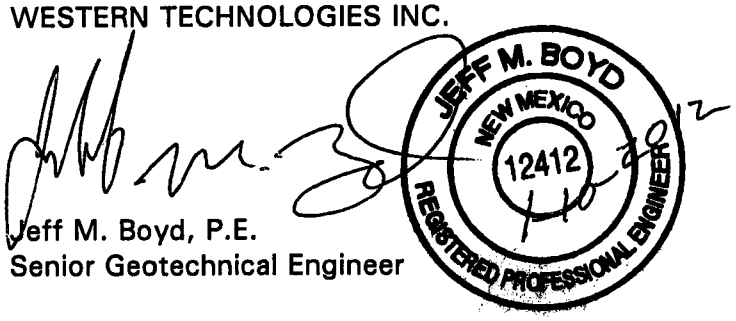
For post-tensioned slab type foundations, the earthwork preparation as recommended in the original report should extend laterally a minimum of 3 feet beyond the perimeter of the structures.

The modulus of subgrade reaction for on-site compacted soils is estimated to be 250 pci.

For interior bearing walls, with loads exceeding 900 plf, the wall foundation bearing capacities presented in the original report remain valid, with the appropriate embedment depth and overexcavation requirements beneath foundations.

If you have any questions regarding this information, please feel free to contact us.

Sincerely,
WESTERN TECHNOLOGIES INC.



Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

February 14, 2012

Broadstone Santa Monica, LLC.
C/O. Titan Development
6300 Riverside Plaza Lane NW
Suite 200
Albuquerque, NM 87120

Attn : Kurt Browning, P.E.

Re : Broadstone Santa Monica
San Pedro & Santa Monica
Albuquerque, NM

Job No. 3227JJ167
Addendum No. 3

As requested by the project structural engineering firm, Caruso-Turley-Scott, Inc., Western Technologies Inc. is providing this addendum letter to our referenced report.

Slab bearing should be limited to 500 psf.

Foundation bearing at 12 inches would be 1500 psf.

Foundation bearing at 8 inches would be 1000 psf.

Overexcavation should be measured from the base of all foundations.

Sincerely,
WESTERN TECHNOLOGIES INC.

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

February 12, 2014

Titan Development
6300 Riverside Plaza Lane NW, Suite 200
Suite 200
Albuquerque, New Mexico 87120

Attn: Mr. Will Carter

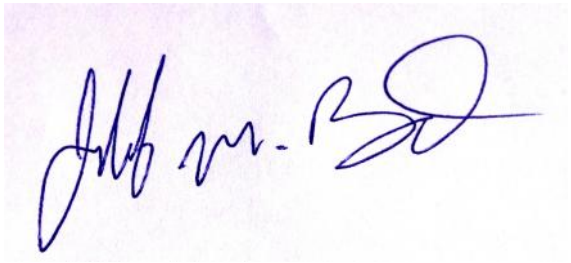
Re: Geotechnical Evaluation — Job No. 3227JJ167
Broadstone Promenade
7311 Louisiana Boulevard NE
Albuquerque, New Mexico

WT prepared a geotechnical evaluation report, Job No. 3227JJ167, dated August 30, 2007 for the above referenced project, which included a total of a 58 acre site. The site is bound by San Pedro Dr. on the west, Lousiana Blvd. on the east, Santa Monica Ave. on the south, and Derickson Ave. on the north.

Our original report, along with addendum letters 1 thru 3 remain applicable for projects within the above boundaries, subject to the limitations contained within our report and subsequent addenda.

Should you have further questions, please do not hesitate to contact us.

Sincerely,
WESTERN TECHNOLOGIES INC.



Jeff M. Boyd, P.E.
Principal

GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

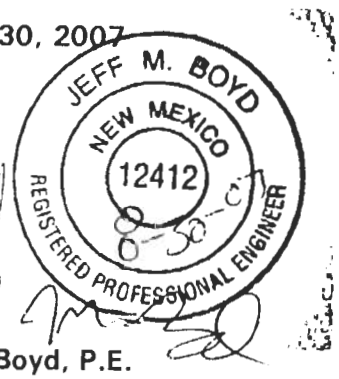
Western Technologies Inc.
The Quality People
Since 1955

ALBUQUERQUE – NEW MEXICO
8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

Prepared for:

DEL REY INVESTMENTS LLC

August 30, 2007



Carlton Pine
Geotechnical Specialist

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

August 30, 2007

Del Rey Investments, LLC
6300 Riverside Plaza Lane NW, Suite 200
Albuquerque, New Mexico 87120

Attn: Mr. Daniel B. Clemmer, Vice President Construction

Re: Geotechnical Evaluation
Monterra Del Rey
7311 Louisiana Boulevard NE
Albuquerque, New Mexico

Job No. 3227JJ167

Western Technologies, Inc. (WT) has completed the geotechnical evaluation for the proposed mixed used site with manufactured homes, commercial/retail, townhomes, single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. This study was performed in general accordance with our proposal number 3226PJ097, dated July 03, 2007. The results of our evaluation, including the boring location diagram, boring logs, laboratory test results, and geotechnical recommendations are attached.

We appreciate being of service to you in the geotechnical engineering phase of this project and are prepared to assist you during the construction phases as well. If design conditions change, or if you have any questions concerning this report or any of our materials testing, special inspection, or consulting services, please do not hesitate to contact us. We look forward to working with you on future projects.

Sincerely,
WESTERN TECHNOLOGIES, INC.
Geotechnical Engineering Services

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Copies to: Addressee (5)

TABLE OF CONTENTS

APPENDIX A

APPENDIX B

GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed 58-acre site as a mixed-use site with 8.2 acres as manufactured homes, 2.4 acres commercial/retail, 17.3 acres of townhomes, and 30.6 acres for single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. The purpose of these services is to provide information and recommendations regarding:

- Foundation design parameters
- Seismic considerations
- Drainage
- Earthwork
- Lateral earth pressures
- Slabs-on-grade
- Pavement sections
- Excavation conditions

Results of the field exploration, field-tests, and laboratory tests are presented in the Appendices.

2.0 PROJECT DESCRIPTION

Project information supplied by Mr. Daniel B. Clemmer on July 07, 2007 indicates that the proposed 58-acre site will be developed into a mixed used development that well consist of manufactured homes, commercial/retail, townhomes, and single family homes. The buildings will be one and two-story, slab-on-grade structures using wood frame construction with stucco veneer. The maximum wall and column loads are assumed to be three kips per linear foot and 50 kips, respectively. We anticipate that the ground floor level will be at or slightly above existing site grade and that no extraordinary slab criteria are required. On-site asphalt paved areas for parking and driveways and rigid pavement sections for loading and dumpster areas will be constructed. Final site grading plans were not available at the time of this report. Should our assumptions not be correct, we should be notified immediately.

3.0 SCOPE OF SERVICES

3.1 Field Exploration

Thirty borings were drilled to depth of 21.5 feet below existing grade in the proposed development area. The borings were at the approximate locations shown on the attached Boring Location Diagram. A field log was prepared for each boring. These logs contain visual classifications of the materials encountered during drilling as well as interpolation of the subsurface conditions between samples. Final logs included in Appendix A, represent our interpretation of the field logs and may include modifications based on laboratory observations and tests of the field samples. The final logs describe the materials encountered, their thicknesses, and the locations where samples were obtained.

The Unified Soil Classification System was used to classify soils. The soil classification symbols appear on the boring logs and are briefly described in Appendix A. Local and regional geologic characteristics were used to estimate the seismic design criteria.

3.2 Laboratory Analysis

Laboratory analyses were performed on representative soil samples to aid in material classification and to estimate pertinent engineering properties of the on-site soils for preparation of this report. Testing was performed in general accordance with applicable ASTM test methods. The following tests were performed and the results are presented in Appendix B.

- Water Content
- Minus #200 Sieve
- Compression
- Dry Density
- Plasticity

3.3 Analyses and Report

Analyses were performed and this report was prepared for the exclusive purpose of providing geotechnical engineering and/or testing information and recommendations. The scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken. We are available to discuss the scope of such studies with you.

This geotechnical engineering report includes a description of the project, a discussion of the field and laboratory testing programs, a discussion of the subsurface conditions, and design recommendations as required to satisfy the purpose previously described.

4.0 SITE CONDITIONS

4.1 Surface

At the time of our exploration, the site was a partially developed subdivision, with approximately one half of the lots currently being occupied by mobile homes. The remaining lots were relatively flat, and contained a sparse to moderate growth of grass and weeds, with scattered large cottonwood trees. Streets and other infrastructure improvements were already in place. Site drainage trended to the west as surface sheet flow.

4.2 Subsurface

As presented on Logs of Borings, site soils throughout the depths explored were found to consist of interbedded loose to medium dense silty sand with gravel, and clayey sand with gravel. Near surface soils are of non-plastic to low plasticity. Groundwater was not encountered in any of the borings at the time of exploration.

4.3 Geology

The site is located in the Rio Grande Rift, which is located near the southeastern confluence of the Colorado Plateau, and Southern Rocky Mountain Geologic Provinces. The Rio Grande Rift lies properly within the Southern Rocky Mountain Province. The general geology of the surrounding area is complex and includes Quaternary Age Volcanics west of the Rio Grande River, with Precambrian Age Granite, and Pennsylvanian Age Sandstone and Limestone of the Madera and Sandia Formations on the east side of the river. The rift was formed during the Tertiary Period, more than seven million years ago, when the Sandia-Manzano fault block was uplifted and tilted. The steep western face of the Sandia Mountains is a weathered fault scarp. The center of the rift, through which the Rio Grande River flows, consists of Recent Age alluvial deposits of the Rio Grande River and tributary streams and washes. The alluvial deposits generally consist of interbedded silt, clay, sand and gravel. The depth of the alluvial deposits is as much as 10,000 feet near the center of the Rift.

5.0 GEOTECHNICAL PROPERTIES & ANALYSIS

5.1 Laboratory Tests

Laboratory test results (see Appendix B) indicate that native subsoils near shallow foundation level exhibit a small amount of compressibility at existing water contents. A moderate amounts of additional compression occurs when the water content is increased.

Near-surface soils are of low to non-plastic. These soils will not exhibit a significant shrink/swell potential upon moisture content changes.

6.0 RECOMMENDATIONS

6.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in Section 2.0, Project Description, and the assumption that the soil and subsurface conditions are those disclosed by the borings. Others may change the plans, final elevations, number and type of structures, foundation loads, and floor levels during design or construction. Substantially different subsurface conditions from those described herein may be encountered or become known. Any changes in the project criteria or subsurface conditions shall be brought to our attention in writing.

6.2 Foundations

Conventional spread-type footings may be used to support the proposed homes and buildings. Since the native soils exhibit substantial settlement potentials, the footings should bear on engineered fills achieved by removal and recompaction of the soils below footings. The depth and lateral extent of the engineered fills is presented in the **Earthwork** section of this report. Alternative footing depths and allowable bearing capacities are presented in the following tabulation:

Footing Depth Below Finished Grade (ft)[1]	Allowable Bearing Capacity (psf)[2]
1.5	2500
2.0[3]	3000

Note 1: Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

Note 2: Allowable bearing capacities assume fulfillment of **Earthwork** recommendations.

Note 3: Minimum-footing depth based on anticipated frost penetration.

The allowable bearing capacities apply to dead loads plus design live load conditions. The allowable bearing capacity may be increased by one-third when considering total loads that include wind or seismic. Recommended minimum widths of column and wall footings are 24 inches and 16 inches, respectively.

Thickened slab sections can be used to support interior partitions, provided that:

- loads do not exceed 900 plf,
- thickened sections have a minimum width of 12 inches, and
- thickness and reinforcement are consistent with structural requirements.

We anticipate that differential movement of the proposed homes and buildings, supported as recommended, should be three-quarters of one inch or less. Additional foundation movements could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

All footings, retaining walls, and masonry walls should be reinforced to reduce the potential for distress caused by differential foundation movements. The use of joints at openings or other discontinuities in masonry walls is recommended.

We recommend that the geotechnical engineer or his representative observe the footing excavations before reinforcing steel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated for support of the footings. Any soft, loose or unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials or lean concrete. Soil backfill should be properly compacted.

6.3 Lateral Design Criteria

Earth retaining structures less than six feet in height, above any free water surface, with level backfill and no surcharge loads may be designed using the equivalent fluid pressure method. Recommended equivalent fluid pressures and coefficients of base friction for unrestrained elements are:

- Active:
  - Undisturbed subsoil ..... 35 psf/ft
  - Compacted granular backfill ..... 30 psf/ft

- Passive:
  Shallow wall footings ..... 250 psf/ft
  Shallow column footings..... 400 psf/ft

- Coefficient of base friction 0.40*

  *The coefficient of base friction should be reduced to 0.30 when used in conjunction with passive pressure.

The equivalent fluid pressures presented herein do not include the lateral pressures arising from the presence of:

- hydrostatic conditions, submergence or partial submergence
- sloping backfill, positively or negatively
- surcharge loading, permanent or temporary
- seismic or dynamic conditions

We recommend a free-draining soil layer or manufactured geosynthetic material, be constructed adjacent to the back of any retaining walls. A filter may be required between the soil backfill and drainage layer. This drainage zone should help prevent development of hydrostatic pressure on the wall. This vertical drainage zone should be tied into a gravity drainage system at the base of the wall. It is important that all backfill be properly placed and compacted. Backfill should be mechanically compacted in layers. Flooding or jetting should not be permitted. Care should be taken not to damage the walls when placing the backfill. Backfills should be observed and tested during placement.

Fill against footings, and retaining walls should be compacted to densities specified in **Earthwork**. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures that could result in wall movements.

6.4 Seismic Considerations

For structural designs based upon the International Building Code 2000, the following criteria will apply. The site class is D. S_s, the spectral acceleration for short periods, is 0.6g. S_1, the spectral acceleration for a one-second period, is 0.2g. F_a and F_v, in accordance with Table 1615.1.2 (1) and 1615.1.2 (2), are 1.3 and 2.4, respectively.

6.5 Conventional Slab-on-Grade Support

Floor slabs can be supported on properly placed and compacted fill or approved natural soils. The slab subgrade should be prepared by the procedures outlined in this report. A

minimum four-inch layer of base course should be provided beneath all slabs to help prevent capillary rise and a damp slab.

The use of vapor retarders is desirable for any slab-on-grade where the floor will be covered by products using water based adhesives, wood, vinyl backed carpet, impermeable floor coatings (urethane, epoxy, acrylic terrazzo, etc.) or where the floor will be in contact with moisture sensitive equipment or product. When used, the design and installation should be in accordance with the recommendation given in ACI 302.1R-04. Final determination on the use of a vapor retarder should be left to the slab designer.

All concrete placement and curing operations should follow the American Concrete Institute manual recommendations. Improper curing techniques and/or high slump (high water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be allowed to cure adequately before placing vinyl or other moisture sensitive floor covering.

6.6 Drainage

The major cause of soil problems in this vicinity is moisture increase in soils below homes and buildings. Therefore, it is extremely important that positive drainage be provided during construction and maintained throughout the life of the proposed development. Infiltration of water into utility or foundation excavations must be prevented during construction. No planters, retention basins, or other surface features that could retain water adjacent to the building should be constructed.

In areas where sidewalks or paving do not immediately adjoin the homes and buildings, protective slopes should be provided with an outfall of about five percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to minimize the possibility of moisture infiltration.

If retention basins, planters and/or landscaping are adjacent to or near the structures, we recommend the following:

- Such features should be sealed.
- Grades should slope away from the structures.
- Only shallow rooted landscaping should be used.
- Watering should be kept to a minimum.

6.7 Pavements

The on-site soils are considered as good quality materials for support of pavements. The correlated R-Values range from 11 to 55, however, based upon our experience, actual tested R-Values will probably range higher than the lower correlated values. Based upon

this information, we believe that the R-Value of 50 minimum is suitable for use for most of the on-site near surface soils. The pavements can be designed in accordance with the current City of Albuquerque minimum standards. The City of Albuquerque minimum pavement section for residential streets is three inches of asphalt over 12 inches of compacted subgrade with a minimum R-Value of 50. We recommend that the pavement subgrade be tested for correlated R-Values prior to paving. Where the correlated value falls below 50, either an actual R-Value test should be performed. Where the actual R-Value test indicates an R-Value of 50 or more, the material is suitable to be left in place. If the actual R-Value is less than 50 the material should be overexcavated and replaced with material meeting the minimum R-Value.

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

Bituminous surfacing should be constructed of dense-graded, central plant-mix, asphalt concrete. Base course, portland cement, and asphalt concrete should conform to City of Albuquerque specifications.

Material and compaction requirements should conform to recommendations presented under **Earthwork**. The gradient of paved surfaces should ensure positive drainage. Water should not pond in areas directly adjoining paved sections.

7.0 EARTHWORK

7.1 General

The conclusions contained in this report for the proposed construction are contingent upon compliance with recommendations presented in this section. Any excavating, trenching, or disturbance that occurs after completion of the earthwork must be backfilled, compacted, and tested in accordance with the recommendations contained herein. It is not reasonable to rely upon our conclusions and recommendations if any future unobserved and untested trenching, earthwork activities or backfilling occurs.

Fills or underground facilities such as septic tanks, cesspools, basements, utilities, and dry wells will be encountered during construction. These features should be demolished in accordance with the recommendations of the geotechnical engineer. Any loose or disturbed soils resulting from demolition should be removed or recompacted as engineered fill and any excavations should be backfilled in accordance with recommendations presented herein.

7.2 Site Clearing

Strip and remove any existing vegetation, organic topsoils, debris, foundation remnants, utilities, and any other deleterious materials from the building and pavement areas. The building area is defined as that area within the building footprint plus five (5) feet beyond the perimeter of the footprint. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

7.3 Excavation

We anticipate that excavations for shallow foundations and utility trenches for the proposed construction can be accomplished with conventional equipment.

7.4 Building Pad Preparation

Remove existing soils throughout the entire building area to a minimum depth of six feet below the bottom of footing elevation or six feet below the existing grade which ever is deeper. This includes both foundation and interior floor slab areas. Following the removal, the base of the excavation should be watered to above optimum moisture content and proof rolled using a minimum 25 ton steel drum vibratory roller with at least three passes made across the entire foot print. Remove any soft, loose, or otherwise unstable deposits to a suitable bearing subgrade. scarify, moisten or dry as required, and recompact the bottom of the excavation to a minimum depth of 10 inches. Refill the excavation with properly compacted engineered fill material. The removal, proof rolling and replacement should extend laterally a minimum of five feet beyond the perimeter of the buildings.

7.5 Pavement Preparation

The subgrade should be scarified, moistened as required, and recompacted for a minimum depth of 10 inches prior to placement of fill and pavement materials.

7.6 Materials

Clean on-site native soils with low-expansive potentials or imported materials may be used as fill material for the following:

- foundation areas
- interior slab areas
- pavement areas*
- backfill

*On-site and imported materials within the upper 12 inches of subgrade should meet an R-Value of 50 minimum.

Imported soils should conform to the following:

- Gradation (ASTM C136):

	percent finer by weight
6"	100
4"	70-100
No. 4 Sieve	50-100
No. 200 Sieve	40 (max)

- Maximum expansive potential (%)* 1.5
- Maximum soluble sulfates (%) 0.10

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about three percent below optimum water content. The sample is confined under a 100-psf surcharge and submerged.

Base course should conform to the City of Albuquerque specifications.

7.7 Placement and Compaction

a. Place and compact fill in horizontal lifts, using equipment and procedures that will produce recommended water contents and densities throughout the lift.

b. Uncompacted fill lifts should not exceed 10 inches.

c. No fill should be placed over frozen ground.

d. Materials should be compacted to the following:

Material	Minimum Percent Compaction (ASTM D1557)
On-site soil, reworked and fill	95
Imported soil	95
Aggregate base course below slabs-on-grade	95
Aggregate base below pavement	100
Nonstructural backfill	90

On-site and imported soils should be compacted within a water content range of three percent below to three percent above optimum.

7.8 Compliance

Recommendations for slabs-on-grade, foundation, and pavement elements supported on compacted fills or prepared subgrade depend upon compliance with **Earthwork** recommendations. To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer.

8.0 LIMITATIONS

This report has been prepared based on our understanding of the project criteria as described in Section 2.0. Others may make changes in the project criteria during design or construction, and substantially different subsurface conditions may be encountered or become known. The conclusions and recommendations presented herein shall not continue to be valid unless all variations are brought to our attention in writing, and we have had an opportunity to assess the effect such variations may have on our conclusions and recommendations and respond in writing.

The recommendations presented are based upon data derived from a limited number of samples obtained from widely spaced borings. The attached logs are indicators of subsurface conditions only at the specific locations and times noted. The geotechnical engineer necessarily makes assumptions as to the uniformity of the geology and soil structure between borings/test pits, but variations can exist. Accordingly, whenever any deviation or change is encountered or become known during design or construction, WT shall be notified in writing. WT shall review the matter, and issue a written response regarding the validity of the conclusions and recommendations presented herein.

This report does not provide information relative to construction methods or sequences. Any person reviewing this report must draw his/her own conclusions regarding site conditions as they relate to the employment or development of construction techniques. This report is valid for one year after the date of issuance unless there is a change in circumstances or discovered variations justifying an earlier expiration of validity. After expiration, no person or entity has any right to rely on this report without further review and reporting by WT under a separate contract.

The recommendations contained herein may be based upon government regulations in effect at the time of this report. Future changes or modifications to these regulations may require modification of this report.

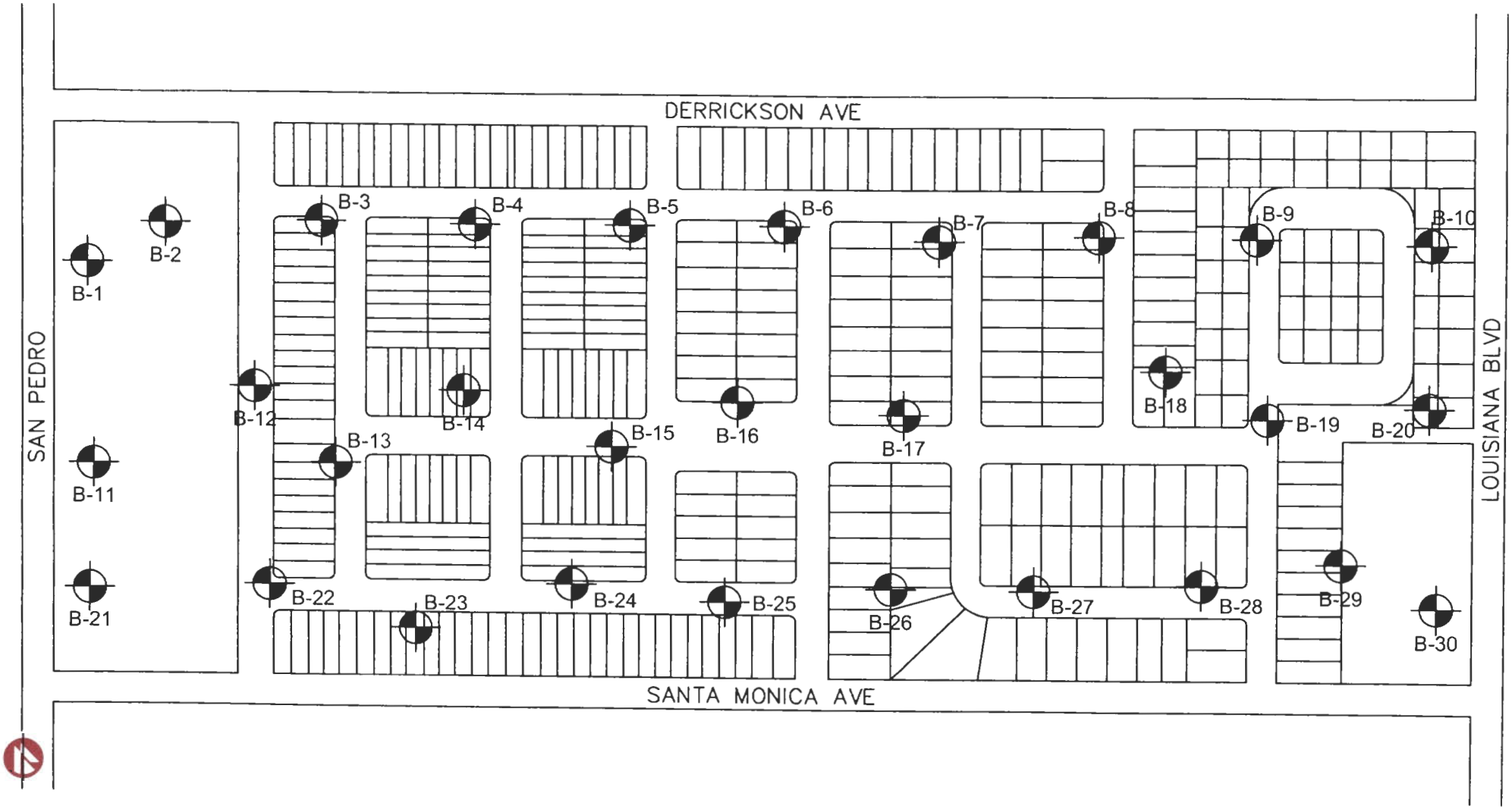
9.0 OTHER SERVICES

The geotechnical engineer should be retained for a general review of final plans and specifications to evaluate compliance with our recommendations.

The geotechnical engineer should also be retained to provide observation and testing services during excavation, earthwork operations, foundation, and construction phases of the project. Observation of footing excavations should be performed prior to placement of reinforcing and concrete to confirm that satisfactory bearing materials are present.

10.0 CLOSURE

We prepared this report as an aid to the designers of the proposed project. The comments, statements, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon conditions at the location of specific tests, observations and data developed to satisfy the scope of services defined by the contract documents. Work on your project was performed in accordance with generally accepted industry standards and practices by other professionals providing similar services in this locality. No other warranty, express or implied, is made.



NOT TO SCALE

-- Approximate Boring Location

MONTERRA DEL REY	
Boring Location Diagram	
Western Technologies, Inc.	
Job No. : 3227JJ167	Plate: 1

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified material placed on a subgrade or subbase.
Base Course Grade	Top of base course.
Bench	A horizontal surface in a sloped deposit.
Caisson	A concrete foundation element cast in a circular excavation which may have an enlarged base. Sometimes referred to as a cast-in-place pier.
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon a base, subbase or subgrade.
Crushed Rock Base Course	A base course composed of crushed rock of a specified gradation.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Engineered Fill	Specified material placed and compacted to specified density and/or moisture conditions under observations of a representative of a soil engineer.
Existing Fill	Materials deposited through the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.
Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Fill	Materials deposited by the actions of man.
Finished Grade	The final grade created as a part of the project.
Gravel Base Course	A base course composed of naturally occurring gravel with a specified gradation.
Heave	Upward movement
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Sand and Gravel Base	A base course of sand and gravel of a specified gradation.
Sand Base Course	A base course composed primarily of sand of a specified gradation.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Soil	Any unconsolidated material composed of discrete solid particles, derived from the physical and/or chemical disintegration of vegetable or mineral matter, which can be separated by gentle mechanical means such as agitation in water.
Strip	To remove from present location.
Subbase	A layer of specified material placed to form a layer between the subgrade and base course.
Subbase Grade	Top of subbase.
Subgrade	Prepared native soil surface.

MONTERRA DEL REY	
Definition of Terminology	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-1

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE
GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	
GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% FINES	
GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% FINES	
SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE
SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	
SM	SILTY SANDS, SAND-SILT MIXTURES, MORE THAN 12% FINES	
SC	CLAYEY SANDS, SAND-CLAY MIXTURES, MORE THAN 12% FINES	

NOTE: Coarse-grained soils receive dual symbols if they contain 5% to 12% fines (e.g., SW-SM, GP-GC).

FINE-GRAINED SOILS

MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
OL	ORGANIC SILTS OR ORGANIC SILT-CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	
PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics.

MODIFIERS

FINE-GRAIN PORTION		COARSE-GRAIN PORTION	
Trace	0%-5%	Trace	0%-5%
With	5%-12%	Some	5%-15%
As An Adjective	Over 12%	With	15%-30%
		As An Adjective	Over 30%

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY SOFT	0-2	0-2
SOFT	2-4	2-4
FIRM	4-8	4-9
STIFF	8-16	9-18
VERY STIFF	16-30	18-42
HARD	Over 30	Over 42

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	Above 12 in.
COBBLES	3 in. - 12 in.
GRAVEL	No. 4 - 3 in.
Coarse	3/4 in. - 3 in.
Fine	No. 4 - 3/4 in.
SAND	No. 200 - No. 4
Coarse	No. 10 - No. 4
Medium	No. 40 - No. 10
Fine	No. 200 - No. 40
*Fines (Silt or Clay)	Below No. 200

NOTE: Only sizes smaller than three inches are used to classify soils

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY LOOSE	0-4	0-8
LOOSE	4-10	8-19
MEDIUM DENSE	10-30	19-57
DENSE	30-50	57-94
VERY DENSE	Over 50	Over 94

† Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8" I.D.) split spoon (ASTM D1586).

‡ Number of blows of 140 pound hammer falling 30 inches to drive a 3 inch O.D (2 ½" I.D.) ring-lined barrel (ASTM D3550).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	Non-Plastic
1 - 7	Low
8 - 25	Medium
Over 25	High

DEFINITION OF MOISTURE CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

MONTERRA DEL REY

Method of Soil Classification

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-2

The number shown in **"BORING NO."** refers to the approximate location of the same number indicated on the "Boring Location Diagram" as positioned in the field by pacing from property lines and/or existing features.

"AUGER TYPE/SIZE" refers to the exploratory equipment used in the boring wherein **HSA = hollow stem auger, SSA = solid-stem auger, RW = rotary wash, RA = rotary air, RAF = rotary air with foam, CNX = NX-size diamond core, CBX = BX-size diamond core, CHQ = HQ-size diamond core.**

"N" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot, Standard Penetration Test (ASTM D1586). Refusal to penetration is defined as more than 100 blows per foot.

"'PN' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot. Refusal to penetration is defined as more than 50 blows per foot.

"R" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"'PR' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"Sample Type" refers to the form of sample recovery, in which **N = Split-barrel sample, R = Ring sample, G = Grab Sample, B = Block Sample, T = Thin-walled tube sample, CR = Core Run.**

"Dry Density, pcf" refers to the laboratory-determined dry density in pounds per cubic foot. The symbol **"NR"** indicates that no sample was recovered. The symbol **"DU"** indicates that determination of dry density was not possible.

"Water Content, %" refers to the laboratory-determined moisture content in percent ASTM D2216.

"Unified Classification" refers to the soil type as defined by "Method of Soil Classification". The soils were classified visually in the field and, where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

These notes and boring logs are intended for use in conjunction with the purposes of our services defined in the text. Boring log data should not be construed as part of the construction plans nor as defining construction conditions.

Boring logs depict our interpretations of subsurface conditions at the locations and on the dates noted. Variations in subsurface conditions and soil characteristics may occur between borings. Groundwater levels may fluctuate due to seasonal variations and other factors.

The stratification lines shown on the boring logs represent our interpretation of the approximate boundary between soil types based upon visual field classification. The transition between materials is approximate and may be far more or less gradual than indicated.

MONTERRA DEL REY	
Boring Log Notes	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-3

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 1

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	19		0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N	■	5		5			
		N	■	7		10	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	6		15	SP		POORLY GRADED SAND; with gravel, brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, loose, moist
		N	■	8		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-4

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 2

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; trace gravel, brown, medium dense, moist
8.0	125	R		26					
6.0	113	R		10		5			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; brown, medium dense, moist
9.8	114	R		12		10			
							SC		CLAYEY SAND; trace gravel, brown, loose, moist
		N		4		15	SM		SILTY SAND; brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-5

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 3

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; trace gravel, brown, loose, moist
		N		4					
		N		5		5			
		N		3		10			
									gravel stop, loose to medium dense
		N		12		15			
									medium dense to dense
		N		46		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-6

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 4

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
1.4	108	R		15					
2.0	111	R		23		5			
3.1	112	R		16		10			
		N		11		15			
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, dense, moist
		N		34		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-7

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 5

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	5		0	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	2		5	SM		SILTY SAND; brown, loose, moist
		N	■	8		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N	■	11		15	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	15		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-8

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 6

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SC		CLAYEY SAND; with gravel, brown, medium dense, moist
4.4	126	R G		17					
4.7	119	R		14		5			
7.0	116	R		13		10			
		N		11		15	SM		SILTY SAND; brown, medium dense, moist
							SC		CLAYEY SAND; trace gravel, light brown, dense, moist
		N		53/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-9

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 7

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N		15					
							SM-SC		SILTY SAND; with clay, trace gravel, brown, loose, moist
		N		3		5			
		G							
		N		8		10			
		N		5		15			
							SC		CLAYEY SAND; trace gravel, brown, dense, moist
		N		44		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-10

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 8

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
5.6	125	R		15					
1.7	113	R		9		5			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
7.5	115	R		10		10			
							SM		SILTY SAND; brown, medium dense, moist
		N		19		15			
									with gravel
		N		17		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-11

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 9

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose, moist
		N		4					
		N		3		5			
		N		5		10			
		N		34		15			medium dense
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-12

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 10

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
2.6		R		50/12"					
2.6	115	R		22		5			
		G							medium dense
1.6	118	R		14		10			
									gravels end
		N		30		15			
									trace gravel
		N		10		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-13

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 11

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
7.1	122	R		13					
3.6	108	R		6		5			
		G					SC		CLAYEY SAND; with gravel, brown, loose, moist
							SP		POORLY GRADED; with gravel, brown, loose to medium dense, moist
2.4	116	R		10		10			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		15		15			
		N		32		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-14

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 12

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		14					
		N		4		5			
		N		11		10			trace clay lens
		N		5		15			trace clay lens
		N		51/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-15

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 13

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, medium dense, moist
3.3	111	R	■	17					
2.6	112	R	■	11		5			trace gravel
1.5	116	R	■	19		10			
		N	■	10		15	SC		CLAYEY SAND; trace gravel, brown, medium dense to dense, moist
		N	■	32		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-16

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 14

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense to dense, moist
		N		12					
		N		20		5			
		G							
		N		25		10			
									trace gravel
		N		11		15			
		N		35		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-17

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 15

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
3.3	113	R	■	19		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
2.6	111	R	■	22		5			
1.5	104	R	■	7		10			loose
		N	■	9		15	SC		CLAYEY SAND; brown, loose, moist
							SM		SILTY SAND; trace gravel, brown, medium dense, moist
		N	■	14		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-18

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 16

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	13		0	SM		SILTY SAND; with gravel, brown, loose to medium dense to loose, moist
		N	■	5		5			trace gravel
		N	■	4		10			
		N	■	9		15			loose to dense
		N	■	38		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-19

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 17

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
9.9	106	R	■	14					
6.5	93	R	■	11		5			
3.1	113	R	■	16		10			
									trace gravel
		N	■	8		15			
		N	■	41		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-20

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 18

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		49		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N		15		5			
		G							
		N		15		10			
		N		13		15			
		N		41		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-21

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 19

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
4.0	128	R		34					
6.3	117	R		18		5			
		G							
5.4	117	R		9		10			loose
									trace gravel
		N		8		15			
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-22

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 20

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							*		* TOP OF BORING: 2" Asphalt
		G					SC		CLAYEY SAND; with gravel, dark brown, dense, moist
		N		15					
		G							
		N		17		5			
		N		20		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		11		15			
							SM		SILTY SAND; with gravel, brown, dense, moist
		N		22		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-23

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 21

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
6.8		R		50/11"					
4.9	120	R		29		5	SP		POORLY GRADED SAND; with course gravel, light brown, dense, damp
							SM		SILTY SAND; brown, medium dense, moist
9.8	113	R		13		10			
		N		20		15			with gravel
		N		11		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-24

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 22

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		10					
		N		8		5			
		G							
		N		8		10			
		G					SC		SILTY CLAY; with gravel, brown, stiff, moist
		N		17		15			
		N		17		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-25

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 23

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, dense, moist
8.9	115	R		27					
							SP		POORLY GRADED SAND; with gravel, light brown, medium dense, damp
0.9	11	R		15		5			
							SM-SC		SILTY SAND; with clay and gravel, brown, medium dense, moist
8.0	106	R		19		10			
		G							
		N		9		15			loose
		N		14		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-26

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 24

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24					
		N		7		5			loose
		G							
							SP		POORLY GRADED SAND; with gravel, brown, loose, moist
		N		6		10			
		N		7		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-27

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 25

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
6.8	125	R		31					
7.5	110	R		18		5			
		G							
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
4.5	119	R		14		10			
		N		7		15	SM		SILTY SAND; with gravel, brown, loose, moist
		N		9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-28

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 26

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	14		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	14		5			
		N	■	13		10			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N	■	13		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N	■	9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-29

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 27

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
8.0	127	R		33		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
0.9	117	R		19		5			
1.3	113	R		30		10			
		N		18		15	CL		SILTY CLAY; trace gravel, brown, medium stiff, moist
		N		17		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-30

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 28

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		10		0	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		5		5	SM		SILTY SAND; with gravel, brown, loose, moist
		G							
		N		10		10	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		8		15			
		N		6		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-31

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007
DRILL RIG TYPE: CME-75
BORING TYPE/SIZE: 8"/HSA

BORING NO. 29

LOCATION: See Boring Location Diagram
ELEVATION: Not Determined
FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
6.3	127	R		44					
							SM		SILTY SAND; with gravel, brown, dense, moist
3.0	111	R		31		5			
		G							
8.8	100	R		22		10			
									trace gravel
		N		13		15			
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY
Boring Log
Western Technologies Inc.
Job No.: 3227JJ167 | Plate: A-32

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 30

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		15		0	SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
		N		12		5	SM		SILTY SAND; with gravel, brown, medium dense, moist
		G							
		N		9		10			medium dense to loose
		N		4		15			trace clay lens
		N		9		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-33

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
2	0-5	SM								NV	NP	25	50	5
2	5-6	SM	109	6.0	0.5	0.3								
					1.0	0.8								
					2.0	1.1	2.1							2
					4.0		3.7							
7	0-3	SC								22	8	41	26	5
7	5-10	SM-SC								23	6	38	31	5
8	2-3	SM	124	5.6	0.5	0.6								
					1.0	0.7								
					2.0	1.1	1.7							2
					4.0		2.5							
8	5-6	SM	127	1.7	0.5	0.3								
					1.0	0.4								
					2.0	0.7	0.9							2
					4.0		1.4							

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-1

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Vaue	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
11	2-3	SM	119	7.1	0.5	0.1								
					1.0	0.4								
					2.0	0.9	1.6							2
					4.0		2.6							
11	5-6	SM	108	3.6	0.5	0.2								
					1.0	0.5								
					2.0	1.0	4.9							2
					4.0		6.4							
14	5-6	SM								NV	NP	10	55	5
17	5-6	SM	100	6.5	0.5	0.7								
					1.0	1.9								
					2.0	2.5	6.7							2
					4.0		8.1							
20	0-2	SC								27	11	42	11	5
20	2-5	SC								25	13	44	11	5
22	0-5	SM								NV	NP	10	55	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-2

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
22	5-10	SM								NV	NP	25	55	5
23	10-15	SM-SC								22	6	46	31	5
24	0-2	SM								20	NP	21	55	5
27	0-5	SM								NV	NP	14	55	5
28	2-3.5	SM-SC								21	4	28	45	5
30	0-5	SM-SC								24	6	42	31	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-3

GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

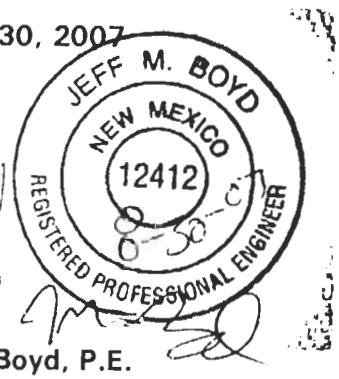
Western Technologies Inc.
The Quality People
Since 1955

ALBUQUERQUE – NEW MEXICO
8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

Prepared for:

DEL REY INVESTMENTS LLC

August 30, 2007



Carlton Pine
Geotechnical Specialist

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Western Technologies Inc.
The Quality People
Since 1955

8305 Washington Place N.E.
Albuquerque, New Mexico 87113-1670
(505) 823-4488 • fax 821-2963

August 30, 2007

Del Rey Investments, LLC
6300 Riverside Plaza Lane NW, Suite 200
Albuquerque, New Mexico 87120

Attn: Mr. Daniel B. Clemmer, Vice President Construction

Re: Geotechnical Evaluation
Monterra Del Rey
7311 Louisiana Boulevard NE
Albuquerque, New Mexico

Job No. 3227JJ167

Western Technologies, Inc. (WT) has completed the geotechnical evaluation for the proposed mixed used site with manufactured homes, commercial/retail, townhomes, single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. This study was performed in general accordance with our proposal number 3226PJ097, dated July 03, 2007. The results of our evaluation, including the boring location diagram, boring logs, laboratory test results, and geotechnical recommendations are attached.

We appreciate being of service to you in the geotechnical engineering phase of this project and are prepared to assist you during the construction phases as well. If design conditions change, or if you have any questions concerning this report or any of our materials testing, special inspection, or consulting services, please do not hesitate to contact us. We look forward to working with you on future projects.

Sincerely,
WESTERN TECHNOLOGIES, INC.
Geotechnical Engineering Services

Jeff M. Boyd, P.E.
Senior Geotechnical Engineer

Copies to: Addressee (5)

TABLE OF CONTENTS

APPENDIX A

APPENDIX B

GEOTECHNICAL EVALUATION

MONTERRA DEL REY
7311 LOUISIANA BOULEVARD NE
ALBUQUERQUE, NEW MEXICO

JOB NO. 3227JJ167

1.0 PURPOSE

This report contains the results of our geotechnical evaluation for the proposed 58-acre site as a mixed-use site with 8.2 acres as manufactured homes, 2.4 acres commercial/retail, 17.3 acres of townhomes, and 30.6 acres for single family homes. The site is located at 7311 Louisiana Boulevard NE in Albuquerque, New Mexico. The purpose of these services is to provide information and recommendations regarding:

- Foundation design parameters
- Seismic considerations
- Drainage
- Earthwork
- Lateral earth pressures
- Slabs-on-grade
- Pavement sections
- Excavation conditions

Results of the field exploration, field-tests, and laboratory tests are presented in the Appendices.

2.0 PROJECT DESCRIPTION

Project information supplied by Mr. Daniel B. Clemmer on July 07, 2007 indicates that the proposed 58-acre site will be developed into a mixed used development that well consist of manufactured homes, commercial/retail, townhomes, and single family homes. The buildings will be one and two-story, slab-on-grade structures using wood frame construction with stucco veneer. The maximum wall and column loads are assumed to be three kips per linear foot and 50 kips, respectively. We anticipate that the ground floor level will be at or slightly above existing site grade and that no extraordinary slab criteria are required. On-site asphalt paved areas for parking and driveways and rigid pavement sections for loading and dumpster areas will be constructed. Final site grading plans were not available at the time of this report. Should our assumptions not be correct, we should be notified immediately.

3.0 SCOPE OF SERVICES

3.1 Field Exploration

Thirty borings were drilled to depth of 21.5 feet below existing grade in the proposed development area. The borings were at the approximate locations shown on the attached Boring Location Diagram. A field log was prepared for each boring. These logs contain visual classifications of the materials encountered during drilling as well as interpolation of the subsurface conditions between samples. Final logs included in Appendix A, represent our interpretation of the field logs and may include modifications based on laboratory observations and tests of the field samples. The final logs describe the materials encountered, their thicknesses, and the locations where samples were obtained.

The Unified Soil Classification System was used to classify soils. The soil classification symbols appear on the boring logs and are briefly described in Appendix A. Local and regional geologic characteristics were used to estimate the seismic design criteria.

3.2 Laboratory Analysis

Laboratory analyses were performed on representative soil samples to aid in material classification and to estimate pertinent engineering properties of the on-site soils for preparation of this report. Testing was performed in general accordance with applicable ASTM test methods. The following tests were performed and the results are presented in Appendix B.

- Water Content
- Minus #200 Sieve
- Compression
- Dry Density
- Plasticity

3.3 Analyses and Report

Analyses were performed and this report was prepared for the exclusive purpose of providing geotechnical engineering and/or testing information and recommendations. The scope of services for this project does not include, either specifically or by implication, any environmental assessment of the site or identification of contaminated or hazardous materials or conditions. If the owner is concerned about the potential for such contamination, other studies should be undertaken. We are available to discuss the scope of such studies with you.

This geotechnical engineering report includes a description of the project, a discussion of the field and laboratory testing programs, a discussion of the subsurface conditions, and design recommendations as required to satisfy the purpose previously described.

4.0 SITE CONDITIONS

4.1 Surface

At the time of our exploration, the site was a partially developed subdivision, with approximately one half of the lots currently being occupied by mobile homes. The remaining lots were relatively flat, and contained a sparse to moderate growth of grass and weeds, with scattered large cottonwood trees. Streets and other infrastructure improvements were already in place. Site drainage trended to the west as surface sheet flow.

4.2 Subsurface

As presented on Logs of Borings, site soils throughout the depths explored were found to consist of interbedded loose to medium dense silty sand with gravel, and clayey sand with gravel. Near surface soils are of non-plastic to low plasticity. Groundwater was not encountered in any of the borings at the time of exploration.

4.3 Geology

The site is located in the Rio Grande Rift, which is located near the southeastern confluence of the Colorado Plateau, and Southern Rocky Mountain Geologic Provinces. The Rio Grande Rift lies properly within the Southern Rocky Mountain Province. The general geology of the surrounding area is complex and includes Quaternary Age Volcanics west of the Rio Grande River, with Precambrian Age Granite, and Pennsylvanian Age Sandstone and Limestone of the Madera and Sandia Formations on the east side of the river. The rift was formed during the Tertiary Period, more than seven million years ago, when the Sandia-Manzano fault block was uplifted and tilted. The steep western face of the Sandia Mountains is a weathered fault scarp. The center of the rift, through which the Rio Grande River flows, consists of Recent Age alluvial deposits of the Rio Grande River and tributary streams and washes. The alluvial deposits generally consist of interbedded silt, clay, sand and gravel. The depth of the alluvial deposits is as much as 10,000 feet near the center of the Rift.

5.0 GEOTECHNICAL PROPERTIES & ANALYSIS

5.1 Laboratory Tests

Laboratory test results (see Appendix B) indicate that native subsoils near shallow foundation level exhibit a small amount of compressibility at existing water contents. A moderate amounts of additional compression occurs when the water content is increased.

Near-surface soils are of low to non-plastic. These soils will not exhibit a significant shrink/swell potential upon moisture content changes.

6.0 RECOMMENDATIONS

6.1 General

Recommendations contained in this report are based on our understanding of the project criteria described in Section 2.0, Project Description, and the assumption that the soil and subsurface conditions are those disclosed by the borings. Others may change the plans, final elevations, number and type of structures, foundation loads, and floor levels during design or construction. Substantially different subsurface conditions from those described herein may be encountered or become known. Any changes in the project criteria or subsurface conditions shall be brought to our attention in writing.

6.2 Foundations

Conventional spread-type footings may be used to support the proposed homes and buildings. Since the native soils exhibit substantial settlement potentials, the footings should bear on engineered fills achieved by removal and recompaction of the soils below footings. The depth and lateral extent of the engineered fills is presented in the **Earthwork** section of this report. Alternative footing depths and allowable bearing capacities are presented in the following tabulation:

Footing Depth Below Finished Grade (ft)[1]	Allowable Bearing Capacity (psf)[2]
1.5	2500
2.0[3]	3000

Note 1: Finished grade is the lowest adjacent grade for perimeter footings and floor level for interior footings.

Note 2: Allowable bearing capacities assume fulfillment of **Earthwork** recommendations.

Note 3: Minimum-footing depth based on anticipated frost penetration.

The allowable bearing capacities apply to dead loads plus design live load conditions. The allowable bearing capacity may be increased by one-third when considering total loads that include wind or seismic. Recommended minimum widths of column and wall footings are 24 inches and 16 inches, respectively.

Thickened slab sections can be used to support interior partitions, provided that:

- loads do not exceed 900 plf,
- thickened sections have a minimum width of 12 inches, and
- thickness and reinforcement are consistent with structural requirements.

We anticipate that differential movement of the proposed homes and buildings, supported as recommended, should be three-quarters of one inch or less. Additional foundation movements could occur if water from any source infiltrates the foundation soils. Therefore, proper drainage should be provided in the final design and during construction.

All footings, retaining walls, and masonry walls should be reinforced to reduce the potential for distress caused by differential foundation movements. The use of joints at openings or other discontinuities in masonry walls is recommended.

We recommend that the geotechnical engineer or his representative observe the footing excavations before reinforcing steel and concrete are placed. This observation is to assess whether the soils exposed are similar to those anticipated for support of the footings. Any soft, loose or unacceptable soils should be undercut to suitable materials and backfilled with approved fill materials or lean concrete. Soil backfill should be properly compacted.

6.3 Lateral Design Criteria

Earth retaining structures less than six feet in height, above any free water surface, with level backfill and no surcharge loads may be designed using the equivalent fluid pressure method. Recommended equivalent fluid pressures and coefficients of base friction for unrestrained elements are:

- Active:
  - Undisturbed subsoil ..... 35 psf/ft
  - Compacted granular backfill ..... 30 psf/ft

- Passive:
  Shallow wall footings ..... 250 psf/ft
  Shallow column footings..... 400 psf/ft

- Coefficient of base friction 0.40*

  *The coefficient of base friction should be reduced to 0.30 when used in conjunction with passive pressure.

The equivalent fluid pressures presented herein do not include the lateral pressures arising from the presence of:

- hydrostatic conditions, submergence or partial submergence
- sloping backfill, positively or negatively
- surcharge loading, permanent or temporary
- seismic or dynamic conditions

We recommend a free-draining soil layer or manufactured geosynthetic material, be constructed adjacent to the back of any retaining walls. A filter may be required between the soil backfill and drainage layer. This drainage zone should help prevent development of hydrostatic pressure on the wall. This vertical drainage zone should be tied into a gravity drainage system at the base of the wall. It is important that all backfill be properly placed and compacted. Backfill should be mechanically compacted in layers. Flooding or jetting should not be permitted. Care should be taken not to damage the walls when placing the backfill. Backfills should be observed and tested during placement.

Fill against footings, and retaining walls should be compacted to densities specified in **Earthwork**. Compaction of each lift adjacent to walls should be accomplished with hand-operated tampers or other lightweight compactors. Overcompaction may cause excessive lateral earth pressures that could result in wall movements.

6.4 Seismic Considerations

For structural designs based upon the International Building Code 2000, the following criteria will apply. The site class is D. S_s, the spectral acceleration for short periods, is 0.6g. S_1, the spectral acceleration for a one-second period, is 0.2g. F_a and F_v, in accordance with Table 1615.1.2 (1) and 1615.1.2 (2), are 1.3 and 2.4, respectively.

6.5 Conventional Slab-on-Grade Support

Floor slabs can be supported on properly placed and compacted fill or approved natural soils. The slab subgrade should be prepared by the procedures outlined in this report. A

minimum four-inch layer of base course should be provided beneath all slabs to help prevent capillary rise and a damp slab.

The use of vapor retarders is desirable for any slab-on-grade where the floor will be covered by products using water based adhesives, wood, vinyl backed carpet, impermeable floor coatings (urethane, epoxy, acrylic terrazzo, etc.) or where the floor will be in contact with moisture sensitive equipment or product. When used, the design and installation should be in accordance with the recommendation given in ACI 302.1R-04. Final determination on the use of a vapor retarder should be left to the slab designer.

All concrete placement and curing operations should follow the American Concrete Institute manual recommendations. Improper curing techniques and/or high slump (high water-cement ratio) could cause excessive shrinkage, cracking or curling. Concrete slabs should be allowed to cure adequately before placing vinyl or other moisture sensitive floor covering.

6.6 Drainage

The major cause of soil problems in this vicinity is moisture increase in soils below homes and buildings. Therefore, it is extremely important that positive drainage be provided during construction and maintained throughout the life of the proposed development. Infiltration of water into utility or foundation excavations must be prevented during construction. No planters, retention basins, or other surface features that could retain water adjacent to the building should be constructed.

In areas where sidewalks or paving do not immediately adjoin the homes and buildings, protective slopes should be provided with an outfall of about five percent for at least 10 feet from perimeter walls. Backfill against footings, exterior walls, and in utility and sprinkler line trenches should be well compacted and free of all construction debris to minimize the possibility of moisture infiltration.

If retention basins, planters and/or landscaping are adjacent to or near the structures, we recommend the following:

- Such features should be sealed.
- Grades should slope away from the structures.
- Only shallow rooted landscaping should be used.
- Watering should be kept to a minimum.

6.7 Pavements

The on-site soils are considered as good quality materials for support of pavements. The correlated R-Values range from 11 to 55, however, based upon our experience, actual tested R-Values will probably range higher than the lower correlated values. Based upon

this information, we believe that the R-Value of 50 minimum is suitable for use for most of the on-site near surface soils. The pavements can be designed in accordance with the current City of Albuquerque minimum standards. The City of Albuquerque minimum pavement section for residential streets is three inches of asphalt over 12 inches of compacted subgrade with a minimum R-Value of 50. We recommend that the pavement subgrade be tested for correlated R-Values prior to paving. Where the correlated value falls below 50, either an actual R-Value test should be performed. Where the actual R-Value test indicates an R-Value of 50 or more, the material is suitable to be left in place. If the actual R-Value is less than 50 the material should be overexcavated and replaced with material meeting the minimum R-Value.

The "design life" of a pavement is defined as the expected life at the end of which reconstruction of the pavement will need to occur. Normal maintenance, including crack sealing, slurry sealing, and/or chip sealing, should be performed during the life of the pavement.

Bituminous surfacing should be constructed of dense-graded, central plant-mix, asphalt concrete. Base course, portland cement, and asphalt concrete should conform to City of Albuquerque specifications.

Material and compaction requirements should conform to recommendations presented under **Earthwork**. The gradient of paved surfaces should ensure positive drainage. Water should not pond in areas directly adjoining paved sections.

7.0 EARTHWORK

7.1 General

The conclusions contained in this report for the proposed construction are contingent upon compliance with recommendations presented in this section. Any excavating, trenching, or disturbance that occurs after completion of the earthwork must be backfilled, compacted, and tested in accordance with the recommendations contained herein. It is not reasonable to rely upon our conclusions and recommendations if any future unobserved and untested trenching, earthwork activities or backfilling occurs.

Fills or underground facilities such as septic tanks, cesspools, basements, utilities, and dry wells will be encountered during construction. These features should be demolished in accordance with the recommendations of the geotechnical engineer. Any loose or disturbed soils resulting from demolition should be removed or recompacted as engineered fill and any excavations should be backfilled in accordance with recommendations presented herein.

7.2 Site Clearing

Strip and remove any existing vegetation, organic topsoils, debris, foundation remnants, utilities, and any other deleterious materials from the building and pavement areas. The building area is defined as that area within the building footprint plus five (5) feet beyond the perimeter of the footprint. All exposed surfaces should be free of mounds and depressions that could prevent uniform compaction.

7.3 Excavation

We anticipate that excavations for shallow foundations and utility trenches for the proposed construction can be accomplished with conventional equipment.

7.4 Building Pad Preparation

Remove existing soils throughout the entire building area to a minimum depth of six feet below the bottom of footing elevation or six feet below the existing grade which ever is deeper. This includes both foundation and interior floor slab areas. Following the removal, the base of the excavation should be watered to above optimum moisture content and proof rolled using a minimum 25 ton steel drum vibratory roller with at least three passes made across the entire foot print. Remove any soft, loose, or otherwise unstable deposits to a suitable bearing subgrade. scarify, moisten or dry as required, and recompact the bottom of the excavation to a minimum depth of 10 inches. Refill the excavation with properly compacted engineered fill material. The removal, proof rolling and replacement should extend laterally a minimum of five feet beyond the perimeter of the buildings.

7.5 Pavement Preparation

The subgrade should be scarified, moistened as required, and recompacted for a minimum depth of 10 inches prior to placement of fill and pavement materials.

7.6 Materials

Clean on-site native soils with low-expansive potentials or imported materials may be used as fill material for the following:

- foundation areas
- interior slab areas
- pavement areas*
- backfill

*On-site and imported materials within the upper 12 inches of subgrade should meet an R-Value of 50 minimum.

Imported soils should conform to the following:

- Gradation (ASTM C136):

	percent finer by weight
6"	100
4"	70-100
No. 4 Sieve	50-100
No. 200 Sieve	40 (max)

- Maximum expansive potential (%)* 1.5
- Maximum soluble sulfates (%) 0.10

*Measured on a sample compacted to approximately 95 percent of the ASTM D698 maximum dry density at about three percent below optimum water content. The sample is confined under a 100-psf surcharge and submerged.

Base course should conform to the City of Albuquerque specifications.

7.7 Placement and Compaction

a. Place and compact fill in horizontal lifts, using equipment and procedures that will produce recommended water contents and densities throughout the lift.

b. Uncompacted fill lifts should not exceed 10 inches.

c. No fill should be placed over frozen ground.

d. Materials should be compacted to the following:

Material	Minimum Percent Compaction (ASTM D1557)
On-site soil, reworked and fill	95
Imported soil	95
Aggregate base course below slabs-on-grade	95
Aggregate base below pavement	100
Nonstructural backfill	90

On-site and imported soils should be compacted within a water content range of three percent below to three percent above optimum.

7.8 Compliance

Recommendations for slabs-on-grade, foundation, and pavement elements supported on compacted fills or prepared subgrade depend upon compliance with **Earthwork** recommendations. To assess compliance, observation and testing should be performed under the direction of a geotechnical engineer.

8.0 LIMITATIONS

This report has been prepared based on our understanding of the project criteria as described in Section 2.0. Others may make changes in the project criteria during design or construction, and substantially different subsurface conditions may be encountered or become known. The conclusions and recommendations presented herein shall not continue to be valid unless all variations are brought to our attention in writing, and we have had an opportunity to assess the effect such variations may have on our conclusions and recommendations and respond in writing.

The recommendations presented are based upon data derived from a limited number of samples obtained from widely spaced borings. The attached logs are indicators of subsurface conditions only at the specific locations and times noted. The geotechnical engineer necessarily makes assumptions as to the uniformity of the geology and soil structure between borings/test pits, but variations can exist. Accordingly, whenever any deviation or change is encountered or become known during design or construction, WT shall be notified in writing. WT shall review the matter, and issue a written response regarding the validity of the conclusions and recommendations presented herein.

This report does not provide information relative to construction methods or sequences. Any person reviewing this report must draw his/her own conclusions regarding site conditions as they relate to the employment or development of construction techniques. This report is valid for one year after the date of issuance unless there is a change in circumstances or discovered variations justifying an earlier expiration of validity. After expiration, no person or entity has any right to rely on this report without further review and reporting by WT under a separate contract.

The recommendations contained herein may be based upon government regulations in effect at the time of this report. Future changes or modifications to these regulations may require modification of this report.

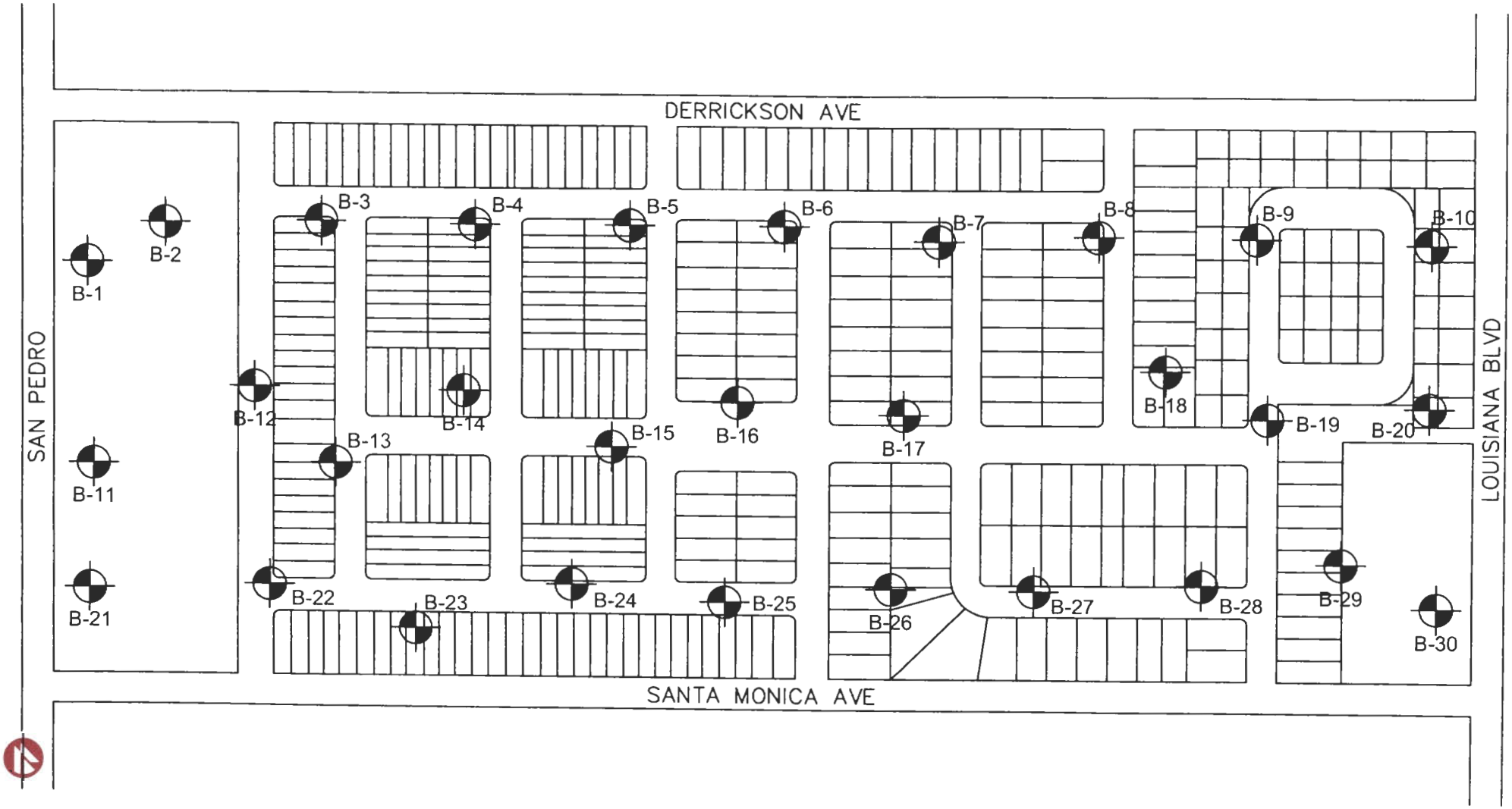
9.0 OTHER SERVICES

The geotechnical engineer should be retained for a general review of final plans and specifications to evaluate compliance with our recommendations.

The geotechnical engineer should also be retained to provide observation and testing services during excavation, earthwork operations, foundation, and construction phases of the project. Observation of footing excavations should be performed prior to placement of reinforcing and concrete to confirm that satisfactory bearing materials are present.

10.0 CLOSURE

We prepared this report as an aid to the designers of the proposed project. The comments, statements, recommendations and conclusions set forth in this report reflect the opinions of the authors. These opinions are based upon conditions at the location of specific tests, observations and data developed to satisfy the scope of services defined by the contract documents. Work on your project was performed in accordance with generally accepted industry standards and practices by other professionals providing similar services in this locality. No other warranty, express or implied, is made.



NOT TO SCALE

-- Approximate Boring Location

MONTERRA DEL REY	
Boring Location Diagram	
Western Technologies, Inc.	
Job No. : 3227JJ167	Plate: 1

Allowable Soil Bearing Capacity	The recommended maximum contact stress developed at the interface of the foundation element and the supporting material.
Backfill	A specified material placed and compacted in a confined area.
Base Course	A layer of specified material placed on a subgrade or subbase.
Base Course Grade	Top of base course.
Bench	A horizontal surface in a sloped deposit.
Caisson	A concrete foundation element cast in a circular excavation which may have an enlarged base. Sometimes referred to as a cast-in-place pier.
Concrete Slabs-On-Grade	A concrete surface layer cast directly upon a base, subbase or subgrade.
Crushed Rock Base Course	A base course composed of crushed rock of a specified gradation.
Differential Settlement	Unequal settlement between or within foundation elements of a structure.
Engineered Fill	Specified material placed and compacted to specified density and/or moisture conditions under observations of a representative of a soil engineer.
Existing Fill	Materials deposited through the action of man prior to exploration of the site.
Existing Grade	The ground surface at the time of field exploration.
Expansive Potential	The potential of a soil to expand (increase in volume) due to absorption of moisture.
Fill	Materials deposited by the actions of man.
Finished Grade	The final grade created as a part of the project.
Gravel Base Course	A base course composed of naturally occurring gravel with a specified gradation.
Heave	Upward movement
Native Grade	The naturally occurring ground surface.
Native Soil	Naturally occurring on-site soil.
Rock	A natural aggregate of mineral grains connected by strong and permanent cohesive forces. Usually requires drilling, wedging, blasting or other methods of extraordinary force for excavation.
Sand and Gravel Base	A base course of sand and gravel of a specified gradation.
Sand Base Course	A base course composed primarily of sand of a specified gradation.
Scarify	To mechanically loosen soil or break down existing soil structure.
Settlement	Downward movement.
Soil	Any unconsolidated material composed of discrete solid particles, derived from the physical and/or chemical disintegration of vegetable or mineral matter, which can be separated by gentle mechanical means such as agitation in water.
Strip	To remove from present location.
Subbase	A layer of specified material placed to form a layer between the subgrade and base course.
Subbase Grade	Top of subbase.
Subgrade	Prepared native soil surface.

MONTERRA DEL REY	
Definition of Terminology	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-1

COARSE-GRAINED SOILS

LESS THAN 50% FINES*

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
GW	WELL-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	GRAVELS MORE THAN HALF OF COARSE FRACTION IS LARGER THAN NO. 4 SIEVE SIZE
GP	POORLY-GRADED GRAVELS OR GRAVEL-SAND MIXTURES, LESS THAN 5% FINES	
GM	SILTY GRAVELS, GRAVEL-SAND-SILT MIXTURES, MORE THAN 12% FINES	
GC	CLAYEY GRAVELS, GRAVEL-SAND-CLAY MIXTURES, MORE THAN 12% FINES	
SW	WELL-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	SANDS MORE THAN HALF OF COARSE FRACTION IS SMALLER THAN NO. 4 SIEVE SIZE
SP	POORLY-GRADED SANDS OR GRAVELLY SANDS, LESS THAN 5% FINES	
SM	SILTY SANDS, SAND-SILT MIXTURES, MORE THAN 12% FINES	
SC	CLAYEY SANDS, SAND-CLAY MIXTURES, MORE THAN 12% FINES	

NOTE: Coarse-grained soils receive dual symbols if they contain 5% to 12% fines (e.g., SW-SM, GP-GC).

FINE-GRAINED SOILS

MORE THAN 50% FINES

GROUP SYMBOLS	DESCRIPTION	MAJOR DIVISIONS
ML	INORGANIC SILTS, VERY FINE SANDS, ROCK FLOUR, SILTY OR CLAYEY FINE SANDS	SILTS AND CLAYS LIQUID LIMIT LESS THAN 50
CL	INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, GRAVELLY CLAYS, SANDY CLAYS, SILTY CLAYS, LEAN CLAYS	
OL	ORGANIC SILTS OR ORGANIC SILT-CLAYS OF LOW PLASTICITY	
MH	INORGANIC SILTS, MICACEOUS OR DIATOMACEOUS FINE SANDS OR SILTS, ELASTIC SILTS	SILTS AND CLAYS LIQUID LIMIT MORE THAN 50
CH	INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS	
OH	ORGANIC CLAYS OF MEDIUM TO HIGH PLASTICITY	
PT	PEAT, MUCK AND OTHER HIGHLY ORGANIC SOILS	HIGHLY ORGANIC SOILS

NOTE: Fine-grained soils may receive dual classification based upon plasticity characteristics.

MODIFIERS

FINE-GRAIN PORTION		COARSE-GRAIN PORTION	
Trace	0%-5%	Trace	0%-5%
With	5%-12%	Some	5%-15%
As An Adjective	Over 12%	With	15%-30%
		As An Adjective	Over 30%

CONSISTENCY

CLAYS & SILTS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY SOFT	0-2	0-2
SOFT	2-4	2-4
FIRM	4-8	4-9
STIFF	8-16	9-18
VERY STIFF	16-30	18-42
HARD	Over 30	Over 42

SOIL SIZES

COMPONENT	SIZE RANGE
BOULDERS	Above 12 in.
COBBLES	3 in. - 12 in.
GRAVEL	No. 4 - 3 in.
Coarse	3/4 in. - 3 in.
Fine	No. 4 - 3/4 in.
SAND	No. 200 - No. 4
Coarse	No. 10 - No. 4
Medium	No. 40 - No. 10
Fine	No. 200 - No. 40
*Fines (Silt or Clay)	Below No. 200

NOTE: Only sizes smaller than three inches are used to classify soils

RELATIVE DENSITY

SANDS & GRAVELS	BLOWS PER FOOT	
	'N'†	'R'‡
VERY LOOSE	0-4	0-8
LOOSE	4-10	8-19
MEDIUM DENSE	10-30	19-57
DENSE	30-50	57-94
VERY DENSE	Over 50	Over 94

† Number of blows of 140 pound hammer falling 30 inches to drive a 2 inch O.D. (1 3/8" I.D.) split spoon (ASTM D1586).

‡ Number of blows of 140 pound hammer falling 30 inches to drive a 3 inch O.D (2 ½" I.D.) ring-lined barrel (ASTM D3550).

PLASTICITY OF FINE GRAINED SOILS

PLASTICITY INDEX	TERM
0	Non-Plastic
1 - 7	Low
8 - 25	Medium
Over 25	High

DEFINITION OF MOISTURE CONTENT

DRY
SLIGHTLY DAMP
DAMP
MOIST
WET
SATURATED

MONTERRA DEL REY

Method of Soil Classification

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-2

The number shown in **"BORING NO."** refers to the approximate location of the same number indicated on the "Boring Location Diagram" as positioned in the field by pacing from property lines and/or existing features.

"AUGER TYPE/SIZE" refers to the exploratory equipment used in the boring wherein **HSA = hollow stem auger, SSA = solid-stem auger, RW = rotary wash, RA = rotary air, RAF = rotary air with foam, CNX = NX-size diamond core, CBX = BX-size diamond core, CHQ = HQ-size diamond core.**

"N" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot, Standard Penetration Test (ASTM D1586). Refusal to penetration is defined as more than 100 blows per foot.

"'PN' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a two-inch-outside-diameter split-barrel sampler a distance of 1 foot. Refusal to penetration is defined as more than 50 blows per foot.

"R" in Blows/Foot" refers to the number of blows of a 140-pound weight, dropped 30 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"'PR' in Blows/Foot" refers to the number of blows of a 50-pound weight, dropped 24 inches, required to advance a 2.42-inch-inside-diameter ring sampler a distance of 1 foot. Refusal to penetration is considered more than 50 blows per foot.

"Sample Type" refers to the form of sample recovery, in which **N = Split-barrel sample, R = Ring sample, G = Grab Sample, B = Block Sample, T = Thin-walled tube sample, CR = Core Run.**

"Dry Density, pcf" refers to the laboratory-determined dry density in pounds per cubic foot. The symbol **"NR"** indicates that no sample was recovered. The symbol **"DU"** indicates that determination of dry density was not possible.

"Water Content, %" refers to the laboratory-determined moisture content in percent ASTM D2216.

"Unified Classification" refers to the soil type as defined by "Method of Soil Classification". The soils were classified visually in the field and, where appropriate, classifications were modified by visual examination of samples in the laboratory and/or by appropriate tests.

These notes and boring logs are intended for use in conjunction with the purposes of our services defined in the text. Boring log data should not be construed as part of the construction plans nor as defining construction conditions.

Boring logs depict our interpretations of subsurface conditions at the locations and on the dates noted. Variations in subsurface conditions and soil characteristics may occur between borings. Groundwater levels may fluctuate due to seasonal variations and other factors.

The stratification lines shown on the boring logs represent our interpretation of the approximate boundary between soil types based upon visual field classification. The transition between materials is approximate and may be far more or less gradual than indicated.

MONTERRA DEL REY	
Boring Log Notes	
Western Technologies, Inc.	
Job No.: 3227JJ167	Plate: A-3

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 1

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	19		0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N	■	5		5			
		N	■	7		10	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	6		15	SP		POORLY GRADED SAND; with gravel, brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, loose, moist
		N	■	8		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-4

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 2

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; trace gravel, brown, medium dense, moist
8.0	125	R		26					
6.0	113	R		10		5			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; brown, medium dense, moist
9.8	114	R		12		10			
							SC		CLAYEY SAND; trace gravel, brown, loose, moist
		N		4		15	SM		SILTY SAND; brown, loose, moist
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-5

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 3

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; trace gravel, brown, loose, moist
		N		4					
		N		5		5			
		N		3		10			
									gravel stop, loose to medium dense
		N		12		15			
									medium dense to dense
		N		46		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-6

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 4

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
1.4	108	R		15					
2.0	111	R		23		5			
3.1	112	R		16		10			
		N		11		15			
							SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SM		SILTY SAND; trace gravel, brown, dense, moist
		N		34		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-7

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 5

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	5		0	SC		CLAYEY SAND; with gravel, brown, loose, moist
		N	■	2		5	SM		SILTY SAND; brown, loose, moist
		N	■	8		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N	■	11		15	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	15		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-8

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 6

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SC		CLAYEY SAND; with gravel, brown, medium dense, moist
4.4	126	R G		17					
4.7	119	R		14		5			
7.0	116	R		13		10			
		N		11		15	SM		SILTY SAND; brown, medium dense, moist
							SC		CLAYEY SAND; trace gravel, light brown, dense, moist
		N		53/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-9

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 7

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N		15					
							SM-SC		SILTY SAND; with clay, trace gravel, brown, loose, moist
		N		3		5			
		G							
		N		8		10			
		N		5		15			
							SC		CLAYEY SAND; trace gravel, brown, dense, moist
		N		44		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-10

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 8

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
5.6	125	R		15					
1.7	113	R		9		5			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
7.5	115	R		10		10			
							SM		SILTY SAND; brown, medium dense, moist
		N		19		15			
									with gravel
		N		17		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-11

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 9

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose, moist
		N		4					
		N		3		5			
		N		5		10			
		N		34		15			medium dense
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-12

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 10

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
2.6		R		50/12"					
2.6	115	R		22		5			
		G							medium dense
1.6	118	R		14		10			
									gravels end
		N		30		15			
									trace gravel
		N		10		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-13

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 11

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
7.1	122	R		13					
3.6	108	R		6		5			
		G					SC		CLAYEY SAND; with gravel, brown, loose, moist
							SP		POORLY GRADED; with gravel, brown, loose to medium dense, moist
2.4	116	R		10		10			
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		15		15			
		N		32		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-14

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 12

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		14					
		N		4		5			
		N		11		10			trace clay lens
		N		5		15			trace clay lens
		N		51/12"		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-15

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 13

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, medium dense, moist
3.3	111	R	■	17					
2.6	112	R	■	11		5			trace gravel
1.5	116	R	■	19		10			
		N	■	10		15	SC		CLAYEY SAND; trace gravel, brown, medium dense to dense, moist
		N	■	32		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-16

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 14

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense to dense, moist
		N		12					
		N		20		5			
		G							
		N		25		10			
									trace gravel
		N		11		15			
		N		35		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-17

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 15

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
3.3	113	R	■	19		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
2.6	111	R	■	22		5			
1.5	104	R	■	7		10			loose
		N	■	9		15	SC		CLAYEY SAND; brown, loose, moist
							SM		SILTY SAND; trace gravel, brown, medium dense, moist
		N	■	14		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-18

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 16

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	13		0	SM		SILTY SAND; with gravel, brown, loose to medium dense to loose, moist
		N	■	5		5			trace gravel
		N	■	4		10			
		N	■	9		15			loose to dense
		N	■	38		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-19

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 17

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
						0	SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
9.9	106	R	■	14					
6.5	93	R	■	11		5			
3.1	113	R	■	16		10			
									trace gravel
		N	■	8		15			
		N	■	41		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-20

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 18

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		49		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N		15		5			
		G							
		N		15		10			
		N		13		15			
		N		41		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-21

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 19

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, medium dense, moist
4.0	128	R		34					
6.3	117	R		18		5			
		G							
5.4	117	R		9		10			loose
									trace gravel
		N		8		15			
		N		16		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-22

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 20

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							*		* TOP OF BORING: 2" Asphalt
		G					SC		CLAYEY SAND; with gravel, dark brown, dense, moist
		N		15					
		G							
		N		17		5			
		N		20		10	SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
		N		11		15			
							SM		SILTY SAND; with gravel, brown, dense, moist
		N		22		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-23

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 21

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, dense, moist
6.8		R		50/11"					
4.9	120	R		29		5	SP		POORLY GRADED SAND; with course gravel, light brown, dense, damp
							SM		SILTY SAND; brown, medium dense, moist
9.8	113	R		13		10			
		N		20		15			with gravel
		N		11		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-24

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 22

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SM		SILTY SAND; with gravel, brown, loose to medium dense, moist
		N		10					
		N		8		5			
		G							
		N		8		10			
		G					SC		SILTY CLAY; with gravel, brown, stiff, moist
		N		17		15			
		N		17		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-25

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 23

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; trace gravel, brown, dense, moist
8.9	115	R		27					
							SP		POORLY GRADED SAND; with gravel, light brown, medium dense, damp
0.9	11	R		15		5			
							SM-SC		SILTY SAND; with clay and gravel, brown, medium dense, moist
8.0	106	R		19		10			
		G							
		N		9		15			loose
		N		14		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-26

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 24

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
		N		24					
		N		7		5			loose
		G							
							SP		POORLY GRADED SAND; with gravel, brown, loose, moist
		N		6		10			
		N		7		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-27

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 25

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		G					SC		CLAYEY SAND; with gravel, brown, medium dense, moist
6.8	125	R		31					
7.5	110	R		18		5			
		G							
							SP		POORLY GRADED SAND; with gravel, brown, medium dense, moist
4.5	119	R		14		10			
		N		7		15	SM		SILTY SAND; with gravel, brown, loose, moist
		N		9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-28

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 26

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N	■	14		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
		N	■	14		5			
		N	■	13		10			
							SC		CLAYEY SAND; trace gravel, brown, medium dense, moist
		N	■	13		15			
							SM		SILTY SAND; with gravel, brown, loose, moist
		N	■	9		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-29

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 27

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
8.0	127	R		33		0	SM		SILTY SAND; with gravel, brown, medium dense, moist
0.9	117	R		19		5			
1.3	113	R		30		10			
		N		18		15	CL		SILTY CLAY; trace gravel, brown, medium stiff, moist
		N		17		20	SM		SILTY SAND; with gravel, brown, medium dense, moist
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-30

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007

DRILL RIG TYPE: CME-75

BORING TYPE/SIZE: 8"/HSA

BORING NO. 28

LOCATION: See Boring Location Diagram

ELEVATION: Not Determined

FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		10		0	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		5		5	SM		SILTY SAND; with gravel, brown, loose, moist
		G							
		N		10		10	SM-SC		SILTY SAND; with clay and gravel, brown, loose, moist
		N		8		15			
		N		6		20			
						25			**Stopped At 21.5 Feet**
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-31

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: 07-24-2007
DRILL RIG TYPE: CME-75
BORING TYPE/SIZE: 8"/HSA

BORING NO. 29

LOCATION: See Boring Location Diagram
ELEVATION: Not Determined
FIELD ENGR: C.Pine

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
							SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
6.3	127	R		44					
							SM		SILTY SAND; with gravel, brown, dense, moist
3.0	111	R		31		5			
		G							
8.8	100	R		22		10			
									trace gravel
		N		13		15			
		N		13		20			
									Stopped At 21.5 Feet
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES: ____ DEPTH: ____ DATE: 07-24-2007

NOTES

MONTERRA DEL REY
Boring Log
Western Technologies Inc.
Job No.: 3227JJ167 | Plate: A-32

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

DATE DRILLED: **07-24-2007**

DRILL RIG TYPE: **CME-75**

BORING TYPE/SIZE: **8"/HSA**

BORING NO. 30

LOCATION: **See Boring Location Diagram**

ELEVATION: **Not Determined**

FIELD ENGR: **C.Pine**

WATER CONTENT (%)	DRY DENSITY (LBS/CU.FT)	SAMPLE TYPE	SAMPLE	BLOWS/FT. R or N	BLOWS/FT. C	DEPTH (FT.)	USCS	GRAPHIC	SOIL DESCRIPTION
		N		15		0	SM-SC		SILTY SAND; with clay and gravel, brown, dense, moist
		N		12		5	SM		SILTY SAND; with gravel, brown, medium dense, moist
		G							
		N		9		10			medium dense to loose
		N		4		15			trace clay lens
		N		9		20			**Stopped At 21.5 Feet**
						25			
						30			

GROUNDWATER ENCOUNTERED NO: X YES:____ DEPTH:____ DATE:07-24-2007

NOTES

MONTERRA DEL REY

Boring Log

Western Technologies Inc.

Job No.: 3227JJ167 | Plate: A-33

THIS SUMMARY APPLIES ONLY AT THIS LOCATION AND AT THE TIME OF LOGGING. CONDITIONS MAY DIFFER AT OTHER LOCATIONS AND MAY CHANGE AT THIS LOCATION WITH TIME. DATA PRESENTED IS A SIMPLIFICATION.

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
2	0-5	SM								NV	NP	25	50	5
2	5-6	SM	109	6.0	0.5	0.3								
					1.0	0.8								
					2.0	1.1	2.1							2
					4.0		3.7							
7	0-3	SC								22	8	41	26	5
7	5-10	SM-SC								23	6	38	31	5
8	2-3	SM	124	5.6	0.5	0.6								
					1.0	0.7								
					2.0	1.1	1.7							2
					4.0		2.5							
8	5-6	SM	127	1.7	0.5	0.3								
					1.0	0.4								
					2.0	0.7	0.9							2
					4.0		1.4							

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-1

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Vaue	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
11	2-3	SM	119	7.1	0.5	0.1								
					1.0	0.4								
					2.0	0.9	1.6							2
					4.0		2.6							
11	5-6	SM	108	3.6	0.5	0.2								
					1.0	0.5								
					2.0	1.0	4.9							2
					4.0		6.4							
14	5-6	SM								NV	NP	10	55	5
17	5-6	SM	100	6.5	0.5	0.7								
					1.0	1.9								
					2.0	2.5	6.7							2
					4.0		8.1							
20	0-2	SC								27	11	42	11	5
20	2-5	SC								25	13	44	11	5
22	0-5	SM								NV	NP	10	55	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-2

SOIL PROPERTIES

Boring No.	Depth (ft.)	Soil Class	Initial Dry Density (pcf)	Initial Water Content (%)	Compression Properties			Expansion Properties		Plasticity		Percent Passing #200	Correlated R-Value	Remarks
					Surcharge (ksf)	Total Compression (%)		Surcharge (ksf)	Expansion (%)	Liquid Limit	Plasticity Index			
						In-Situ	After Saturation							
22	5-10	SM								NV	NP	25	55	5
23	10-15	SM-SC								22	6	46	31	5
24	0-2	SM								20	NP	21	55	5
27	0-5	SM								NV	NP	14	55	5
28	2-3.5	SM-SC								21	4	28	45	5
30	0-5	SM-SC								24	6	42	31	5

Note: Initial Dry Density and Initial Water Content are in-situ values unless otherwise noted.
NV = Will not roll; NP = Non-Plastic

Remarks
1. Compacted density (approx. 95% of ASTM D698 max. density at moisture content slightly below optimum).
2. Submerged to approximate saturation.
3. Slight rebound after saturation.
4. Sample disturbance observed.
5. NMDOT R-Value Correlation

MONTERRA DEL REY

Soil Properties

Western Technologies Inc.

Job No. 3227JJ167 | Plate: B-3