Report of Geotechnical Subsurface Investigation

NEW COMMISSARY FOR GUNTER ANNEX
Maxwell AFB - Gunter Annex, Alabama
Our Job No. G09-2964
Revision 1

Prepared By:

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Boring Plan
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Laboratory Test Data
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Investigative Procedures
Unified Soil Classification Chart
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1.0 Introduction

Carmichael Engineering, Inc., is pleased to provide this report of our preliminary subsurface investigation for the planned New Commissary development. The scope of this investigation included 10 soil test bores in the proposed building and pavement areas. The quantity and location of the test bores were taken in accordance with the authorized scope of work. The intent of this investigation was to evaluate the subsurface conditions with respect to the development of the site for support of the proposed building and pavement development.

This report has been prepared in accordance with generally accepted current standards of geotechnical engineering practices and no other warranties are expressed or implied. The recommendations of this report are based on our professional judgement considering the proposed construction as described by this report and the data available to us. The construction should include follow up geotechnical monitoring and construction materials testing by our firm. This report is presented on the basis that all of our recommendations will be followed.

2.0 Summary

Generally, the preliminary subsurface investigation indicated conditions which should be compatible with the proposed development provided the site preparation and construction are completed in accordance with the recommendations which follow in this report. Please note that our recommendations are site specific and may not be suitable for other types of structures or other locations.

Ten test bores were completed to determine the subsurface profile. Beneath asphalt pavement, concrete pavement, organic sandy or clayey sandy topsoil, the test bores penetrated fill earth described as cohesive clayey sand (sections with gravel), clayey silty sand, and sandy clay. Beneath the fill earth, the test bores penetrated in-situ earth described as cohesive clayey sand (sections with gravel), clayey silty sand (sections with gravel), and non-cohesive silty sand (sections with gravel) and medium sand with gravel. The predominate clay earth is of a poor drainage classification. The predominate sand earth is of a marginal to good drainage classification. The test bores indicated low soil strengths in the upper sections of the in-situ earth. The weak soil conditions will require correction to support the planned building construction.

The test bores did not indicate any ground water during drilling. Twenty-four hours following drilling, five of the test bores indicated ground water at depths of 23.3 to 24.5' below grade. The remaining bores did not indicate any ground water for the depths tested. The ground water condition at this site is subject to seasonal variation and is expected to fluctuate. Seasonal variations of plus or minus 5' from the recorded ground water levels are expected. We do not anticipate that the ground water condition will affect the long term performance of this project provided the ground water is properly controlled during construction. Shallow ground water (if any) encountered during construction can be controlled using shallow drainage ditches, sump pumps and/or permanent underdrains.

One of the primary considerations for this development is the presence of very loose to loose sections of the in-situ sand earth present at depths of 2 to 9' below ground surface. The building area should be undercut to a depth of 8' below existing grade followed by backfilling with "engineered fill". The material undercut from the building area may be used as fill to grade the pavement areas. An off-site borrow material may be used to develop the required "engineered fill" for the building .

Following proper site preparation, the project can use conventional design and construction techniques to develop a shallow spread foundation system for support of the proposed building structure. The building spread foundations can be designed to bear in the new "engineered fill" using net allowable soil bearing pressures of up to 2500 psf for isolated square foundations and up to 2000 psf for continuous foundations.

The pavements for this project can be developed using locally available materials and conventional construction techniques. The pavement sections may be constructed using a "crushed aggregate base and high stability bituminous pavement section, a "Full Depth" high stability bituminous pavement section or a concrete pavement section placed directly over an improved layer of the subgrade earth.

The field investigation included monitoring the bore holes for explosive gases and field screening the collected soil samples for volatile organic carbons (VOCs) using a PID unit. The explosive gas meter did not indicate any explosive gas. The soil sample screening with the PID unit indicated low VOC concentrations generally less than 50 ppm although several readings were recorded at concentrations higher than 50 ppm. The test bores B-1, B-2, B-3, and P-2 indicated readings in excess of 50 ppm. There was no unusual odors or discoloration noted in the soil samples. Considering the prior use of the area as an airfield, the readings indicated by the PID unit may reflect some soil contamination from previous use of petroleum products at or near the planned New Commissary site. Additional sample collection and submittal of soil and/or ground water samples to an environmental laboratory would be required to verify whether or not any significant contamination is present at the site.

3.0 Evaluation

3.1 Site Location

The site subject to this report is located on the west side of the north end of North Turner Boulevard at the Maxwell AFB-Gunter Annex, Alabama. Our field personnel utilized the provided instructions and site plan along with right angle taping techniques referenced to existing site features to locate the site and test bores. The bore locations should be considered approximate. The enclosed test boring plan shows the approximate bore locations.

An approximate ground elevation at each test bore location was referenced to the finish floor at the front entrance to the existing Commissary Building, elevation 212.5, provided by Professional Engineering Consultants, Inc. These elevations are shown on the enclosed test boring records.

3.2 Site Conditions

The site consisted of a portion of the Gunter Annex property. The site was generally clear and open. The area was previously developed as part of an airfield with concrete paved runways and taxiways. The area has most recently been used as parking areas, tennis court areas and lawn areas.

The local terrain is described as gently sloping. The relative boring elevations indicated less than 3' of relief over the area planned for development. Surface drainage was described as good. Surface water is expected to flow over the site and discharge beyond the area planned for development. There were no significant areas of ponded surface water located on or immediately adjacent to the site.

Site access was described as good. There was no unusual difficulty mobilizing the ATV mounted drilling equipment over the site for the completion of the field tests. The test bores were located in a manner to avoid underground utilities and other obstructions.

3.3 Site Geology And Subsurface Stratigraphy

Geologically, the site located in an area underlain by alluvial and low terrace deposits placed in the Holocene Epoch of the Quaternary Period. Typically, this formation yields fine to coarse quartz sand with clay lenses and gravel in places.

Bore B-1 and B-3 penetrated a 1.9 to 2.3" thickness of asphalt pavement. Beneath the asphalt or at ground surface, bores B-1, B-2, B-4, P-2, P-3 and P-5 penetrated 6 to 7.1" of concrete pavement. Bores B-5, P-1 and P-4 penetrated 2 to 3" of organic clayey sandy and sandy topsoil at ground surface. Beneath the topsoil and concrete or asphalt pavement, the test bores continued into fill earth described as cohesive sandy clay, clayey sand (sections with with gravel), and clayey silty sand to depths of 0.5 to 2.5'. Beneath the fill earth, the test bores penetrated in-situ earth described as cohesive clayey sand (sections with gravel), clayey silty sand (sections with

gravel), and non-cohesive silty sand (sections with gravel) and medium sand with gravel. Laboratory analyses confirmed "SM", "SC" and "SC-SM" Unified Soil Classifications of the predominate silty sand, clayey sand and clayey silty sand earth, (plasticity indices of non-plastic to 21). Samples of the clayey silty sand and clayey sand from bores P-1, P-3, and P-4 were selected for standard laboratory density testing and California Bearing Ratio testing which indicated maximum dry unit weights of 121.4, 121.8, and 129.8 pcf with CBR values at 95% compaction of 11, 13 and 16.5. The penetration resistance values, "N", ranged from 0 to 44 blows per foot indicating relative densities of very loose to dense in the predominate sand earth and firm in the predominate clay earth. Moisture tests indicated water contents ranging from 4.1 to 20.6%. The test bores were terminated in the in-situ earth at depths of 10 to 50' below existing grade.

The bores did not indicate any ground water during drilling. Twenty-four hours following drilling, bores B-1 through B-5 indicated water levels at depths of 23.3 to 24.5' below grade. The remaining bores did not indicate any ground water for the depths tested.

The bore holes were monitored during and following drilling for the presence of gases using an explosive gas meter. No explosive gases were identified. All soil samples were field screened for volatile organic carbons (VOCs) using a MiniRae 2000 PID unit with a 10.6 eV lamp. The PID readings ranged from 0.1 to 235 parts per million (ppm). Bores B-1 B-2, B-3 and P-2 indicated some readings in excess of 50 ppm.

The enclosed test boring records further describe the subsurface stratigraphy, Unified Soil Classifications, penetration resistance values, moisture contents, water levels, PID readings, and boring termination depths.

3.4 General Construction Information

The following data was extrapolated from the provided construction information and plans. The construction data described in this section was considered in the formulation of our recommendations; therefore, any significant changes, additions or modifications to the planned development may have a significant impact on our recommendations. We ask that we be advised of any significant errors, omissions, or revisions in the construction data to permit further comment as needed.

We understand the proposed New Commissary development will include conventional type building construction along with related grading, drainage and pavement improvements. The proposed construction will include single story height, CMU load bearing block wall, and/or steel frame with brick veneer facade type construction. We anticipate that maximum concentrated loads will be less than 125 kips and that wall loads will less than 3 kips per linear foot.

Pavements for the project will include both asphalt and concrete pavements. The asphalt light duty pavements are to be designed for a moderate volume of automobiles with no heavy trucks. The heavy duty asphalt pavements are to be designed for 5000 automobiles and 50 medium two axle trucks (36 kips) per day. The receiving area pavements will be designed for a heavy duty

concrete pavement section with 25 heavy trucks (72 kips) per day.

Specific grading information was not provided, however we understand that the grades at the site may be raised as much as 3 to 4' . Fill earth required to establish subgrade elevation is expected to originate from on-site cuts and/or local off-site borrow sources.

The enclosed boring plan further describes the planned development.

4.0 Recommendations - Site Preparation

4.1 "Controlled Areas"
Define those areas throughout and 10' beyond the proposed building area, throughout and 5' beyond pavement areas, and throughout significant slopes as "controlled areas".

4.2 Stripping
Remove all vegetation, topsoil, existing pavements, and otherwise unsuitable materials from the "controlled areas". All unsuitable materials should be wasted beyond the "controlled areas" or off-site.

4.3 Surface Drainage
Maintain the "controlled areas" in a drained condition that will insure the continual removal of surface water that may flow over the construction areas. Temporary site drainage can be enhanced by the installation of the final drainage structures during the early phases of the site development.

4.4 Site Examination
Prior to the placement of fill earth and following removal of cut earth, the "controlled areas" should be examined by the projects geotechnical consultant. This consultant should use proof rolling with construction equipment, test pits, supplemental test bores, visual examinations, etc., as needed to determine the presence, location, and extent of any below grade structures, and any latent weak, and/or otherwise unsuitable soil conditions which may exist at the site. Areas which exhibit weak soil or otherwise unsuitable conditions should be corrected in accordance with the geotechnical consultant's recommendations. Typically, areas which yield excessively under proof rolling should be undercut to a firm level of soil followed by backfilling with "engineered fill".

4.5 Undercutting In The Building Area
The building "controlled area" should be undercut to a depth of 8' below the existing grade. The clean, non-organic, non-saturated sections of the undercut earth may be stockpiled for use as fill in the pavement areas or may be reused to develop "engineered fill" in the building area. Following undercutting, the exposed subgrade should be thoroughly compacted using heavy vibratory compactors to a minimum 98% of the materials ASTM D-698 standard density. Areas which fail to compact should be undercut to firm earth. Following compaction of the exposed subgrade, the area should be proof rolled to identify any soft or yielding areas.

4.6 Proof Rolling
Proof rolling should be completed using rubber tired construction equipment or a partially loaded dump truck weighing 25 tons. Proof rolling should include a minimum of 2 passes in perpendicular directions over the "controlled areas". Areas which yield excessively should be corrected in accordance with the recommendations of the project's geotechnical consultant. Do not proof roll when the subgrade soil is saturated.

4.7 Subgrade Improvements For Pavement Areas

The exposed subgrade should be compacted to at least 98 % of the materials ASTM D-698 standard density. Areas which fail to compact should be undercut to a firm layer of soil. All undercutting (if any) in the pavement areas should be completed under the direction of the projects geotechnical consultant. Unit prices should be established for undercutting weak soil or otherwise unsuitable soil conditions. Payment quantities should be based on in-place volume determined by cross sectioning the subject area before and after undercutting. The undercut areas should then be backfilled with "engineered fill". Please note that undercutting of weak soil (if required) in the pavement areas may be limited to a depth of 3' below finish subgrade in the light duty asphalt pavement areas and 4' below finish subgrade in the heavy duty asphalt and concrete pavement areas.

4.8 Fill Earth

Fill earth required to establish subgrade elevation in the "controlled areas" can consist of the clean, non-saturated, and non-organic sections of the clayey sand or clayey silty sand earth typical of the majority of that penetrated by the test bores.

4.9 "Select Fill"

Fill earth placed in "controlled areas" and originating from an off-site borrow source (if any) should be designated as "select fill". The "select fill" should consist of a clean, non-saturated, and non-organic clayey sand or clayey silty sand that meets the following criteria.

"Select Fill" Composition

Sieve Requirements	% Passing
3"	100
No. 4	75 - 100
No. 200	20 - 45
Liquid Limit	40 max
Plasticity Index	5 to 12%
Maximum Dry Unit Weight Based on ASTM-698 Standard Density Test	$\geq$ 110 pcf
CBR Value	$\geq$ 11

4.10 "Engineered Fill"

Unless otherwise specified, all fill earth placed in the "controlled areas" should be designated as "engineered fill". Place fill earth in thin lifts not to exceed 8" loose measure and thoroughly compact each lift of fill to at least 98% of the materials ASTM D-698 standard density. At the time of densification, the moisture content of the "engineered fill" should be within 3% of the materials optimum water content. Following acceptance for moisture and density, any "engineered fill" areas which are disturbed should be corrected and retested prior to the placement of additional fill earth or structures.

5.0 Recommendations - Shallow Foundations And Ground Supported Floor Slabs

5.1 Maximum Net Allowable Soil Bearing Pressures
2,500 pounds per square foot for isolated foundations.
2,000 pounds per square foot for continuous foundations.

Note: Foundations may bear in the new "engineered fill" earth exhibiting "N" values of 9 or greater.

5.2 Minimum Load Bearing Foundation Dimensions
Width: Isolated square foundations - 30"
Continuous wall foundations - 24"
Turned down slab edges - 18"

Depth: Bottom of perimeter foundations below outside finish grades - 24".
Bottom of interior foundations below the top of concrete floor slabs - 18".

Note: All foundations should be sized for total load but should not be less than the minimum dimensions shown above.

5.3 Settlement
The planned building structure will be subjected to total long term settlements of less than 1", with differential settlements of less than 1/2". The building foundations should be designed to tolerate these estimated settlements.

5.4 Seismic Design
Seismic design of foundations for the Commissary Site should advance based on a Seismic Site Class "D" and Seismic Design Category "B" as per the International Building Code (IBC) 2006 for occupancy category I, II or III and Design Category "C"for occupancy category IV. The following seismic design coefficients are extrapolated from the IBC 2006 for the Commissary site.

$S_S = 0.156$
$S_L = 0.069$
$F_a = 1.6$
$F_v = 2.4$
$S_{MS} = 0.250$
$S_{ML} = 0.166$
$S_{DS} = 0.166$
$S_{DL} = 0.111$

5.5 Foundation Construction
Do not permit foundation bearing soil to become saturated or dry excessively. Sections which become saturated or dry excessively should be corrected just prior to placement of the foundation concrete. All foundations should be constructed as expediently as possible following excavation of the foundation trench.

Weak soil exposed in foundation trenches should be compacted to 98% of the materials ASTM D-698 standard density using mechanical tampers.

Following construction of the foundations, the area adjacent to the foundation should be maintained in a drained condition. Water should not be permitted to pond adjacent to the building foundations during or following construction. Backfill adjacent to the building foundations as soon as possible to provide positive drainage. Backfill with clean soil typical of the material excavated from the foundation trenches. Masonry sand, broken brick and block or other construction debris should not be used to backfill against the foundations.

5.6 Floor Slab Bearing Conditions
Floor slabs should bear over the existing fill earth (remolded as required) and/or new "engineered fill" earth. The slab can be designed based on a modulus of subgrade reaction of 200 pci. Provide a minimum 4" layer of drainage aggregate consisting of free draining pea gravel or other suitable drainage aggregate and a minimum 10 mil vapor barrier between the subgrade earth and the floor slabs. Freezer floor slabs should incorporate appropriate insulation, sub- slab and heating system , and vapor barriers to reduce the potential of frost heave in the subgrade soil. The design of the freezer floor system should follow the guidance of the American Concrete Institute.

5.7 Acceptance of Foundations and Floor Slab Bearing Levels
All foundation excavations and floor slab bearing levels should be examined by a qualified geotechnical consultant prior to the installation of the reinforcement and concrete for the foundations and drainage fill or vapor barrier for the floor slabs. All unacceptable conditions should be corrected in accordance with the geotechnical consultant's recommendations

5.8 Control/Expansion Joints
A liberal amount of control/expansion joints should be used in the masonry walls, brick veneer walls and floor slabs to reduce the effects of the normal amounts of differential settlement and concrete shrinkage expected. The design and location of the construction joints should be in accordance with the recommendations of the Portland Cement Association.

6.0 Recommendations - Dock Height Walls

6.1 Lateral Earth Pressures

The following Table 1 provides lateral earth pressures for dock height wall design for walls which are restrained against rotation.

Table 1

Material	Wet Unit Weight (Pcf)	"At Rest" Earth Pressure Coefficient (Ko)	Lateral Earth Pressure (psf per foot of depth)*
Off-Site Free Draining Clean Coarse Sand	115	0.46	52.9
Graded No. 57 or No. 67 Stone	105	0.43	45.2
Native Earth or "Select Fill"	135	0.53	71.6

*Note: These pressures do not include lateral pressures introduced from adjacent foundations, floor slabs, equipment or other extraneous sources. In order to utilize the lateral earth pressure for coarse sand or stone fill, the fill should be sloped from the wall foundation at 1(H):1(V) or flatter. Please note that the higher lateral pressures for the native soil should be used for design for walls with limited backfill zones. A coefficient of friction 0.44 may be used between the retaining wall foundation and the native soil or "select fill" to resist sliding.

6.2 Wall Backfill

Develop as engineered fill, 95% of the ASTM D-698 standard density in structural areas and 90% standard density in non-structural areas. Place fill using hand directed compaction equipment. Do not use heavy construction equipment adjacent to below grade walls unless the walls are adequately braced to withstand the lateral pressures imposed by such loadings. The final 18" of fill along the below grade walls should consist of the less permeable native soil or select fill material to prevent large volumes of water from permeating the backfill zone.

6.3 Wall Drainage

Weep holes may be provided in the retaining walls to prevent water accumulation. Place minimum 1" diameter weep holes at minimum spacings of 6' on center along the face of the wall near the base. Use filter fabric to prevent clogging of the weep holes. Fill material placed against the weep holes should consist of a coarse free draining sand or graded stone.

7.0 Recommendations - Pavement Development

7.1 Reference
Alabama Department of Transportation (ALDOT), Standard Specifications For Highway Construction - 2008 Edition.

7.2 Subgrade Support Values
Based on the California Bearing Ratios (CBR) for the clayey sand and clayey silty sand earth expected to be predominate at subgrade elevation, a design CBR value of 11 is recommended.

7.3 Traffic Data
The majority of the asphalt pavements are expected to be subjected to a light duty classification of traffic including a moderate volume of automobiles with no trucks. A portion of the asphalt pavements will include a heavy duty classification with up to 5000 automobiles and up to 50 medium weight (36 kips) trucks per day. The receiving area will be concrete paved and will be designed for a heavy duty classification with 25 heavy weight (72 kips) trucks per day.

7.4 Subgrade Improvements
Thoroughly mix and compact the top 6" of subgrade to 100% standard density.

Slope subgrade to provide positive drainage to side drainage ditches, underdrains, and/or storm drains to prevent the entrapment of water in the subgrade layer.

7.5 Light Duty Asphalt Pavement Sections
Based on a CBR value of 11 and an equivalent of 1 - 18 kip axle load per day, the light duty pavement sections may be developed using a crushed aggregate base and high stability bituminous pavement section or a "Full Depth" high stability bituminous pavement section placed over the improved subgrade layer as follows;

7.5.1 Crushed Aggregate Base and High Stability Bituminous Pavement Section
1.2" - ALDOT Section 424-A 292 bituminous wearing surface.
1 - ALDOT Section 405 bituminous tack coat.
1.6" - ALDOT Section 424-B 635 bituminous binder.
1 - ALDOT Section 401-A bituminous prime coat.
6" - ALDOT Section 825 crushed aggregate base (100% modified density).
6" - ALDOT Section 230 improved roadbed (100% standard density).

7.5.2 Full Depth High Stability Bituminous Pavement Section
1.2" - ALDOT Section 424-A 292 bituminous wearing surface.
1 - ALDOT Section 405 bituminous tack coat.
2.8" - ALDOT Section 424-B 636 bituminous binder.
1 - ALDOT Section 401-A bituminous prime coat.
6" - ALDOT Section 230 improved roadbed (100% standard density).

7.6 Heavy Duty Asphalt Pavement Sections
Based on a CBR value of 11 and an equivalent 271 - 18 kip axle loads per day, the heavy duty pavement sections may be developed using a crushed aggregate base and high stability bituminous pavement section or a "Full Depth" high stability bituminous pavement section placed over the improved subgrade layer as follows;

7.6.1 Crushed Aggregate Base and High Stability Bituminous Pavement Section
1.2" - ALDOT Section 424-A 360 bituminous wearing surface.
1 - ALDOT Section 405 bituminous tack coat.
3.25" - ALDOT Section 424-B 650 bituminous binder.
1 - ALDOT Section 401-A bituminous prime coat.
6" - ALDOT Section 825 crushed aggregate base (100% modified density).
6" - ALDOT Section 230 improved roadbed (100% standard density).

7.6.2 Full Depth High Stability Bituminous Pavement Section
1.2" - ALDOT Section 424-A 360 bituminous wearing surface.
1 - ALDOT Section 405 bituminous tack coat.
4.5" - ALDOT Section 424-B 651 bituminous binder.
1 - ALDOT Section 401-A bituminous prime coat.
6" - ALDOT Section 230 improved roadbed (100% standard density).

7.7 Heavy Duty Service Area Pavement Sections
Based on a estimated CBR value of 11 and an equivalent 38 - 18 kip axle loads per day , the heavy duty pavement sections may be developed using a concrete pavement section placed over the improved subgrade layer as follows;

7.7.1 Concrete Pavement Section
6" - 4000 psi compressive strength (550 psi flexural strength) concrete, maximum 4" slump.
6" - Improved subgrade (100% standard density).

7.8 Concrete Pavement Construction Joints
The design and location of construction joints should be in accordance with the recommendations of the Portland Cement Association. We recommend a maximum joint spacing of 12'. All joints should be filled with a suitable flexible joint compound to prevent water intrusion at the joints.

7.9 Material Thicknesses
All material thicknesses referred to in this section are completed thicknesses.

8.0 General Recommendations

8.1 Utility Trenches
All utility trenches (new and existing) extending through the "controlled areas" should be back-filled with "engineered fill".

8.2 Grading and Drainage Improvements
Incorporate finish grades, pavements abutting the building construction, side drainage ditches, underdrains, roof drains which discharge into storm drains, etc., to reduce the possibility of ponding surface water within 5' of the edges of the building and pavements.

8.3 Vertical Cuts
Vertical cuts greater than 4' or cuts required to remain open for extended periods of time should be sloped or braced as required for the protection of workmen entering deep excavations. Heavy construction traffic and stockpiling of excavated earth or other materials should not be permitted near the top of open unsupported excavations. Current OSHA regulations should be adhered to with respect to excavations for this project.

8.4 Cut and Fill Slopes
Cut and fill slopes should perform satisfactorily as steep as 2.5(H):1(V) in the earth typical of that penetrated in the upper strata at the site. All slopes should be protected from erosion using suitable vegetation or pavements.

8.5 Quality Control
A qualified geotechnical and construction materials testing consultant should provide the following services;

8.5.1 Verify the results of the correction of weak soil conditions, the quality and density of "engineered fill", and the conditions of the foundation trenches, floor slab and pavement subgrade bearing levels.

8.5.2 Complete soil particle size, atterberg limit and laboratory compaction tests on each different type of fill earth used in the "controlled areas".

8.5.3 Complete a minimum of 1 field density test per 2500 square feet per each foot of vertical thickness of fill in the building area. Also, a minimum of 1 field density test should be taken for each 50 linear feet per each 2' of vertical thickness of fill placed at utility trenches extending through "controlled areas". One field density test should be taken on each 5000 square feet per each foot of fill placed in the pavement areas.

8.5.4 Test all structural concrete in accordance with the guidelines established by the American Concrete Institute.

8.5.5 Quality control testing on the improved subgrade, base and pavement materials should be in accordance with the Alabama Department of Transportation Specifications.

9.0 General Comments

The scope of this study did not include sampling or testing for an environmental analysis or assessment for this site. If an environmental assessment of this site is desired, we should be contacted for further comment.

The comments of this report do not consider local flood conditions. The local flood condition/elevation (if any) should be determined and considered in the design of this project.

The frost penetration depth in the area of this project is generally taken to be less than 10". Provided our recommendations for the development of foundations, floor slabs, and pavements are followed, we do not expect that the frost penetration will have any detrimental affects on the performance of these structures.

The comments of this report are based upon our interpretation of the construction information supplied by others, the data collected at the 10 preliminary test bores, and our visual examination of the site. The evaluation of subsurface conditions based on the 10 test bores taken with this study requires a significant amount of interpolation. Improper site preparation, extremes in climatic conditions, significant changes in location, grades, time, etc., can each affect ground water, surface, and subsurface conditions. If conditions are encountered as the construction advances which vary significantly from those described by this report, we should be contacted for supplemental comment.

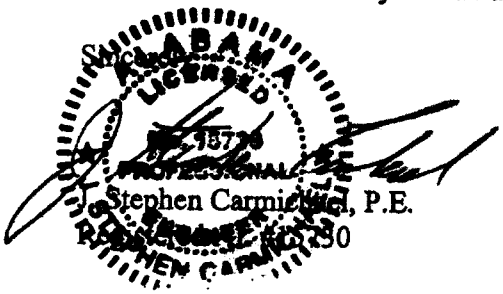
The scope of this investigation is not intended to establish volumetric estimates of the various subsurface materials at the site. Volumetric estimates may require a large number of test bores placed on a close grid to establish reliable cross sections. If volume estimates are required of us for the design/development of this project to advance, please contact us for further comment.

Following your request, we are available to provide a review of the final plans and project specifications with respect to their compatibility with the contents of this report. Furthermore, our firm would appreciate the opportunity to continue to serve as the geotechnical consultant and to provide the construction materials testing and monitoring for this project.

10.0 Signature

Thank you for selecting Carmichael Engineering, Inc., to provide the geotechnical services for this project. We are available to answer any questions concerning our findings and recommendations. If we can be of any further assistance, please contact our office.

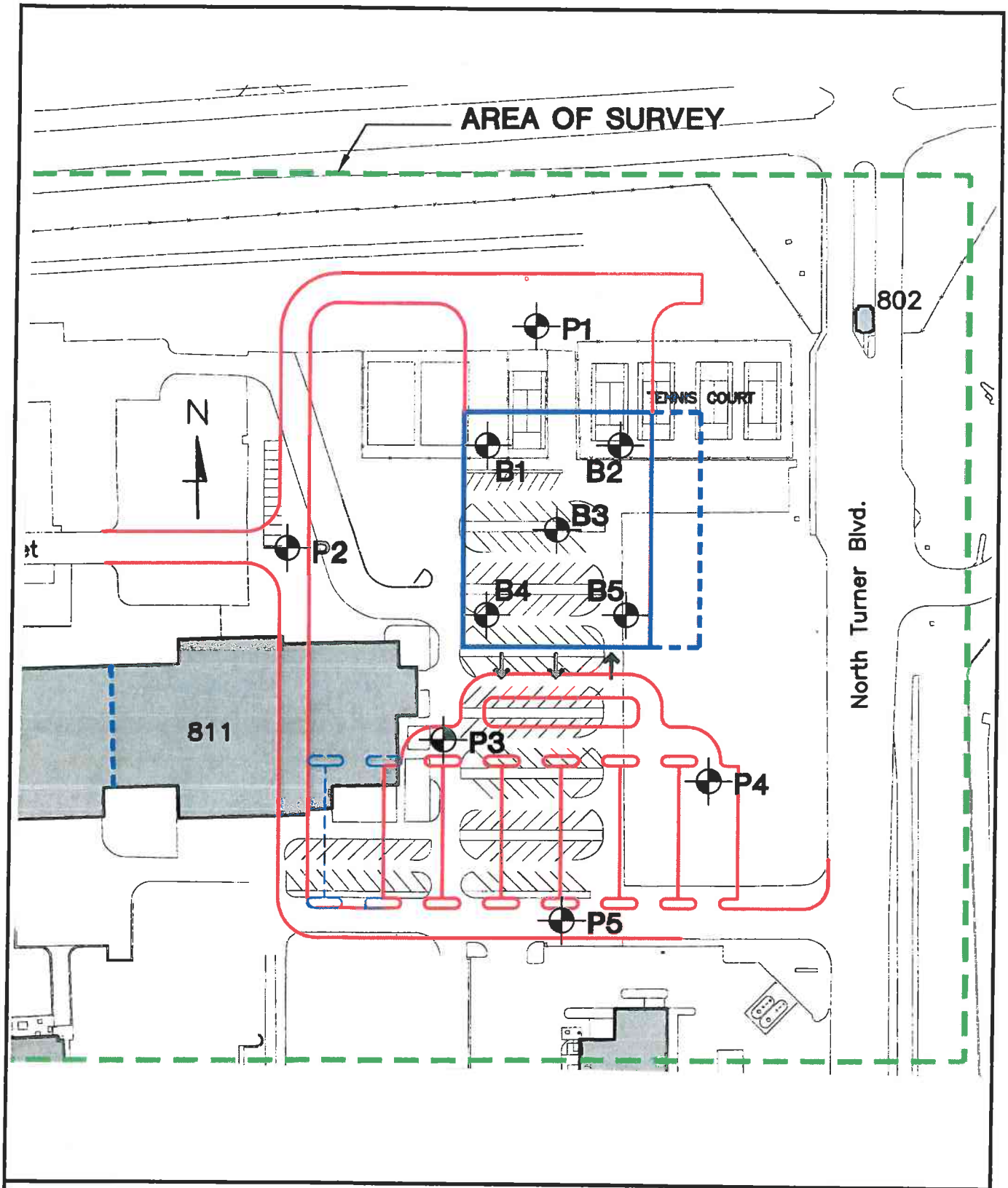
Sincerely,



Stephen Carmichael, P.E.
Registered #[illegible]30

JSC/ec

Carmichael Engineering Inc.

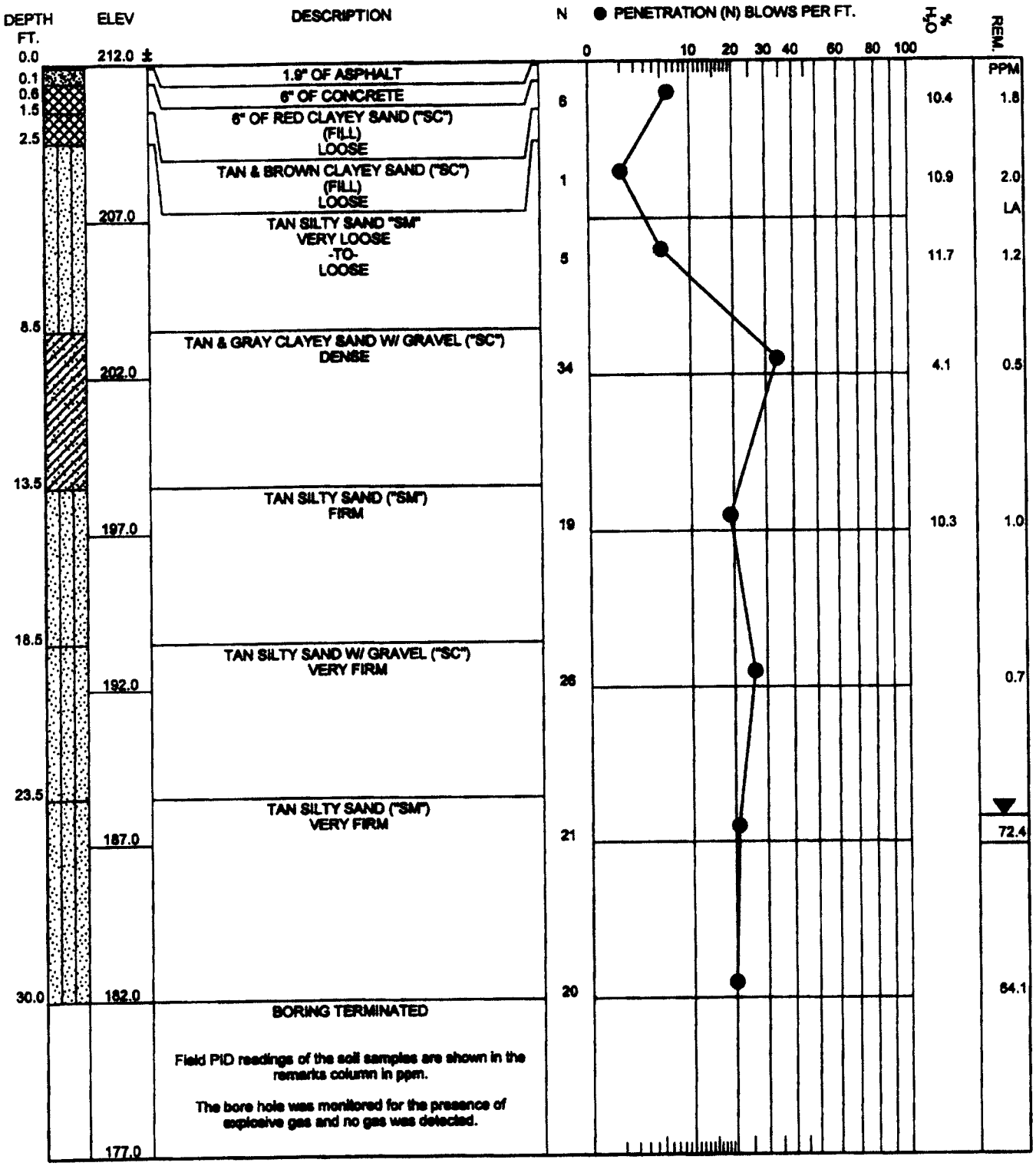


BORING PLAN

Scale: 1"=140'

● Boring Location

New Commissary For Gunter Annex
Maxwell AFB - Gunter Annex, AL
Our Job No. : G09-2964



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

▼ Water Level 24.2' AFTER 24 HOURS

▽ Water Level

Boring Caved 25.1' AFTER 24 HOURS

CARMICHAEL ENGINEERING, INC.

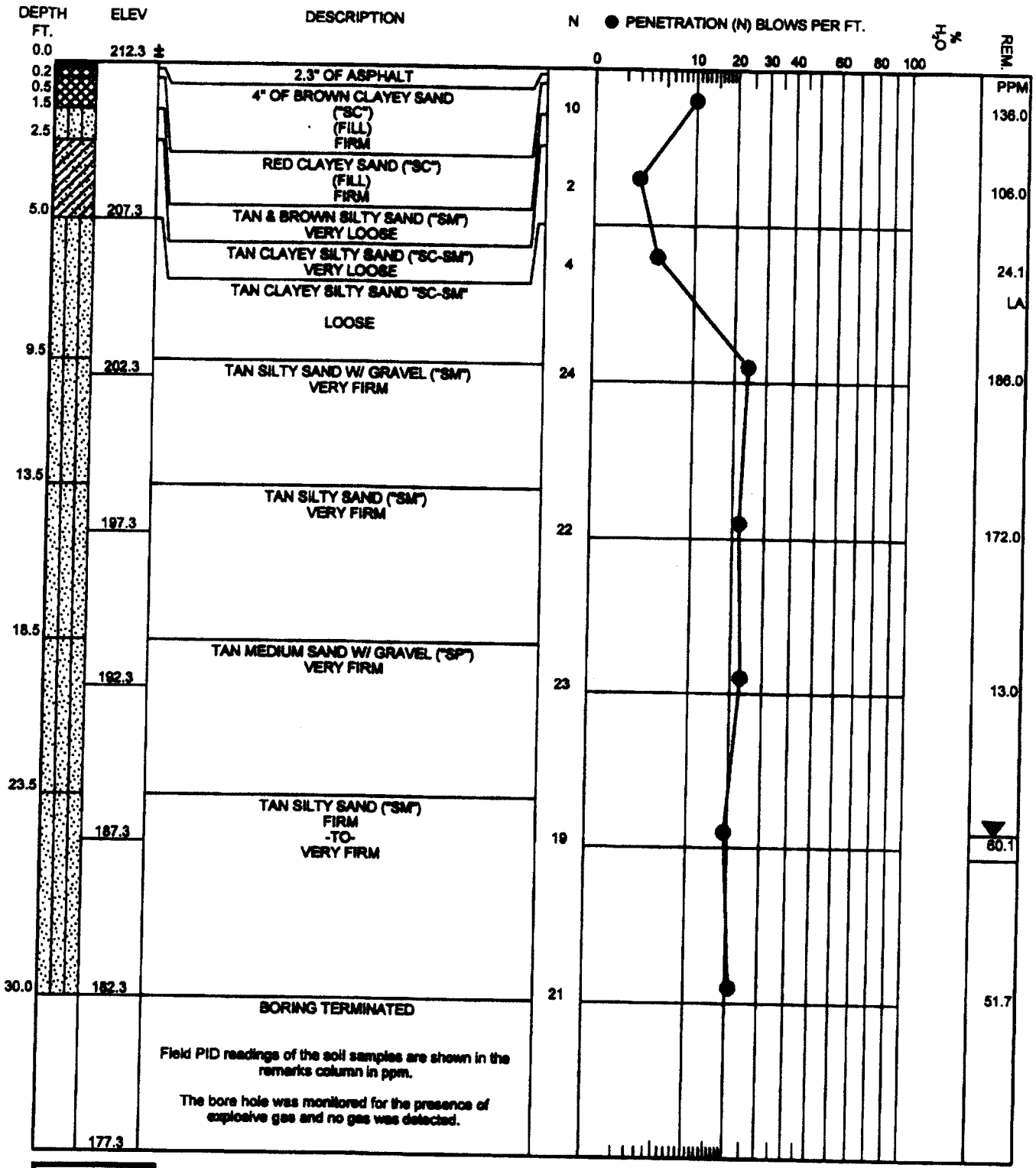
TEST BORING LOG

JOB NO. G09-2964

BORING NO. B-1

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level 24.5' AFTER 24 HOURS

Water Level

Boring Caved 25.3' AFTER 24 HOURS

CARMICHAEL ENGINEERING, INC.

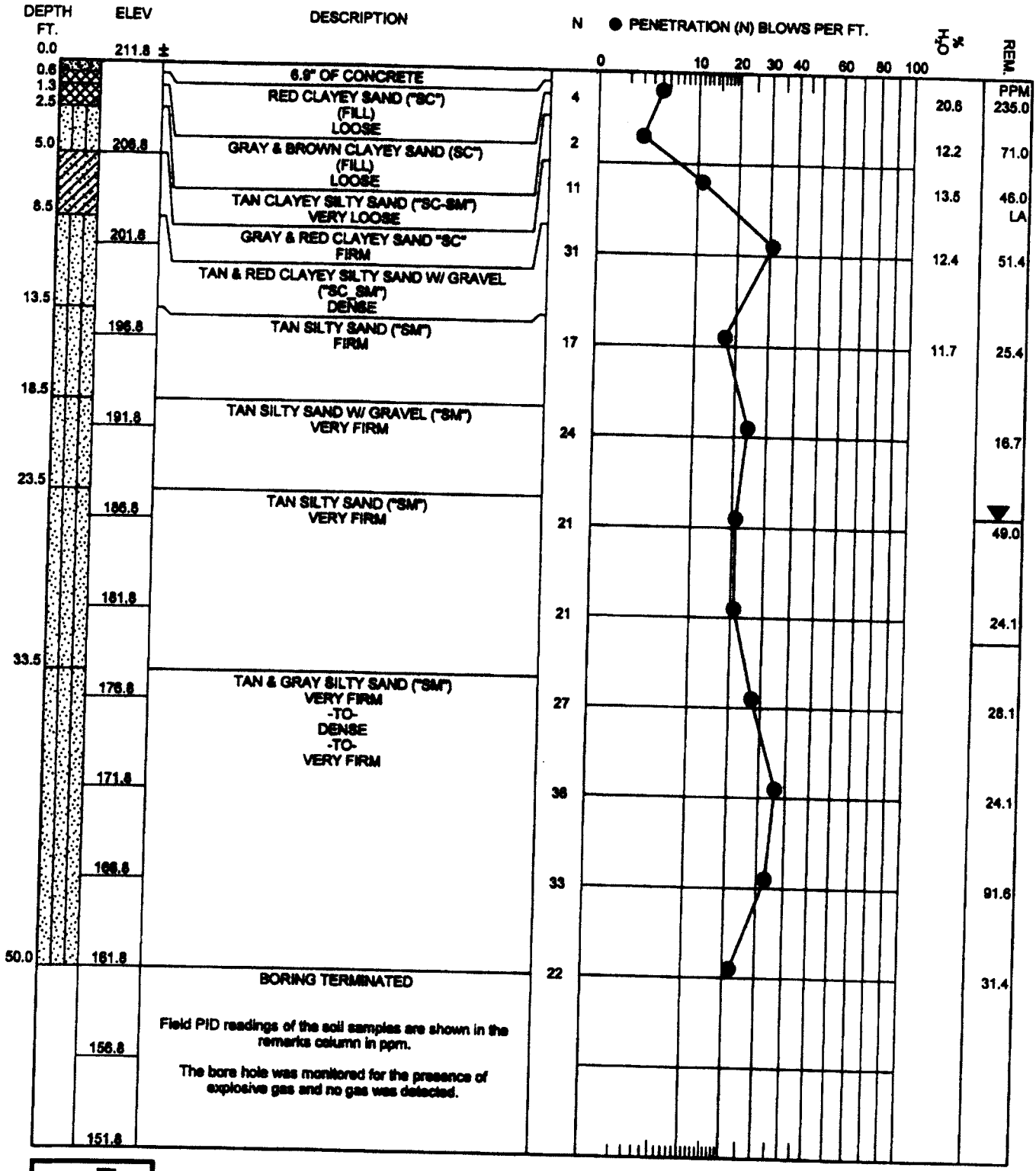
TEST BORING LOG

JOB NO. G09-2984

BORING NO. B-2

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

▼ Water Level 24.3' AFTER 24 HOURS

▽ Water Level

Boring Caved 31.2' AFTER 24 HOURS

CARMICHAEL ENGINEERING, INC.

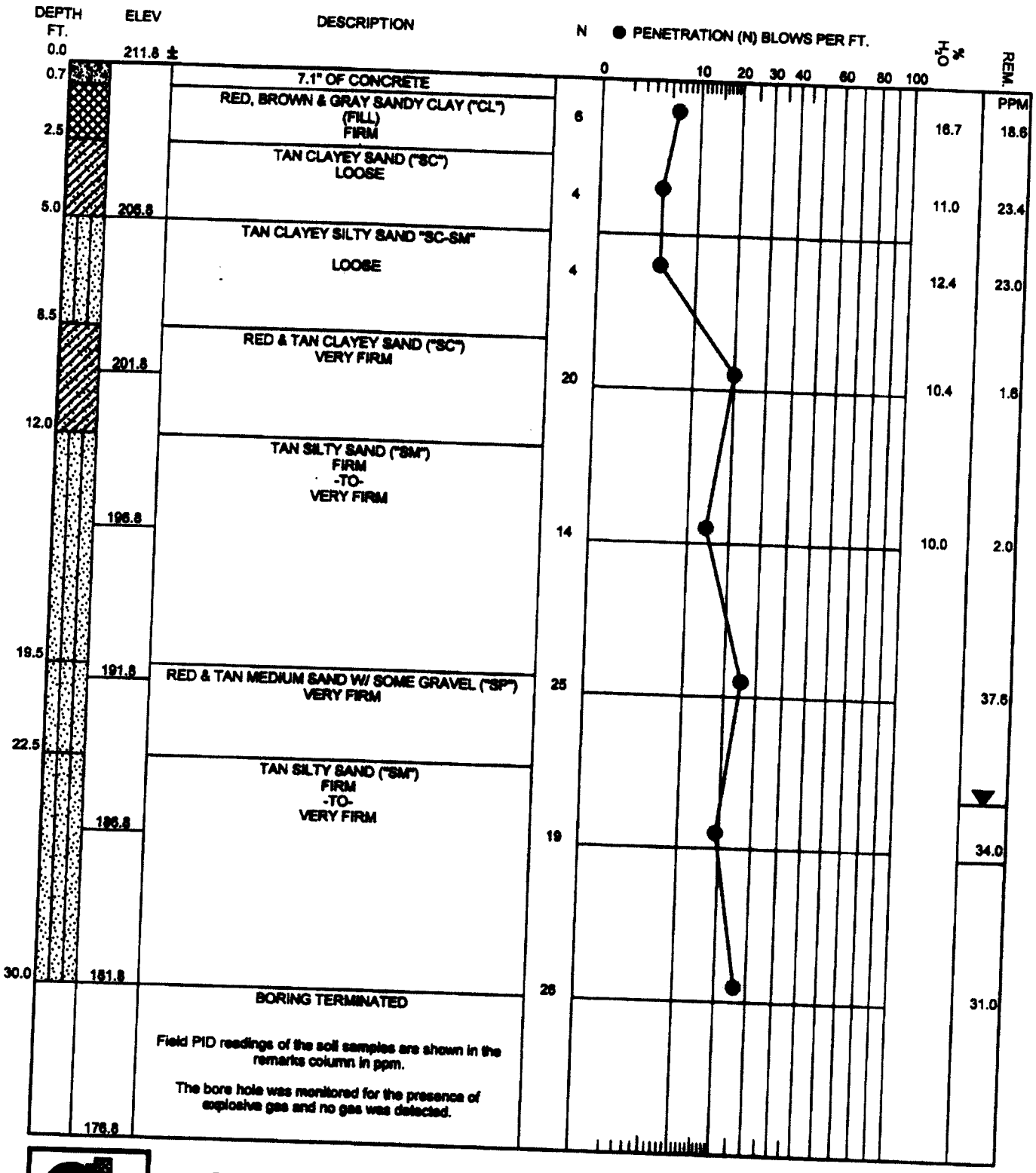
TEST BORING LOG

JOB NO. G09-2964

BORING NO. B-3

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

▼ Water Level 23.3' AFTER 24 HOURS

▽ Water Level

Boring Caved 25.2' AFTER 24 HOURS

CARMICHAEL ENGINEERING, INC.

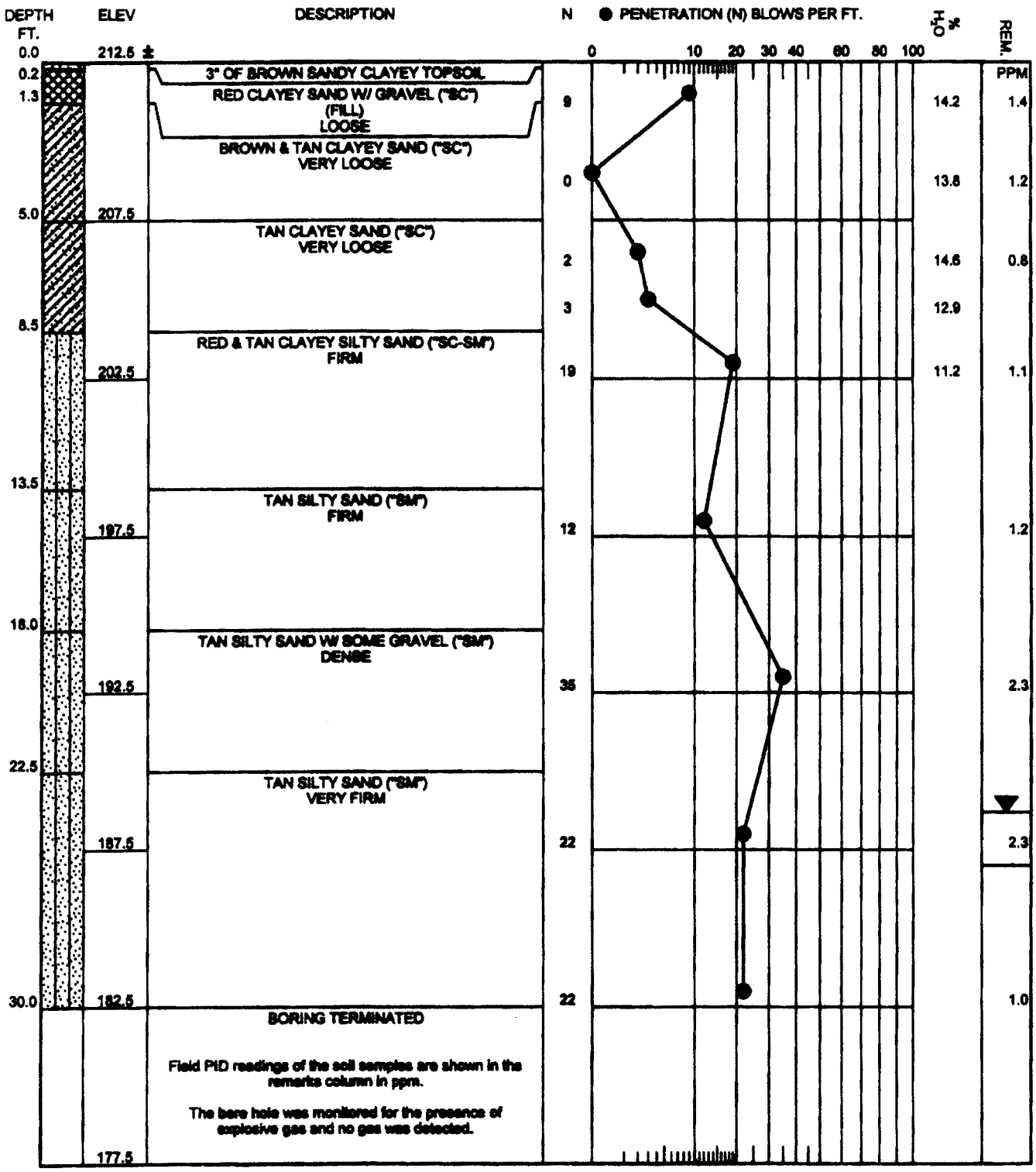
TEST BORING LOG

JOB NO. G09-2984

BORING NO. B-4

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level 23.8' AFTER 24 HOURS

Water Level

Boring Caved 25.5' AFTER 24 HOURS

CARMICHAEL ENGINEERING, INC.

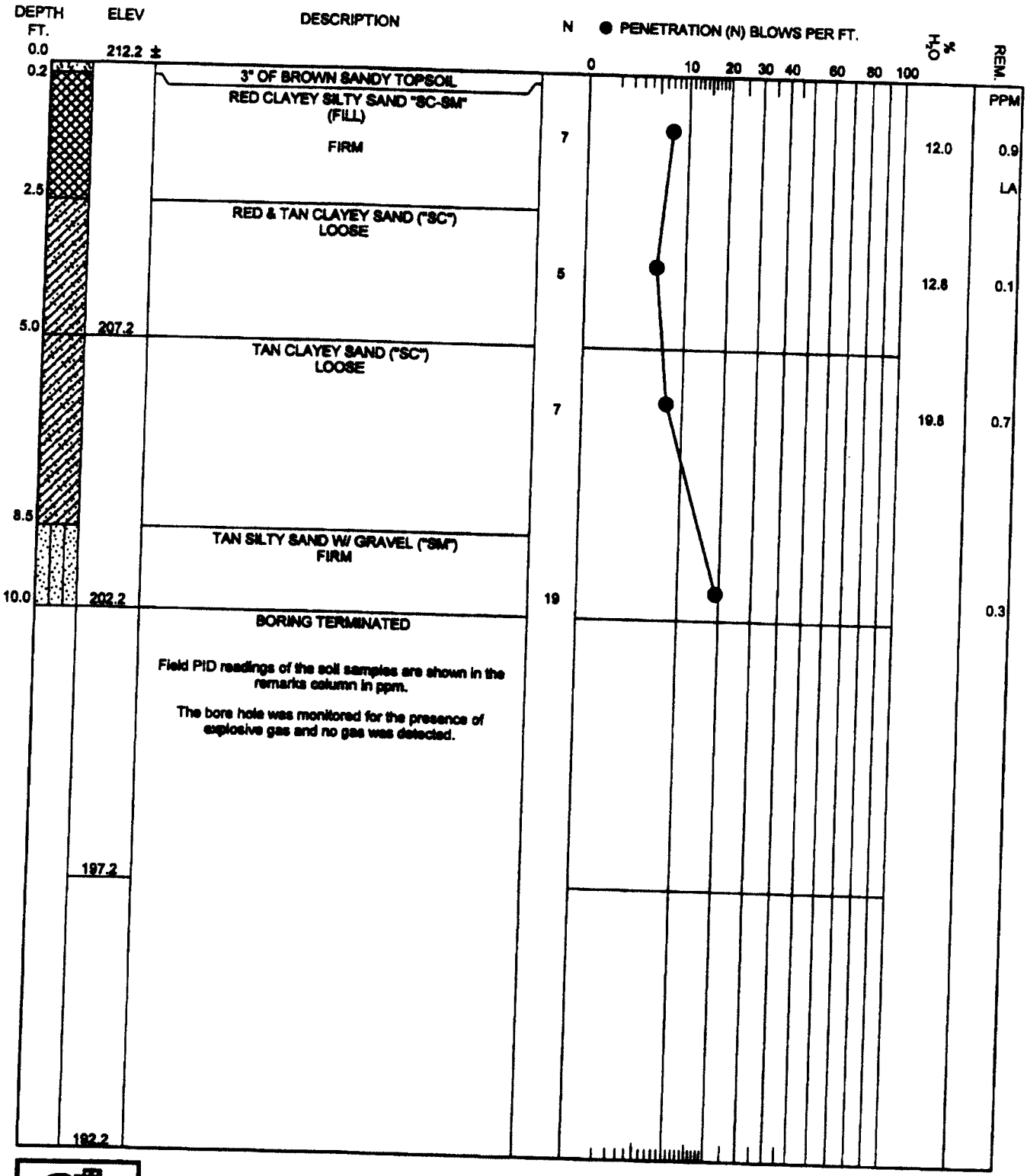
TEST BORING LOG

JOB NO. G09-2964

BORING NO. B-5

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

CARMICHAEL ENGINEERING, INC.

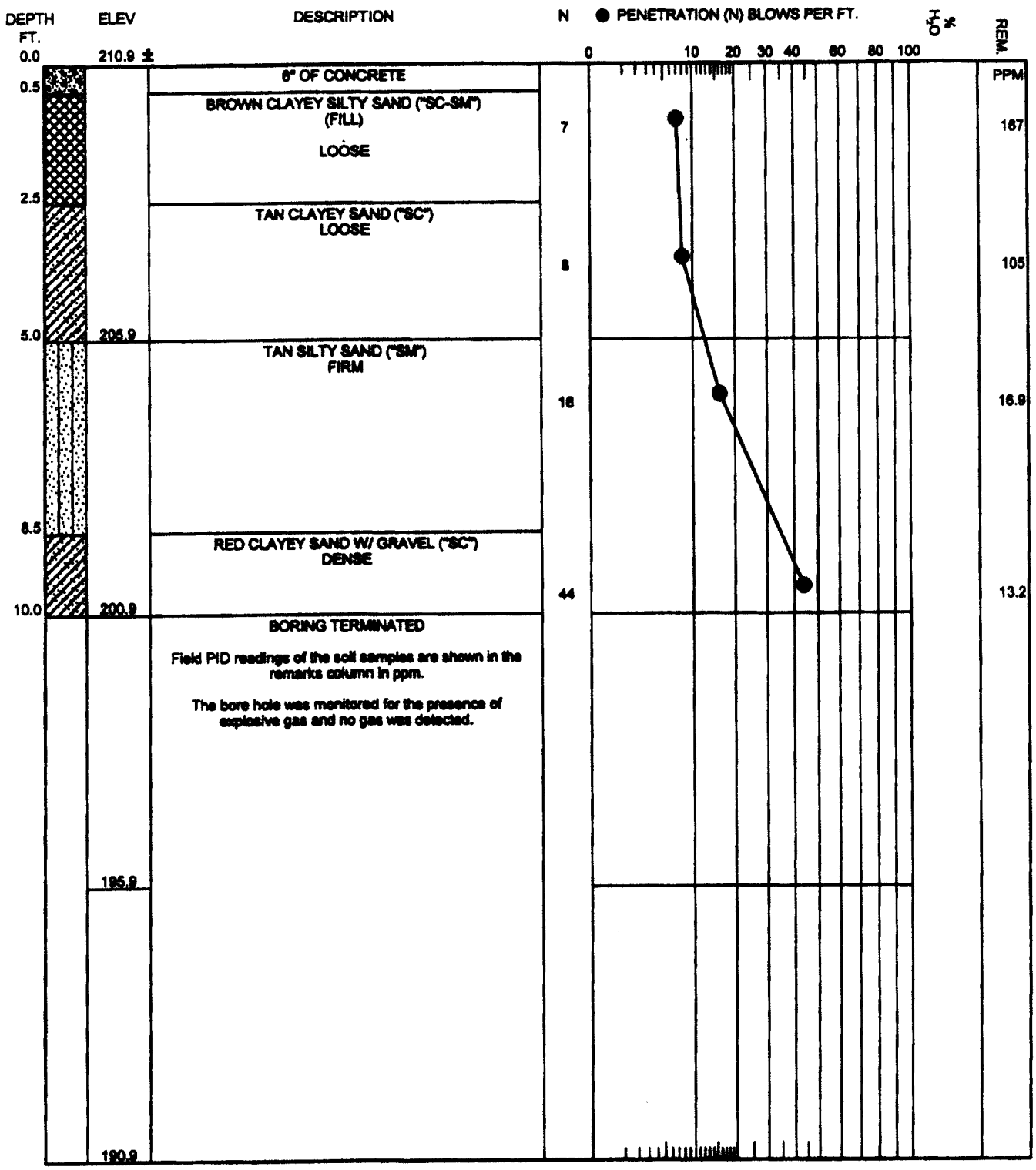
TEST BORING LOG

JOB NO. G09-2964

BORING NO. P-1

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

CARMICHAEL ENGINEERING, INC.

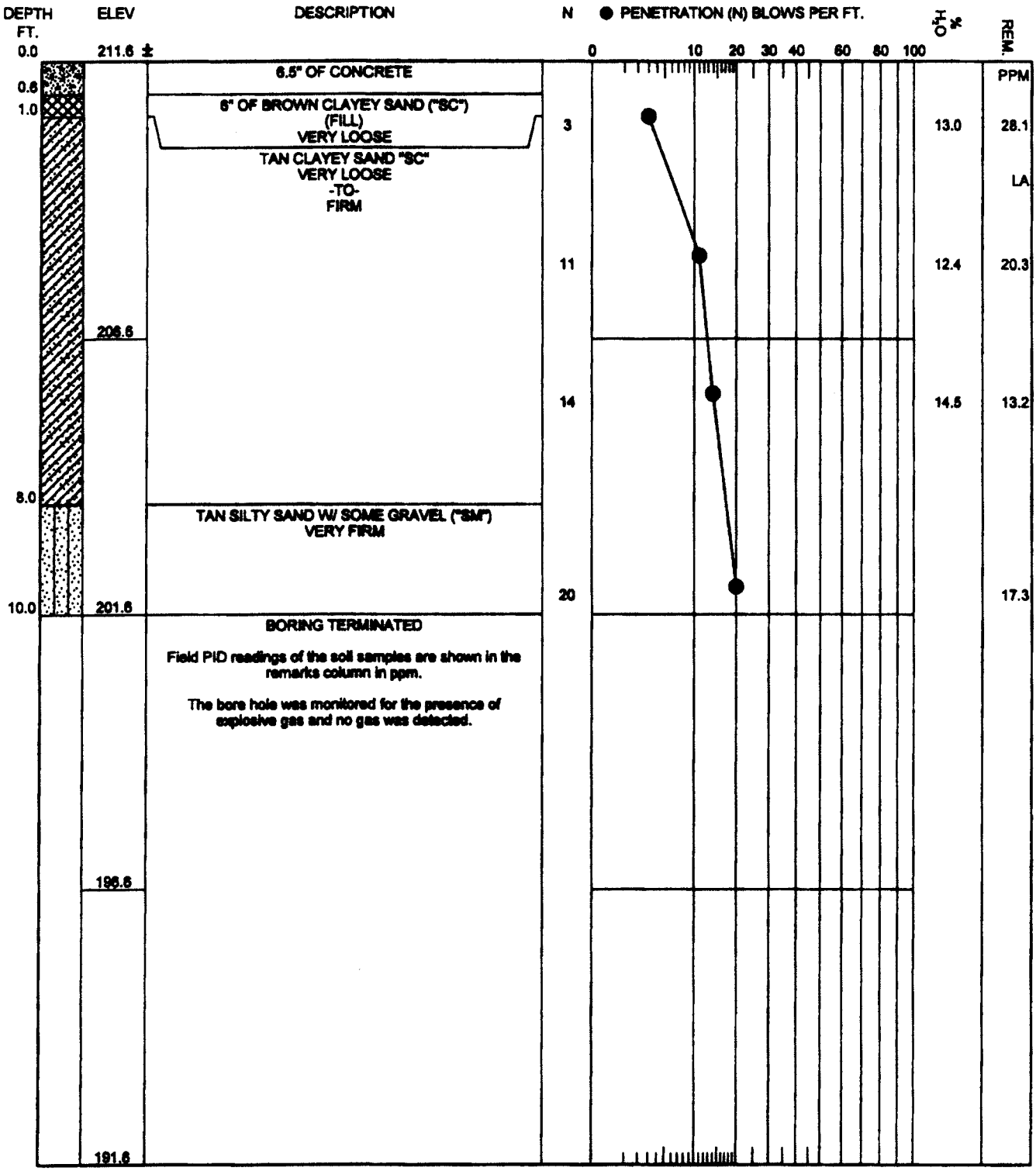
TEST BORING LOG

JOB NO. G09-2964

BORING NO. P-2

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

CARMICHAEL ENGINEERING, INC.

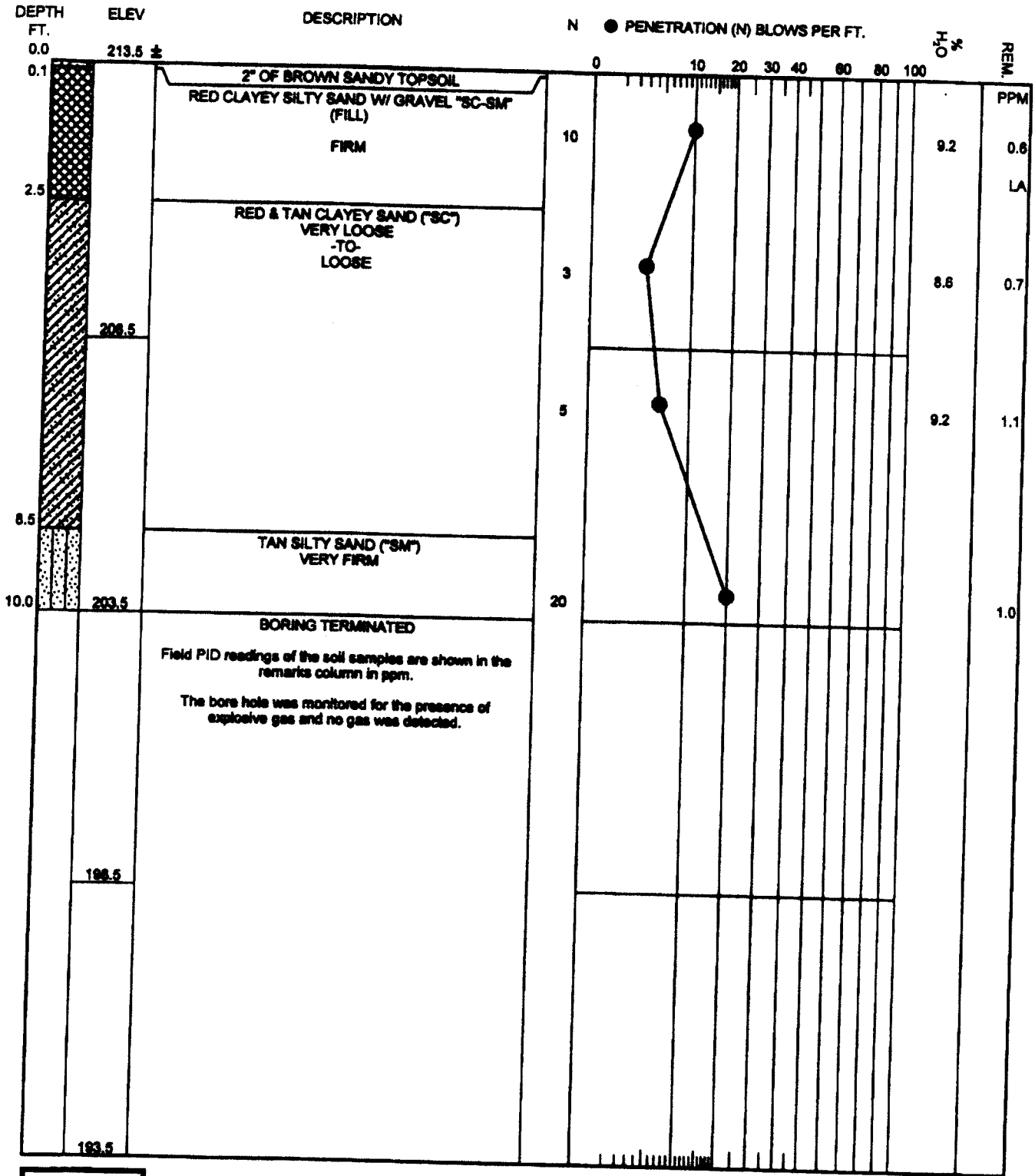
TEST BORING LOG

JOB NO. G09-2984

BORING NO. P-3

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

CARMICHAEL ENGINEERING, INC.

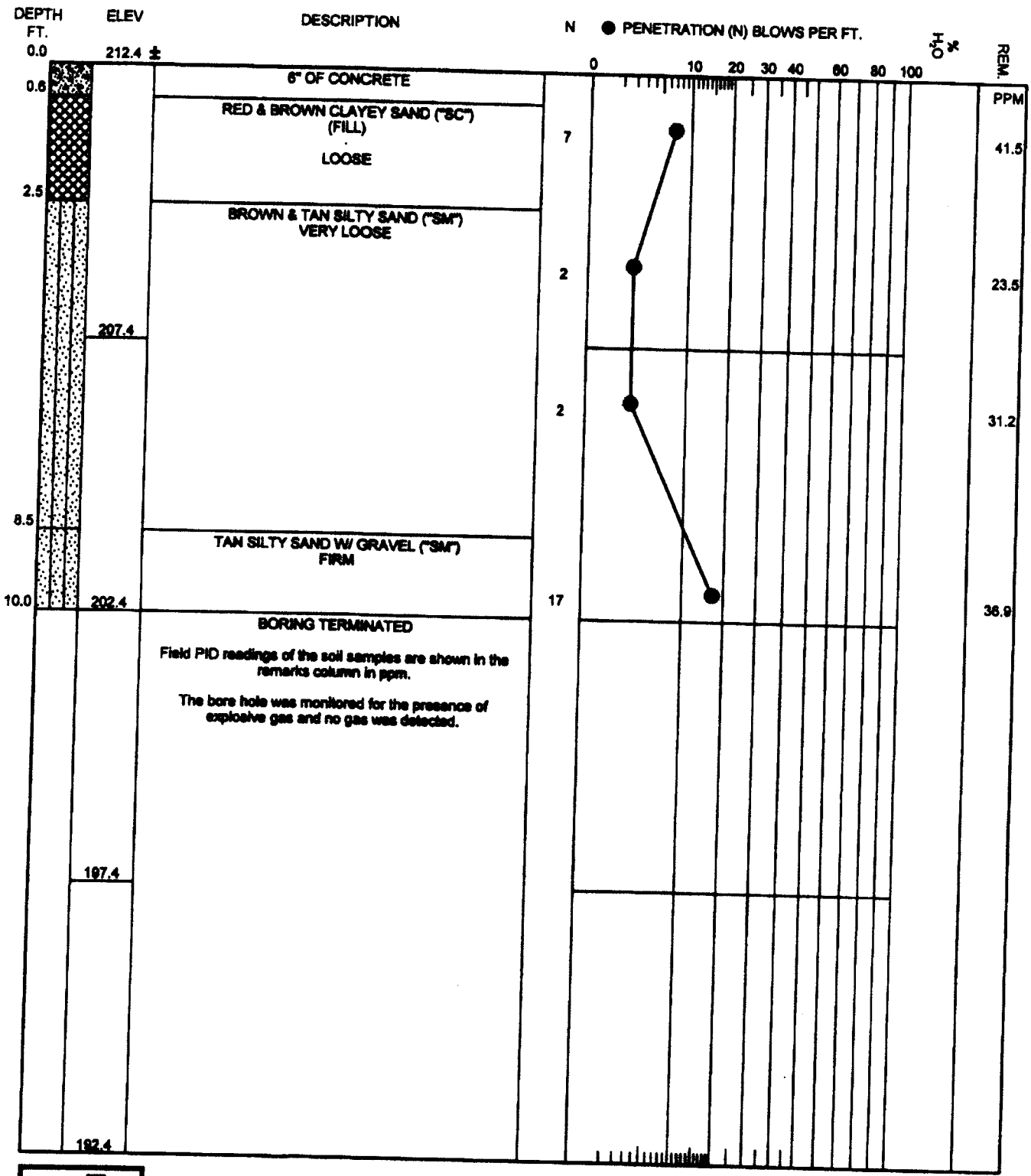
TEST BORING LOG

JOB NO. G09-2964

BORING NO. P-4

DATE DRILLED 11/11/09

TYPE BORING SB



Boring and Sampling Meets ASTM D-1586

Penetration (N) is the Number of Blows of 140 lb. Hammer Falling 30 in. Required to Drive 1.4 in I.D. Sampler 1 Ft.

☒ Undisturbed Sample

LA Lab Analysis

Water Level

Water Level

Boring Caved

CARMICHAEL ENGINEERING, INC.

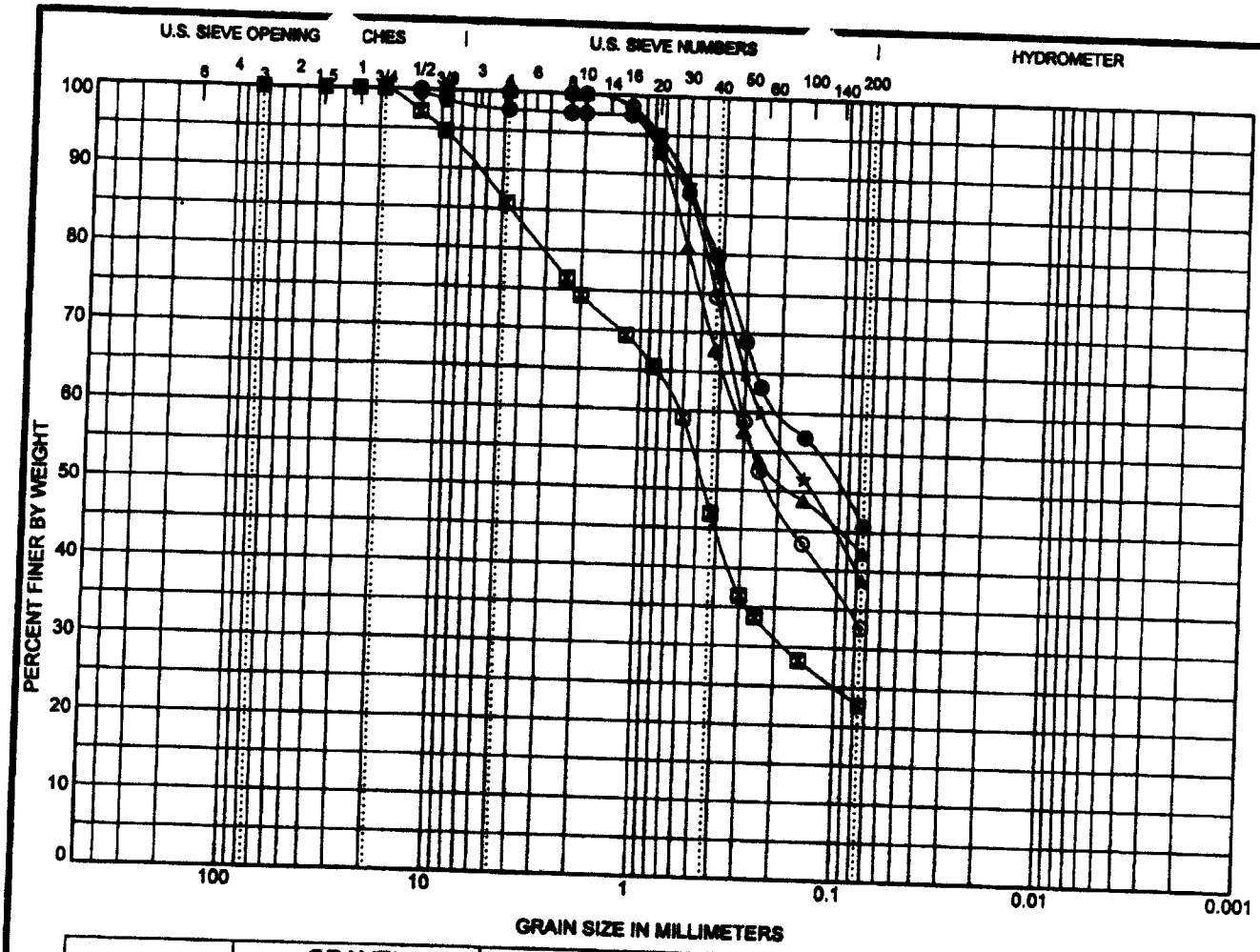
TEST BORING LOG

JOB NO. G09-2984

BORING NO. P-5

DATE DRILLED 11/11/09

TYPE BORING SB



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification		Classification	LL	PL	PI	Cc	Cu
● 17210	P-1 0.4-2'	SILTY, CLAYEY SAND SC-SM	18	12	6		
■ 17211	P-4 0.4-2'	SILTY, CLAYEY SAND SC-SM	18	14	4		
▲ 17212	B-3 5-6.5'	CLAYEY SAND SC	40	19	21		
★ 17213	B-4 5-6.5'	SILTY, CLAYEY SAND SC-SM	16	12	4		
◎ 17214	B-1 2.5-4'	SILTY SAND SM	12	12	NP		

Specimen Identification		D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 17210	P-1 0.4-2'	75	0.193			2.3	52.0	45.7	
■ 17211	P-4 0.4-2'	75	0.63	0.176		14.3	62.9	22.8	
▲ 17212	B-3 5-6.5'	75	0.326			0.0	57.8	42.2	
★ 17213	B-4 5-6.5'	75	0.251			0.0	61.4	38.6	
◎ 17214	B-1 2.5-4'	75	0.306			0.0	67.3	32.7	

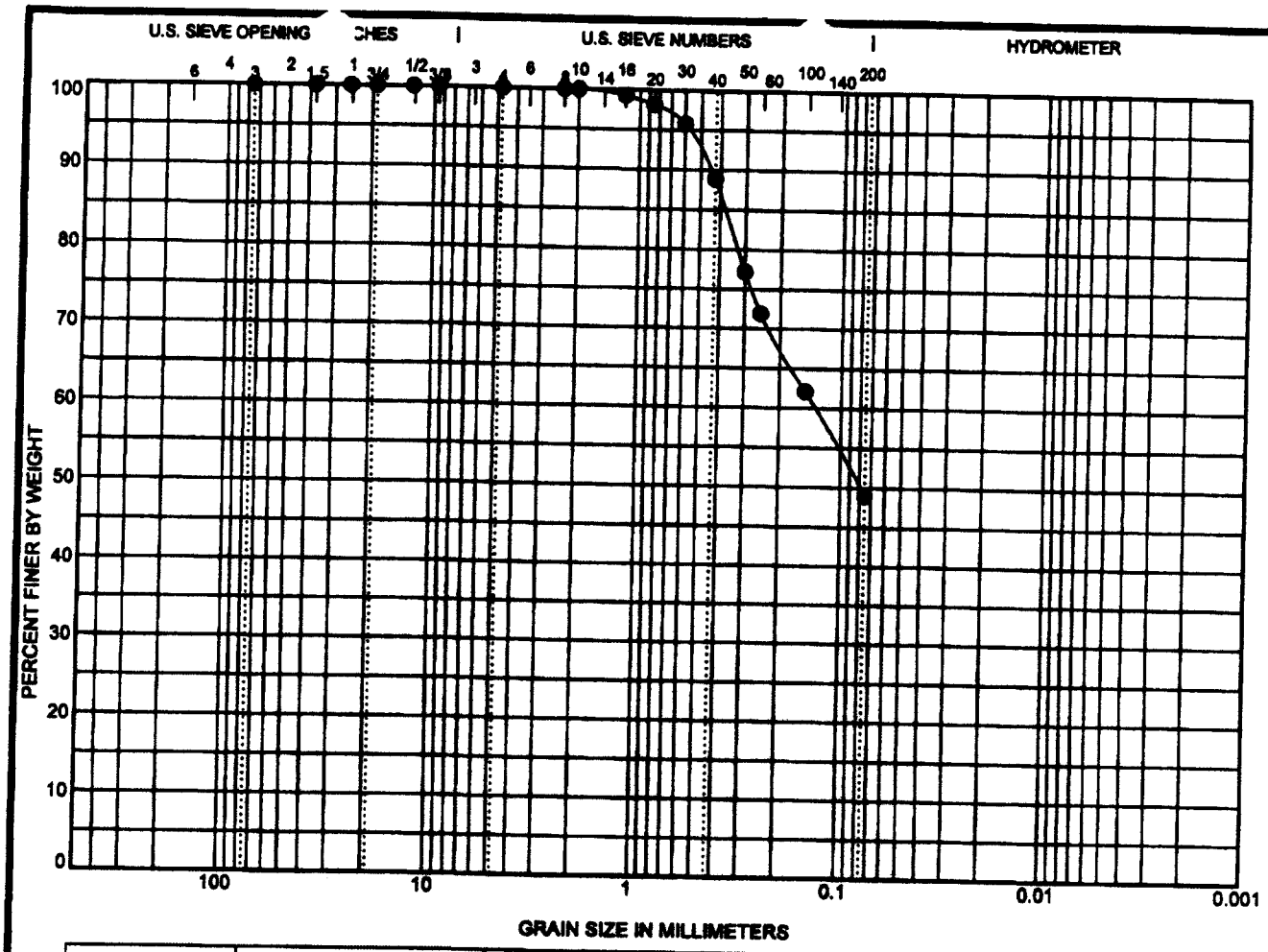
Test Methods: ASTM D422, ASTM D4318
Sample Received Date: 11/11/2009
Test Date(s): Grain Size - 11/16/2009, Atterberg Limits - 11/19/2009

CARMICHAEL ENGINEERING, INC.
650 Oliver Road
Montgomery, AL 36117

GRAIN SIZE DISTRIBUTION

Project: New Commissary @ Gunter Annex
Location: Montgomery, AL
Job No.: G09-2964 Report Date: 11/30/2009
Reviewed By: Brandon Rountree, PE

US GRAIN SIZE 2 G09-2964.GPJ CARMICH.GDT 11/30/09



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

Specimen Identification	Classification	LL	PL	PI	Cc	Cu
● 17220 P-3 1-2.5'	CLAYEY SAND SC	23	15	8		

Specimen Identification	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
● 17220 P-3 1-2.5'	75	0.134			0.0	51.0	49.0	

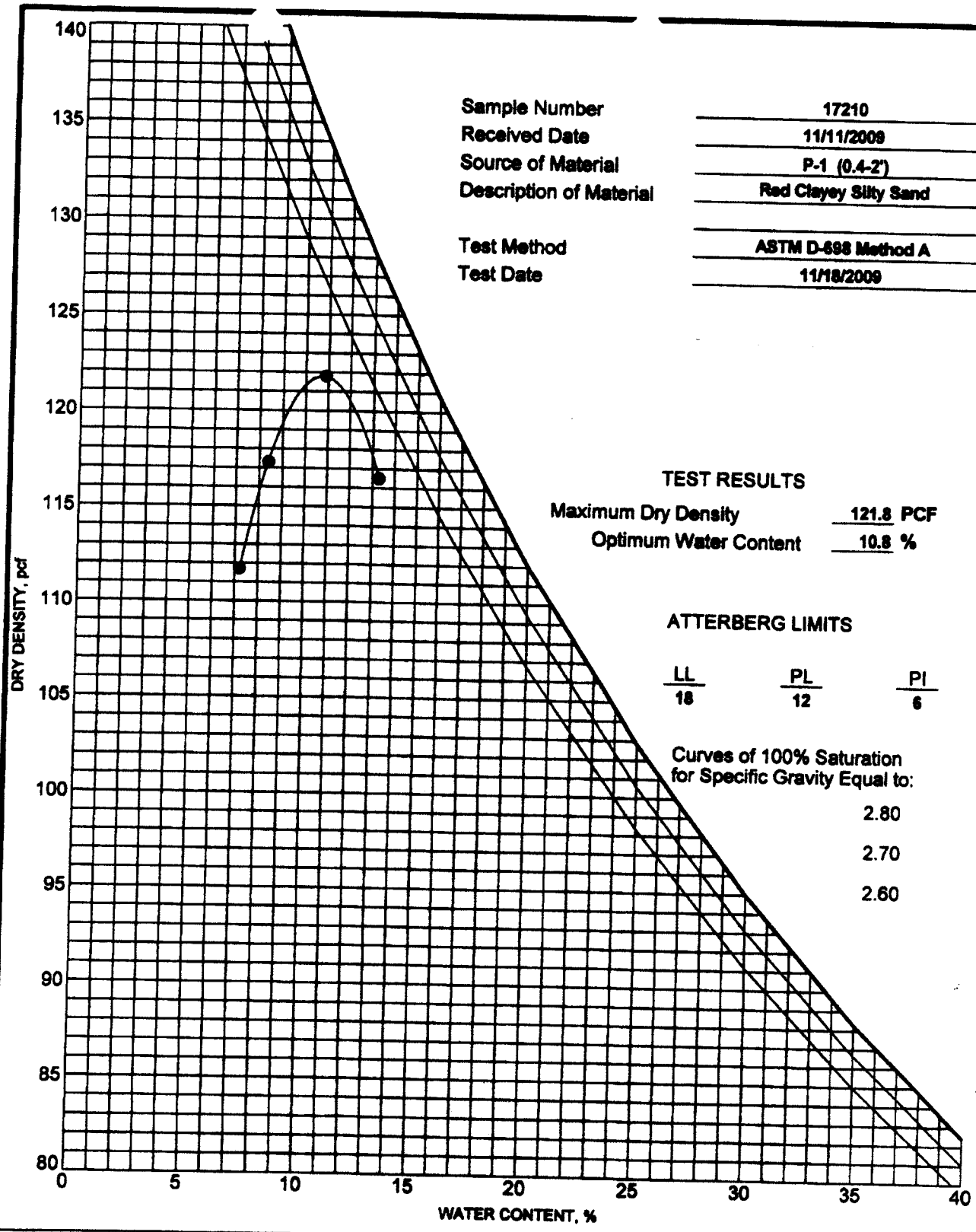
Test Methods: ASTM D422, ASTM D4318
Sample Received Date: 11/11/2009
Test Date(s): Grain Size - 11/18/2009, Atterberg Limits - 11/19/2009

CARMICHAEL ENGINEERING, INC.
650 Oliver Road
Montgomery, AL 36117

GRAIN SIZE DISTRIBUTION

Project: New Commissary @ Gunter Annex
Location: Montgomery, AL
Job No.: G09-2964 Report Date: 11/30/2009
Reviewed By: Brandon Rountree, PE

US_GRAIN_SIZE2_G09-2964.GPJ CARMICHL.GDT 11/30/09



Sample Number	17210
Received Date	11/11/2009
Source of Material	P-1 (0.4-2')
Description of Material	Red Clayey Silty Sand
Test Method	ASTM D-698 Method A
Test Date	11/18/2009

TEST RESULTS

Maximum Dry Density	121.8 PCF
Optimum Water Content	10.8 %

ATTERBERG LIMITS

LL	PL	PI
18	12	6

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION3 G09-2964.GPJ CARMICHL.GDT 11/30/09

CARMICHAEL ENGINEERING, INC.

650 Oliver Road
Montgomery, AL 36117

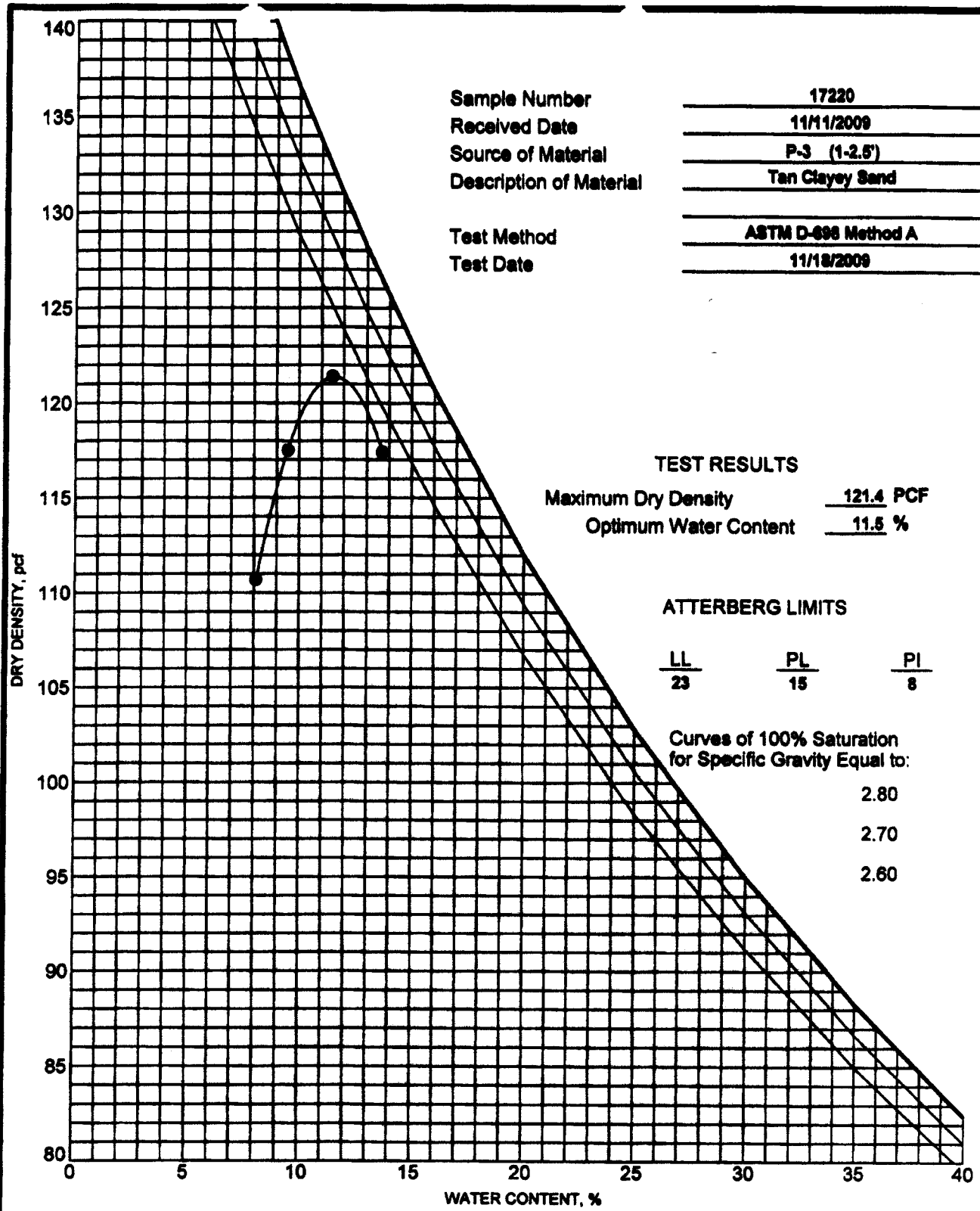
MOISTURE-DENSITY RELATIONSHIP

Project: New Commissary @ Gunter Annex

Location: Montgomery, AL

Job No.: G09-2964 Report Date: 11/30/2009

Reviewed By: Brandon Rountree, PE



Sample Number	17220
Received Date	11/11/2009
Source of Material	P-3 (1-2.5')
Description of Material	Tan Clayey Sand
Test Method	ASTM D-698 Method A
Test Date	11/18/2009

TEST RESULTS

Maximum Dry Density 121.4 PCF

Optimum Water Content 11.5 %

ATTERBERG LIMITS

LL	PL	PI
23	15	8

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

CARMICHAEL ENGINEERING, INC.

650 Oliver Road
Montgomery, AL 36117

MOISTURE-DENSITY RELATIONSHIP

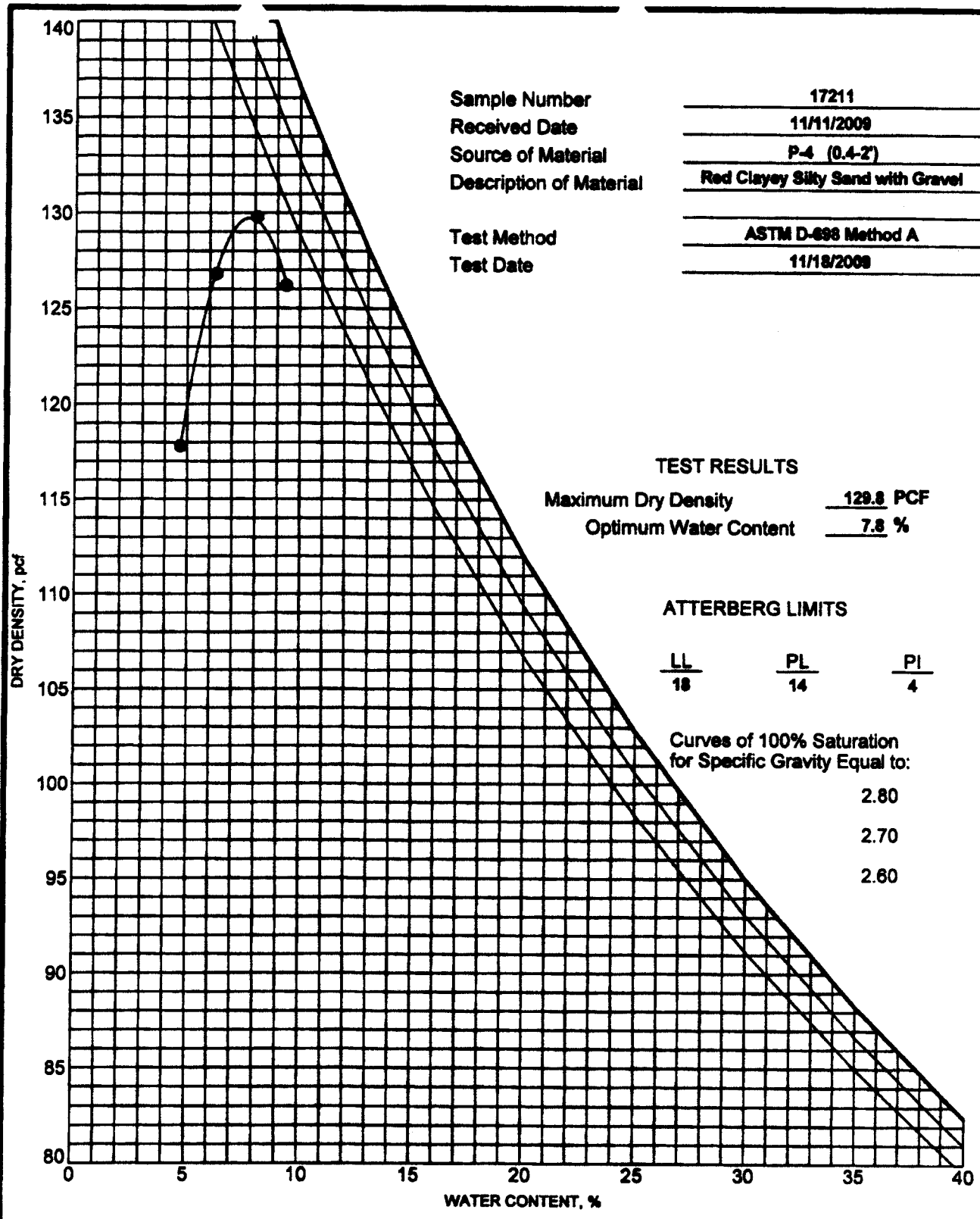
Project: New Commissary @ Gunter Annex

Location: Montgomery, AL

Job No.: G09-2964 Report Date: 11/30/2009

Reviewed By: Brandon Rountree, PE

COMPACTION3_G09-2964.GPJ_CARMICH.GDT_11/30/09



Sample Number	17211
Received Date	11/11/2009
Source of Material	P-4 (0.4-2')
Description of Material	Red Clayey Silty Sand with Gravel
Test Method	ASTM D-698 Method A
Test Date	11/18/2009

TEST RESULTS

Maximum Dry Density	129.8 PCF
Optimum Water Content	7.8 %

ATTERBERG LIMITS

LL	PL	PI
18	14	4

Curves of 100% Saturation for Specific Gravity Equal to:

2.80

2.70

2.60

COMPACTION G09-2964.GPJ CARMICHAEL.GDT 11/30/09

CARMICHAEL ENGINEERING, INC.
650 Oliver Road
Montgomery, AL 36117

MOISTURE-DENSITY RELATIONSHIP

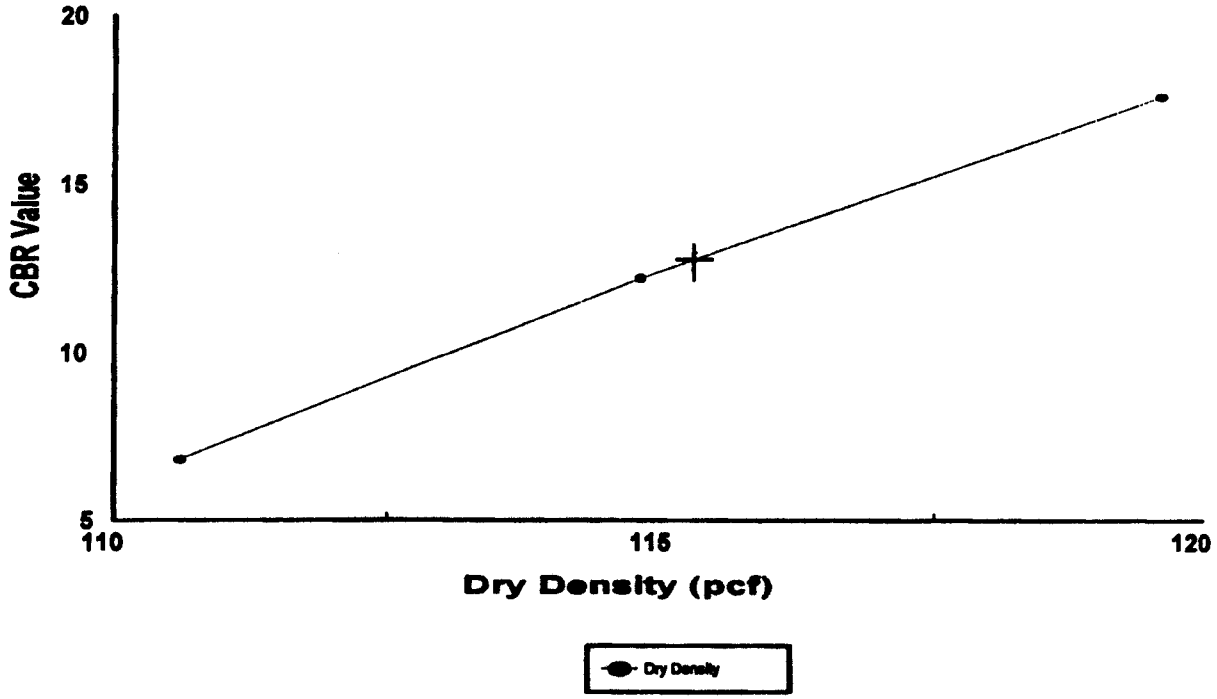
Project: New Commissary @ Gunter Annex

Location: Montgomery, AL

Job No.: G09-2964 Report Date: 11/30/2009

Reviewed By: Brandon Rountree, PE

CBR TEST DATA



CBR Value: 13.0 @ 95% Standard Density
% Swell: 0.1 %

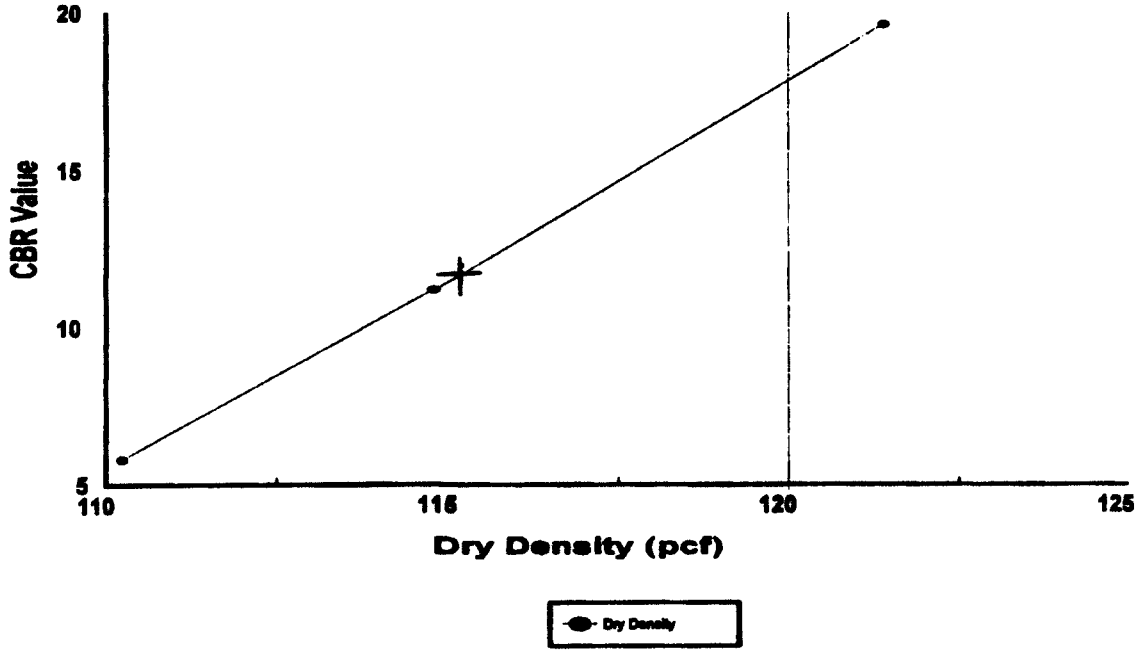
Project : New Commissary @ Gunter Annex
Montgomery, Alabama

Our Job No. G09-2964
Date: November 27, 2009

Sample No.: 17210
Description: Red Clayey Silty Sand
Location: P-1, 0.4-2'

Maximum Dry Density: 121.8 pcf
Optimum Moisture: 10.8 %

CBR TEST DATA



CBR Value: 11.0 @ 95% Standard Density
% Swell: 0.0 %

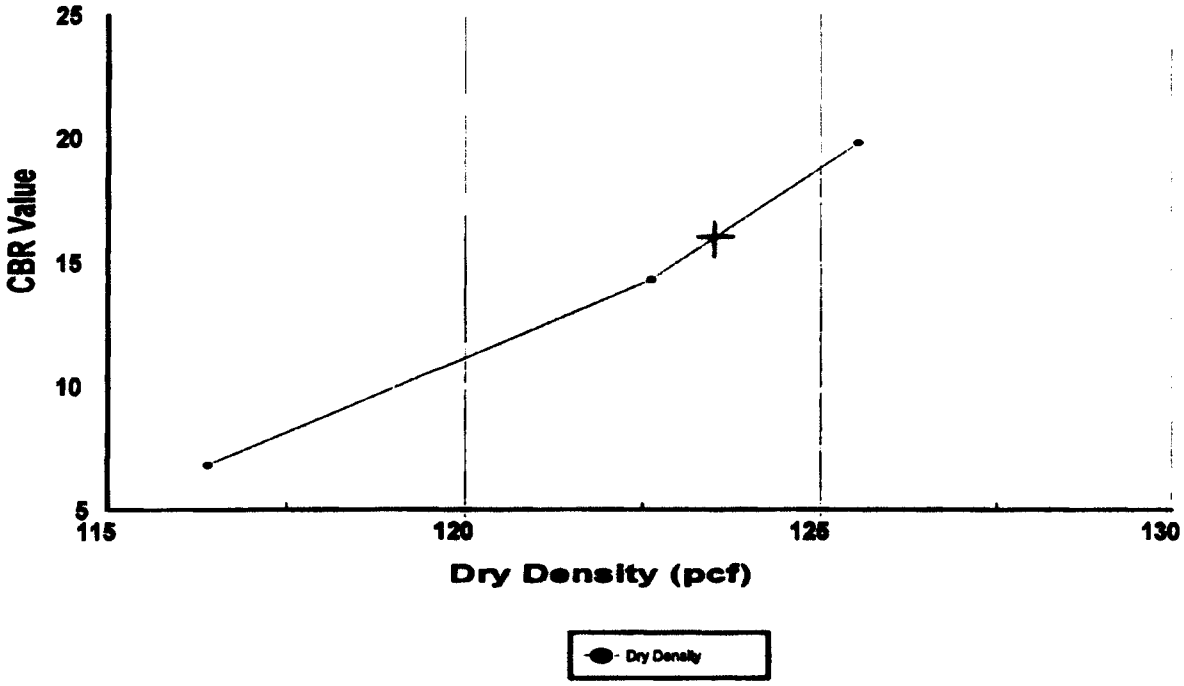
Project : New Commissary @ Gunter Annex
Montgomery, Alabama

Our Job No. G09-2964
Date: November 27, 2009

Sample No.: 17220
Description: Tan Clayey Sand
Location: P-3, 1-2.5'

Maximum Dry Density: 121.4 pcf
Optimum Moisture: 11.5 %

CBR TEST DATA



CBR Value: 16.5 @ 95% Standard Density
% Swell: 0.0 %

Project : New Commissary @ Gunter Annex
Montgomery, Alabama

Our Job No. G09-2964
Date: November 27, 2009

Sample No.: 17211
Description: Red Clayey Silty Sand with Gravel
Location: P-4, 0.4-2'

Maximum Dry Density: 129.8 pcf
Optimum Moisture: 7.8 %

INVESTIGATIVE FIELD PROCEDURES

Penetration Testing & Split Barrel Sampling: A standard 2.0" O.D. (1.4" I.D.) split barrel sampler is first seated 6" to penetrate any loose cuttings and then driven an additional 12" with blows of a 140-pound hammer falling 30". The number of blows required to drive the sampler the final foot is recorded and designated the "penetration resistance" (N). (ASTM D-1586)

Soil Boring (SB): The test bore is advanced by a truck-mounted drill rig utilizing 5-5/8" O.D. (2-1/4" I.D.) hollow stem augers. Soil samples are obtained with a standard split-tube sampler by driving the sampler thru the hollow auger. Collected soil specimens are sealed in air tight containers and delivered to the laboratory to confirm the drillers classifications. (ASTM D-1452 & 1586)

Auger Boring (AB): Steel flight augers are utilized to advance the test bore. The soils are visually classified and sampled from the cuttings which are brought to the surface. (ASTM D-1452)

Undisturbed Sampling (UD): Relatively undisturbed soil samples are obtained by forcing a section of 3" O.D. 16-gauge steel tubing into the soil at the desired sample location. The tube is then sealed from moisture loss and delivered to the laboratory for possible laboratory testing.

Rotary-Wash Boring (RB): The drilling operation is performed by first setting a length of casing and then advancing the test bore by "jetting" a bentonite solution thru drill rods and bit.

Core Drilling (CD): The test bore is advanced thru rock by coring which utilizes a diamond bit and a double tube, swivel type core barrel. (ASTM D-2113)

Monitoring Wells (MW): Temporary or permanent wells may be installed to provide the accurate water table determination and periodic monitoring. The well is constructed with 1.5" to 4" diameter PVC pipe meeting current standards for monitoring well construction.

NOTES AND REFERENCES

Soil descriptions are based on the predominate constituent of the material and are further described by appropriate modifiers in reverse order of their importance. For example, a predominate sand soil containing clay would be described as "clayey sand". Additional modifiers may be used, beginning with the least important constituent such as "silty clayey sand", etc..

Water levels shown on the test boring logs reflect those levels measured at the specified time and date indicated on the logs. These water levels are subject to seasonal fluctuation and can be effected by local surface drainage and/or rainfall during the monitoring period.

The following table describes soil relative densities and consistencies based on penetration resistance values (N) determined by the Standard Penetration Test. The "N" values are estimated for hand tool bores using a portable dynamic cone penetrometer.

	N	Relative Density
Sand	0 - 3	Very Loose
	4 - 9	Loose
	10 - 19	Firm
	20 - 29	Very Firm
	30 - 49	Dense
	50 +	Very Dense

	N	Consistency
Clay and Silt	0 - 2	Very Soft
	3 - 5	Soft
	6 - 11	Firm
	12 - 17	Stiff
	18 - 29	Very Stiff
	30 - 49	Hard
	50 +	Very Hard

Laboratory Test References

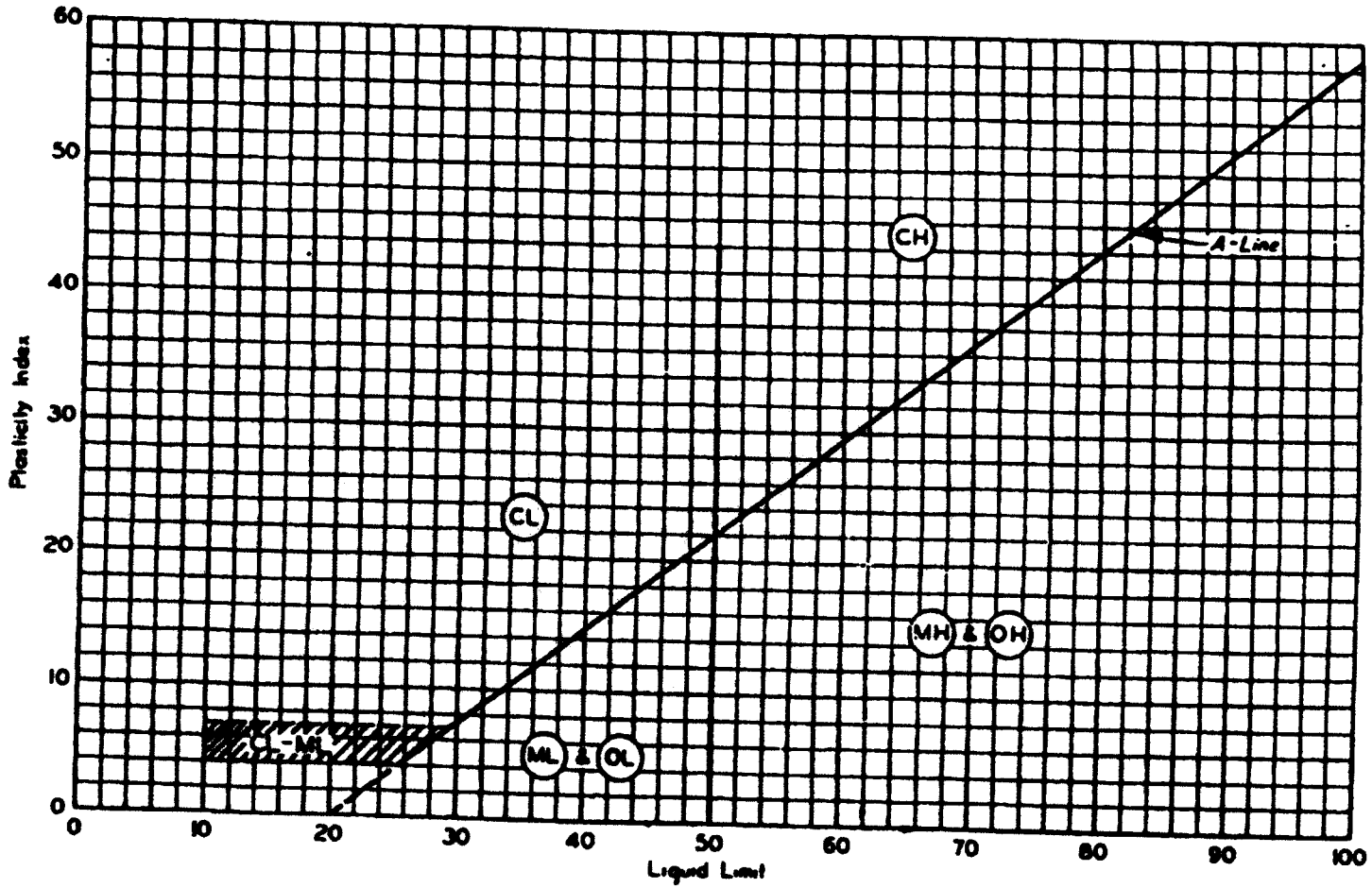
Test	Reference
Moisture Content	ASTM D-854
Particle Size Analysis	ASTM D-421, 422 & 1140
Atterberg Limit	ASTM D-423, 424
Specific Gravity	ASTM D-2216
Compaction Test	ASTM D-698, 1557
California Bearing Ratio Test	AASHTO T-193
Triaxial Shear Test	ASTM D-2850
Unconfined Compression Test	ASTM D-2166
Consolidation Test	ASTM D-2435
Soil Permeability Test	ASTM D-2434

The Unified Soil Classification System

Major divisions			Group symbol		Typical names	Classification criteria for coarse-grained soils	
Coarse-grained soils (more than half of material is larger than No. 200)	Gravels (more than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	$C_U \geq 4$ $1 \leq C_C \leq 3$	
			GP		Poorly graded gravels, gravel-sand mixtures, little or no fines	Not meeting all gradation requirements for GW ($C_U < 4$ or $1 > C_c > 3$)	
		Gravels with fines (appreciable amount of fines)	GM	≥ #0.	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below *A* line or $I_p < 4$	Above *A* line with $4 < I_p < 7$ are borderline cases requiring use of dual symbols
			GC		Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above *A* line with $I_p > 7$	
	Sands (more than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_U \geq 6$ $1 \leq C_c \leq 3$	
			SP		Poorly graded sands, gravelly sands, little or no fines	Not meeting all gradation requirements for SW ($C_U < 6$ or $1 > C_C > 3$)	
		Sands with fines (appreciable amount of fines)	SM	≥ #0.	Silty sands, sand-silt mixtures	Atterberg limits below *A* line or $I_p < 4$	Limits plotting in hatched zone with $4 \leq I_p \leq 7$ are borderline cases requiring use of dual symbols
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above *A* line with $I_p > 7$	
Fine-grained soils (more than half of material is smaller than No. 200)	Silts and clays (liquid limit < 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity	1. Determine percentages of sand and gravel from grain-size curve. 2. Depending on percentages of fines (fraction smaller than 200 sieve size), coarse-grained soils are classified as follows: Less than 5%–GW, GP, SW, SP More than 12%–GM, GC, SM, SC 5 to 12%–Borderline cases requiring dual symbols	
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays		
			OL		Organic silts and organic silty clays of low plasticity		
	Silts and clays (liquid limit > 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH		Inorganic clays or high plasticity, fat clays		
			OH		Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt		Peat and other highly organic soils		

$$C_U = \frac{D_{60}}{D_{10}}$$

$$C_C = \frac{D_{30}^2}{D_{10} D_{60}}$$



PLASTICITY CHART

EXHIBIT C
CARMICHAEL ENGINEERING, INC.
GENERAL CONDITIONS OF AGREEMENT WITH THE CLIENT

1. **PAYMENT TERMS.** CARMICHAEL ENGINEERING, INC., (hereinafter called "CEI") will submit invoices to client monthly and a final bill upon completion of services. Invoice will show charges for different personnel, unit prices and/or expense classifications unless a lump sum payment is agreed to as part of this agreement. Payment is due upon presentation of invoice and is past due ten (10) days from the invoice date. Client agrees to pay a finance charge of one and one-half percent (1 1/2%) per month (minimum of $15.00 per month) on the principal amount of any past due account. In the event CEI deems it necessary to refer the account to an attorney for collection, client agrees to pay all costs of collection, including a reasonable attorney's fee.

2. **INSURANCE.** CEI maintains Worker's Compensation and Employer's Liability Insurance in conformance with applicable state law. In addition, we maintain Comprehensive General Liability Insurance and Automobile Liability Insurance with bodily injury limits and property damage limits of, to wit $1,000,000 combined single limit. A certificate of insurance can be supplied evidencing such coverage which contains a clause providing that fifteen (15) days written notice be given prior to cancellation. Cost of the above is included in our quoted fees. If additional coverage, such as additional insured endorsements, waiver of subrogation or increased limits of liability are required, CEI will endeavor to obtain the requested insurance and charge separately for costs associated with additional coverage or increased limits.

3. **STANDARD OF CARE.** The only warranty or guarantee made by CEI in connection with the services performed hereunder is that we will use that degree of care and skill ordinarily exercised under similar conditions by reputable members of our profession practicing in the same or similar locality. No other warranty, expressed or implied, is made or intended by our proposal for geotechnical/environmental services or by our furnishing oral or written reports.

4. **LIMITATION OF LIABILITY.** Client agrees to limit CEI's liability to client, and to all construction contractors and subcontractors on the project, arising from CEI's professional acts, errors or omissions or other professional negligence, so that the total aggregate liability of CEI to all those named shall not exceed $1,000,000 (one million dollars).

5. **RIGHT OF ENTRY.** Unless otherwise agreed in writing, client will provide for the right of entry for CEI, its agents and employees and all equipment necessary for the completion of the work. While CEI will take reasonable precautions to minimize any damage to the site, it is understood by the client that in the normal course of work some damage may occur and that the cost of correction or repairing such damage is not included in the quoted fee and CEI is not responsible unless specifically stated. If client desires CEI to repair or correct the damage, the cost of such repairs or corrections will be paid by client as an additional fee.

6. **EXISTING MAN MADE OBJECTS.** It is the duty of the client to disclose the presence and accurate location of all hidden or obscure man made objects, including utility lines, relative to field test or boring locations. CEI field personnel are trained to recognize clearly identifiable stakes or markings in the field and, without special written instructions to initiate field testing, drilling and/or sampling within a reasonable distance of each designated location. If CEI is notified in writing of the presence or potential presence of underground or above ground obstructions, such as utilities, CEI will give special instructions to its field personnel. Client agrees to indemnify and save harmless CEI from all claims, suits, losses, personal injuries, deaths and property liability resulting from unusual subsurface structures, owned by client or third parties, occurring in the performance of the proposed services, the presence and exact locations of which were not revealed to CEI in writing, and to reimburse CEI for expenses in connection with any such claims or suits, including reasonable attorney's fees.

7. **SAMPLING OR TESTING LOCATION.** The fees included in the Agreement do not include costs associated with surveying of the site or the accurate horizontal and vertical locations of tests. Field test or boring locations described in CEI's report or shown on sketches are based on specific information furnished by the client or clients agent or estimates made by CEI technicians. Such dimensions, depths or elevations should be considered as approximations unless otherwise stated in the report or contracted for at the inception of the Agreement.

8. **SAMPLE DISPOSAL AGREEMENT.** CEI will retain soil and rock samples which are not used for testing for forty-five (45) days after submission of our report. After forty-five (45) days the retained samples will be discarded unless the client has made written request for storage or transfer of the samples. Client shall be responsible for the expense of such storage or transfer.

9. **SAFETY**. When CEI provides periodic observations or monitoring services at the job site during construction, Client agrees that, in accordance with generally accepted construction practices, the contractor (i.e. not CEI) will be solely and completely responsible for working conditions on the job site, including safety of all persons and property during the performance of the work, and compliance with OSHA regulations, and that these requirements will apply continuously and not be limited to normal working hours. Any monitoring of the contractor's procedures conducted by CEI is not intended to include review of the adequacy of the contractor's safety measures in, on, adjacent to, or near the construction site.

10. **ENGINEERING, EQUIPMENT AND TECHNICAL SERVICES**. Fees for such services are based on all time spent on the project by engineering or technical personnel at the hourly or unit rates of the Fee Schedules. The quoted fee may not cover the cost of conferences, site visits, review of foundation plans and specifications, or other services subsequent to submission of our report. Such additional services will be invoiced at the applicable rates. All engineering and technical work is generally done by CEI's regular employees; however, special services by other firms or consultants may be needed on occasion and will be invoiced at the applicable rates but no "outside" services will be contracted for without clients prior permission.

11. **ASSIGNMENT**. Neither client or CEI may delegate, assign, sublet or transfer its duties or interest in this agreement without the prior written consent of the other party.

12. **OWNERSHIP OF DOCUMENTS**. All reports, boring logs, field data, field notes, laboratory test data, calculations, estimates and other documents prepared by CEI, as instruments or service, shall remain the property of CEI. Client agrees that under no circumstances shall any documents or reports produced by CEI pursuant to this Agreement be used at any location or for any project not expressly provided for in this agreement without the written permission of CEI. Client agrees that all reports and other work furnished to client or its agents, which are not paid for, will be returned upon demand and will not be used by client for any purpose whatsoever. CEI will retain all pertinent written records relating to the services performed for a period of five (5) years following submission of the report, during which period the records will be made available to client at all reasonable times. During this five (5) year period, CEI will provide client with copies of documents created in the performance of the work, at the expense of client.

13. **TERMINATION**. This agreement may be terminated by either party upon fourteen (14) days written notice in the event of material failure by the other party to perform in accordance with the terms hereof. Such termination shall not be effective if the material failure has been remedied before the expiration of the period specified in the written notice. In the event of termination, CEI shall be paid for all services performed and expenses incurred up to the termination notice data plus reasonable termination expenses. The expenses of termination or suspension shall include all direct costs or CEI in completing such analysis, records and reports.

14. **GOVERNING LAW**. This agreement shall be governed and construed in accordance with the laws of the State of Alabama, United States of America.

15. **SEPARABILITY**. The provisions of this agreement are separate and divisible, and, if any court of competent jurisdiction shall determine that any provision hereof is void and/or unenforceable, the remaining provisions shall be construed and shall be valid as if the void and/or unenforceable provisions or were not included in this Agreement.

16. **WAIVER**. Except as otherwise especially provided in this Agreement, no failure on the part of either party to exercise, and no delay in exercising, any rights, privilege or power under this Agreement shall operate as a waiver or relinquishment thereof, nor shall any single partial exercise by either party or any right, privilege or power under this Agreement preclude any other or further exercise thereof, or the exercise of any right, privilege or power. Waiver by any party of any breach of any provisions of the Agreement shall not constitute or be construed as a continuing waiver, or a waiver of any other breach of any provision of this Agreement.

17. **BINDING**. This agreement shall be binding upon all of the parties and their respective estates, heirs, administrators, executors, successors and assigns.

18. **STIPULATION**. Each of the parties to this Agreement as set forth herein and in the Work Order furnished by CEI stipulates that they have read, understand and agree to be bound by all of the terms set forth pursuant to the documents which are the basis of this agreement.

(Revised 1/1/09)