Exhibit E



REPORT
to
MR. BRAD COX
C/O MR. JOHN MOORE
MOORE DESIGN, LLC
222 CANNERY ROW, SUITE I
MONTEREY, CALIFORNIA 93940

GEOTECHNICAL REPORT for the proposed COX RESIDENCE 29001 ROBINSON CANYON ROAD CARMEL VALLEY, CALIFORNIA A. P. N. 416-021-043-000

by

GRICE ENGINEERING, INC. 561-A BRUNKEN AVENUE SALINAS, CALIFORNIA MAY 2016 ENGINEERING GE FOUNDATIONS

GEOTECHNICS ONS SOILS SEPTIC HYDROLOGY EARTH STRUCTURES

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File No. 6635-16.05 My 25, 2016

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Mr. Brad Cox C/O Mr. John Moore Moore Design, LLC 222 Cannery Row, Suite I Monterey, California 93940

Project:

Cox Residence

29001 Robinson Canyon Road

Carmel Valley, California A. P. N. 416-021-043-000

Subject:

Geotechnical Report

Dear Mr. Cox:

Pursuant to your request, we have completed our geotechnical investigation and evaluation of the above named site. It is our opinion that this site is suitable for the proposed development, provided the recommendations made herein are followed.

In general, the near surface soils are loose and will need to be taken into account during design and construction of the residence. Recommendations are given relative to this and other characteristics within the report and especially under Special Recommendations.

The report contained herein is made with our best efforts to evaluate the site, determine the site's geotechnical conditions and provide recommendations for these conditions. We submit this report with the understanding that it is the responsibility of the owner, or his representative, to ensure incorporation of these recommendations into the final plans, and their subsequent implementation in the field.

EXP. 09-30-16

In addition, we recommend that GRICE ENGINEERING, INC., be retained to review the project plans and provide the construction supervision and testing required to document compliance with these recommendations. Should any site condition not mentioned in this report be observed, this office should be notified so that additional recommendations can be made, if necessary.

This report and the recommendations herein are made expressly for the above referenced project and may not be utilized for any other site without written permission of GRICE ENGINEERING, INC.

Please feel free to call this office should you have any questions regarding this report.

Very truly yours, GRICE ENGINEERING, INC.

Lawrence E. Grice, P.E. R.C.E. 66857

NOTICE TO OWNER

Any earthwork and grading performed without direct engineering supervision and materials testing by Grice Engineering Inc., will not be certified as complete and in accordance with the requirements set forth herein.

Foundations placed without observation of bearing conditions will not be certified as being in accordance with the requirements set forth herein.

Inspection of Work

It is recommended that all site work be inspected and tested during performance by this firm to establish compliance with these recommendations.

NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

A minimum of 48 hours (2 working days) notification is required prior to commencement of work so that scheduling for testing and inspections can be made.

Please be advised that costs incurred during inspection and testing of all site work is separate and not considered part of the fees as charged by Grice Engineering, Inc. for the report contained herein.

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GEOTECHNICAL REPORT for the proposed COX RESIDENCE 29001 ROBINSON CANYON ROAD CARMEL VALLEY, CALIFORNIA A. P. N. 416-021-043-000

Introduction, Method and Scope of Investigation

The purpose of this report is to evaluate the geotechnical properties of the site relative to the construction of a single family residence. From these findings recommendations are given for the design of the development and subsequent construction.

For this purpose, the site was investigated, and prior information concerning construction and subsurface exploration in this area was examined for soils and materials data. The investigation consisted of a detailed site evaluation, which included: a site inspection; a review of literature made available to GRICE ENGINEERING, INC., including Site Plans from Moore Design; review of the Geotechnical Report for the Minor Subdivision creating the parcel by Grice Engineering which includes geotechnical drilling and soil sampling; materials evaluation; and analysis of the geotechnical properties of the site soils. This report concludes the results of the investigation and provides recommendations based on that work.

The findings and recommendations contained in this report are applicable only to the above named site and its proposed development, and may not be utilized for any other site or purpose without written permission of GRICE ENGINEERING, INC.

Site Description

The project site is located 0.30 miles to the east of Robinson Canyon approximately 1.35 miles south of its intersection with Carmel Valley Road, in an un-incorporated area of western Monterey County, California. Please refer to the Vicinity and Location Maps and the Site Map in Appendix A for details.

The topography of the 30.80 acre site encompasses an area containing slight to moderate slopes, generally to the south and west at approximately 700 feet above mean sea level (msl). The majority of the site is covered with grass and oak forest.

As proposed a single family residence is be constructed in the northwestern portion of the parcel in an area of a shallow knoll. The structure is proposed to be of single story and have an attached garage.

The residence is to be of conventional wood construction with support provided by isolated and/or continuous spread footings. The garage is to have a slab-ongrade floor.

Field Investigation

Our field investigation for the background subdivision consisted of a site inspection, along with drilling and sampling 11 exploratory bores to establish the subsurface soil profile, and obtain sufficient soil specimens to determine the soil characteristics. Drilling was accomplished by continuous flight auger, with the spoil constantly examined, classified, and logged by field method in accordance with the Unified Soil Classification Chart¹ which is the basis of ASTM D2487-10.

Relatively undisturbed soil samples were obtained by the penetration resistance method, (ASTM Method D1586-08), by which a split barrel sampler (ASTM D-3550-01) was driven a minimum of 18 inches into the sampled materials by free dropping a 140 pound weight 30 inches. The number of blows required to drive the sampler were recorded in 6 inch increments after conversion to Standard Penetration Resistance values utilizing the Burmister Formula. The number of blows required to drive the sampler the last two increments taken as the Standard Penetration Resistance. The split barrel sampler (ASTM D-3550-01), with dimensions of 2.4" I.D. x 3.0" O.D., is provided with 1 inch tall brass ring liners for the purpose of returning the samples to the laboratory in as near *in-situ** condition as possible.

^{*} In-situ refers to the in place state of soil. In-situ native soils are those which are in-place as deposited by nature and have not been disturbed by man's actions in the historic past.

¹ Adopted 1952 by Corps of Engineers and Bureau of Reclamation. ASTM D2487 was developed as based on the Uniform Soils Classification Chart and System. The methods are equivalent.

Site Soil Profile

As found in the exploratory drilling, the site soils are generally consistent between each of the bores.

The soils profile as found in the borings on lots 2 and 3 begin with a dark grey sand comprised of fine to medium aggregates and containing some silt. On lot 2, following the topsoil, are alternating layers of silty sands, sandy silts and sandy clays. Intermittent lenses of gravels and cobbles were encountered. The materials were moderate to very firm and of low moisture content.

On lot 4, the surface soils are nearly identical to those found on the other lots. The soils following are either light to dark brown clays or yellowish brown silty sands. The materials were found to be moderate to very firm, with the clays containing moderate moisture although the sands had only slight amounts.

Complete soil characteristics and comments are reported on the boring logs at the depths observed. The logs are located in Appendix B.

Groundwater

No groundwater was encountered at this site to the maximum depth of exploration, approximately 24 feet below grade.

Seismic History

Although no fault traces are thought to directly cross the building site, Monterey County is traversed by a number of faults most of which are relatively minor hazards for the purposes of the site development. As such, this site will experience seismic activity of various magnitudes emanating from one or more of the numerous faults in the region.

Various maps presently exist, allowing observation on the site of distinctive geologic features. Some maps, such as that by Burkland and Associates (Reference No. 10) developed for Monterey County, are compilations from various sources detailing the locations of studied faults. Faults have inherit variances within their zones, and discoveries of new fault segments or entire faults is ongoing. There is also some difference in exact fault line location from source map to map, making precise location of said faults difficult. Therefore, relative to the information contained within this report, the following is considered to be as accurate as is currently possible from information made available to Grice Engineering Inc..

Regional Faults

Of most concern are active faults which have tectonic movement in the last 11,000 years and as such are called Holocene Faults and potentially active faults. The following are those nearest listed (Reference No. 12).

The most active is the San Andreas Rift System (Creeping Segment), located approximately 27.5 miles to the northeast. It has the greatest potential for seismic activity with estimated intensities of V-VI Mercalli in this location.

Other fault zones are the Monterey Bay-Tularcitos Fault Zone, the center of which is located approximately 0.93 miles to the northeast, the Rinconada Fault Zone, approximately 9.9 miles to the northeast, the San Gregorio-Palo Colorado (Sur) Fault Zone, approximately 9.3 miles to the southwest, and the Zayante-Vergeles Fault Zone, approximately 23.8 miles to the northeast. These zones are not as liable to rupture as the San Andreas and a seismic event at any of the above fault zones would likely produce earth movements of a lesser intensity at the site.

Local Faults

In addition to the fault zones as discussed above, the local faults are listed below as shown on the following maps, "Preliminary geologic map of the Monterey and Seaside 7.5 minute quadrangles, Monterey County, California, with emphasis on active faults" (Reference No. 15), "Geological Map of the Monterey and Seaside 7.5 minute Quadrangles, Monterey County, California: A Digital Database" (Reference No. 16), "Geologic Map of the Monterey Peninsula and Vicinity, Monterey, Salinas, Point Sur, and Jamesburg 15-Minute Quadrangles, Monterey County" (Reference No. 22), "Fault Activity Map of California: California Geological Survey Geologic Data Map" (Reference No. 32) and "Quaternary Fault and Fold Database for the United States" (Reference No. 46) including the USGS overlay on Google Earth.

	TABLE DE LOCAL	ĠŎŪĔŢS	Carlo San Carlo
FAULT, PERPENDICULAR TO SITE	APPROXIMATE DISTANCE FROM SITE	DIRECTION	TIME OF LAST DISPLACEMENT ON FAULT (Ref. 32)
Tularcitos Fault, Inferred	0.79 miles	northeast	Quaternary
Navy Fault, inferred	0.98 miles	northeast	Late Quaternary
Berwick Fault, inferred	1.10 miles	northeast	Late Quaternary

Liquefaction

The site soils are considered not susceptible to liquefaction as they are unsaturated and dense sands (bedrock) containing a significant proportion of silts and clays.

Differential-Total Settlement - Static and Dynamic

The recommendations given in the Geotechnical Report are such that concerns of settlement are negligible. The total settlement is expected to be 1/4 inch and the expected differential settlement less than one half that.

Hydro-Collapse and Subsidence

As observed the near surface soils to an approximate depth of one foot are loose. These soils possess some capacity to settle under hydraulic loading. However this effect is not common in the area. The recommendations given in this report were established to reduce the potential of this occurring.

The area is not within a known Subsidence Zone.

Slope Stability

Inspection of the site indicates that no landslides are located above or below the building area and the area is generally not susceptible to slope failure.

Seismic Strength Loss

The site soils are considered resistant to seismic strength loss and the resulting momentary liquefaction. The relatively short duration of earthquake loading will not provide a significant number of high amplitude stress cycles to alter the strain characteristics. Additionally the clay-silt fraction is not considered quick nor sensitive, as such it will not have the associated loss of strength.

Chemical Reactivity

The area is well developed with structures, generally found on Portland Cement products. Additionally these structures date back to the 1940's or earlier. Much of the concrete used in these structures has remained as cast. The area soils are not known for sulfate reaction with Portland cement products and as such chemical reactivity is not considered a problem in this area.

Expansive Soils

In general the site soils are clayey sands of low plasticity or sandy clays of medium plasticity. These soils are typical to the area. Expansivity has not been influential to the existing local structures. Additionally there are no known problems with expansive soils in the area.

Surface Rupture and Lateral Spreading

The project site is located 0.79 miles to the southwest of the Tularcitos Fault. The site inspection did not reveal any surface features indicating a fault rupture has occurred at the site. The existing structure, driveways and roads do not reveal any strains which would be attributable to subsurface lateral or vertical displacements resulting from fault slip. Therefore surface rupture from fault activity across the site is considered improbable.

The project site is underlain by relatively strong soils and soft bedrock. These materials are considered resistant to lateral spreading. As such surface rupture from lateral spreading is considered improbable.

Seismicity

It is recommended that all structures be designed and built in accordance with the requirements of the California Building Code's current edition. All buildings should be founded on undisturbed native soils and/or tested and accepted engineering fill to prevent resonance amplification between soils and the structure.

2013 California Building Code Geoseismic Classifications

The California Building Code, 2013 edition (Reference No. 13), provides for seismic design values. These values are to be utilized when evaluating structural elements. The soils profile determination is based on the penetration resistance data developed from advancement of exploratory bores. Using estimated averaged penetration values per depth of soils type gives an overall site value of 35 blows/foot penetration resistance as per Equation 20.4-3, ASCE 7-05. The geoseismic character is as listed in the following table.

2012 I.B.C 2013 C.B.C. EARTHQUAKE LOADS: SECTION 1613				
LATITUDE	36.507073	SOIL PROFILE:	Stiff Soils	
LONGITUDE	-121.803081	SITE CLASS	D	
PERIOD	S	F	Sm	SG
0.2 sec	Ss = 1.419	Fa = 1.0	Sms = 1.419	Sds = 0.946
1.0 sec	S1 = 0.521	Fv = 1.5	Sm1 = 0.782	Sd1 = 0.521
Seismic Design Category to be assigned by structural engineer or designer				

CONCLUSIONS OF INVESTIGATION

In general, the suitable, *in-situ**, native soils and certified engineered fill are acceptable for foundation purposes and display engineering properties adequate for the anticipated soil pressures, providing the recommendations in this report are followed.

Special Recommendations

It is recommended that all loose and disturbed soils be processed as engineered fill within the building envelope and for any portion of development to receive ongrade engineered structures, eg. interior floor slabs, pavement, etc.. The minimum depth of processing is to include the upper 2 feet of *in-situ** soils. The depth is to be increased, as necessary, to provide a minimum of one foot of engineered fill below all foundations and process all required soils.

As observed in the exploratory drilling, portions of the soil column is comprised of clays of medium plasticity. Although expansivity of these soils has not been observed in local structures or site features, improper treatment of these clays may result in unacceptable behavior and some precaution is economically warranted.

Where foundations will be supported by clay or clayey soils, it is recommended that all new foundations be embedded a minimum of 2.0 feet below grade to reduce the influence from volume change due to moisture variation.

Another potential for expansivity is in allowing clayey soils, exposed by excavation and which are to be covered by foundations or slabs, to dry and not be re-saturated prior to placement of concrete. Therefore it is recommended that all exposed clays which are to be covered by either the foundations or slabs be kept at 3 percent above optimum moisture content and be well saturated prior to placement of covering or concrete.

Where a clayey subgrade is dessicated it is recommended that the clay be processed as engineered fill to the full depth of dessication.

The base of all excavations and over-excavations are to be inspected by the Soils Engineer prior to further processing, steel or form placement.

Any further site activity, especially grading and foundation excavations, should be under the direction of a qualified Soils Engineer or their Representative.

Should the spectrum of development change, this office should be notified so that additional recommendations can be made, if necessary.

^{*} Suitable, *in-situ*, native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Foundations and Footings

Geotechnical evaluation indicates that square, round, and continuous spread footings are satisfactory types of support. The minimum embedment for shallow, spread foundations is 12 inches for single stories and 18 inches for two stories into suitable, *in-situ**, native soils or certified engineered fill. Embedment depths do not take into account the loose upper top soils, disturbed soils or any other unacceptable soils which exist at the site, e.g., any un-engineered fill, landscaping soils, etc.

VERTICAL SOIL PRESSURES1				
FOOTING TYPE	DEAD LOAD, kips/ft²	DEAD + LL, kips/ft²		
Spread & Isolated	2.0	2.7		
LATE	RAL SOIL PRESSURES			
TYPE	VALUE, lbs/ft²			
Active Earth Pressure	32 lbs/ft³ (Equivalent Fluid Pressure)			
Restrained Earth Pressure	54 lbs/ft³ (Equivalent Fluid Pressure)			
Selsmic	2 lbs/ft³xH² applied at 0.6H			
Friction at Base	0.30 × Dead Load			
Passive Earth Pressure	275 lbs/ft³ × H² NOTE2			
Uplift Friction	140 lbs/ft² × H			

Notes: LL = Live Load; DL = Dead Load; H = Vertical height of material retained.

One-third increase to be allowed for wind and seismic forces.

Pile and Pier foundation information is not provided as none are required or proposed. All foundation excavations are to be cleaned of debris and loose or otherwise unsuitable soils prior to placement of concrete.

¹ For depths into acceptable native materials or engineered fill.

² Excludes near surface 0.5 feet of *in-situ* soils.

^{*} Suitable, *in-situ*, native soils are those soils which are in-place as deposited by nature and have characteristics adequate for support of the intended load or application.

Slabs-on-Grade

All slabs should be constructed over a prepared sub-grade placed on suitable *in-situ** native material or certified engineered fill. The sub-grade materials should be observed and accepted by a qualified Soils Engineer or their representative prior to placement of forms, reinforcing or concrete..

On-grade slabs, which are to receive impervious cover or where transmission of water vapor through the slab is not desirable, should be placed over a moisture vapor barrier consisting of a waterproof membrane (Moist Stop, 10 mil Visqueen, or equal) with a 2 inch protective sand cover. The waterproof membrane should be placed over a capillarity break consisting of 4 inches of open graded rock; round and sub-round rock is recommended to prevent puncture of the membrane. Open graded crushed aggregate may be utilized, provided the vapor barrier is protected from puncture by a cushion of filter fabric (Mirafi 140N or equal) laid over the aggregate prior to placement of the membrane. Where such concerns are not warranted, alternative underlayment may be utilized at the owners discretion.

All care and practice required to prevent puncture of the membrane during placement and pouring of covering slabs should be utilized during construction. Unless otherwise required for structural purposes, all slabs should be reinforced with a minimum of No.4, Grade 40, deformed steel reinforcing bar, 24 inches o.c., each way, to prevent separation and displacement in cases of cracking.

* Suitable, *in-situ*, native soils are those soils which are in-place as deposited by nature and have characteristics acceptable for support of the intended load or application.

Specifications for Rock Under Floor Slabs

Definition: Graded gravel of crushed rock for use under floor slabs shall consist of a minimum thickness of mineral aggregate placed in accordance with these specifications and in conformance with the dimensions shown on the project plans. The minimum thickness is specified under the section Slabs-on-Grade above.

Material: The mineral aggregate for use under floor slabs shall consist of broken stone, crushed or uncrushed gravel, quarry waste, or a combination thereof. The aggregate shall be free from adobe, vegetable matter, loam, volcanic tuff, and other deleterious substances. It shall be of such quality that the absorption of water in a saturated dry condition does not exceed 3 percent of the oven dry weight of the sample.

Grading: The mineral aggregate shall be of such size that the percentage composition by dry weight as determined by the use of laboratory sieves, U.S. Standard, in compliance with ASTM C 136-06, Standard Method for Sieve Analysis of Fine and Coarse Aggregates, will conform to the following grading specification:

SIEVE SIZE	PERCENTAGE PASSING SIEVE
3/4 inch	100 %
No. 4	0 - 10 %
No. 200	0 - 2 %

Placing: Sub-grade upon which gravel or crushed rock is to be placed shall be prepared as outlined in the Recommended Grading Specifications. In addition, the Sub-grade shall be kept moist so that no drying cracks appear prior to pouring slabs. If cracks appear, Sub-grade shall be moistened until cracks close.

Slope Ratio and Drainage

Analysis of site soils indicate that cut and fill slope ratios of 2 horizontal to 1 vertical will be satisfactory provided they are landscaped with soil retaining ground covers and are protected against concentrated over slope drainage.

Surface Drainage and Erosion Control

Design and construction of the project should fit the topographic and hydrologic features of the site. It is important to minimize unnecessary grading of or near steep slopes. Disturbing native vegetation and natural soil structure allows runoff velocity and transport of sediments to increase.

General surface drainage should be retained at low velocity by slope, sod or other energy reducing features sufficient to prevent erosion, with concentrated over-slope drainage carried in lined channels, flumes, pipe or other erosion-preventing installations.

Runoff flows should be directed into pipes or lined ditches and then onto an energy dissipater before discharging into streams or drainage ways. De-silting should be provided as necessary and may take form of stilling basins, gravel berms, forested/vegetated screens, etc.

All concentrated roof and area drainage should be conveyed and released to the lower portions of the site below all structures and to established drainage swales. Runoff should be collected as divided as possible with points of release divorced as much as possible.

Storm runoff should never be directed to septic tank system leachfields and no collected or concentrated drainage should be allowed to discharge uncontrolled to adjacent steep slopes.

A sub-surface dispersal system **MAY NOT** be used on this site. The soils column has poor permeability and should not be relied upon for the dispersal of storm runoff.

During construction, never store cut and fill material where it may wash into streams or drainage ways. Keep all culverts and drainage facilities free of silt and debris. Keep emergency erosion control materials such as straw mulch, plastic sheeting, and sandbags on-site and install these at the end of each day as necessary.

Re-vegetate and protect exposed soils by October 15. Use appropriate grass/legume seed mixes and/or straw mulch for temporary cover. Plan permanent vegetation to include native and drought tolerant plants. Seeding and re-vegetation may require special soil preparation, fertilizing, irrigation, and mulching.

Subsurface Drains

Use of spun filter fabric is not recommended for use in construction subsurface drains as this type of fabric typically becomes clogged. Should filter fabric be necessary it is recommended that a woven fabric be used such as Mirafi Filterweave 300. Otherwise we would recommend omission of the fabric and placement of Caltrans Class 1, Type 'A" or "B" drain rock, and that any fabric only be placed near the top of the trench between the gravel and earth backfill or where the gravel extends to grade, 1 foot below finish grade.

	CLASS 1		
SIEVE SIZES	PERCENTAGE PASSING		
	TYPE A	TYPE B	
50.0-mm/2 inches		100	
37.5-mm/1.5 inches		95-100	
19.0-mm/0.75 inches	100	50-100	
12.5-mm/0.5 inches	95-100		
9.5-mm/0.415 inches	70-100	15-55	
4.75-mm/No. 4	0-55	0-25	
2,36-mm/No. 8	0-10	0-5	
75.0-µm/No.200	0-3	0-3	

General Grading Recommendations

For those items not directly addressed, it is recommended that all earthwork be performed in accordance with the following.

<u>General:</u> This item shall consist of all clearing and grubbing; preparation of land to be filled; excavation and fill of the land; spreading, compaction and control of the fill; and all subsidiary work necessary to complete the graded area to conform with the lines, grades and slopes as shown on the approved plans.

The Contractor shall provide all equipment and labor necessary to complete the work as specified herein, as shown on the approved plans as stated in the project specifications.

<u>Preparation:</u> Site preparation will consist of clearing and grubbing any existing structures and deleterious materials from the site, and the earthwork required to shape the site to receive the intended improvements, in accordance with the recommended grading specifications and the recommendations as provided above.

All vegetable matter, irreducible material greater than 4 inches and other deleterious materials shall be removed from the areas in which grading is to be done. Such materials not suitable for reuse shall be disposed of as directed.

After the foundation for fill has been cleared, it shall be brought to the proper moisture content by adding water or aerating and compacting to a Relative Compaction of not less than 90% or as specified. The soils shall be tested to a depth sufficient to determine quality and shall be approved by the Soils Engineer for foundation purposes prior to placing engineered fill.

General Fill: General fill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 90% Relative Compaction. Native soils accepted for fill or existing aggregate fill may be used for fill purposes provided all aggregate larger than 6 inches are removed. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Each layer shall be compacted to a Relative Compaction of not less than 90% or as specified in the soils report and on the accepted plans. Compaction shall be continuous over the entire area of each layer.

The selected fill material shall be placed in layers which, when compacted, shall not exceed 6 inches in thickness. Each layer shall be spread evenly and shall

be thoroughly mixed during the spreading to ensure uniformity of material in each layer. Fill shall be placed such that cross fall does not exceed 1 foot in 20 unless otherwise directed.

When fill material includes rock or concrete rubble, no irreducible material larger than 4 inches in greatest dimension will be allowed except under the direction of the Soils Engineer.

Imported Materials: Materials imported for fill purposes shall be classified as: SAND, group symbol SW, SP, SC or SM, as given in ASTM 2487-10, "The Classification of Soils For Engineering Purposes." In all cases the portion finer than the No. 200 sieve shall not contain any greatly expansive clays and shall be free from vegetable matter and other deleterious materials. The material for engineered fill shall be approved by the Soils Engineer before commencement of grading operations.

Structural Backfill: Trench, wall and structural backfill shall be placed only on approved surfaces, as engineered fill, and shall be compacted to 95% Relative Compaction. Materials imported for backfill purposes shall have a Sand Equivalent of no less than 30 and shall be classified as Clean Sands as designated in "The Classification of Soils For Engineering Purposes" (ASTM 2487-10).

<u>Pavement Grades</u>: All pavement grades shall be of uniform thickness, density and moisture prior to placement of the next grade. Flexure of each or all grades shall not exceed 0.25 inches in 5 feet under an axial load of 18.5 kip.

<u>Aggregate Base Course:</u> All aggregates used for specified base courses, shall be handled in a manner which prevents segregation and non-uniformity of gradation.

<u>Compaction:</u> All re-compacted soils and/or engineered fill should be placed at a minimum 90% Relative Compaction or at the value required for that portion of the work. All pavement sections should be compacted to a minimum of 95% Relative Compaction.

Field density testing shall be completed by the Soils Engineer on each compacted layer or as determined by the Soils Engineer. At least one test shall be made for each 500 cubic yards or fraction thereof, placed with a minimum of two tests per layer in isolated areas. Where a sheeps'-foot roller is used, the soil may be disturbed to a depth of several inches. Density tests shall be taken in compacted materials below the disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof, is below the required density,

that particular layer or portion shall be reworked until the required density has been obtained.

Moisture: During compaction moisture content of native soils should be that consistent with the moisture relative to 95% Relative Compaction and in no case should these materials be placed at less than 3 percent above the specific optimum moisture content for the soil in question. The engineer may elect to accept high moisture compacted soils provided the materials are at 95% Relative Wet Density at that moisture content.

The moisture content of the fill material shall be maintained in a suitable range to permit efficient compaction. The Soils Engineer may require adding moisture, aerating, or blending of wet and dry soils.

All earth moving and work operations shall be controlled to prevent water from running into and pooling in excavated areas. All such water shall be promptly removed and the site kept drained.

<u>Tests:</u> All materials placed should be tested in accordance with the Compaction Control Tests: "Density of Soil In-Place by Sand Cone Method" (ASTM D-1556-07), "Moisture-Density Relationship of Soils" (ASTM D-1557-09), and "Density of Soils In-Place by Nuclear Method" (ASTM D-6938-10).

The standard test used to define maximum densities of all compaction work shall be the A.S.T.M. D-1557-09, Moisture Density of Soils, using a 10-pound ram and 18-inch drop. All densities shall be expressed as a relative density in terms of the maximum density obtained in the laboratory by the foregoing standard procedure.

<u>Deleterious Materials:</u> Materials containing an excess of 5% (by weight) of vegetative or other deleterious matter may be utilized in areas of landscaping or other non-structural fills. Deleterious material includes all vegetative and non-mineral material, and all non-reducible stone, rubble and/or mineral matter of greater than 6 inches.

Over-Excavations: Over-excavations, when required, should include the foundation and pavement envelopes. Such excavations should extend beyond edge of development a minimum of 5 feet and to an imaginary line extending away and downward at a slope of 45 degrees from the edge of development. The process shall include the complete removal of the required soils and subsequent placement of engineered fill. After removal of the soils to the required depth, the base of the excavation shall be inspected and approved by the Soils Engineer or his representative prior to further soils processing or

placement. Based on this inspection other recommendations may be made.

Existing Conditions: In developed areas underground utilities may be located within the area of proposed construction. In addition, buried objects or deeply disturbed soils may also be encountered. As such all care and practice is to be exercised to observe for and locate any such objects. Where these objects are to be removed or use discontinued, they are to be removed in their entirety and all disturbed soils are to be processed as engineered fill.

<u>Key:</u> All fills on slopes greater than 1 vertical to 6 horizontal shall be keyed into the adjacent soil. The toe of all slopes should be supported by a key cut a minimum of 3 feet into undisturbed soils to the inside of the fills toe. This key should be a minimum of 6 feet in width and slope at no less than 10% into the slope. In addition, as the fill advances up slope benches, 3 feet across, should be scarified into the fill/undisturbed soil interface.

<u>Seasonal Limits:</u> When the work is interrupted by rain, fill operations shall not be resumed until field tests by the Soils Engineer indicate that the moisture content and density of the fill is as previously specified and soils to be placed are in suitable condition

<u>Unusual Conditions:</u> In the event that any unusual conditions are encountered during grading operations which are not covered by the soil investigation or the specifications, the Soils Engineer shall be immediately notified such that additional recommendations may be made.

LIMITATIONS AND UNIFORMITY OF CONDITIONS

The recommendations of this report are based on our understanding of the project as represented by the plans, and the assumption that the soil conditions do not deviate from those represented in this site soils investigation. Therefore, should any variations or undesirable conditions be encountered during construction, or if the actual project will differ from that planned at this time, GRICE ENGINEERING INC. should be notified and provided the opportunity to make addendum recommendations if required.

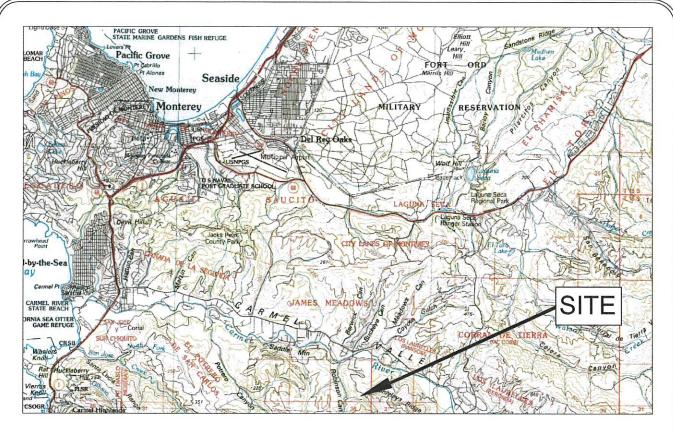
NOTIFY:	GRICE ENGINEERING INC.	SALINAS	(831) 422-9619
	561-A Brunken Avenue	MONTEREY	(831) 375-1198
	Salinas, California 93901	FAX	(831) 422-1896

This report is issued with admonishment to the Owner and to his representative(s), that the information contained herein should be made available to the responsible project personnel including the architects, engineers, and contractors for the project. The recommendations contained herein should be incorporated into the plans, the specifications, and the final work.

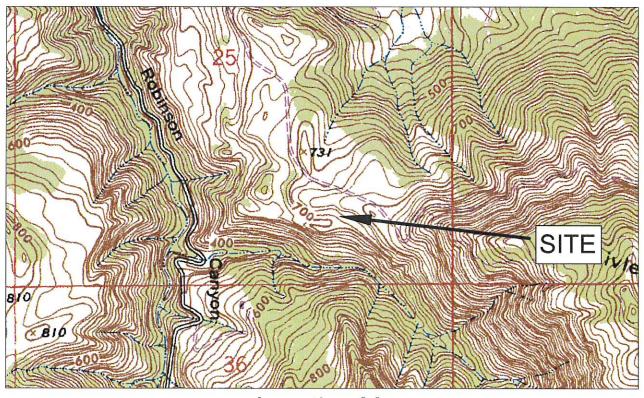
It is requested that GRICE ENGINEERING INC. be retained to review the project grading and foundation plans to ensure compliance with these recommendations. Further, it is the position of GRICE ENGINEERING INC. that work performed without our knowledge and supervision, or the direction and supervision of a project responsible professional soils engineer renders this report invalid.

It is our opinion the findings of this report are valid as of the present date, however, changes in the Codes and Requirements can occur and change the recommendations given within this report concerning the property. In addition changes in the conditions of a property can occur with the passage of time, due either to natural processes or to the works of man and may effect this property. In addition, changes in **standards** may occur as a result of legislation, or the broadening of knowledge, and these changes may require re-evaluation of the conditions stated herein. Accordingly, the findings of this report may be invalidated wholly, or partially, by changes beyond our control. Therefore, this report is subject to review and should not be relied upon after a period of https://howers.new.org/ changes in the Codes and Requirements can occur and change the recommendation of time, due to the property. In addition, changes in the passage of time, due either to natural processes or to the works of man and may effect this property. In addition changes in the property of the property. In addition the property of the property. In addition change in the property of the property. In addition occur and change the property. In addition occur and change in the property. In addition occur and change the property. In addition occur and change in the property of the property. In addition occur and change the property of the property. In addition occur and change the property occur and occur an

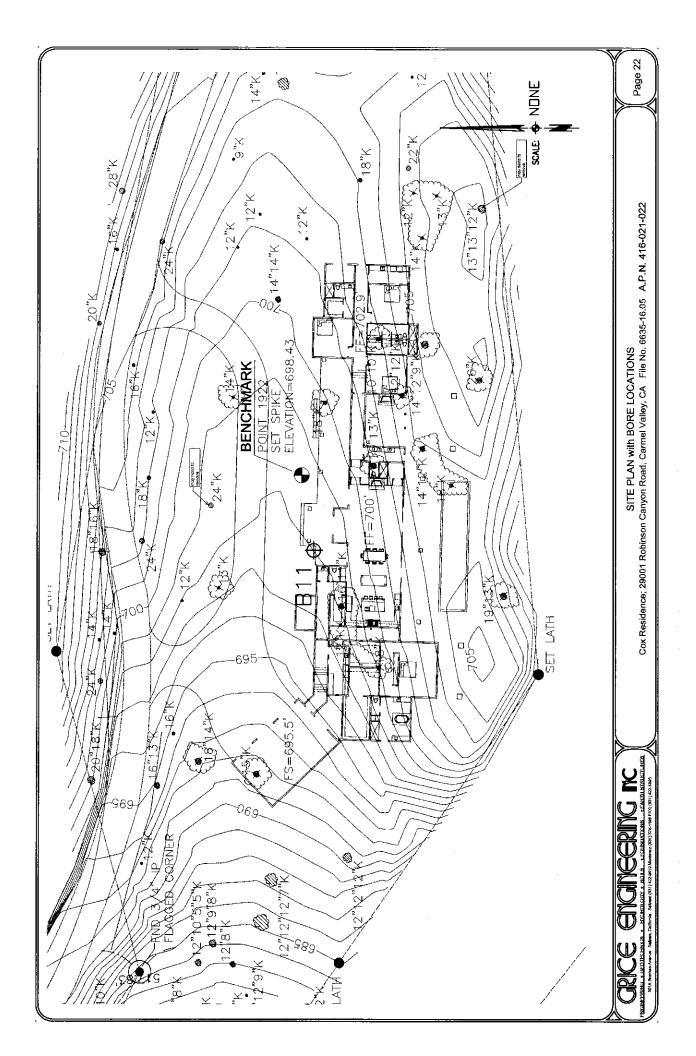


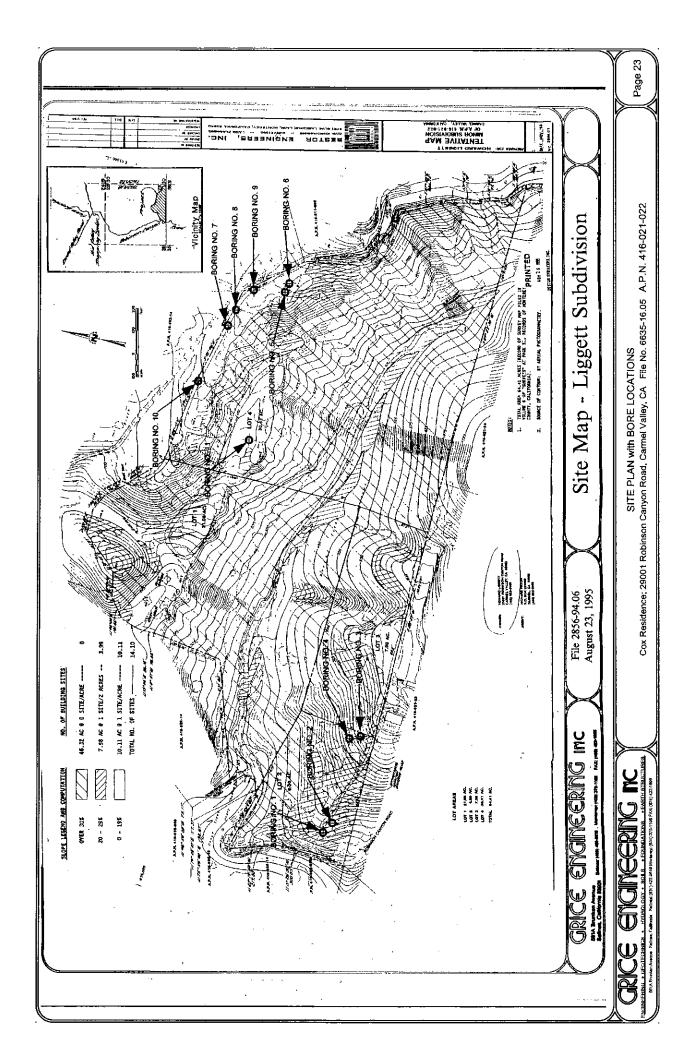


Vicinity Map



Location Map





APPENDIX B

Date Drilled :	1 August 16, 1995 See Location Map	File No. 2856-94.06 August 23, 1995 Page No. 1
D S Descr 0.0- SP -	i <u>ption and Notes</u> Dark grey; SAND; fine to medium some: silt dry; r	moderately firm.
- SM -	Yellowish brown; SAND; fine to coarse some to m gravels; fine moist; moderately firm.	oderate: silt trace:
2.5 - ML -	Light greenish grey; SILT; friable; low plasticity so sand; fine to medium moist; moderately firm.	me to moderate;
5.0		
7.5 - SM -	Yellowish brown; SAND; fine to coarse some: silt gravels; fine slightly moist: moderately firm	trace to some:
10.0-		
12.5		
- GP -	14.0 to 15.5: Rough drilling; hard, discontinous ma large gravels.	terial. cobbles and
15.0 - ML -	Light greenish grey; SILT; friable; low plasticity so sand; fine to medium moist; moderately firm.	me to moderate;
17.5 - GP -	18.0 to 19.5: Rough drilling; hard, discontinous ma large gravels.	terial. cobbles and
20.0		
22.5	End of Boring @ 24.0 feet. No free groundwater en backfilled.	ncountered. Hole

Boring No. Date Drilled Location	: 2 : August 16, 1995 : See Location Map	File No. 2856-94.0 August 23, 199 Page No. :
D S Desc 0.0- SM -	ription and Notes Dark grey; SAND; fine to medium some	e: silt dry; moderately firm.
2.5 - 5.0	Yellowish brown; SAND; fine to coarse gravels; fine moist; moderately firm.	•
7.5- CL - - SM -	Yellowish brown; CLAY; friable; medium medium trace: sand; coarse moist; mo Yellowish brown; SAND; fine to coarse gravels; fine moist; moderately firm.	oderately firm.
10.0	End of Boring @ 10.0 feet. No free groulined for percolation testing.	undwater encountered. Hole
12.5 15.0 17.5 20.0 22.5		
25.0		

Boring No. Date Drilled Location	: 3 : August 16, 1995 : See Location Map	File No. 2856-94.06 August 23, 1995 Page No. 3
D S Descri	ption and Notes Dark grey; SAND; fine to medium some: silt dry;	slightly firm.
- CL -	Yellowish brown; CLAY; friable; medium plasticity medium trace: sand; coarse moist; moderately fir	some; sand; fine to m.
2.5 - CL -	Reddish brown; CLAY; friable; medium plasticity r to medium slightly moist; moderately firm.	moderate; sand; fine
5.0- SM -	Light greenish grey; SAND; fine to medium; some some: silt moist; moderate to very firm.	coarse trace to
	7.0-8.5 feet, rough, large gravels?.	
7.5 		
10.0- ML -	Dark brown; SILT; low plasticity; friable some: sar trace mica slightly moist; moderate to very firm.	nd; fine to medium
: :		
12.5		
15.0		
17.5 	End of Boring @ 19.0 feet. No free groundwater en	ncountered. Hole
20.0	lined for percolation testing.	
22.5		
 25.0		

Boring No. Date Drilled Location	: 4 : August 16, 1995 : See Location Map	File No. 28 August Pa	56-94,06 23, 1995 ge No. 4
D S Descri 0.0- SM - - SC - - CL - 2.5 - SC - - SC - - SC - - SC - 	Reddish brown; SAND; fine clay moist; moderate to ver Reddish brown; CLAY; friab to medium slightly moist; m	le; medium plasticity moderate; sai oderately firm. e to medium; some coarse trace to	nd; fine
7.5- SM -	Light greenish grey; SAND; some: silt moist; moderate	fine to medium; some coarse trace to very firm.	to
10.0	End of Boring @ 10.0 feet. lined for percolation testing.	No free groundwater encountered.	Hole
12.5			
15.0			
17.5			
20.0-			
22.5-			
25.0-			

Boring No. Date Drilled Location	: 5 : August 16, 1995 : See Location Map	File No. 2856-94.06 August 23, 1995 Page No. 5	
D S Description	ription and Notes Dark grey; SILT; friable; low plastici dry; slightly firm.	ty some: sand; fine to medium	
- CL - 2.5	Strong brown; CLAY; friable; mediu medium moist-slightly damp; mode	own; CLAY; friable; medium plasticity some; sand; fine to moist-slightly damp; moderately firm.	
- SM - - 5.0	Yellowish brown; SAND; fine to med moist; moderately firm.	dium; some coarse some: silt	
- SM - 7.5 	Brownish yellow; SAND; very-fine to damp; moderately firm.	o fine some to moderate: silt very	
10.0- CL -	Olive brown; CLAY; very stiff; media damp; moderately firm.	um plasticity trace; sand; fine very	
25.0-	End of Boring @ 24.0 feet. No free backfilled	groundwater encountered. Hole	

Boring No. Date Drilled Location	: 6 : August 16, 1995 : See Location Map	File No. 2856-94.0 August 23, 199 Page No.
D S Desc	ription and Notes Dark grey; SILT; friable; low plasticity so dry; slightly firm.	ome: sand; fine to medium
- CL - 2.5	Strong brown; CLAY; friable; medium pla fine damp; moderately firm.	asticity trace to some; sand;
5.0-		
7.5		
- SM - 	Light grey; SAND; fine to medium some	e: silt moist; moderately firm.
10.0 - SM - 12.5	Brownish yellow; SAND; very-fine to mee moderately firm.	dium some: silt damp;
15.0-	End of Boring @ 15.0 feet. No free ground lined for percolation testing.	ndwater encountered. Hole
17.5		
20.0-		
22.5		
25.0		

Boring No. Date Drilled Location	: 7 File No. 2856-94 : August 16, 1995 August 23, 19 : See Location Map Page No.	
D S Description	ription and Notes Dark yellowish brown; CLAY; friable; r fine damp; moderately firm.	nedium plasticity trace; sand;
- SM - 2.5	Yellowish brown; SAND; very-fine to fi moderately firm.	ine some: silt moist;
12.5 15.0 17.5	End of Boring @ 11.5 feet. No free gralined for percolation testing.	oundwater encountered. Hole
20.0		

Boring No. Date Drilled	; 8 : August 16, 1995	File No. 2856-94.06 August 23, 1995
Location	: See Location Map	Page No. 8
	ription and Notes	
0.0- CL -	Dark grey; CLAY; friable; medium p moderately firm.	plasticity trace; sand; fine moist;
	Same: very stiff; damp.	
2.5		
- CL -	Yellowish brown; CLAY; friable; me	dium plasticity damp; moderately
5.0	firm.	
CL -	Yellowish brown; CLAY; friable; me	dium plasticity some: sand; fine
7.5	damp; moderately firm.	
10.0	011 1 01 11 11 11	
- CL -	Olive brown; CLAY; friable; medium fine damp; moderately firm.	n plasticity trace to some; sand;
	,,	
 12.5		
45.0	Fod of Dodge O 45 0 to at No for	
15.0 	End of Boring @ 15.0 feet. No free lined for percolation testing.	groundwater encountered. Hole
17.5		
20.0		
22.5		
25.0		

Boring No. Date Drilled Location	: 9 : August 16, 1995 : See Location Map	File No. 2856-94.06 August 23, 1995 Page No. 9
D S Descr	iption and Notes	
0.0- CL -	Dark grey; CLAY; friable; media	um plasticity trace; sand; fine moist;
CL -	moderately firm.	andium planticitul dampu moderately
 	firm.	nedium plasticity damp; moderately
		
2.5		
- CL -	Yellowish brown: Cl AV: friable	; medium plasticity some: sand; fine
	damp; moderately firm.	, median plasticity some, sand, inte
	•	
5.0		
7.5		
7.5		
10.0-	End of Boring @ 10.0 feet No.	free groundwater encountered. Hole
	lined for percolation testing.	nee groundwater encountered. Trote
	,	
12.5		
15.0		
17.5		
20.0		
22.5		
25.0- <i>-</i>		
_5.0		

Boring No.	: 10	File No. 2856-94.06
Date Drilled Location	: August 16, 1995 : See Location Map	August 23, 1995 Page No. 10
	•	. 430 1101 70
	ription and Notes	nodium planticitul trace; cond. final moiet:
0.0- CL -	moderately firm.	nedium plasticity trace; sand; fine moist;
	·	
- SM -	Yellowish brown; SAND; v	ery-fine to fine some: silt moist;
2.5	moderately firm.	
5.0		
_ -		
7.5		
10.0		
7 -		
- -	End of Boring @ 12.0 foot	No free groundwater encountered. Hele
12.5	lined for percolation testing	. No free groundwater encountered. Hole
		,
15.0		
17.5		
20.0		
22.5		
25.0		

Boring No. Date Drilled Location	: 11 : August 16, 1995 : See Location Map	File No. 2856-94.06 August 23, 1995 Page No. 11
D S Descri	iption and Notes Dark brown; SAND; very-fine t moderately firm.	o fine some to moderate: silt moist;
- CL - 2.5	Dark reddish brown; CLAY; ve fine damp; moderately firm.	ry stiff; medium plasticity some; sand;
5.0 		
- SM - 7.5	Yellowish brown; SAND; very- moderately firm.	ine to fine some: silt moist;
10.0		
12.5 		
15.0	End of Boring @ 14.5 feet. No lined for percolation testing.	free groundwater encountered. Hote
17.5		
20.0		
22.5		
 25.0		

Above "A" line with Pl between 4 and 7 are borderline cases requiring use of dual symbols Above "A" line with Pt between 4 and 7 are borderfine cases requiring use of duel symbols Between one and 3 Not meeting all gradation requirements for GW Not meeting all gradation requirements for SW LABORATORY CLASSIFICATION CRITERIA Greater than 4 Between one and 3 Greater than 6 Atterberg limits below "A" line or Pt less than 4 Atterberg limits below "A" line or Pt less Atterberg limits above "A" line or Pl greater than 7 3 Atterberg Ilmits above "A" | greater than 7 $C_u = \frac{D_{00}}{D_{10}}$ $C_v = \frac{(D_{10})^2}{(D_{10} \times D_{00})^2}$ C₀ = D₀₀ C₀ = (D₁₀) C₀ = (D₁₀) than 4 GW, GP, SW, SP GM, GC, GW, SD Borderfline cases requiring use of dual symbols, UNIFIED SOIL CLASSIFICATION & ASTM D2487: INCLUDING IDENTIFICATION AND DESCRIPTION #3 mentlessed #31 mentlessed #31 od #3 elemine percelages of gravel and sand from grain also curve. epending on percentage of fines (traciln emailer than No. 200 slave ze) coarea grained solls are classified as follows: examle GW-GC, well graded gravel-sand mixture with clay binder. Use grain size curve in identifying the fractions as given under field identification. Give typical name, indicate degrae and character of pleatitive, amount and mercinam size of course garies, solor in wet conditions, coor if any, local or geologic name, and other partition to descriptive information, and symbol in parentheses. INFORMATION REQUIRED FOR DESCRIBING SOILS Give typical name, indicate approximate percentiges of standard and gravel, max. stars, and and gravel, max. stars, and and gravel, max. hardness of the coarse grains, local or geologic name and other pertinent descriptive information, and symbol in parentheses. Silty Sand, gravelly, about 20% herd, anguler gravel, particles § inch maximum size, rounded and subenguler sand grains coarse to fine, about 15 % non-pastic fines with low dry strength, well compacted and most in place, elluvitis sand; (5%). Clayey allt, brown, slightly plestic, smell percentage of fine send, numerous vertical root holes, firm and dry in place, losse; (ML). For undisturbed soils add information of structure, stratification, consistency in undisturbed and remolded states, moisture and drainage conditions. For undisturbed soils add Information stratification, degree of comperchaes, cementation, moisture conditions and drainage characteristics. EXAMPLE **EXAMPLE:** Inorganic sits, micaceous or distomaceous fine sendy or sity soils, elestic sits, Clayey gravels, poorly graded gravel-sand-clay mixtures. Poorly graded gravels, gravel-send mixtures, little or no fines. norganic clays of low to medium plasticity, gravelly clays, sandy clays, sify clays, lean clays. little or no Poorly graded sands, gravelly sands, little or no fines. Sity gravels, poorly graded gravel-sand-sit mixtures, ailty or Well graded sands, gravelly sands, little or no fines. Organic silts and organic silt-clays of low plasticity. , poorly graded sand-clay mixtures. Sity sends, poorly graded sand-sit mixtures Organic days of medium to high plasticity. acteristics of two groups are designated by combinations of group symbols. Inorganic clays of high plasticity, fat clays Inorganic silts and very vine sands, rack flour, clayey fine sands withg slight plasticity. Peat and other highly organic soils. Well graded gravels, gravel-sand mixtures, I fines. TYPICAL NAMES Clayey sands, δ¥ ပ္ပ λS Ф ₹ ပ္တ ₹ ಠ Ξ 끙 ᇹ ß S 겁 ď Wide renge in grain size and aubstantial amounts of all intermediate particle sizes. Wide range in grain sizes and substantial amounts of all intermediate particle sizes. Slight to medium Slight to medium Non-plastic fines (for identification procedures see ML Readly identified by color, odor, spongy feel and frequently by fibrous texture. FIELD IDENTIFICATION PROCEDURES Excluding particles larger than 3 inches and basing fractions on estimated weights with some Plastic fines (for identification procedures see CL below). Medium procedures see CL Slight None ion-plastic fines (for idendification procedures see below). 를 Predominatly one size or a range of sizes with intermediate sizes missing. Predominatly one size or a range of sizes intermediate sizes missing. Boundary classifications: Soils possessing ch All sieve sizes on this chart ere U.S. Standard. None to very alow None to very slow Quick to slow Slow to none Plastic fines (for identification below). None Slow Sight to medium High to very high Medium to high Medium to high None to slight GRAVELS WITH FINES (Appreciable mount of fines) SANDS WITH FINES (Appredable smount of fines) (FIETE OCUDO CETEVA CETEVA SONAS NABLO on to ethil) (senti HIGHLY ORGANIC SOILS 03 nedt 09 Liquid limit less than Liquid limit greater SQNAS Mose than helf of coarse fraction Mose than helf of several sizes axis evels to form that helpens sizes SILTS AND CLAYS SIFTS AND CLAYS GRAVELS More than half of coarse fraction is larger than No. 4 sleve size (The No. 200 sleve size is about the smallest particle visible to the naked eye) evels 000 , oM nath **relarns** at labelem to that death eroM. exie More than half of material is target than No. 200 sleve as as FINE GRAINED SOILS COARSE GRAINED SOILS

PIELD IDENTIFICATION PROCEDURES FOR FINE GRAINED SOILS OR FRACTIONS

These procedures are to be performed on the minus No. 40 sleve size particles, approximately ginches. For fault clessification purposes, screening is not intended; simply remove by hands the coarse particles that interfere with the test.

DRY STRENGTH (Cruehing characteristics) After removing portions isrger than No. 40 sieve aize, prepare a pot of motel soil with a volume of about one-half cubic inch. Add ensough water if necessary to make the soil soft but not deficity.

DILATANCY (Reaction to shaking)

After removing particles larger then No. 40 sieve size, maid a part of soil to the consistency of putty, a softig water freedeauty, because and other larger them has a softig water for the consistency of putty, and softig water for the season to be sometime and the larger and the softig sould be softig and containing between the filtered. This strength is a measure of the character and qualify of the collected fraction contained in the soil. The dry strength increases with increases with

High dry atength is characteristic for clays of the CH group. A typical horganic still possesses only very slight for where the clay and the characteristic strength, but can be expensible to the new about the name slight dry atength, but can be expensibled by the few when producing the dired specimen. The sand feeling rithy whereas a typical silt has the amouth feel of flour.

TOUGHNESS (Consistency near plastic limit)

After reproving interfects arrays that the No. 40 see a first a separation of doil about on-half inch orbe in the is modified to the consideracy of page, I too do, water mast he added and I stock; the aperiment of the separation is that the interfect of the separation. Then the aperimen arrays are at all the separation is a smooth separation of these than the separation of the separation

After the thread crumbles, the pieces should be lumped together and a slight kneading action continued until the lump crumbles.

The tougher the thread near the plastic limit and the stiffer the lung when it maily cumities, the more point it is the collicial day fraction to the soil. Weakness of the freed at the plastic limit and quick loss of nearest or the tupp below to plastic limit indicate abler inorganic day of low plasticity, or materials and is also licyper days and organic days which occare bolow the Admis.

righly organic clays have a very weak and spongy feel at the pleatic limit

Place the pot in the open palm of one hand and shake horizontally, arthology dyporously against be been knot every effect, postilet sealer or contain of the appearance of visits or the antitize of the post which changes is a fively consideraby and becomes glossy. When the post settle is the post which changes is a fively consideraby and becomes glossy. When the post settle is appearance of the post which changes is a fively consideraby and becomes glossy. When the post settle is appearance from the same as a fine as appearance for an article for a settle is a defined by the changes of turning the discipling the appearance of the what the fines in a soil.

Very fine clean sands give the quickes and most distinct reaction whereas a plastic clay has no reaction. Inorganic sits, such as a typical rock flour, show a moderately quick reaction.

CORPS OF ENGINEERS AND BUREAU OF RECLAMATION JANUARY 1882.

DOPTED BY:

Sellness (831) 422-0619 Manharay: (831) 375-1196 FAX: (831) 422-1806

SOIL CLASSIFICATION CHART conforms to Unified Soils Classification and ASTM D2487

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