THE WARREN GROUP
ARCHITECTS INC.

1801 South 2nd Street, Ste. 330 McAllen, TX 78503

Addendum No. 1

DATE: Thursday, May 30, 2019

PROJECT: Tropical Texas Behavioral Health-Ambulatory Service Facility

PROJECT NO: 1591801

LOCATION: 871 Old Alice Road, Brownsville, Texas 78520

FROM: Laura N. Warren, The Warren Group Architects, Inc.

The following revisions and clarifications shall be considered part of the record contract documents dated May 17, 2019 for the above referenced project and included in the contract amount. All general notes and specifications shall apply to this addendum. Where provisions of the following supplementary data differ from those of the original Contract Documents, this Addendum shall govern and take precedence.

The following scope adjustments have been made. Please adjust bids with the following noted changes:

Specifications

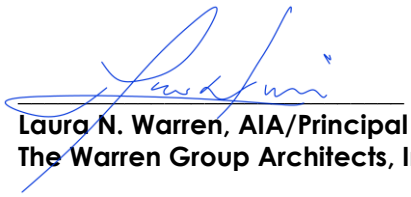
Item No. 1: *Refer to Project Manual dated May 17, 2019.* **Spec Section 00 01 15 List of Drawing Sheets ADD 1 dated May 30, 2019 has been added. Insert this section.**

Item No. 2: *Refer to Project Manual Section 00 31 32 Geotechnical Report dated 05/17/2019.* ***Refer attached 8.5"x11" Geotechnical Engineering Report from MEG Engineers dated April 25, 2019. Insert this Report.***

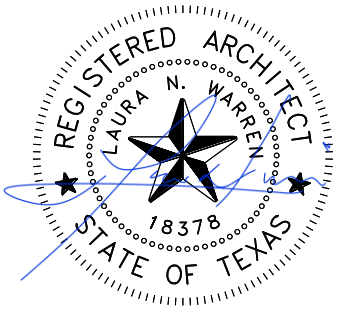
Drawings

Item No. 3: *Refer sheets A5.12, A5.13 Door and window details and sheets A6.21, A6.22 Door and Window Schedules.* ***General Contractor to provide and install all required bracing and anchoring at all exterior doors and windows to meet the requirements for the Texas Windstorm Insurance Association (TWIA) and Texas Department of Insurance (TDI). Exterior doors and windows must be TWIA and TDI Certified accordingly.***

ISSUED BY:



Laura N. Warren, AIA/Principal
The Warren Group Architects, Inc.



Attachments:

PDF Format – 8.5"x11" List of Drawing Sheets ADD 1 dated 05/30/2019
PDF Format – 8.5"x11" Geotechnical Report dated 04/25/2019
PDF Format – 30"x42" A5.12 ADD 1 dated 05/30/2019
PDF Format – 30"x42" A5.13 ADD 1 dated 05/30/2019
PDF Format – 30"x42" A6.21 ADD 1 dated 05/30/2019
PDF Format – 30"x42" A6.22 ADD 1 dated 05/30/2019

Distribution:
Bidding Vendors
Shared File

DOCUMENT 00 01 15
PROJECT MANUAL
100% CONSTRUCTION DOCUMENTS
LIST OF DRAWING SHEETS

A. Drawings: Consist of the Contract Drawings and other drawings listed on the Table of Contents page of the separately bound drawing set titled Tropical Texas Behavioral Health- Ambulatory Service Facility, 871 Old Alice Road, Brownsville, Texas 78520 dated May 17, 2019, as modified by subsequent Contract modifications.

B. List of Drawings: Drawings consist of the following Contract Drawings and other drawings of type indicated:

ARCHITECTURAL:

G0.00	COVER SHEET
G0.01	GENERAL NOTES
AD1.01	DEMOLITION SITE PLAN
AD1.11	DEMOLITION FLOOR PLAN
AD1.13	DEMOLITION ROOF PLAN
AD2.11	DEMOLITION ELEVATION
A1.01	SITE PLAN
A1.02	PARTIAL SITE PLAN
A1.03	SITE PLAN DETAILS
A1.11	OVERALL FLOOR PLAN
A1.11A	FLOOR PLAN- A
A1.11B	FLOOR PLAN- B
A1.21	REFLECTED CEILING PLAN
A1.31	ROOF PLAN
A1.41	FLOOR PATTERN PLAN
A1.42	WALL ACCENT PLAN
A2.11	EXTERIOR ELEVATIONS
A2.12	PARTIAL EXTERIOR ELEVATIONS
A3.11	WALL SECTIONS
A3.12	WALL SECTIONS
A3.13	WALL SECTIONS
A4.11	FLOOR PLAN ENLARGEMENTS
A4.12	FLOOR PLAN ENLARGEMENTS
A5.11	PLAN DETAILS
A5.12	DOOR AND WINDOW DETAILS
A5.13	DOOR AND WINDOW DETAILS
A6.01	WALL TYPES
A6.11	FINISH SCHEDULE
A6.21	DOOR & WINDOW SCHEDULES
A6.22	DOOR & WINDOW ELEVATIONS
A7.11	MILLWORK ELEVATIONS
A7.12	MILLWORK ELEVATIONS

A7.13 MILLWORK ELEVATIONS AND SECTIONS
A7.14 MILLWORK SECTIONS

CIVIL:

C100 GENERAL NOTES.SURVEY CONTROL
C101 DIMENSION CONTROL PLAN
C102 GRADING AND DRAINAGE PLAN
C103 WATER/WASTEWATER PLAN
C104 EROSION CONTROL PLAN
C105 TYPICAL DETAILS
C106 TYPICAL DETAILS
C107 TYPICAL DETAILS
C108 TYPICAL DETAILS
C109 TYPICAL DETAILS
C110 EROSION CONTROL DETAILS

STRUCTURAL:

S101 GENERAL NOTES
S102 GENERAL NOTES
S201 FOUNDATION AND FOOTING LEVELING PLAN
S202 FOUNDATION AND ROOF FRAMING PLAN
S401 TYPICAL CONCRETE DETAILS
S402 TYPICAL CMU DETAILS
S403 CONNECTION DETAILS

MEP:

DM1.01 DEMOLITION MECHANICAL FLOOR PLAN- DEMO
DE1.01 DEMO- ELECTRICAL LIGHTING FLOOR PLAN
DE1.02 ELECTRICAL POWER FLOOR PLAN- DEMO
DE1.03 DEMO- ELECTRICAL POWER FLOOR PLAN
DP1.01 PLUMBING FLOOR PLAN- DEMO
DP1.02 PLUMBING ROOF PLAN- DEMO

M1.01 MECHANICAL FLOOR PLAN
M2.01 MECHANICAL SCHEDULES
M3.01 MECHANICAL DETAILS

E1.00 ELECTRICAL SITE PLAN
E1.01 ELECTRICAL LIGHTING FLOOR PLAN
E1.02 ELECTRICAL POWER FLOOR PLAN
E1.03 ELECTRICAL- PLUMBING/ MECHANICAL EQUIPMENT LOCATION FLOOR PLAN
E2.01 ELECTRICAL LEGEND, RISER DIAGRAM AND SCHEDULES
E3.01 ELECTRICAL SCHEDULES
E4.01 ELECTRICAL PANEL SCHEDULES
E4.02 ELECTRICAL PANEL SCHEDULES
E5.01 ELECTRICAL DETAILS

P1.01	PLUMBING SEWER FLOOR PLAN
P1.02	PLUMBING HW/CW FLOOR PLAN
P1.03	PLUMBING ROOF PLAN
P2.00	PLUMBING SCHEDULES
P3.00	PLUMBING SEWER RISER DIAGRAM

END OF DOCUMENT

MEG GEOTECHNICAL ENGINEERING REPORT

PROPOSED
TTBH – AMBULATORY SERVICE FACILITY

BROWNSVILLE, CAMERON COUNTY, TEXAS

Geotechnical Engineering • Construction Materials Engineering & Testing
Environmental • Consulting • Forensics

GEOTECHNICAL ENGINEERING REPORT
FOUNDATION AND PAVEMENT RECOMMENDATIONS
PROPOSED TTBH – AMBULATORY SERVICE FACILITY
BROWNSVILLE, CAMERON COUNTY, TEXAS

Prepared For
Mr. Belford Melvin
Tropical Texas Behavioral Health

MEG Report No. 01-19-29134

April 25, 2019

MILLENNIUM ENGINEERS GROUP, INC.
TBPE FIRM NO. F-3913
5804 N. GUMWOOD AVENUE
PHARR, TEXAS 78577
TEL:956-702-8500
FAX:956-702-8140
WWW.MEGENGINEERS.COM

April 25, 2019

Mr. Belford Melvin
Tropical Texas Behavioral Health
861 Old Alice Road
Brownsville, TX 78520
Bmelvin@ttbh.org

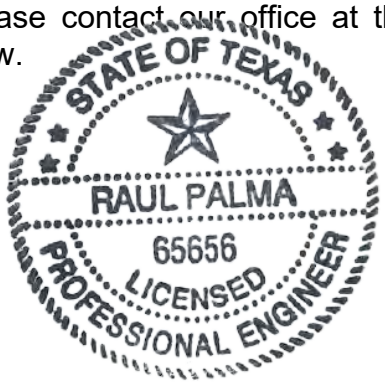
Subject: **Geotechnical Engineering Report**
MEG Report No. 01-19-29134
Foundation and Pavement Recommendations
Proposed TTBH – Ambulatory Service Facility
Brownsville, Cameron County, Texas

Dear Mr. Melvin:

Millennium Engineers Group, Inc. is pleased to submit the enclosed geotechnical engineering report that was prepared for the above subject project. This report addresses the procedures and findings of our geotechnical engineering study. Our recommendations should be incorporated into the design and construction documents for the proposed development.

We want to emphasize the importance that all our recommendations presented in this report and/or addendums to this report be followed. We look forward to continuing our involvement in the project by providing construction monitoring in accordance with the report recommendations and materials testing services during construction. We strongly recommend that we be a part of the preconstruction meeting to address any specific issues that are pertinent to this project.

Thank you for the opportunity to be of service to you in this phase of the project and we would like the opportunity to assist you in the upcoming phases of the project. If you have any questions, please contact our office at the address, telephone, fax or electronic address listed below.



Cordially,
Millennium Engineers Group, Inc.
TBPE Firm No. F-3913

Raul Palma, P.E.
President

The seal appearing on this document was authorized by Raul Palma, P.E. 65656 on April 25, 2019. Alteration of a sealed document without proper notification to the responsible engineer is an offence under the Texas Engineering Practice Act

Cc: 1 Original and PDF Document

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APPENDIX

1.0 INTRODUCTION

Millennium Engineers Group, Inc. (MEG) has completed and is pleased to submit this document that presents our findings as a result of a geotechnical engineering study of this project to our client. The project site is located at 861 Old Alice Road in Brownsville, Cameron County, Texas. The project location is shown on the Project Location Map, found in the Appendix section of this report. This report briefly describes the procedures utilized during this study and presents our findings along with our recommendation, for foundation design and construction considerations.

Our scope of services for the project was outlined in MEG proposal No. 01-19-122G, dated January 31, 2019 and approved by Mr. Terry Crocker on March 13, 2019.

2.0 PROJECT DESCRIPTION

It is our understanding that the proposed site will accommodate the construction of a new TTBH – Ambulatory Service Facility. It is also our understanding that the proposed TTBH – Ambulatory Service Facility will consist of a one (1) story structure. The site construction for the proposed structure is anticipated to be on a slab-on-grade or on-fill foundation provided expansive, soil-related movements will not impair the performance of the structure.

The site will also accommodate the construction of either a rigid or flexible pavement that will serve for light duty and/or heavy duty traffic. Both flexible and rigid pavement types are viable and the selection on the type to be used will depend on the specific needs and criteria of this project site.

3.0 SCOPE AND LIMITATIONS OF STUDY

This engineering report has been prepared in accordance with accepted geotechnical engineering practices currently exercised by geotechnical engineers in this area. No warranty, expressed or implied, is made or intended. This report is intended for the exclusive use by the client and client's authorized project team for use in preparing design and construction documents for this project only. This report may only be reproduced in its entirety for inclusion in construction documents. This report in its entirety shall not be reproduced or used for any other purposes without the written consent of our firm. This report may not contain sufficient information for purposes of other parties or other uses and is not intended for use in determining construction means and methods.

The recommendations presented in this report are based on data obtained from the soil borings drilled at this site and our understanding of the project information provided to us by our client and other project team members, and the assumption that site grading will result in only minor changes in the existing topography. Subsurface soil conditions have been observed and interpreted at the boring locations only.

This report may not reflect the actual variations of the subsurface conditions across the subject site. It is important to understand that variations may occur due to real geologic

conditions or previous uses of the site. The nature and extent of variations across the subject site may not become evident until specific design locations are identified and/or construction commences. The construction process itself may also alter subsurface conditions. If variations appear evident at the time during the design phase and/or construction phase, we should be notified immediately to determine if our opinions, conclusions and recommendations need to be reevaluated. It may be necessary to perform additional field and laboratory tests and engineering analyses to establish the engineering impact of such variations. These services are additional and are not a part of our project scope.

The engineering report was conducted for the proposed project site described in this report. The conclusions and recommendations contained in this report are not valid for any other project sites. If the project information described in this report is incorrect, is altered, or if new information becomes available, we should be retained to review and modify our recommendations. These services are additional and are not a part of our project scope.

Our scope of services was limited to the proposed work described in this report, and did not address other items or areas. The scope of our geotechnical engineering study does not include environmental assessment of the air, soil, rock or water conditions on or adjacent to the site. No environmental opinions are presented in this report. If the client is concerned with environmental risk at this project site, the client should perform an environmental site assessment.

If final grade elevations are significantly different from existing grades at the time of our field activities (more than plus or minus one (1) foot), our office should be informed about these changes. If desired, we will reexamine our analyses and make supplemental recommendations.

4.0 FIELD EXPLORATION PROCEDURES

Subsurface conditions at the subject site were evaluated by two (2) 20-foot soil borings and four (4) 5-foot soil borings. The Borings were drilled at the locations shown on the Borings Location Map, found in the Appendix section of this report. This location is approximate and distances were measured using a measuring wheel, tape, angles, and/or pacing from existing references. The structural soil borings were drilled in general accordance with American Society of Testing Materials (ASTM) D 420 procedures.

As part of our sampling procedures, the samples were collected in general conformance with ASTM D 1586 procedures. Representative portions of the samples were sealed in containers to reduce moisture loss, identified, packaged, and transported to our laboratory for subsequent testing. In the laboratory, each sample was evaluated and visually classified by a member of our Geotechnical Engineering staff. The geotechnical engineering properties of the strata were evaluated by a series of laboratory tests. The results of the laboratory and field-testing are tabulated on the boring logs and Summary of Soil Sample Analyses which are found in the Attachments section of this report.

Standard penetration test results are noted on the boring logs as blows per 12 inches of penetration. Two 6 inch increments are performed for each standard penetration test. The sum of the blows for the two 6 inch increments is considered the "standard penetration resistance value" or "N-value." Where hard or very dense materials were encountered, the tests are terminated as follows: (1) when a total of 50 blows have been applied in any of the 6 inch increments, or (2) when a total of 100 blows have been applied, or (3) when there is no observed advance of the sampler in the application of 10 successive blows. The boring logs in the case of hard or very dense materials will be noted as follows: 50/3", where 50 is the number of blows applied in 3 inches of penetration, or 100/7½" where 100 is the number of blows applied in a total of 7 ½ inches of penetration, or 10/0", where 10 is the number of blows applied in 0 inches of penetration.

Samples will be retained in our laboratory for 30 days after submittal of this report. Other arrangements may be provided at the request of the Client.

5.0 GENERAL SITE CONDITIONS

5.1 Site Description

The project site is located 861 Old Alice Road in Brownsville, Cameron County, Texas. The project location is shown on the Project Location Map, found in the Appendix section of this report. At the time of our field operations, the subject site can be described as an undeveloped tract of land. The general topography of the site is relatively flat sloping down to the south with a visually estimated vertical relief of less than 3 feet. Surface drainage is visually estimated to be poor to fair.

5.2 Site Geology

According to the Soil Survey of Cameron County, Texas, published by the United States Department of Agriculture – Soil Conservation Service, the project site appears to be located within the Olmito-Urban land complex soil association.

- The Olmito-Urban land complex series consist of deep, moderately well drained, calcareous soils, surface runoff is slow and permeability is slow, nearly level soil in areas of level to gently sloping uplands. These soils formed in calcareous clayey alluvium sediments. Slopes range from 0 to 1 percent. The corresponding soil symbol is ON, Olmito-Urban land complex.

5.3 Subsurface Conditions

On the basis of our borings, one (1) generalized strata that possess similar physical and engineering characteristics can describe the subsurface stratigraphy at this site. Table 5.1 summarizes the approximate strata range in our boring logs. These were prepared by visual classification and were aided by laboratory analyses of selected soil samples. The lines designating the interfaces between strata on the boring logs represent

approximate boundaries. Transitions between strata may be gradual details for each of the borings can be found on the boring logs in the appendix of this report.

Table 5.1. Approximate Subsurface Stratigraphy Depths.

Stratum	Range in Depth, ft[1]	Stratum Description[1]
I	0 – 20	fat CLAY, dk. brown to brown, moist to wet, soft to med. dense

Note 1: The stratum thickness and depths to strata interfaces are approximate. Our measurements are rounded off to the nearest foot increment and are referenced from ground surface at the time of our drilling activities. Subsurface conditions may vary between the boring locations.

5.4 Groundwater Conditions

The dry auger drilling technique was used to complete the soil borings in an attempt to observe the presence of subsurface water. During our drilling operations we encountered the groundwater table to be at approximately fourteen (14) feet below natural ground elevation for short term conditions. Moisture content test exhibited high moisture content at a depth of thirteen (13) feet below natural ground elevation. Table 5.2 summarizes the approximate groundwater and cave in depths measured in our explorations. It should be noted that the groundwater level measurements recorded are accurate only for the specific dates on which measurement were obtained and does not show fluctuations throughout the year.

Fluctuations in Groundwater levels are influenced by variations in rainfall and surface water run-off from season to season. The construction process itself may also cause variations in the groundwater level. If the subsurface water elevation is critical to the construction process the contractor should check the subsurface water conditions just prior to construction excavation activities.

Table 5.2. Approximate Groundwater and Cave-in Depths.

Boring No.	Depth to Subsurface Water, Ft[1]		Depth to Cave-In, Ft[1]	
	Time of Drilling	24 Hr. Reading	Time of Drilling	24 Hr. Reading
B-1	14	N/A	None	None
B-2	14	N/A	None	None
P-1	None	None	None	None
P-2	None	None	None	None
P-3	None	None	None	None
P-4	None	None	None	None

Note 1: Subsurface water levels and cave-in depths have been rounded to the nearest foot.

Based on the findings in our borings and on our experience in this region, we believe that groundwater seepage may be encountered during site earthwork activities. If

groundwater seepage is encountered during site earthwork activities, it may be controlled using temporary earthen berms and/or conventional sump-and-pump dewatering methods.

6.0 ENGINEERING ANALYSIS AND RECOMMENDATIONS

6.1 General

The analysis and recommendations presented in this report are applicable specifically to the proposed foundation structure. The data gathered from both the field and laboratory testing programs on soil samples obtained from the borings was utilized to establish geotechnical engineering parameters to develop recommendations for the proposed structure. The foundation system(s) considered in this report to provide support for the proposed structure must meet two independent criteria. One of the criteria is that the movement below the foundation structure due to compression (consolidation) or expansion (swell) of the underlying soils must be within tolerable limits. This criterion is addressed in the Soil Related Movements section of this report. The other criterion is that the dead and live loads must be distributed appropriately and the foundation structure designed with an acceptable factor of safety to minimize the potential for bearing capacity failure of the underlying soils.

Geotechnical and structural engineers in this general area consider soil movements or Potential Vertical Rise (PVR) of approximately one (1) inch or less to be within acceptable structural design tolerances for most structures but may be different depending on structure use and the desired performance of the foundation. Therefore, movements of the underlying soils are not eliminated and thus one should expect a slab foundation structure to exhibit differential vertical movements. However, structural engineers design slab foundations for the expected magnitude of soil movements without failure of the structure. More stringent soil movement criteria may be established but the owner should consider the exponential increase in cost required to design and construct a structure for such soil movements. Data obtained in this study indicate that the soils at this site have strength characteristics capable of supporting the foundation and structure if designed appropriately. Stratum I is composed of fat clay and has a high potential to exhibit volumetric changes (contraction and expansion). The potential for soil volumetric changes is dependent on variations in moisture contents of the underlying soils. Based on this data, this site is suitable for a slab foundation provided the subgrade is modified in accordance with the recommendations established in this report to reduce the potential for these soil volumetric changes.

6.2 Soil-Related Movements

The anticipated ground movements due to swelling of the underlying soils at this site were estimated for slab foundation construction using the Texas Department of Transportation (TxDOT) procedures of test method TEX-124-E for determining Potential Vertical Rise (PVR). A PVR value of four (4) inches was estimated for the stratigraphic conditions encountered in our subsurface borings. A surcharge of 1 pound per square inch for the

concrete slab, an active zone of 15 feet, and dry subsurface moisture conditions were assumed in estimating the above PVR values.

The following methods are generally acceptable for use in modifying the subgrade to reduce the potential for soil movements and volumetric changes below the foundation structure.

Excavate expansive clay soils and replace with select fill.
Chemical injection of expansive clay soils.
A combination of methods 1 and 2.

The method to be used is dependent on specific site conditions. At this site, the grade will most likely need to be raised to obtain the proposed Finished Floor Elevation (FFE). As per the project drawings dated January 25, 2019, the CIVIL ENGINEER provided the proposed FFE of 30.20. We recommend that the project civil engineer evaluate the proposed FFE with our recommendations to ensure that the subgrade modifications presented in the report are not diminished or compromised. Adding select fill is generally the most cost effective method for reducing the potential for soil related movements. Therefore, we only discuss this method in this report but we can provide details for the other methods if requested.

Based on the data obtained, **the proposed FFE of 30.20, existing natural grade elevation ranging from 28.50 to 29.00**, information provided by our client and our analysis of the site, we recommend the following modification (Table 6.1. Subgrade Modifications) of the subgrade at this area to accomplished finish floor elevation of the subgrade at this site. This method will maintain the potential for soil related movements to an approximate PVR value of less than one (1) inch, which is generally desired for projects of this type.

Table 6.1. Subgrade Modifications

Item	Description
1	See and adhere to the Site Preparation Recommendations section of this report.
2	Excavate existing soils to an elevation of 23.30 feet AMSL in accordance with the Site Preparation Recommendations section of this report.
3	Condition and compact twelve (12) inches of subgrade below excavated soils in accordance with the Site Preparation Recommendations section of this report.
4	Place **select fill,** to an elevation of 29.80 AMSL (a minimum of six and a half (6.5) feet select fill) condition and compact 6.5 feet in accordance with the Select Fill Recommendations and Benching, Keying, and Setbacks sections of this report.

Note 1: MEG is to verify the limits of the existing select fill of existing building for Benching, Keying, and Setbacks requirements.

The PVR method of estimating expansive, soil-related movements is based on empirical correlations utilizing the measured plasticity indices and assuming typical seasonal fluctuations in moisture content. If desired, other methods of estimating expansive, soil-related movements are available, such as estimations based on swell tests and/or soil-suction analyses. However, the performance of these tests and the detailed analyses of expansive, soil-related movements were beyond the scope of the current study. It should also be noted that actual movements can exceed the calculated PVR values as a result of isolated changes in moisture content (such as leaks, landscape watering, etc.) or if water seeps into the soils to greater depths than the assumed active zone depth due to deep trenching and/or excavations.

6.3 Conventional Shallow Slab-on-Grade Foundation Design Criteria

As indicated previously a slab foundation may be used at this site in conjunction with the subgrade modifications listed under the Soils Related Movements section. We recommend the following soil bearing pressures, and dimensional criteria for the slab grade beams. These recommendations ensure proper utilization of soil bearing capacity of continuous beam sections in the slab-on-grade foundation and reduce the potential of water migration from the outside to beneath the slab foundation. For structural considerations the beams may need to be greater and should be evaluated and designed by the structural engineer. Where concentrated load areas are present the grade beams or slab may be thickened and widened to serve as spread footings. Soil bearing pressures and beam dimensional criteria are as follows:

Table 6.2. Bearing Criteria

Grade Beams and Continuous Footings	
Minimum depth below finished grade:	24 inches
Maximum depth below finished grade:	36 inches
Maximum width:	30 inches
Maximum allowable bearing pressure:	2,000 psf
Spread Footings (square)	
Minimum depth below finished grade:	24 inches
Maximum depth below finished grade:	36 inches
Maximum width:	60 inches
Maximum allowable bearing pressure:	2,400 psf

The above-presented maximum allowable bearing pressures will provide a factor of safety of 3 with respect to the design soil strengths. For a slab foundation structure designed and constructed in accordance with the recommendations of this report, it is anticipated that total settlements will be in the order of one (1) inch or less. If lower anticipated total settlements are required for this project further mitigation may be required and MEG must be consulted for further recommendations.

Furthermore, the above design parameters are contingent upon the fill materials (if utilized) being selected and placed in accordance with the recommendations presented in the Select Fill Recommendations section of this report. Should select fill selection and placement differ from the recommendations presented herein, MEG should be informed of the deviations in order to reevaluate our recommendations and design criteria.

Excavations for slab on grade and spread footing foundations should be performed relatively clean and with an undisturbed bearing area. The bottom 6 inches of the excavation should be performed using a flat plate excavation bucket. The excavations should be neatly excavated. No foreign debris or undisturbed soil should be left in the footing bottom. Should there be any abundance of foreign debris or disturbed soil found, it may be necessary to re-assess the fill site of its bearing capacity suitability. If the bearing area is found to be disturbed, the bearing area will require preparation and compaction for the entire depth of the disturbance in accordance with the Site Preparation and/or the Select Fill sections of this report.

The bearing surface of the grade beams and spread footings should be evaluated after excavation and immediately prior to concrete placement. We recommend that footing inspections be performed by a representative of MEG. The required inspections shall include inspecting for clean, dry (The moisture content should be within limits specified by the appropriate section in this report.) and undisturbed footing bottom, depth of footing, clearances from sides and size and spacing of reinforcing steel. Test results shall comply

with the recommendations of this geotechnical report and shall be verified by an on-site representative of MEG.

Over excavation, if necessary, for compacted backfill placement below footings should extend laterally beyond all edges of the footings at least 8 inches per foot of over excavation depth below footing base elevation. The over excavation should then be backfilled up to the footing base elevation select fill placed in lifts of 8 inches or less in loose thickness and prepared and compacted in accordance with the Site Preparation and/or the Select Fill sections of this report. Equipment should not be operated and materials should not be placed or stockpiled within a horizontal distance equal to the excavation depth from the edge of the excavation. Excavations should not be placed next to existing structures or buried utilities/structures closer than a horizontal distance equal to the excavation depth unless some form of protection for the facilities is provided.

Water should not be allowed to accumulate at the bottom of the foundation excavation. Proper barriers such as berms or swales should be placed to divert any surface runoff away from excavations. To reduce the potential for groundwater seepage into the excavations and to minimize disturbance to the bearing area, we recommend that steel and concrete be placed as soon as possible after the excavations are completed, properly prepared and cleaned. Excavations should not be left open overnight.

6.4 BRAB Design Criteria for Slab-on-Grade Foundations

Table 6.3 list the values for criteria developed by the Building Research Advisory Board (BRAB) for the design of shallow slab-on-grade foundations. On the basis of stratigraphy encountered and the anticipated site modifications discussed earlier, the design criteria are as follows:

Table 6.3. BRAB Values

For Existing Conditions	
Effective Plasticity Index	45
Climatic Rating Cw.	15
Soil Support Index, (c)	0.67
For Proposed Conditions	
Effective Plasticity Index	29
Climatic Rating Cw.	15
Soil Support Index, (c)	0.85

Note 1: Subgrade Modifications as outlined in the recommendations of this report

7.0 CONSIDERATIONS DURING CONSTRUCTION

7.1 Site Grading Recommendations

Site grading plans can result in changes in almost all aspects of foundation recommendations. We have prepared the foundation recommendations based on the existing ground surface; there is a one (1) foot surcharge addition for the stratigraphic conditions encountered at the time of our study. If site grading plans differ from existing grades by more than plus or minus 1 foot, we must be retained to review the site grading plans prior to bidding the project for construction. This will enable us to provide input for any changes in our original recommendations that may be required as a result of site grading operations or other considerations.

7.2 Site Drainage Recommendations

Drainage is one of the most important aspects to be addressed to ensure the successful performance of any foundation. Positive surface drainage should be implemented prior to, during and maintained after construction to prevent water ponding at or adjacent to the building facilities. It is recommended that the building and site design include rain gutters, downspouts and concrete gutters to channel runoff to paving or storm drains.

7.3 Site Preparation Recommendations

Building areas and all area to support select fill should be stripped of all vegetation and organic topsoil up to a minimum of 5 ft. beyond the building perimeters. After stripping, remove at least six (6) inches of on-site soil as measured from existing grade when excavation of existing subgrade is not recommended in other sections of this report. The excavated material, if free of organic and/or deleterious material, may be stockpiled for use in the non-structural areas of the site. Where excavation of the subgrade is recommended in this report, the bottom of the excavation will extend at least five (5) feet beyond the limits of the planned building perimeter including canopies and sidewalks. Exposed subgrades should be thoroughly proof rolled in order to locate and compact any weak, compressible and soft spots. Proof rolling shall be in accordance with TxDOT 2014 Specification Item 216. Proof rolling operations should be observed by the Geotechnical Engineer or his representative to document subgrade condition and preparation. Weak or soft areas identified during proof rolling or areas where large tree roots have been removed within the limits of excavation should be removed and replaced with a suitable, compacted select fill in accordance with the recommendations presented under the Select Fill Recommendations section of this report. Proof rolling operations and any excavation/backfill activities should be observed by **MEG** representatives to document subgrade preparation.

Prior to fill placement, the exposed subgrade shall be prepared based on what option is selected from the foundation and pavement recommendations. The exposed subgrade should be prepared, moisture-conditioned by scarifying to a minimum depth as recommended in the foundation and pavement recommendations and recompacting to a minimum 98 percent of the maximum dry density as determined in accordance with ASTM

D 698, moisture-density relationship. The moisture content of the subgrade should be maintained within the range of optimum to plus four (+4) percentage points above the optimum moisture content until the fill is permanently covered. The soil should be properly compacted in accordance with these recommendations and tested by **MEG** personnel for compaction as specified.

7.4 Select Fill Recommendations

Materials used for select fill shall meet the following requirements:

1. Material shall conform to TxDOT 2014 Specification Item 247, Flexible Base; Type A, Grades 1 through 3.
2. Material shall conform to TxDOT 2014 Specification Item 247, Flexible Base, Types B or C, Grades 1 through 5 with a minimum plasticity index of 7.
3. Material shall conform to TxDOT 2014 Specification Item 247, Flexible Base, Type E, Grade 4 with a plasticity index between and inclusive of 7 and 15. Type E material shall be defined as Caliche (argillaceous limestone, calcareous or calcareous clay particles) and may contain stone, conglomerate, gravel, sand or granular materials when these materials are in situ with the caliche. Flexible Base (Type E, Grade 4) shall conform to the following requirements:

Table 7.1. Type D, Grade 6 Requirements

Retained on Sq. Sieve	Percent Retained
2”	0
½”	20-60
No. 4	40-75
No. 40	70-90
Max. PI:	15
Max. Wet Ball PI:	15
Wet Ball Mill Max Amount:	50
Wet Ball Increase, Max Passing No. 40 sieve	20

4. Soils classified according to USCS as SM, SC, GM, GC, CL, ML and combinations of these soils. The soils shall be relatively free of organic matter. In addition to the USCS classification, select materials shall have a liquid limit of less than 40 and a plasticity index between and inclusive of 10 and 17.
5. Soils classified, as CH, MH, OH, OL and PT, under the USCS are not considered suitable for use as select fill materials at this site.

Select fill shall be placed in loose lifts not to exceed 8 inches (6 inches compacted) and compacted to a minimum 98 percent of the maximum dry density as determined in accordance with ASTM D 698. The moisture content of the fill shall be maintained within the range of minus two (-2) percentage points below optimum to plus two (+2) percentage

points above the optimum moisture content until the fill is permanently covered. The select fill should be properly compacted in accordance with these recommendations and tested by **MEG** personnel for compaction as specified.

7.5 Site Fill Recommendations

Site fill shall be placed in loose lifts not to exceed 8 inches (6 inches compacted) and compacted to a minimum 98 percent of the maximum dry density as determined in accordance with ASTM D 698. The moisture content of the fill shall be maintained within the range of minus two (-2) percentage points below optimum to plus two (+2) percentage points above the optimum moisture content until the fill is permanently covered. The site fill should be properly compacted in accordance with these recommendations and tested by **MEG** personnel for compaction as specified.

7.6 Back Fill Recommendations

Back fill shall be placed in loose lifts not to exceed 8 inches (6 inches compacted) and compacted to a minimum 95 percent of the maximum dry density as determined in accordance with ASTM D 698. The moisture content of the fill shall be maintained within the range of minus two (-2) percentage points below optimum to plus two (+2) percentage points above the optimum moisture content until the fill is permanently covered. The back fill should be properly compacted in accordance with these recommendations and tested by **MEG** personnel for compaction as specified.

7.7 Utility Considerations

Utilities that project through the slab-on-grade, slab-on-fill, floating floor slabs, or any other rigid unit should be designed with some degree of flexibility or with sleeves. Such features will help reduce the risk of damage to utility facilities from soil movements related to shrinkage and expansion.

7.8 Utility Trench Recommendations

Bedding and initial backfill are buried around utility lines to support and protect the utility. The secondary backfill above the initial backfill also helps protect and support the foundation and/or pavement above. To ensure that settlement is not excessive in this secondary backfill we recommend the following:

1) If possible, trench and install utilities prior to work such as lime treatment and/or compaction of subgrade or placement of other fills or bases.
2) Place, moisture condition and compact the secondary backfill in accordance with the pertinent project requirements. Within the footprint of a building pad the secondary backfill should meet the same compaction requirements for select fill. Within the footprint of a pavement structure the secondary backfill should meet the same compaction requirements for the subgrade. When compaction of the subgrade is not specified it should meet the same compaction level of the adjacent natural ground. An alternative to compaction of secondary backfill is the use of

flowable fill where secondary backfill is to be placed. If properly designed, the flowable fill can be excavated easily at a later date if necessary. No compaction and no testing is required when properly designed flowable fill is used.

7.9 Excavation, Sloping, Benching, Keying, and Setbacks Considerations

If trenches are to extend to or below a depth of five (5) ft., the contractor or persons doing the trenching should adhere to the current Occupational Health and Safety Administration (OSHA) guidelines on trench excavation safety and protection measures. Other industry standards may be applicable. The collection of specific geotechnical data and development of a plan for trench safety, sloping, benching or various types of temporary shoring, is beyond the scope of this study.

Benching

Benches shall be excavated per Figure 9.1 into the existing slope to allow for proper compaction. Bench widths shall be a minimum of 5 feet in width. Proposed slopes shall be no greater than 1 unit vertical in 5 units horizontal (20% slope). Benches shall be spaced consecutively. Bench heights shall not exceed the lesser of one-half the bench width, or 10 feet. Placement of the soils shall be conditioned and compacted in accordance with the select fill recommendations of the report.

Keying

Benches shall have a key at the toe of the slope where the slope height exceeds 5 feet or the slope is greater than 1 unit vertical in 5 units horizontal (20% slope). The key shall be a minimum depth of 2 feet and a length not less than 10 feet.

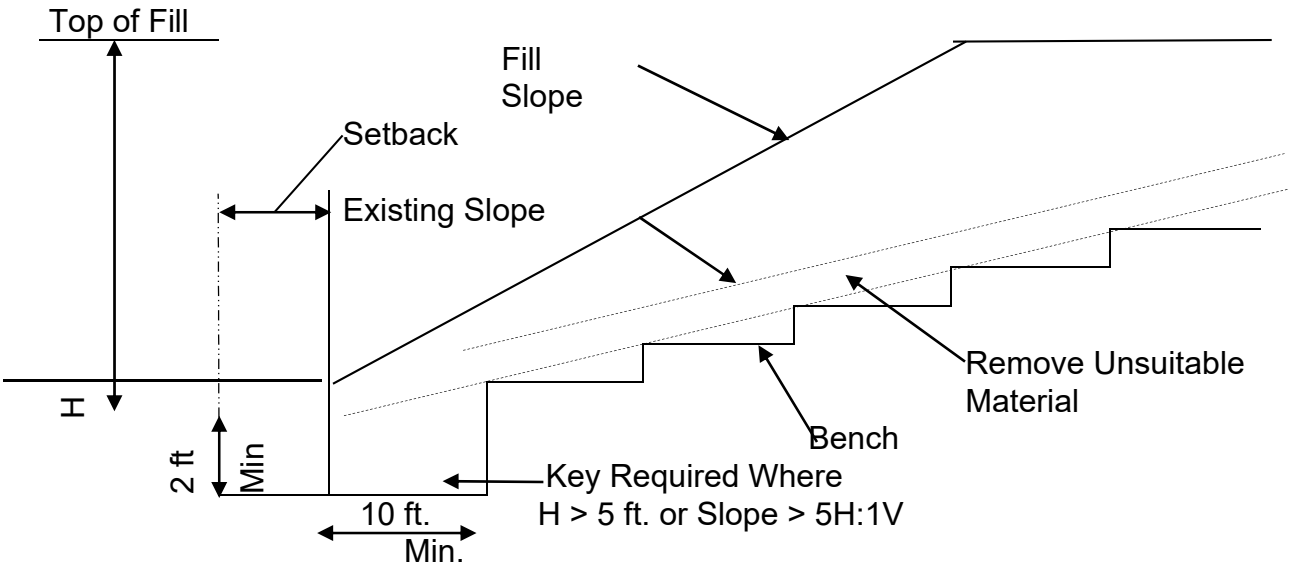


Figure 7.1 Benching Detail

Setbacks

General: Excavation and fill slopes shall be set back from the site boundary in accordance with this section. Setback dimensions shall be measured horizontally, and shall be perpendicular to the site boundary.

Top of excavation slope: The top of excavation slopes shall be set back from the site boundary not less than one-fifth the vertical height of the slope, but not less than 2 feet and need not to exceed 10 feet.

Toe of fill slope: The toe of fill slopes shall be set back from the site boundary not less than one-half the vertical height of the slope, but not less than 2 feet but need not exceed 20 feet.

7.10 Shallow Foundation Excavation Considerations

The Geotechnical Engineer or his representative prior to the placement of reinforcing steel and concrete should observe shallow foundation excavations. This is necessary to verify that the bearing soils at the bottom of the excavations are similar to those encountered during the subsurface soil exploration phase and that excessive loose materials and water are not present in the excavations. If soft pockets of soil are encountered in the foundation excavations, they should be removed and replaced with a compacted non-expansive fill material or lean concrete up to the design foundation bearing elevation.

7.11 Landscaping Considerations

Even though landscaping is a vital aesthetic component of any project, the owner, client and design team should be aware that placing trees or large bushes adjacent to any structure may distress the structure in the future. It is recommended that if any landscaping is to be placed adjacent to the structure in this project, it should be limited to small plants and shrubs. Trees and large bushes should be placed at a distance such that at their mature height, their canopy or “drip line” does not extend over the structures. The owner, client and design team should also be aware that if any watering is to be done in connection with the landscaping for this project it should be controlled, consistent and timely. Excessive or prolonged watering is not recommended. If watering is part of the landscaping plan, termination of watering for any extended period of time may also be detrimental to the structure. It is important that the moisture level in the subsurface soils remain constant so that shrinking and swelling of soils may be mitigated.

7.12 Perimeter Foundation Cap

We recommend that a cap of impervious fill be placed around the perimeter of the foundation to mitigate the intrusion of moisture into the soils surrounding the foundation. The top eighteen inches of fill around the foundation structure should be a low permeance clay cap to keep surface water away from the foundation. The low permeance clay cap should be sloped away from the foundation at a minimum slope of 2% and the surrounding

areas should have positive drainage. The low permeance clay shall meet the USCS classification of CL and meeting the requirements in Tables 7.2 Gradation Requirements and Table 7.3 Atterberg Limits Requirements. The low permeance clay shall be compacted to minimum of 95 percent of the maximum dry density as determined in accordance with ASTM D 698. The moisture content of the subgrade should be maintained within the range of optimum to four (4) percentage points above the optimum moisture. If plantings are intended, add 4 to 6 inches of loam on top of the clay cap.

Table 7.2. Gradation Requirements

Sieve Size	Percent Passing (by dry weight)
1/2 inch	100
No 4	70-100
No. 200	50 – 100

Table 7.3. Atterberg Limits Requirements

Test / ASTM	Requirement
Atterberg Limits D4318	LL ≤ 45 20 ≤ PI ≤ 30

8.0 PAVEMENT SECTION RECOMMENDATIONS

8.1 General Information

The study was also performed to determine recommendations for the construction of a flexible pavement and these recommendations are presented in this report. The pavement recommendations are limited to samples taken from the existing soils within the roadway areas present at the site. The pavement design implemented for this project should be evaluated the civil engineer based on a traffic and design analysis for this project.

Recommendations for both flexible and rigid pavements are presented in this report for further evaluation by the project civil engineer. Both pavement types are viable and the selection on the type to be used will depend on the specific needs and criteria of this project site. Generally, flexible pavements have a lower initial construction cost when compared to rigid pavements. On the other hand a rigid pavement has lower maintenance cost throughout the life of the pavement structure as compared to flexible pavements. Flexible pavements generally require more frequent repairs and overlays at intervals from 6 to 10 years to meet the structural and functional requirements of the pavement during the design life. All pavements are very dependent on the condition of the soil platform on which they are supported and thus moisture conditions will play an important role in the performance of the pavement during its structure life. Proper consideration to drainage of the pavement structure and the surrounding areas is essential to the successful performance of a pavement structure.

After proof rolling and repairing deep subgrade deficiencies, the entire subgrade should be scarified and developed as recommended in the Site Preparation section of this report to provide a uniform subgrade for pavement construction. Areas that appear severely desiccated following site stripping may require further undercutting and moisture conditioning. If a significant precipitation event occurs after the evaluation or if the surface becomes disturbed, the subgrade should be reviewed by qualified personnel immediately prior to paving. The subgrade should be in its finished form at the time of the final review.

8.2 Soil Stabilization Recommendations

The plasticity index of the surface soils at this site is approximately 42 to 51 percent. The existing subgrade soils require lime stabilization for soil shrink and swell mitigate. We recommend the addition of seven (7) percent lime by weight to the existing surface soils. We recommend that the existing soils be tested after the pavement areas have been excavated or filled to the top of the subgrade elevation to verify the soil stabilization requirements. The natural ground should then be prepared as stated in the Site Preparation Recommendations of the pavement section. Proper consideration to drainage of the pavement structure and the surrounding areas is essential to the successful performance of a pavement structure.

8.3 Design Methodology and Traffic Information

Our engineering analysis of the pavement type considered the information obtained from our soil borings, the field and laboratory testing, our past experience with similar soils and site conditions. Design of new pavements for the project has been based on the procedures outlined in the 1993 Guide for Design of Pavement Structures by the American Association of State Highway and Transportation Officials (AASHTO). The client did not provide projected ESALs. We recommend that the project Civil Engineer or a Traffic Engineer review the project for the appropriate traffic levels and design periods to ensure that they are appropriate and consistent with the specific project site requirements. The assumptions for traffic used in the pavement design analysis are as follows:

Table 8.1. Flexible Pavement Traffic Criteria Utilized

Criteria	Value[1]
Reliability Level	80%
Standard Deviation	0.45
Initial Serviceability level	4.0
Terminal Serviceability level	2.0

Note 1: The above traffic criteria as per 1993 AASHTO Pavement Design Guidelines.

Table 8.2. Rigid Pavement Traffic Criteria Utilized

Criteria	Value[1]
Reliability Level	95%
Standard Deviation	0.35
Initial Serviceability level	4.0
Terminal Serviceability level	2.0

Note 1: The above traffic criteria as per 1993 AASHTO Pavement Design Guidelines.

8.4 Recommended Pavement Sections

The proposed pavement section for entrances, drives and parking areas may be chosen from one of the following options in the tables below.

The selection process of the appropriate pavement option should consider the following:

1. The client should consider the options presented as minimum pavement sections for the appropriate use and expected traffic levels. The civil engineer of record should evaluate the minimum pavement sections recommended with the appropriate class of pavement required for this project. The local government requirements should be met when they are more stringent than the minimum pavement sections recommended in our report.

Table 8.3. Flexible Pavement Options

Materials	Light Duty[1]	Heavy Duty[2]
Asphaltic Concrete (In)	2.0	3.0
Untreated Caliche Base (In)	8.0	12.0
Limed Treated Subgrade (In)	8.0	12.0

Note 1: Light Duty Pavement (ESALS = 7,000)
Note 2: Heavy Duty Pavement (ESALs = 96,000)

Table 8.4. Rigid Concrete Pavement Options

Materials	Light Duty[1]	Heavy Duty[2]
Reinforced Concrete Pavement (In)	5.0	6.5
Untreated Caliche Base or Limed Treated Subgrade (In)	8.0	12.0

Note 1: Light Duty Pavement (ESALs = 7,000)
Note 2: Heavy Duty Pavement (ESALs = 96,000)

It is recommended that concrete pavements be reinforced. At a minimum, the reinforcing bars should be placed as follows:

Table 8.5. Longitudinal Drives and Entrances

Thickness (in)	Bar Size	Longitudal Spacing (in)	Transverse Spacing (in)
<=6	3	12	24
<=7	4	12	24

Table 8.6. Parking Areas

Thickness (in)	Bar Size	Longitudal Spacing (in)	Transverse Spacing (in)
<=6	3	16	16
<=7	4	16	16

Longitudinal reinforcement should be placed at ½ the slab depth +/- ½ inch from the surface. At a longitudinal edge, the first two spacing's for longitudinal reinforcement shall be at ½ the normal longitudinal spacing. At transverse construction joints, additional longitudinal reinforcement shall be placed at a spacing one half the normal longitudinal spacing for a length of 42 inches. At transverse joints, the first two spacing's for transverse reinforcement shall be at ½ the normal transverse spacing. All reinforcement should be specified as deformed steel meeting the requirement of ASTM A-615 (Grade 60) or ASTM A-616 (Grade 60). Splices should be a minimum of 33 nominal bar diameters. Reinforcing should not extend across longitudinal and expansion joints. Dowels across longitudinal and expansion joints are recommended to be 7/8 inch diameter, smooth bars with a length of 42 inches and spaced at a maximum 24 inches on center.

Longitudinal and transverse joints are recommended at a maximum spacing of 10 feet for pavements with a thickness of less than 6 inches and at a maximum spacing of 15 feet for pavements with a thickness of 6 inches or greater. The longitudinal and transverse joints should be formed or saw cut to a depth of 1/3 of the slab depth for concrete containing siliceous coarse aggregate and ¼ of the slab depth for limestone aggregate. Sawing of joints should begin as soon as the concrete will not chip and ravel. It is recommended that longitudinal and expansion joints be doweled to promote load transfer. Expansion joint spacings are not to exceed a maximum of 75 feet and no expansion or contraction joints should be located within a swale or drainage collection area. Expansion joints are also needed to separate the concrete slab from fixed objects such as inlets, light standards and buildings.

It is recommended that the concrete pavement surface have a minimum slope of 0.015 ft/ft to provide adequate surface drainage. It is recommended that the concrete pavement should cure a minimum 7 days before allowing any traffic provided that adequate concrete strength has been attained as determined by the project Civil Engineer.

The curb shall be constructed in lengths equal to the adjoining pavement slab lengths, and expansion joints shall be provided in the curb opposite each transverse expansion joint in the pavement. Expansion joint material shall be of the same thickness, type and quality as specified for the pavement and shall be of the section as shown for the curb. All expansion joints shall be carried through the curb. Transverse contraction joints shall be sawed across the curb at the same time as sawing of the transverse contraction joints in the pavement are sawed. The curb shall be placed monolithically with the pavement for edge support and reinforced with a minimum one (1) #5 rebar. A finish coat of mortar shall be applied on the exposed surfaces of monolithic curbs.

8.5 Garbage Dumpster Considerations

Within flexible pavement areas, it is recommended that reinforced concrete pads be provided in front of and beneath garbage dumpsters. Concrete paving is also recommended in areas where the dumpster trucks make turns with small radii to access the dumpsters. The pads should be a thickened concrete slab and reinforced similar to the concrete pavement recommendations or a minimum 10 inches thick.

9.0 PAVEMENT MATERIAL SPECIFICATION SECTIONS

9.1 Pavement Preparation Recommendations

Pavement areas should be stripped of all vegetation and organic topsoil up to a minimum of two (2) feet beyond the pavement perimeters. After stripping, remove at least six (6) inches of on-site soil as measured from existing grade when excavation of existing subgrade is not recommended in other sections of this report. The excavated material, if free of organic and/or deleterious material, may be stockpiled for use in the non-pavement areas of the site. Where excavation of the subgrade is recommended in this report, the bottom of the excavation will extend at least two (2) feet beyond the limits of the planned pavement perimeter including canopies and sidewalks. Exposed subgrades should be thoroughly proof rolled in order to locate and compact any weak, compressible and soft spots. Proof rolling shall be in accordance with TxDOT 2014 Specification Item 216. Proof rolling operations should be observed by the Geotechnical Engineer or his representative to document subgrade condition and preparation. Weak or soft areas identified during proof rolling or areas where large tree roots have been removed within the limits of excavation should be removed and replaced with a suitable, compacted fill in accordance with the recommendations presented in TxDOT 2014 Specification Item 132 for density control and material requirements for Types A and B. If the fill is a clay it shall meet USCS Classification CL. Proof rolling operations and any excavation/backfill activities should be observed by MEG representatives to document subgrade preparation.

The exposed subgrade shall then be prepared based on what option is selected from the pavement recommendations. The soil should be worked in accordance with the recommendations and tested by MEG personnel for compaction as specified.

9.2 Hot Mix Asphaltic Concrete Surface

The asphaltic surface shall meet the requirements of the current TxDOT 2014 Specification Item 340 for Dense Graded Hot Mix Asphalt (small quantity) for projects with total production of less than 5,000 tons and TxDOT 2014 Specifications Item 341 Dense Graded Hot Mix Asphalt for projects with total production of 5,000 tons or greater. The hot mix asphaltic surface will be compacted to between 3.0 and 8.5 percent in place air voids in conformance with the specification. It is recommended that the testing required by this specification be performed during production.

Table 9.1. Dense Grade Hot Mix Asphalt Additional Requirements

Test Procedure	Requirement
Target Design Laboratory Density, %	97.0 (for light duty areas)
	96.5 (for heavy duty areas)

9.3 Reinforced Concrete

Concrete shall meet a minimum 28-day compressive strength of 3200 psi for light duty pavements and 4000 psi for medium and heavy duty pavements and a maximum water/cement ratio of 0.45. The concrete for concrete paving shall meet the requirements for Class P Concrete of TxDOT 2014 Specification Items 360 and 421. Aggregates used in the concrete design should meet the requirements of TxDOT 2014 Specification Item 421 or ASTM C33.

9.4 Untreated Caliche Base

The base shall be caliche base and meet the requirements of TxDOT 2014 Specification Item 247 Type E, Grade 3 or better and including the requirements of Table 9.2 shown below. The base shall be compacted to a minimum 98 percent of the maximum dry density as determined by the standard moisture density relation (ASTM D 698) at moisture contents ranging between minus two (-2) and plus two (+2) percentage points of the optimum moisture content. The base shall be placed in loose lifts not to exceed 8 inches (6 inches compacted) and not less than 5 ½ inches (4 inches compacted).

Table 9.2. Flexible Base Type E, Additional Requirements

Retained Procedure	Requirements
Max. PI:	12 (15 for treated base)
Max. Wet Ball PI:	12 (15 for treated base)
Wet Ball Mill Max Amount:	50
Wet Ball Increase, Max Passing No. 40 sieve	20

9.5 Lime Treated Caliche Base

The base shall meet all the requirements of untreated caliche base. In addition the base shall be treated with a minimum one and a half (1 ½) percent lime or Portland cement by weight. Lime shall meet the requirements of TxDOT 2014 Specification Item 260. Portland cement shall be Type I meeting ASTM C150 or Type IP meeting ASTM C595. Lime treatment will be in accordance with TxDOT 2014 Specification Item 260 or 263 for base courses and Item 260 for subgrades. Cement treatment shall be in accordance with TxDOT 2014 Specification Item 275 or 276. The base shall be compacted to a minimum 98 percent of the maximum dry density as determined by the standard moisture density relation (ASTM D 698) at moisture contents ranging between minus two (-2) and plus two (+2) percentage points of the optimum moisture content. The base shall be placed in loose lifts not to exceed 8 inches (6 inches compacted) and not less than 5 ½ inches (4 inches compacted).

9.6 Lime Treated Subgrade

Lime stabilization of the soils may be used for soil shrink and swell mitigation and to increase the structural capacity of the subgrade as platform for the pavement. It is recommended that the subgrade plasticity index be verified after the site is stripped of the loose topsoil and the subgrade is exposed up to the subgrade elevation. Stabilization treatment of the subgrade soils may also be utilized to provide a platform for the base for resistance to moisture intrusion and changes. Prevention of moisture intrusion is extremely important to the life of a pavement. Increases in moisture content of the subgrade and the base will significantly reduce the material's structural ability to carry loads. The optimum lime content should reduce the PI of the soil to 20 or less and should result in a soil lime mixture with a pH of at least 12.4 when tested in accordance with ASTM C 977, Appendix XI. The lime should be blended with a mixing device such as a pulvermixer to produce a soil mixture passing water added and be allowed to cure for at least 48 hours. After curing the lime soil mixture it shall pass the grading requirements of TxDOT 2014 Specification Item 260 and compacted to a minimum 95 percent of the maximum dry density determined in accordance with ASTM D 698 at moisture contents ranging from minus two (-2) percentage points below optimum to plus two (+2) percentage points above optimum moisture content. If the in place gradation requirements can be achieved during the initial mixing, the remixing after the curing period can be eliminated. Please note that there is a relationship between the time of mixing of the lime and soils with the maximum dry density. Any mixture older than three (3) days will require determination of new moisture density relationships.

Portland cement may be considered instead of lime to treat the subgrade. See the cement treated subgrade section of this report.

9.7 Cement Treated Subgrade

Cement treatment of the on-site subgrade soils may be used for soil shrink and swell mitigation and to increase the structural capacity of the subgrade as a platform for the pavement. It is recommended that the subgrade plasticity index be verified after the site

is stripped of the loose topsoil and the subgrade is exposed up to the subgrade elevation. Treatment of the subgrade soils may be utilized to provide a uniform platform for the base for resistance to moisture intrusion and changes. Prevention of moisture intrusion is extremely important to the life of a pavement. Increases in moisture content of the subgrade and the base will significantly reduce the material's structural ability to carry loads. The optimum cement content should be determined in accordance with TxDOT 2014 Specifications Item 275 and with a minimum dry strength requirement of 175 psi. It is anticipated that the soils will require about 2 to 3 percent cement by dry weight of the soils to meet the specification requirements. The cement should be blended into the soil and preferably with a mixing device such as a pulvermixer to produce a uniform soil-cement mixture. The soil-cement mixture shall be placed in accordance with TxDOT 2014 Specification Item 275 and compacted to a minimum 95 percent of the maximum dry density determined in accordance with ASTM D 698 at moisture contents ranging from minus two (-2) percentage points below optimum to plus two (+2) percentage points above the optimum moisture content.

Cracking of the subgrade can be expected when using cement treatment due to the increased rigidity of the soil. Maintenance of any reflected cracks will require immediate sealing to keep moisture from penetrating to the pavement layers below the surface. If reflective cracking on the pavement from the treated subgrade is a concern, we recommend that microcracking of the subgrade be performed and the procedure outlined in TxDOT 2014 Specification Item 275 be used to mitigate reflective cracking. Microcracking should be performed on treated subgrade layers not to exceed 8 inches compacted thickness.

9.8 Moisture Conditioned Subgrade

The subgrade shall be scarified to a depth of eight (8) inches and moisture conditioned to within the range of minus two (-2) percentage points below optimum to plus two (+2) percentage points above the optimum moisture content. The subgrade shall be compacted to a minimum 95 percent of the maximum dry density determined in accordance with ASTM D 698.

10.0 OTHER CONSIDERATIONS

10.1 Drainage

Adequate perimeter drainage is essential for long-term performance of any pavement structure. Infiltration of surface water from unpaved areas surrounding the pavement should be minimized. We do not recommend the placement of landscape beds on the paved areas. Such design features provide a potential for water to enter into the pavement section and the underlying soil subgrade. This is especially true with time in paved areas that have limited traffic and lead to accelerated asphalt oxidation and thus cracking. Water intrusion will result in the deterioration of the pavement materials with time as vehicular traffic passes over affected areas. Above grade planter boxes with drainage discharge onto the top of the pavement or directed into storm sewers should be considered if landscape features are to be used.

10.2 Curb & Gutters

Base material under curb and gutters and curbs shall be compacted to the same requirements as other areas. It is recommended that the base shall be placed below the curb & gutter and extended past the back of the curb & gutter a minimum of one and a half (1 ½) feet. The thickness of the base below the curb & gutter shall be the required pavement base thickness less six (6) inches. An adequate seal should be provided at all concrete- asphalt interfaces. It is recommended that a crack sealant compatible to both asphalt and concrete be used.

10.3 Maintenance

A maintenance plan is recommended for the long-term performance of the paved areas. Asphaltic pavements have a tendency to strip and become oxidized with exposure to the elements. Thus cracks may become present in the pavement. It is recommended that a maintenance schedule of crack sealing, fog seals and overlays be used over the life of the pavement.

11.0 PROJECT REVIEW AND QUALITY CONTROL

Each project site is unique and it is important that the appropriate design data, construction drawings, specifications, change orders and related documents be reviewed by the respective design and construction professionals participating in this project. The performance of foundations, construction building pads and/or parking areas for this project will depend on correct interpretation of our geotechnical engineering report and proper compliance of and adherence to our geotechnical recommendations and to the construction drawings and specifications.

It is important that **MEG** be provided the opportunity to review the final design and construction documents to check that our geotechnical recommendations are properly interpreted and incorporated in the design and construction documents. We cannot be responsible for misinterpretations of our geotechnical recommendations if we have not had the opportunity to review these documents. This review is an additional service and not part of our project scope.

MEG should be retained to provide construction materials testing and observation services during all phases of the construction process of this project. As the Geotechnical Engineer of Record, it is important to let our technical personnel provide these services to make certain that our recommendations are interpreted properly and to ensure that actual field conditions are those described in our geotechnical report. Since our personnel are familiar with this project, **MEG**'s participation during the construction phase of this project would help mitigate any problems resulting from variations or anomalies in subsurface conditions, which are among the most prevalent on construction projects and often lead to delays, changes, costs overruns, and disputes. If the client does not follow all of our recommendations presented in this report and/or addendums to this report, the client assumes the responsibility and liability of such actions and will hold our firm harmless and without responsibility and liability for client's actions.

A construction testing frequency plan and budget needs to be developed for the required construction materials engineering and testing services for this project. Before construction, we recommend that **MEG**, the project design team members and the project general contractor meet and jointly develop the testing plan and budget, as well as review the testing specifications as it pertains to this project. **A failure to implement a complete testing plan will negate the recommendations provided in this report.**

MEG looks forward to the opportunity to provide continued support on this project.

APPENDIX A

CUSTOM SOIL RESOURCE REPORT

Map Unit Name—Cameron County, Texas
(01-19-29134 - TTBH - Ambulatory Service Facility)

Map Scale: 1:633 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 5 10 20 30

Feet
0 30 60 120 180

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cameron County, Texas
Survey Area Data: Version 15, Sep 14, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 26, 2014—Nov 27, 2014

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
ON	Olmito-Urban land complex	1.3	100.0%
Totals for Area of Interest		**1.3**	**100.0%**

Description

A soil map unit is a collection of soil areas or nonsoil areas (miscellaneous areas) delineated in a soil survey. Each map unit is given a name that uniquely identifies the unit in a particular soil survey area.

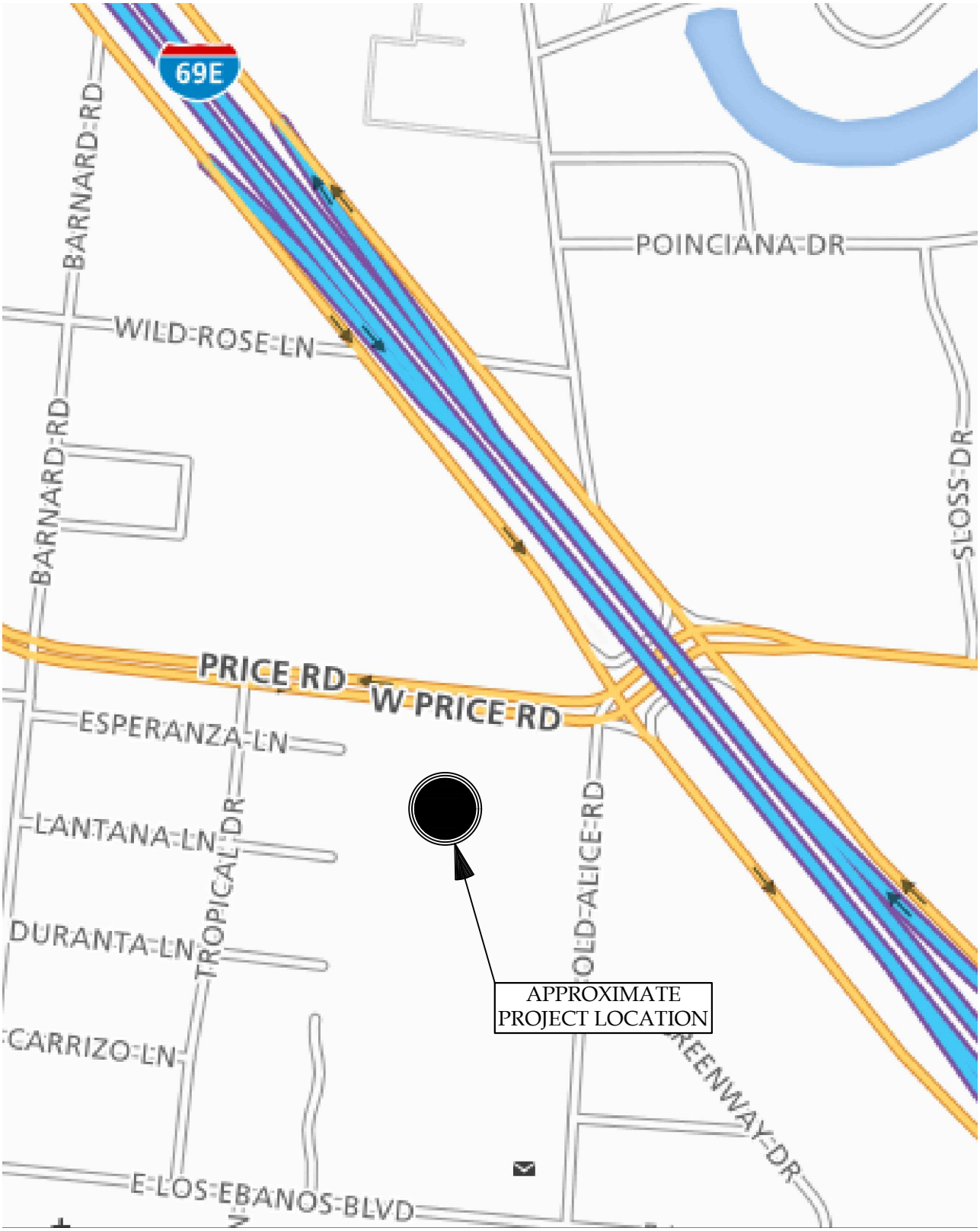
Rating Options

Aggregation Method: No Aggregation Necessary

Tie-break Rule: Lower

APPENDIX B

PROJECT LOCATION, TOPOGRAPHIC AND BOREHOLE LOCATION MAPS



MEG PROJECT: 01-19-29134 / DATE: 4/24/2019 / APPROVED BY: A. PALMA / DRAWN BY: J. BORJON

PROJECT SITE LOCATION MAP

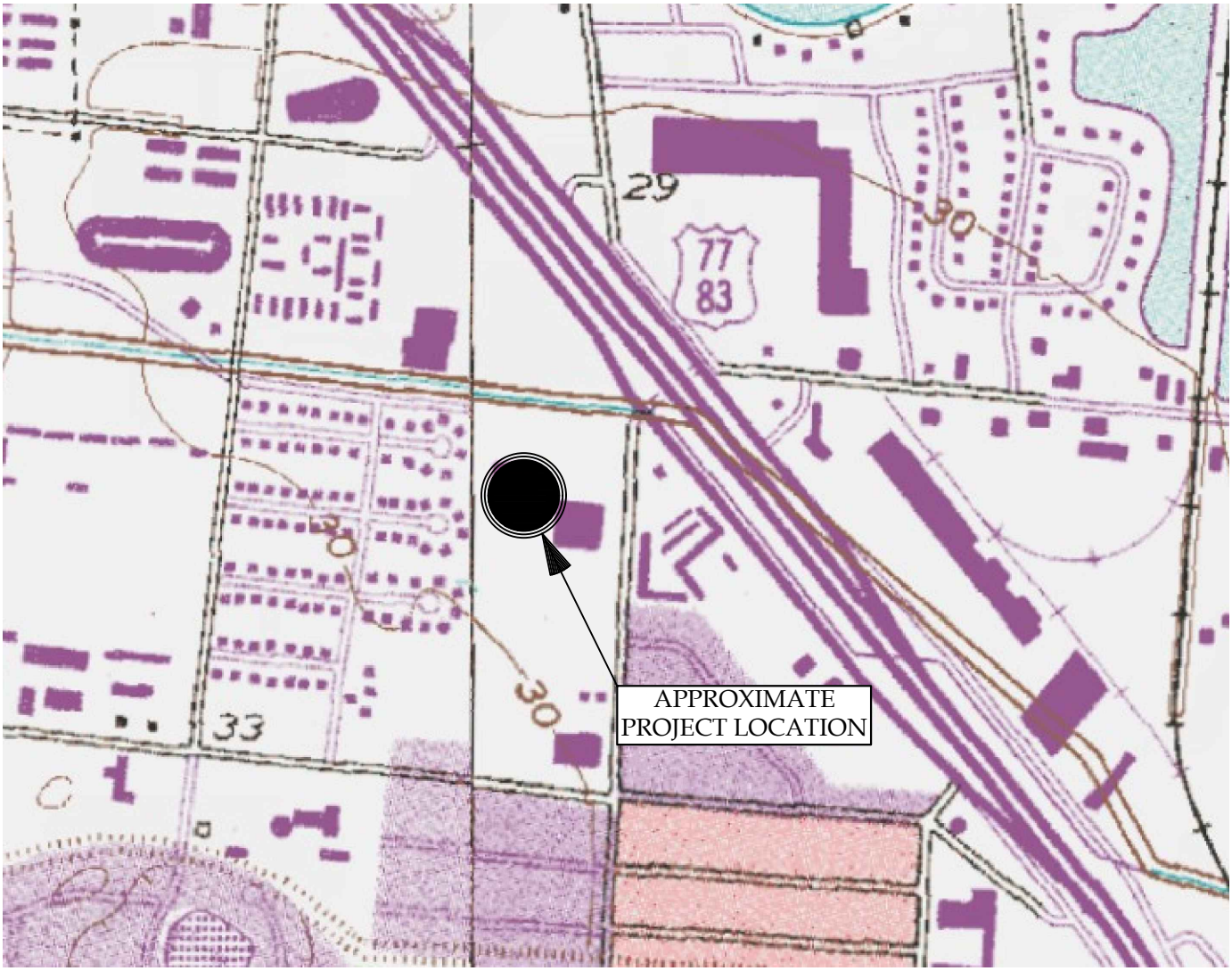
PROPOSED
TTBH - AMBULATORY SERVICE FACILITY

BROWNSVILLE, CAMERON COUNTY, TEXAS

MILLENNIUM ENGINEERS GROUP, INC.
5804 N. GUMWOOD AVENUE
PHARR, TEXAS 78577
WWW.MEGENGINEERS.COM
TEL: 956-702-8500
FAX: 956-702-8140

N

NOT TO SCALE



MEG PROJECT: 01-19-29134 / DATE: 4/24/2019 / APPROVED BY: A. PALMA / DRAWN BY: J. BORJON

PROJECT TOPOGRAPHY MAP

PROPOSED
TTBH - AMBULATORY SERVICE FACILITY

BROWNSVILLE, CAMERON COUNTY, TEXAS

Millennium Engineers Group
MEG ENGINEERS
Consultants - Geotechnical - Testing

MILLENNIUM ENGINEERS GROUP, INC.
5804 N. GUMWOOD AVENUE
PHARR, TEXAS 78577
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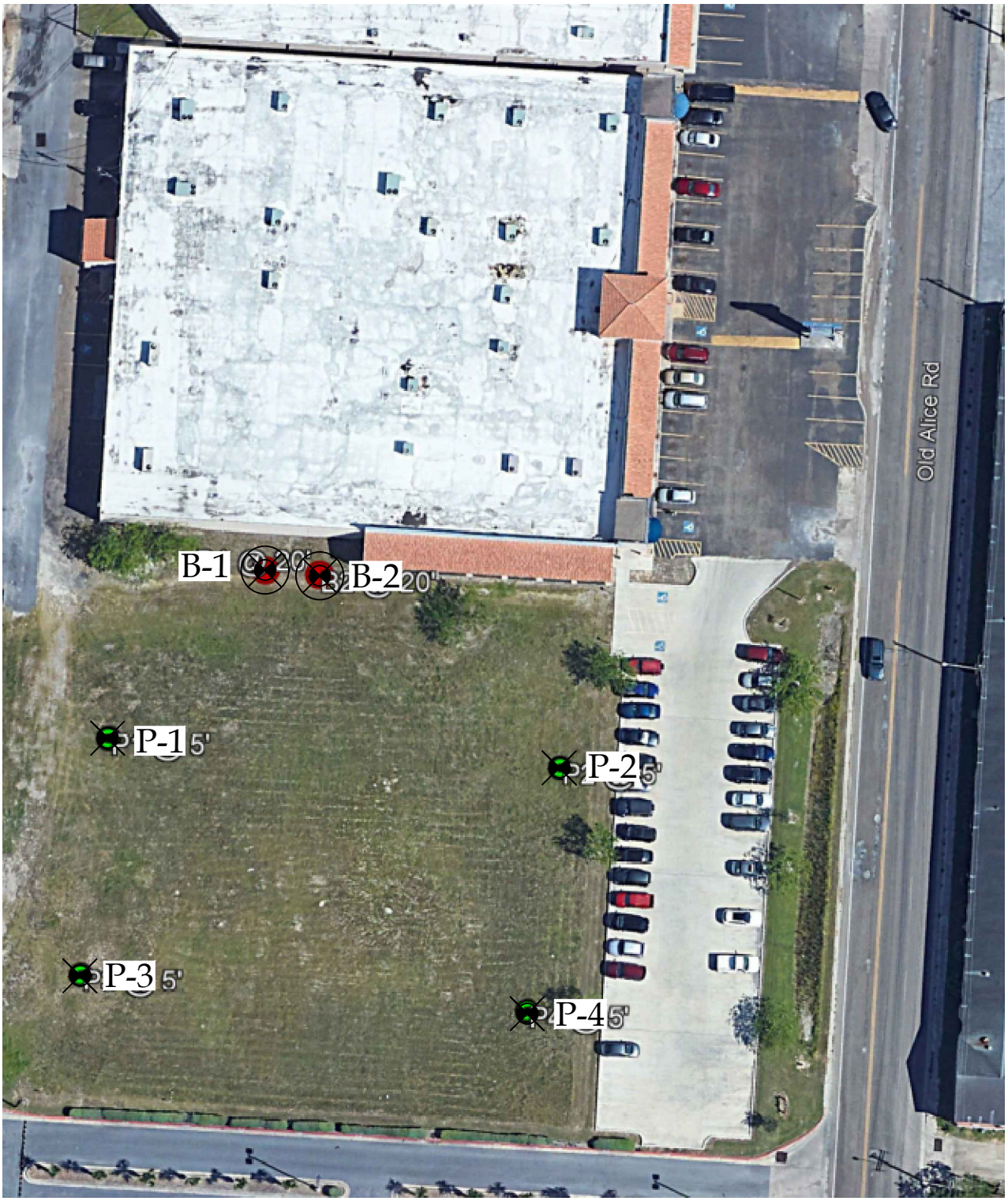
TEL: 956-702-8500
FAX: 956-702-8140



BOREHOLE DEPTH

= 20'

= 5'

PROJECT BOREHOLE LOCATION MAP

PROPOSED
TTBH - AMBULATORY SERVICE FACILITY

BROWNSVILLE, CAMERON COUNTY, TEXAS

MILLENNIUM ENGINEERS GROUP, INC.
5804 N. GUMWOOD AVENUE
PHARR, TEXAS 78577
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TEL: 956-702-8500
FAX: 956-702-8140

MEG PROJECT: 01-19-29134 / DATE: 4/24/2019 / APPROVED BY: A. PALMA / DRAWN BY: J. BORJON

APPENDIX C

PROJECT BORING LOGS AND PROFILE

Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

Log of Boring B-1

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **14 feet During Drilling**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, dark brown to brown, moist to wet, med. dense					
			1	16				28	85	50		
			2	13				23	61	38		
23.5	5		3	17				26				
			4	9				33	85	56		
			5	16				25			96	
18.5	10											
			6	17				34			46	▼ @ ATD
13.5	15											
			7	14				27			97	
8.5	20						Bottom of Boring					
3.5	25											

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Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

Log of Boring B-2

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **14 feet During Drilling**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, dark brown to brown, moist to wet, med. dense					
			1	12				23			98	
			2	23				22				
23.5	5		3	21				29	82	53		
			4	30				25			98	
			5	23				24	56	28		
18.5	10											
			6	31				30	69	41		@ ATD
13.5	15											
			7	18				23				
8.5	20						Bottom of Boring					
3.5	25											

Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

Log of Boring P-1

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **5 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **None**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, dark brown, moist to wet, loose					
			1	9				23	78	50		
			2	10				31			99	
23.5	5						Bottom of Boring					
18.5	10											
13.5	15											
8.5	20											
3.5	25											

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Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

Log of Boring P-2

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **5 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **None**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, brown to dark brown, wet, loose to med. dense					
			1	7				27	69	42		
			2	16				25			99	
23.5	5						Bottom of Boring					
18.5	10											
13.5	15											
8.5	20											
3.5	25											

Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

Log of Boring P-3

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **5 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **None**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, light brown to brown, moist to wet, loose					
			1	6				20	82	50		
			2	10				29			82	
23.5	5						Bottom of Boring					
18.5	10											
13.5	15											
8.5	20											
3.5	25											

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Project: **TTBH Ambulatory Service Facility**

Project Location: **Brownsville, Cameron County, Texas**

Project Number: **01-19-29134**

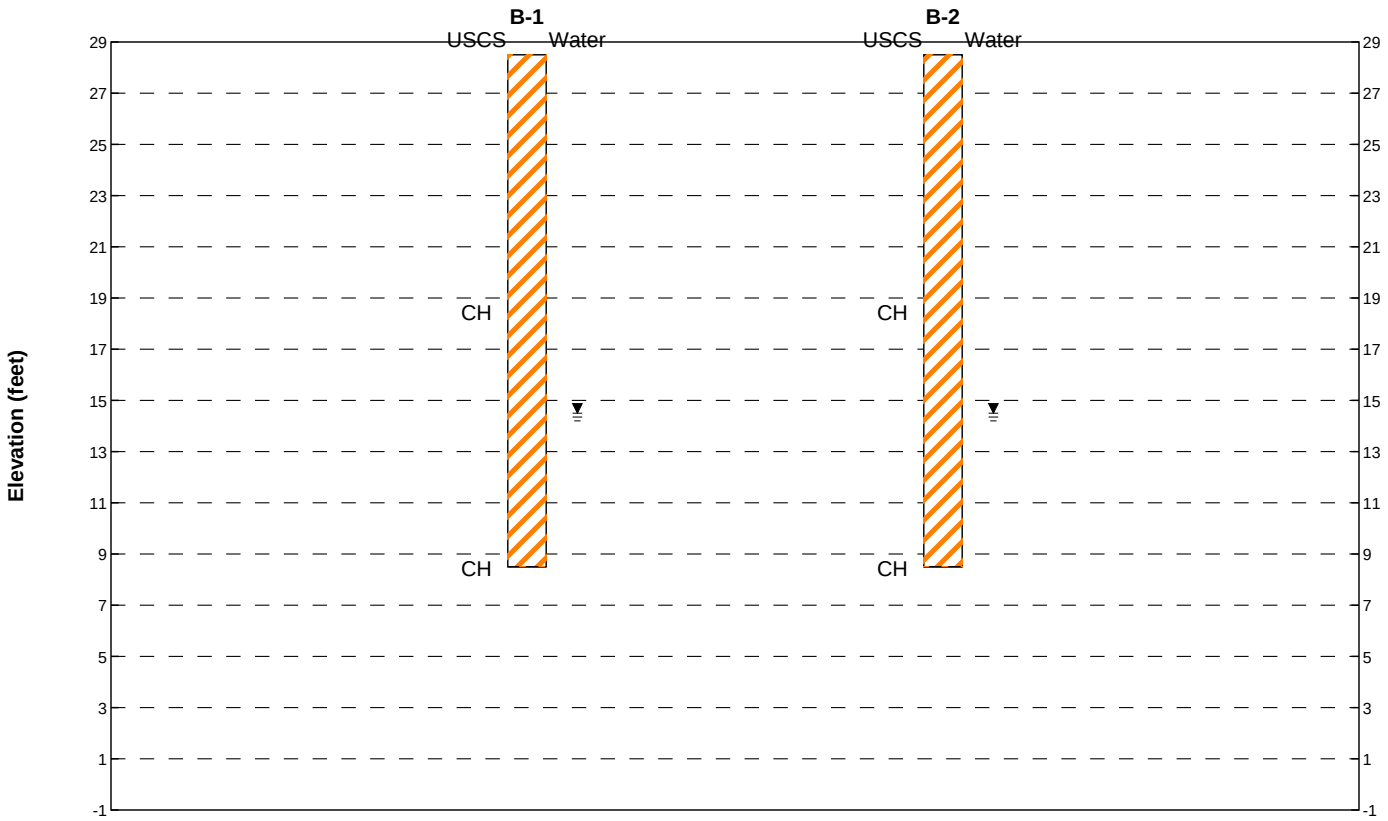
Log of Boring P-4

Sheet 1 of 1

Date(s) Drilled **3/28/2019**	Logged By **D. Juarez**	Checked By **Raul Palma**
Drilling Method **Straight Flight**	Drill Bit Size/Type **4" soil bit**	Total Depth of Borehole **5 feet bgs**
Drill Rig Type **CME 55**	Drilling Contractor **Jedi Drilling**	Approximate Surface Elevation **28.50 feet Ground Elevation (assumed)**
Groundwater Level and Date Measured **None**	Sampling Method(s) **SPT**	Hammer Data **140 lb., 30 in. drop, auto trip**
Borehole Backfill **Subgrade Cuttings**	Location **See Boring Location Map**	

Elevation (feet)	Depth (feet)	Sample Type	Sample Number	Sampling Resistance, blows/ft	Material Type	Graphic Log	MATERIAL DESCRIPTION	Water Content, %	LL, %	PI, %	Percent Fines	REMARKS AND OTHER TESTS
28.5	0				CH		fat CLAY, dark brown, wet, loose to med. dense					
			1	8				21	79	51		
			2	12				23			97	
23.5	5						Bottom of Boring					
18.5	10											
13.5	15											
8.5	20											
3.5	25											

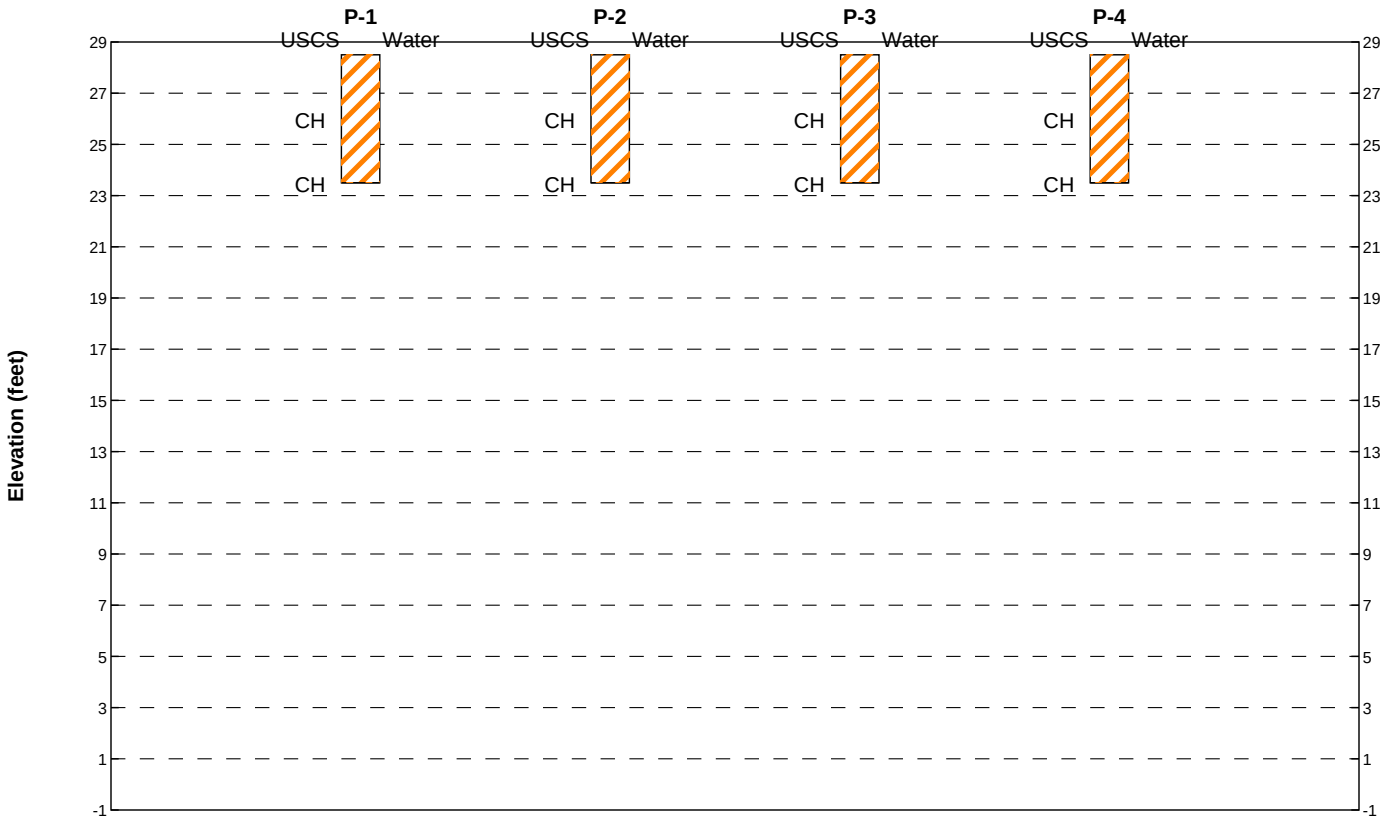
Millennium Engineers Group
MEG ENGINEERS



MATERIAL GRAPHIC SYMBOLS

Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)

Millennium Engineers Group, Inc.	
TTBH - Ambulatory Service Facility	
Project No.	**Figure No.**
01-19-29134	C-1



MATERIAL GRAPHIC SYMBOLS

Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)

Millennium Engineers Group, Inc.	
TTBH - Ambulatory Service Facility	
Project No.	**Figure No.**
01-19-29134	C-2

Project: **TTBH Ambulatory Service Facility**
Project Location: **Brownsville, Cameron County, Texas**
Project Number: **01-19-29134**

Key to Log of Boring

Sheet 1 of 1

1 Elevation (feet)	2 Depth (feet)	3 Sample Type	4 Sample Number	5 Sampling Resistance, blows/ft	6 Material Type	7 Graphic Log	8 MATERIAL DESCRIPTION	9 Water Content, %	10 LL, %	11 PI, %	12 Percent Fines	13 REMARKS AND OTHER TESTS

COLUMN DESCRIPTIONS

1. Elevation (feet): Elevation (MSL, feet).
2. Depth (feet): Depth in feet below the ground surface.
3. Sample Type: Type of soil sample collected at the depth interval shown.
4. Sample Number: Sample identification number.
5. Sampling Resistance, blows/ft: Number of blows to advance driven sampler one foot (or distance shown) beyond seating interval using the hammer identified on the boring log.
6. Material Type: Type of material encountered.
7. Graphic Log: Graphic depiction of the subsurface material encountered.
8. MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
9. Water Content, %: Water content of the soil sample, expressed as percentage of dry weight of sample.
10. LL, %: Liquid Limit, expressed as a water content.
11. PI, %: Plasticity Index, expressed as a water content.
12. Percent Fines: The percent fines (soil passing the No. 200 Sieve) in the sample. WA indicates a Wash Sieve, SA indicates a Sieve Analysis.
13. REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Fat CLAY, CLAY w/SAND, SANDY CLAY (CH)

TYPICAL SAMPLER GRAPHIC SYMBOLS

- Auger sampler
- Bulk Sample
- 3-inch-OD California w/ brass rings
- CME Sampler
- Grab Sample
- 2.5-inch-OD Modified California w/ brass liners
- Pitcher Sample
- 2-inch-OD unlined split spoon (SPT)
- Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

- Water level (at time of drilling, ATD)
- Water level (after waiting)
- Minor change in material properties within a stratum
- Inferred/gradational contact between strata
- Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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Figure B-1

APPENDIX D

SUMMARY OF SOIL SAMPLE ANALYSIS

Summary of Soil Sample Analyses

Project Name: Proposed TTBH – Ambulatory Service Facility

Boring No.	Sample Depth (ft)	Blows Per (ft)	Moisture Content	Liquid Limit	Plastic Limit	Plasticity Index	-200% Sieve	Shear Strength (tsf)	Dry Unit Weight (pcf)	USCS
B-1	.5 - 2	16	28	85	35	50				CH
	2.5 - 4	13	23	61	23	38				CH
	4.5 - 6	17	26							
	6.5 - 8	9	33	85	29	56				CH
	8.5 - 10	16	25				96			
	13.5 - 15	17	34				46			
	18.5 - 20	14	27				97			
B-2	.5 - 2	12	23				98			
	2.5 - 4	23	22							
	4.5 - 6	21	29	82	29	53				CH
	6.5 - 8	30	25				98			
	8.5 - 10	23	24	56	28	28				CH
	13.5 - 15	31	30	69	28	41				CH
	18.5 - 20	18	23							
P-1	.5 - 2	9	23	78	28	50				CH
	3.5 - 5	10	31				99			
P-2	.5 - 2	7	27	69	27	42				CH
	3.5 - 5	16	25				99			
P-3	.5 - 2	6	20	82	32	50				CH
	3.5 - 5	10	29				82			
P-4	.5 - 2	8	21	79	28	51				CH
	3.5 - 5	12	23				97			

APPENDIX E

LABORATORY AND FIELD PROCEDURES

Laboratory and Field Test Procedures

Soil Classification Per ASTM D2487-93:

This soil-testing standard was used for classifying soils according to the Unified Soil Classification System. The soil classifications of the earth materials encountered are as noted in the attached boring logs.

Soil Water Content Per ASTM D2216-92:

This test determines the water content of soil or rock expressed as a percentage of the solid mass of the soil. The test results are listed under **MC** in the attached boring logs.

Soil Liquid Limit Per ASTM D4318-93:

The soil Liquid Limit identifies the upper limit soil water content at which the soil changes from a moldable (plastic) physical state to a liquid state. The Liquid Limit water content is expressed as a percentage of the solid mass of the soil. The test results are listed under **LL** in the attached boring logs.

Soil Plastic Limit Per ASTM D4318-93:

The soil Plastic Limit identifies lower limit soil water content at which the soil changes from a moldable (plastic) physical state to a non-moldable (semi-solid) physical state. The Plastic Limit water content is expressed as a percentage of the solid mass of the soil. The test results are listed under **PL** in the attached boring logs.

Plasticity Index Per ASTM D4318-93:

This is the numeric difference between the Liquid Limit and Plastic Limit. This index also defines the range of water content over which the soil-water system acts as a moldable (plastic) material. Higher Plasticity Index (PI) values indicate that the soil has a greater ability to change in soil volume or shrink and swell with lower or higher water contents, respectively. The test results are listed under **PI** in the attached boring logs.

Standard Penetration Test (SPT) and Split Spoon Sampler (SS) per ASTM D 1586:

This is the standard test method for both the penetration test and split-barrel (spoon) sampling of soils. This sampling method is used for soils or rock too hard for sampling using Shelby Tubes. The method involves penetration of a split spoon sampler into the soil or rock through successive blows of a 140-pound hammer in a prescribed manner.

Blow Counts (N) per ASTM D 1586:

This is the number of blows required to drive a Split Spoon Sampler by means of a 140 pound hammer for a distance of 12 inches in accordance with the variables stated in the test procedures.

Shelby Tube (ST) per ASTM D 1587:

This procedure is for using a thin-walled metal tube to recover relatively undisturbed soil samples suitable for laboratory tests of physical properties.

Dry Density (DD) per ASTM D 2937:

This procedure is for the determination of in-place density of soil. The test results are measured in pounds per cubic foot, pcf.

Unconfined Compression Test (Uc) per ASTM D 2166:

This test method covers the determination of the unconfined compressive strength of cohesive soil in the undisturbed, remolded, or compacted condition, using strain-controlled application of the axial load.

Minus No. 200 Sieve per ASTM D 1140:

This test method covers determination of the amount of material finer than a Number 200 sieve by washing. The results are stated as a percent of the total dry weight of the sample.

Pocket Penetrometer (PP):

This test method is an accepted modification of ASTM D 1558 test method for establishing the moisture-penetration resistance relationships of fine-grained soils. The test results are measured in tons per square foot, tsf. The strength values provided by this method should be considered qualitatively.

Rock Quality Designation (RQD):

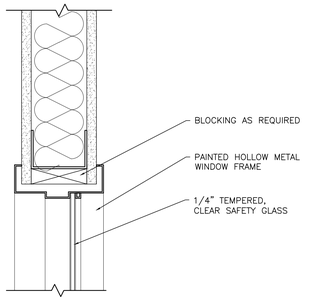
The measure of the quality of a rock mass defined by adding intact rock core pieces greater than four inches in length by the total length of core advance.

Recovery Ratio (REC):

The Recovery Ratio is equal to the total length of core recovered divided by the total length of core advance.

Boring Logs:

This is a summary of the above-described information at each boring location.



20 INTERIOR WINDOW HEADER/JAMB DETAIL

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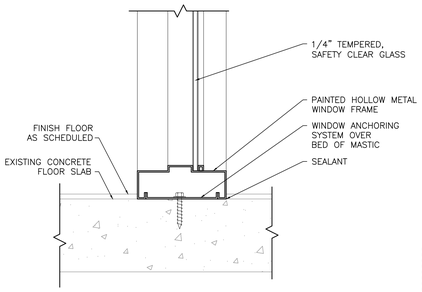

19 INTERIOR WINDOW SILL DETAIL

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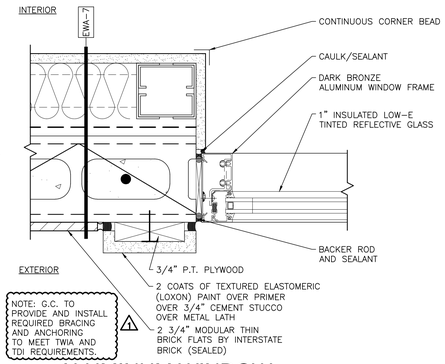

18 ALUMINUM WINDOW JAMB DETAIL

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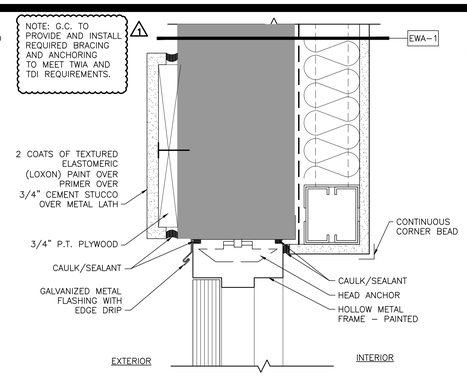
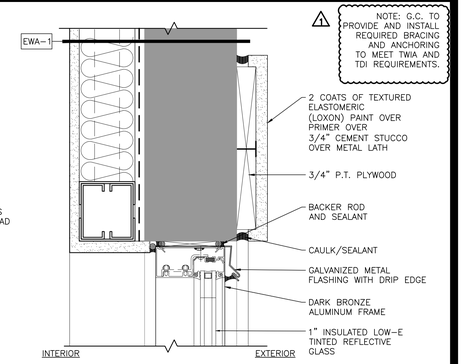


17 HOLLOW METAL DOOR HEAD DETAIL

SCALE: 3"=1'-0" DOOR_HEAD_DETL_03



16 ALUMINUM DOOR HEAD DETAIL

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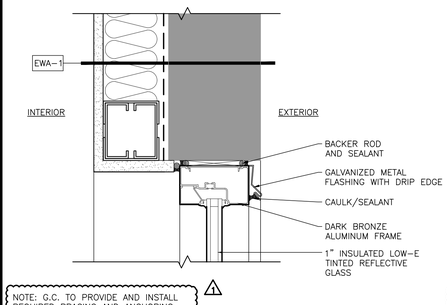
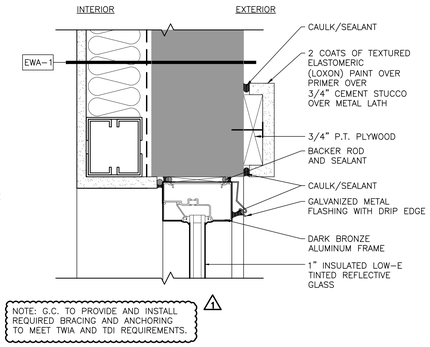


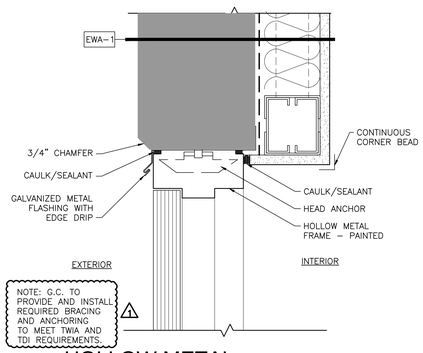
15 ALUMINUM WINDOW HEAD DETAIL

SCALE: 3"=1'-0" WIND_HEAD_DETL_004



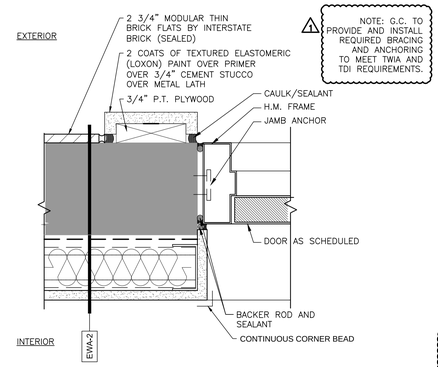
14 WINDOW HEADER DETAIL

SCALE: 3"=1'-0" WIND_HEAD_DETL_03



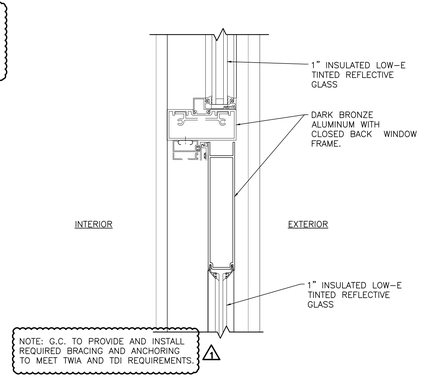
13 HOLLOW METAL DOOR HEAD DETAIL

SCALE: 3"=1'-0" DOOR_HEAD_DETL_001



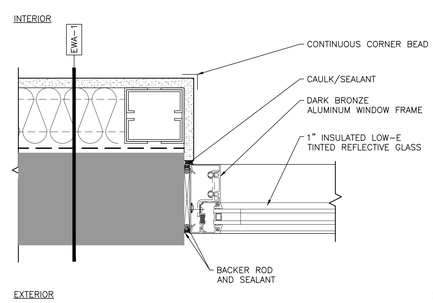
12 DOOR JAMB DETAIL

SCALE: 3"=1'-0" DOOR_JAMB_DETL_011



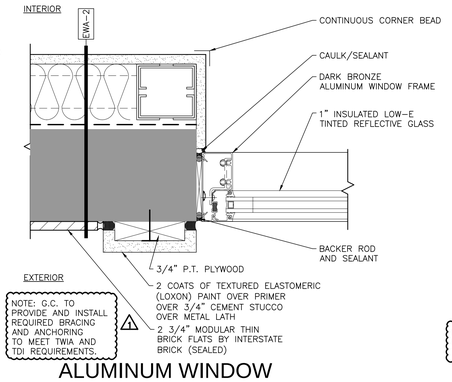
11 DOOR HEAD DETAIL

SCALE:3"=1'-0" DOOR_HEAD_DETL_01



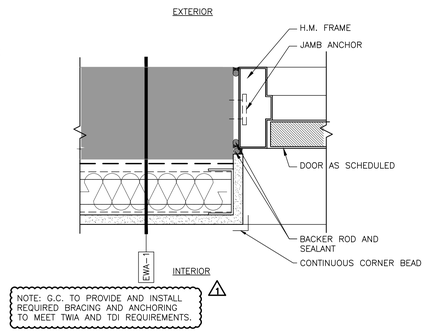
10 ALUMINUM WINDOW JAMB DETAIL

SCALE:3"=1'-0" WIND_JAMB_DETL_03



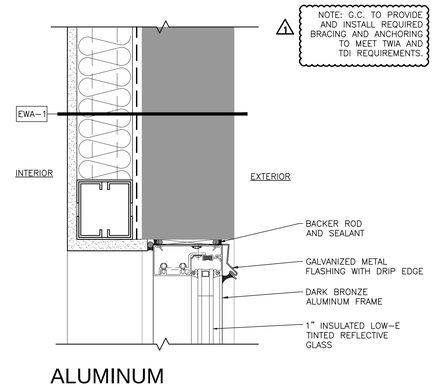
9 ALUMINUM WINDOW JAMB DETAIL

SCALE:3"=1'-0" WIND_JAMB_DETL_04



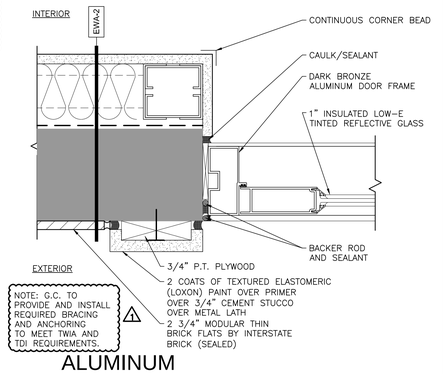
8 DOOR JAMB DETAIL

SCALE: 3"=1'-0" DOOR_JAMB_DETL_001



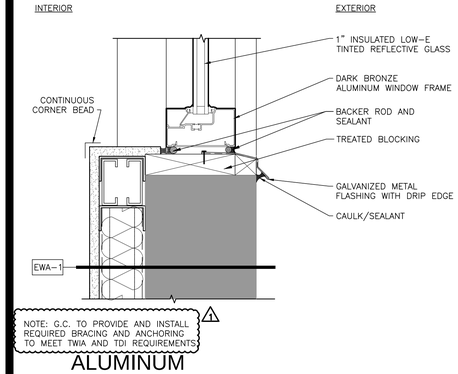
7 ALUMINUM DOOR HEAD DETAIL

SCALE: 3"=1'-0" DOOR_HEAD_DETL_06



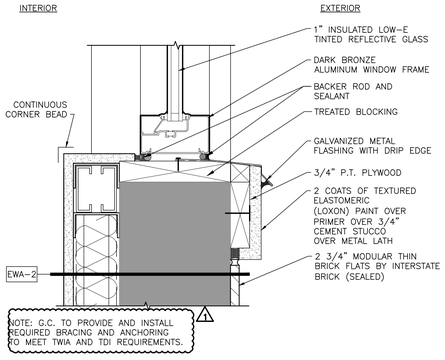
6 ALUMINUM DOOR JAMB DETAIL

SCALE: 3"=1'-0" DOOR_JAMB_DETL_05



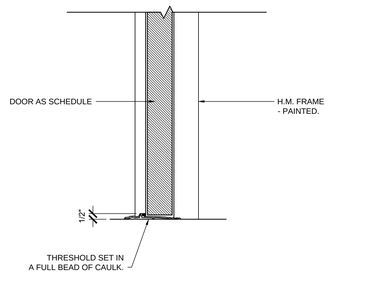
5 ALUMINUM WINDOW SILL DETAIL

SCALE: 3"=1'-0" WIND_SILL_DETL_01



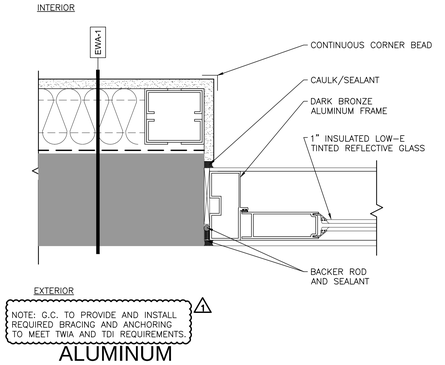
4 WINDOW SILL DETAIL

SCALE: 3"=1'-0" WIND_SILL_DETL_003



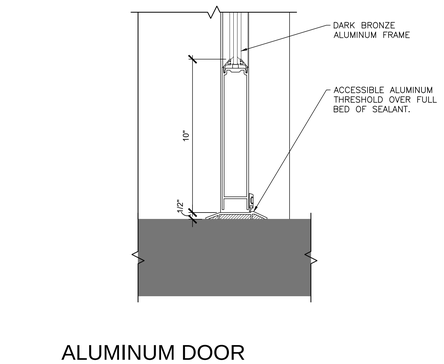
3 DOOR THRESHOLD DETAIL

SCALE: 3"=1'-0" DOOR_THLD_001



2 ALUMINUM DOOR JAMB DETAIL

SCALE: 3"=1'-0" DOOR_JAMB_DETL_06



1 ALUMINUM DOOR THRESHOLD DETAIL

SCALE: 3" = 1'-0" DOOR_THLD_002

THE WARREN GROUP ARCHITECTS, INC.
1801 SOUTH SECOND ST.
SUITE 330
McALLEN, TX 78503
956.994.1900
twgarch.com

REVISION	DATE	APPROVED BY	DESCRIPTION
ADD1	5-30-2019	TWG	REFER ADDENDUM 1 ITEM: NO. 3

SEAL

REGISTERED ARCHITECT — JAIME A. WARREN — 18378 — STATE OF TEXAS

EXP 10-31-19

PROPOSED

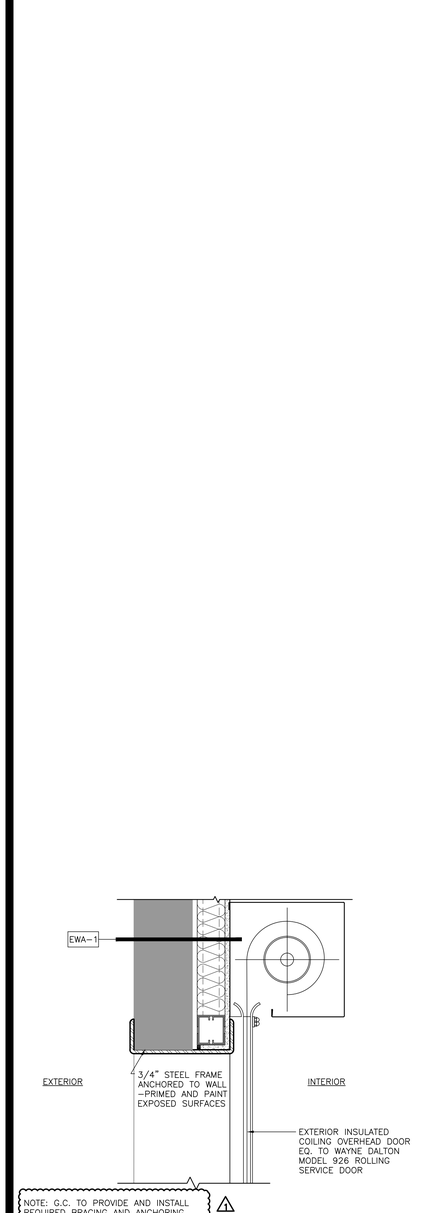
TROPICAL TEXAS BEHAVIORAL HEALTH-AMBULATORY SERVICE FACILITY

871 OLD ALICE ROAD
BROWNSVILLE, TEXAS

PROJECT	1591801
DATE	05/17/2019
REVISED	05/30/2019

A5.12 ADD1

DOOR AND WINDOW DETAILS



5 OVERHEAD DOOR HEADER DETAIL

SCALE: 1-1/2"=1'-0"

DOOR_HEAD_DETL_002

4 DOCK DOOR JAMB DETAIL

SCALE: 3"=1'-0"

DOOR_JAMB_DETL_002

3 OVERHEAD DOOR THRESHOLD DETAIL

SCALE: 3" = 1'-0"

DOOR_TRSH_DETL_003

2 INTERIOR DOOR HEAD DETAIL

SCALE: 3"=1'-0"

DOOR_HEAD_DETL_04

1 INTERIOR DOOR JAMB DETAIL

SCALE: 3"=1'-0"

DOOR_JAMB_DETL_04

THE WARREN GROUP
ARCHITECTS, INC.

1801 SOUTH SECOND ST.
SUITE 330
McALLEN, TX 78503
956.994.1900
twgarch.com

REVISION	DATE	APPROVED BY	DESCRIPTION
ADD1	5-30-2019	TWG	REFER ADDENDUM 1 ITEM: NO. 3

SEAL

REGISTERED ARCHITECT
ANNA K. WARREN
18378
STATE OF TEXAS

EXP 10-31-19

PROPOSED

TROPICAL TEXAS BEHAVIORAL HEALTH-AMBULATORY SERVICE FACILITY

871 OLD ALICE ROAD
BROWNSVILLE, TEXAS

PROJECT	1591801
DATE	05/17/2019
REVISED	05/30/2019

A5.13 ADD1

DOOR AND WINDOW DETAILS

DOOR SCHEDULE

OPENING No.	LOCATION TO	SWING	DOOR FIRE RATING	DOOR TYPE	DOOR FINISH	DOOR SIZE	DOOR ELEV.	FRAME TYPE	FRAME FINISH	FRAME ELEV.	REMARKS (TO LH / RH / LHR / RHR LOCATION)
101	EXTERIOR TO LOBBY 101	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-10"	B	ALUM.	DARK BRONZE		RE: ADD1 ITEM NO.3
103	OPEN AREA 134 TO OFFICE TBD 103	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
104A	LOBBY 101 TO FLOATER HR 104	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
104B	MEETING 125 TO FLOATER HR 104	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
105	LOBBY 101 TO RR 105	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
106	CORRIDOR 109 TO COPY/BREAK 106	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
107	CORRIDOR 109 TO FILE STORAGE 107	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 2'-0" X 7'-0"	J	H.MTL.	PNT-1		
108	CORRIDOR 109 TO OFFICE 108	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
109A	LOBBY 101 TO CORRIDOR 109	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
109B	EXTERIOR TO CORRIDOR 109	LHR	–	HOLLOW METAL	PNT-7	3'-0" X 8'-0"	K	H.MTL.	PNT-7		RE: ADD1 ITEM NO.3
110	CORRIDOR 109 TO LAB 110	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
111	CORRIDOR 109 TO RR 111	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
112	CORRIDOR 109 TO GROUP THERAPY 112	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
113	CORRIDOR 113 TO CORRIDOR 116	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
114	CORRIDOR 109 TO OFFICE 114	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
115	CORRIDOR 109 TO OFFICE 115	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
117	EXTERIOR TO CORRIDOR 117	EXST. TO REMAIN	–	EXISTING TO REMAIN	PNT-7	EXISTING TO REMAIN	–	EXST. TO REMAIN	PNT-7		
118	CORRIDOR 117 TO IDF 118	LH	1 HR.	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
119	CORRIDOR 116 TO OFFICE 119	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
120A	EXTERIOR TO MAINTENANCE 120	OVERHEAD	–	–	–	10'-0" X 12'-0"	–	–	–		REF:SPECS.
120B	CORRIDOR 116 TO MAINTENANCE 120	DOUBLE	–	HOLLOW METAL	PNT-1	(2) 3'-0" X 7'-0"	E	H.MTL.	PNT-1		
121	CORRIDOR 116 TO MAIL ROOM 121	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
122	CORRIDOR 122 TO CORRIDOR 149	DOUBLE	–	HOLLOW METAL	PNT-1	(2) 3'-0" X 7'-0"	F	H.MTL.	PNT-1		
123	CORRIDOR 122 TO BREAK ROOM 123	DOUBLE	–	HOLLOW METAL	PNT-1	(2) 3'-0" X 7'-0"	G	H.MTL	PNT-1		
124	CORRIDOR 122 TO CORRIDOR 124	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 8'-0"	H	H.MTL.	PNT-1		
125	CORRIDOR 116 TO MEETING 125	RHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
126A	MEETING 125 TO STORAGE 126	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 3'-0" X 7'-0"	E	H.MTL.	PNT-1		
126B	MEETING 125 TO STORAGE 126	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 3'-0" X 7'-0"	E	H.MTL.	PNT-1		
127	CORRIDOR 122 TO CORRIDOR 127	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
129	CORRIDOR 128 TO SUPERVISOR 129	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
130	CORRIDOR 128 TO SUPERVISOR 130	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
131	CORRIDOR 128 TO SUPERVISOR 131	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
132	CORRIDOR 128 TO MANAGER 132	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
135	CORRIDOR 133 TO SUPERVISOR 135	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
136	CORRIDOR 137 TO STORAGE 136	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 3'-0" X 7'-0"	E	H.MTL.	PNT-1		
137	CORRIDOR 137 TO CORRIDOR 149	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
138	CORRIDOR 137 TO FLOATER 138	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
139	CORRIDOR 137 TO FLOATER 139	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
140A	CORRIDOR 137 TO IDD CONFERENCE 140	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
140B	IDD CONFERENCE 140 TO CORRIDOR 143	RHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
141	CORRIDOR 133 TO CIS/IDD 141	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
142	CORRIDOR 143 TO ASSIST 142	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
143A	LOBBY 101 TO CORRIDOR 143	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
143B	CORRIDOR 143 TO CORRIDOR 149	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
144	CORRIDOR 143 TO TEST 144	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
145	CORRIDOR 143 TO CIS/IDD 145	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
146	CORRIDOR 143 TO INTAKE 146	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
147	CORRIDOR 143 TO INTAKE 147	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
148	CORRIDOR 143 TO CONTRACT SPECIALIST 148	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
149	EXTERIOR TO CORRIDOR 149	LHR	–	HOLLOW METAL	PNT-7	3'-0" X 8'-0"	G	H.MTL.	PNT-7		RE: ADD1 ITEM NO.3

DOOR SCHEDULE

OPENING No.	LOCATION TO	SWING	DOOR FIRE RATING	DOOR TYPE	DOOR FINISH	DOOR SIZE	DOOR ELEV.	FRAME TYPE	FRAME FINISH	FRAME ELEV.	REMARKS (TO LH / RH / LHR / RHR LOCATION)
151	CORRIDOR 150 TO OFFICE TBD 151	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
152	CORRIDOR 150 TO FLOATER 152	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
153	CORRIDOR 153 TO CORRIDOR 200	LH	–	HOLLOW METAL	PNT-1	3'-0" X 7'-0"	G	H.MTL.	PNT-1		
155	CORRIDOR 153 TO WOMEN 155	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
156	CORRIDOR 153 TO JANITOR 156	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
157	CORRIDOR 153 TO MEN 157	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
158A	CORRIDOR 122 TO TRAINING ROOM 158	RH	–	PLASTIC LAMINATE	PL-4	MATCH 173 DOOR HT.	–	H.MTL.	PNT-1		
158B	TRAINING ROOM 158 TO CORRIDOR 159	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
161	CORRIDOR 159 TO STORAGE 161	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 2'-0" X 7'-0"	J	H.MTL.	PNT-1		
164	CORRIDOR 163 TO SUPERVISOR 164	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
165	CORRIDOR 163 TO SUPERVISOR 165	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
166	CORRIDOR 163 TO SUPERVISOR 166	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
167	CORRIDOR 163 TO SUPERVISOR 167	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
168	CORRIDOR 163 TO SUPERVISOR 168	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
169	CORRIDOR 163 TO SUPERVISOR 169	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
173	CORRIDOR 122 TO CORRIDOR 173	LHR	–	PLASTIC LAMINATE	PL-4	MATCH EXISTING HT.	–	EXST. TO REMAIN	EXST. TO REMAIN		
174	EXTERIOR TO CORRIDOR 174	EXISTING TO REMAIN	–	EXISTING TO REMAIN	PNT-7	EXISTING TO REMAIN	–	EXST. TO REMAIN	PNT-7		
175	CORRIDOR 174 TO FLOATER 175	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
176	CORRIDOR 174 TO FLOATER MNGR. 176	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
177A	CORRIDOR 174 TO CONFERENCE RM 177	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
177B	CORRIDOR 174 TO CONFERENCE RM 177	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
179	CORRIDOR 178 TO SUPERVISOR 179	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
180	CORRIDOR 178 TO SUPERVISOR 180	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
181	CORRIDOR 178 TO SUPERVISOR 181	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
182	CORRIDOR 178 TO SUPERVISOR 182	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
183A	EXTERIOR TO VESTIBULE 183	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 7'-0"	D	ALUMINUM	DARK BRONZE		RE: ADD1 ITEM NO.3
183B	CORRIDOR 122 TO VESTIBULE 183	DOUBLE	–	HOLLOW METAL	PNT-7	(2) 3'-0" X 7'-0"	F	H.MTL.	PNT-7		
184	VESTIBULE 183 TO ELECTRICAL 184	RHR	–	HOLLOW METAL	PNT-1	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
185	EXTERIOR TO LOBBY 185	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-0"	A	H.MTL.	PNT-1		RE: ADD1 ITEM NO.3
186	LOBBY 185 TO RR 186	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
188	CORRIDOR 189 TO STORAGE 188	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
189	LOBBY 185 TO CORRIDOR 189	LHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
190	CORRIDOR 189 TO RR 190	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
192	CORRIDOR 193 TO COUNSELOR 192	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
193	EXTERIOR TO CORRIDOR 193	RHR	–	HOLLOW METAL	PNT-7	3'-0" X 7'-0"	H	H.MTL.	PNT-7		RE: ADD1 ITEM NO.3
194	CORRIDOR 193 TO PSYCHIATRIST 194	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
195	CORRIDOR 189 TO GROUP 195	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
196A	EXTERIOR TO SHELL 196	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-0"	A	ALUMINUM	DARK BRONZE		RE: ADD1 ITEM NO.3
196B	CORRIDOR 149 TO SHELL 196	LHR	–	HOLLOW METAL	PL-1	3'-0" X 7'-0"	G	H.MTL.	PNT-1		
196C	CORRIDOR 149 TO SHELL 196	LHR	–	HOLLOW METAL	PL-1	3'-0" X 7'-0"	G	H.MTL.	PNT-1		
196D	CORRIDOR 200 TO SHELL 196	LHR	–	HOLLOW METAL	PNT-1	3'-0" X 7'-0"	G	H.MTL.	PNT-1		
196E	EXTERIOR TO SHELL 196	EXST. TO REMAIN	–	EXISTING TO REMAIN	PNT-7	EXISTING TO REMAIN	–	EXST.	PNT-7		RE: ADD1 ITEM NO.3
196F	EXTERIOR TO SHELL 196	EXST. TO REMAIN	–	EXISTING TO REMAIN	PNT-7	EXISTING TO REMAIN	–	EXST.	PNT-7		RE: ADD1 ITEM NO.3
196G	EXTERIOR TO SHELL 196	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-0"	A	ALUMINUM	DARK BRONZE		RE: ADD1 ITEM NO.3
196H	EXTERIOR TO SHELL 196	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-0"	A	ALUMINUM	DARK BRONZE		RE: ADD1 ITEM NO.3
196I	EXTERIOR TO SHELL 196	DOUBLE	–	ALUMINUM	DARK BRONZE	(2) 3'-0" X 8'-0"	A	ALUMINUM	DARK BRONZE		RE: ADD1 ITEM NO.3
200	EXTERIOR TO CORRIDOR 200	RHR	–	HOLLOW METAL	PNT-7	3'-0" X 7'-0"	G	H.MTL.	PNT-7		RE: ADD1 ITEM NO.3
201	EXTERIOR TO PUMP ROOM 201	RHR	–	HOLLOW METAL	PNT-7	3'-0" X 7'-0"	H	H.MTL.	PNT-7		RE: ADD1 ITEM NO.3
202	WOMEN 155 TO LACTATION 202	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
203	CORRIDOR 116 TO JANITOR 203	RHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
204	CORRIDOR 189 TO JANITOR 204	RHR	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	H	H.MTL.	PNT-1		
205	CORRIDOR 122 TO FLOATER 205	RH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
206	CORRIDOR 149 TO FLOATER 206	LH	–	PLASTIC LAMINATE	PL-4	3'-0" X 7'-0"	I	H.MTL.	PNT-1		
207	FLOATER 152 TO STORAGE 207	DOUBLE	–	PLASTIC LAMINATE	PL-4	(2) 2'-0" X 7'-0"	J	H.MTL.	PNT-1		

WINDOW SCHEDULE

ELEV.	TYPE	FRAME TYPE	FRAME FINISH	GLAZING	SIZE	REMARKS
A	FIXED	ALUMINUM	DARK BRONZE	1" INSULATED LOW-E TINTED REFLECTIVE	6'-0" X 5'-8"	RE: ADD1 ITEM NO.3
B	FIXED	HOLLOW METAL	PNT-1	1/4" CLEAR SAFETY GLASS	7'-9" X 7'-2"	
C	FIXED	ALUMINUM	DARK BRONZE	1" INSULATED LOW-E TINTED REFLECTIVE	4'-0" X 5'-8"	RE: ADD1 ITEM NO.3
D	FIXED	ALUMINUM	DARK BRONZE	1" INSULATED LOW-E TINTED REFLECTIVE	6'-0" X 1'-0"	RE: ADD1 ITEM NO.3
E	FIXED	ALUMINUM	DARK BRONZE	1" INSULATED LOW-E TINTED REFLECTIVE	6'-0" X 2'-0"	RE: ADD1 ITEM NO.3
F	FIXED	ALUMINUM	DARK BRONZE	1" INSULATED LOW-E TINTED REFLECTIVE	10'-0" X 2'-0"	RE: ADD1 ITEM NO.3

NOTE:

THE WARREN GROUP ARCHITECTS, INC.
1801 SOUTH SECOND ST.
SUITE 330
McALLEN, TX 78503
956.994.1900
twgarch.com

REVISION	DATE	APPROVED BY	DESCRIPTION
ADD1	5-30-2019	TWG	PER ADDENDUM 1 ITEM NO. 3

SEAL

REGISTERED ARCHITECT — 18378 — STATE OF TEXAS

EXP 10-31-19

PROPOSED

TROPICAL TEXAS BEHAVIORAL HEALTH-AMBULATORY SERVICE FACILITY

871 OLD ALICE ROAD
BROWNSVILLE, TEXAS

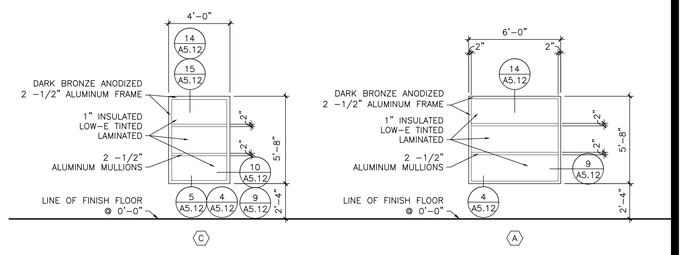
PROJECT	1591801
DATE	05/17/2019
REVISED	05/30/2019

A6.21 ADD1

DOOR & WINDOW SCHEDULES

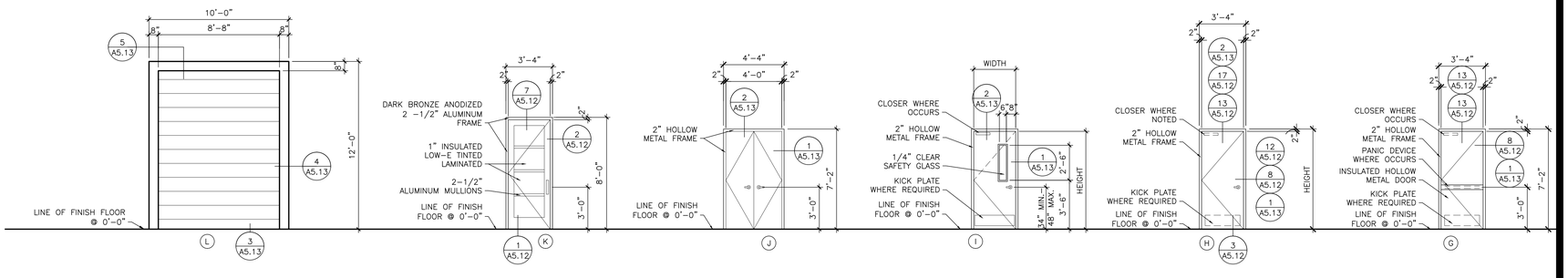
SHEET NOTES

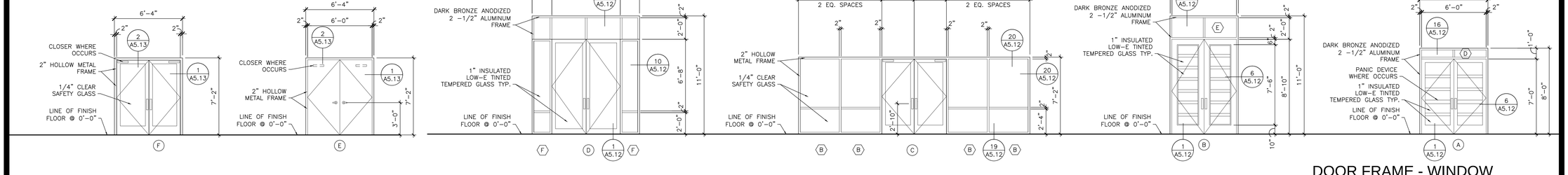
1. G.C. TO PROVIDE AND INSTALL ALL REQUIRED BRACING AND ANCHORING AT ALL EXTERIOR DOORS AND WINDOWS TO MEET TWIA AND TDI.



3 WINDOW ELEVATIONS

SCALE: 1/4"=1'-0"





2 DOOR ELEVATIONS

SCALE: 1/4"=1'-0"

1 DOOR FRAME - WINDOW ASSEMBLY ELEVATIONS

SCALE: 1/4"=1'-0"

THE WARREN GROUP
ARCHITECTS, INC.

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McALLEN, TX 78503
956.994.1900
twgarch.com

REVISION	DATE	APPROVED BY	DESCRIPTION
ADD1	5-30-2019	TWG	REFER ADDENDUM 1 ITEM NO. 3

SEAL

REGISTERED ARCHITECT
DONNA K. WARREN
18378
STATE OF TEXAS

EXP 10-31-19

PROPOSED

TROPICAL TEXAS BEHAVIORAL HEALTH-AMBULATORY SERVICE FACILITY

871 OLD ALICE ROAD
BROWNSVILLE, TEXAS

PROJECT	1591801
DATE	05/17/2019
REVISED	05/30/2019

A6.22 ADD1

DOOR & WINDOW ELEVATIONS