C•F•Z Group, LLC
Coltrane•Fernandez•Zavala
Landscape Architects
7410 John Smith, #208
San Antonio, Texas 78229
210-366-1911

ADDENDUM NO. 04

PROJECT NAME: McAllister Park
TCI PROJECT NO.: 40-00375
DATE: February 11, 2015

To: All Prime Contract Bidders and all others to whom drawings and specifications have been issued.

This Addendum forms a part of the Contract Documents. This Addendum modifies and supplements the Contract Documents as follows for the above mentioned project. All other provisions of the Documents remain unchanged.

GENERAL CHANGES

Item No. 1: RFI #001
Please see the attached response to RFI #001

Item No. 2: Approved equal
Poligon Steel Shelters product numbers RAM 30x44 SS and CWC 14x15 SS have been approved equal for the pavilion at Dog Park/Practice Field. See attached specification and drawings.

CHANGES TO SPECIFICATIONS

Item No. 3: Clarification of picnic shelter product number & specifications
The correct product number for the picnic shelters at the Dog Park/Practice Field is MC14x16S-P2. See attached specification.

CHANGES TO DRAWINGS

Item No. 4: Sheet L5.5 – Pavilion details
Replace previously issued sheet, dated 11/20/2014, with attached revised and reissued sheet, dated **02/11/2015.**
Tongue and groove decking is removed from the pavilion at the Dog Park/Practice Field. The correct product number for the pavilion is RH30x44S-P4, **not** RH30x44TS-P4.

END OF ADDENDUM No. 04 **2/11/2015**

City of San Antonio

TRANSPORTATION AND CAPITAL IMPROVEMENTS

RECEIPT OF ADDENDUM NUMBER(S) **04** IS HEREBY ACKNOWLEDGED FOR PLANS AND

SPECIFICATIONS FOR CONSTRUCTION OF **MCALLISTER PARK RENOVATIONS 40-00375**

FOR WHICH BIDS WILL BE OPENED ON **MARCH 3, 2015**

THIS ACKNOWLEDGEMENT MUST BE SIGNED AND RETURNED WITH THE BID PACKAGE.

Company Name: _____

Address: _____

City/State/Zip Code: _____

Date: _____

_____
Signature

_____
Print Name/Title

Addendum No. 04

Attachment 1

1. Is there a Geo Report? 6" Lime Treated Sub Grade C-9.0 ?
   Response: Geotechnical report has been conducted and is included in this addendum. See attached.

2. Lime Treated Sub Grade Required? if so no Spec.
   Response: See attached specification Item #108 Lime Treated Subgrade.

3. Concrete Creek Crossing L1.6 Note #16 NEW, C7.0 Existing Trail, L2.6 Reconstructed ? Which one is Correct?
   Response: Disregard note 16 on sheet L1.6. Existing concrete trail at creek crossing is to remain. Per sheet C-7.0, gabion mats are to be added on either side of trail.

4. Unit Prices #18 19 20 Fixtures not Part of this Job? No Spec.
   Response: See updated form 025 Unit Price form issued in Addendum 3, February 6, 2015.

5. Unit Price Note #12 & 21 Same note Drain Box, None Shown on Plans no Detail no Spec? What do we Price?
   Response: See updated form 025 Unit Price form issued in Addendum 3, February 6, 2015.

6. Spec 3.73 Separated Contract? 151.311 United States Tax Code ? Texas Sales Tax? This bid looks Lump Some?
   Response: Regarding clarification for "PREPARATION OF BIDS, Sub Section 3.7.3 Separated Contract" of the General Conditions Document, the City of San Antonio will provide the contractor with a Tax Exempt certificate that allows the contractor to obtain goods and services for that specific project and only for duration of the construction.

7. Deductive Alternate # 5 Picnic Units 5 Total, We only Find 3 Total?
   Response: There are a total of three (3) Picnic Units. All are part of Deductive Alternate #5. See attached updated 020 Bid Form.

8. What is the Trail Repair Additive Alternate #1 & #2 ?
   Response: Additive Alternate #1 & #2 will be issued at a later date. Refer to Addendum #3, February 6, 2015.

9. Alternate # 6 Both Parking Areas? Dog Park Parking Lot & Dog Park Practice Field Parking Lot ?
   Response: Deductive Alternate #6 includes the location referred to as "Dog Park/Practice Field" in Landscape Drawings (L1, L2, L3, L4 and L5 series). Dog Park Parking Lot (L2.17) is **not** part of Deductive Alternate #6.

RFI #001 Response

Attachment 1

142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

November 17, 2014
Arias Job No. 2014-536

Via Email: carlos.mendez@SanAntonio.Gov

Mr. Carlos Mendez, AIA
City of San Antonio (CoSA)
506 Dolorosa, Suite 103
San Antonio, Texas 78283

RE: Geotechnical Engineering Study (Addendum # 1)
McAllister Park Improvements
13102 Jones Maltsbeger Road
San Antonio, Texas

Dear Mr. Mendez:

Arias & Associates, Inc. (ARIAS) is submitting this addendum for the above referenced project located in San Antonio, Texas. Our scope of services was performed in general accordance with our on-call contract for Geotechnical Engineering and Construction Materials Testing between ARIAS and the COSA. The Original Geotechnical study was performed as described in ARIAS Proposal No. 2014-536, (revised September 9, 2014), and was authorized on October 3, 2014 by email authorization from Mr. Arthur M. Rossman at the Office of the City Architect.

ARIAS previously completed the geotechnical study report for this project dated November 3, 2014, to establish pavement and slab on grade foundation design parameters of the subsurface soil and groundwater conditions present at the site for new pavement parking areas, a pavilion structure, and a portable restroom slab for a 1-inch design PVR. At the time of our original report, we were not made aware of the construction of miscellaneous structures such as picnic tables, nor did we provide foundation design requirements for these elements in our original report.

Additionally, this Addendum contains clarification about foundation design parameters for the perimeter beams, and the requirement for the horizontal barrier as described in the report on Page I-3 (Note 9) and on Page II-6 as requested by the Structural Engineer in communication with ARIAS. Therefore, we have been asked to provide this addendum letter with clarification about the foundation design recommendations for the pavilion structure, portable restroom slab, and park tables.

Pavilion Structure

In lieu of utilizing the sheeting and 24” of compacted clay with PI of 15 to 35, the 10’ horizontal barrier could alternately be comprised of 24” of compacted clay with a PI of 40 or greater with no sheeting. However, deletion of the sheeting coupled with use of a higher PI clay means that the Owner must be willing to accept additional risk for increased movements and maintenance over the life of the structure.

The soil Boring B-1 was drilled at the approximate location of the proposed pavilion structure. The upper material encountered at Boring B-1 was a clayey gravel with only 17% passing the #200 sieve (i.e. only 17% clay fraction). Although it meets the criteria for PI for the PI > 40 option, that particular sample contains far too much gravel to be utilized as a clay liner. However, the materials encountered at B-2, B-3 and B-4 had samples that did have #200 results at or above 50% (i.e. clay fraction) and a PI > 40, so those materials would be suitable. It is likely that the surficial materials in the area of Borings B-1 through B-4 are borderline clayey gravels/gravelly clays/sandy clays. During construction, observation and testing should be performed in order to determine which materials are suitable and which are not based on the #200 and PI results. Segregating out the gravels from the clays could also be performed in order to wind up with a "cleaner" clay material for use as the clay cap.

Please note that the depth to marlstone or clayey marl is likely to vary across the site (as seen in the borings) and that B-1 is only a "snapshot" at that particular location (i.e. the surficial soils could be shallower or deeper in the pavilion area). Based on Boring B-1 since the underlying marl appears to be lower PI, we do not take exception to the horizontal clay liner being a thickness of 18" in lieu of the 24" originally specified for the proposed pavilion. Please note that the minimum depth of 18-inches for the perimeter beams pertain to the pavilion structure proposed at the location of Boring B-1 only.

Temporary Restroom Slab and Miscellaneous Structures

At the time of our original report, we were not made aware of the addition of miscellaneous structures such as picnic tables nor did we provide foundation design parameters for these elements in our report. Slabs for these structures should include steel reinforcement as determined by the structural engineer. The slab thickness and the amount of steel reinforcement should be selected by the project structural engineer to resist the proposed structural loads.

A slab-on-grade foundation for the park tables with a 12-inch turn down perimeter beam with a minimum 5-inch thick slab supported on 7 inches of compacted crushed limestone base, after scarifying, moisture conditioning, and compacting 6 inches of the subgrade can be used. We understand that the portable restroom will be supported on flatwork enclosed by 4 fence posts (each supported on shallow individual footings). Based upon this information, we anticipate that additional maintenance could be required over the life of the pads for the temporary restroom slab and miscellaneous structures constructed at the site. The Owner must be willing to accept the risk in proceeding with the proposed foundation details for potential increased movements and maintenance over the life of the structure. If so, then the moisture barrier could be omitted at the slabs for the temporary restroom and picnic tables.

Review

The soil borings drilled as part of our study encountered approximately 2 - 6 feet of FAT CLAY (CH) with a measured Plasticity Index (PI) ranging from 41 - 47, and underlain by Clayey Marl to Marlstone & LEAN CLAY with measured Plasticity Indices (PI's) ranging from 18 – 42; with the exception of Boring B-1. ***The existing soil conditions have an estimated PVR of approximately 1 ½ - 3 inches. The information presented above for the temporary restroom slab and the miscellaneous structures will generally not reduce the potential shrink/swell movements. It should be noted that the owner must be willing to accept additional risk in proceeding with a design PVR of approximately 1 ½ to 3-inches. Slab movements should be anticipated that may result in increased maintenance over the life of the structure with the utilization of a higher design PVR.***

Closing

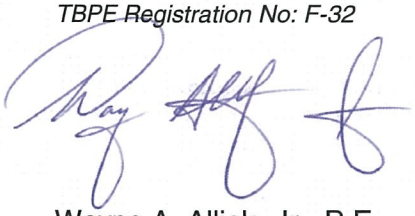
All other recommendations presented in our original Report not specifically addressed herein are still valid and should be followed.

It has been a pleasure to provide you this service. Please contact us should you have any questions or need additional information.

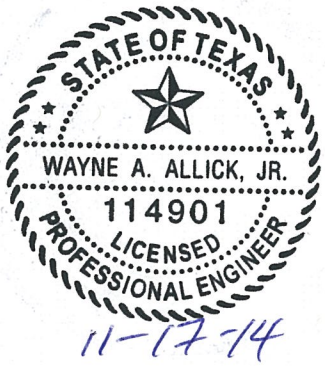
Sincerely,

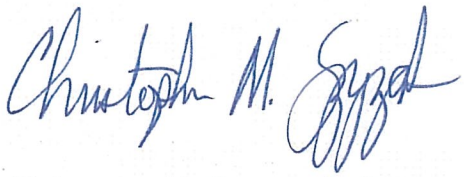
ARIAS & ASSOCIATES, INC.

TBPE Registration No: F-32



Wayne A. Allick, Jr., P.E.
Geotechnical Engineer





Christopher M. Szymczak, P.E.
Senior Geotechnical Engineer

RFI #001 Response

Attachment 2

ARIAS GEOPROFESSIONALS
142 Chula Vista, San Antonio, Texas 78232 • Phone: (210) 308-5884 • Fax: (210) 308-5886

October 31, 2014
ARIAS Job No. 2014-829 VIA Email: Arthur.Rossman@SanAntonio.Gov

Mr. Arthur Rossman
Office of the City Architect
Transportation and Capital Improvements (TCI)
Municipal Plaza Building
114 Main Plaza Building, 4th Floor, Room 402
San Antonio, Texas 78205

RE: Proposal for Geotechnical Engineering Services
Reconstruction of Al Becken Trail
McAllister Park Improvements
San Antonio, Texas

Dear Mr. Rossman:

Arias & Associates, Inc. (ARIAS) is pleased to submit this geotechnical study report for the above referenced project located in San Antonio, Texas. The geotechnical services for this project were performed as part of the current On Call Contract for Geotechnical Engineering and Construction Materials Testing Services between the City of San Antonio (CoSA) and ARIAS. Our scope of services was performed in general accordance with ARIAS Proposal 2014-829, dated October 3, 2014, and was authorized by means of your written approval on October 6, 2014.

The results provided herein present the various material properties of the existing soils encountered at our sampling locations near the Al Becken Trail located within McAllister Park in San Antonio, Texas. ARIAS accessed the site solely for the purpose of conducting soil sampling for this project on behalf of the City of San Antonio (COSA).

PROJECT DESCRIPTION

As requested by CFZ group, four (4) borings were performed for this project. Our recommendations are based on the interpreted soil conditions identified by the four (4) borings. It is our understanding that the geotechnical test results and recommendations will be used by the COSA and the Design Team in the planning and design to reconstruct the Al Becken Trail at McAllister Park. Based upon our four (4) borings, it appears that the existing trail consists of approximately one (1) inch of asphalt pavement with four (4) inches of base material. It is our understanding that the COSA plans to reconstruct the entire trail, removing the existing pavement section and replacing it with a new reinforced concrete pavement section.

ARIAS understands that construction of new light poles supported on drilled piers are also being considered along the trail. We have provided recommendations herein for the pavement surface material along the the trail. ARIAS was not contracted to provide any environmental services or global stability analysis for site slopes or retaining walls. Foundation recommendations for elements such as light poles, pedestrian bridges, landscape walls, canopy shade structures, or other project-specific structures have not been included in our scope of services.

FIELD EXPLORATION

On October 14, 2014, ARIAS and Eagle Drilling, Inc., the drilling subcontractor, were present onsite during the performance of four (4) soil borings (B-1 through B-4). The borings were each drilled to a depth of approximately five (5) feet below the existing ground surface. The soil borings were performed at the approximate locations shown on the Boring Location Plan included as Figure 2 in Appendix A.

A truck-mounted drill rig obtained samples with a split-spoon sampler while performing the Standard Penetration Test (ASTM D 1586), and drilled with a continuous flight auger to advance and remove soil cuttings from the borehole. Penetration resistance readings were taken on intact clayey samples recovered in the field with the thin-walled tube sampler. The boreholes were backfilled with the soil cuttings prior to leaving the site.

The sample depth intervals are shown on the soil boring logs included in Appendix B. ARIAS' field representative visually logged each recovered sample and placed a portion of the recovered sampled into a plastic bag and stored them inside a container for transport to our laboratory. Final soil classifications, as seen on the attached boring logs, were determined in the laboratory based on laboratory and field test results and applicable ASTM procedures.

LABORATORY TESTING

As a supplement to the field exploration, index laboratory testing was conducted to determine soil water content, Atterberg Limits, and percent passing the US Standard No. 200 sieve. We also conducted soluble sulfate concentration testing (Tex-145-E) on subgrade soils up to about five (5) feet below the surface. The index laboratory test results are reported in the boring logs included in Appendix B. A key to the terms and symbols used on the logs is also included in Appendix B. The soil laboratory testing for this project was done in general accordance with applicable ASTM procedures with the specifications and definitions for these tests listed in Appendix C. Results of the remaining sample testing are generally shown in Appendix D.

Remaining soil samples recovered from this exploration will be routinely discarded following submittal of this report.

SUBSURFACE CONDITIONS

Generalized stratigraphy and groundwater conditions encountered are discussed in the following sections. The subsurface and groundwater conditions are based on conditions encountered at the boring locations to the depths explored.

Site Stratigraphy and Engineering Properties

The generalized subsurface stratigraphy encountered at this site is summarized in Table 1 below. The presence and thickness of the various subsurface materials can be expected to vary away from and between the exploration locations. The descriptions generally conform to the Unified Soils Classification System.

Table 1: Generalized Soil Conditions

Stratum	Depth (ft.)	Material Type	PI range	No. 200 range	N range
I	0 to (2½ - 3)	**Clayey Sand w/ Gravel (SC);** dark brown to medium dense (only encountered at Boring B-1) **FAT CLAY to SANDY FAT CLAY (CH);** dark brown, stiff to hard	44 - 63	35 - 95	15 - 38
II	(2½ - 3) to 5	**Clayey Sand w/ Gravel (SC) to Clayey Gravel with Sand (GC);** brown to reddish brown with white, dense to very dense	40 - 55	35 - 49	39 - 54

Where:
Depth - Depth from existing ground surface at the time of geotechnical study, feet
PI - Plasticity Index, %
No. 200 - Percent passing #200 sieve, %
N - Standard Penetration Test (SPT) N-value, blows per foot

GROUNDWATER

A dry soil sampling method was used to obtain the soil samples at the project site. Groundwater was not observed during the sampling activities performed on October 14, 2014.

It should be noted that water levels in open boreholes may require several hours to several days to stabilize depending on the permeability of the soils. Groundwater levels at the time of construction may differ from the observations obtained during the field exploration because perched groundwater is subject to seasonal conditions, recent rainfall, flooding, drought, or temperature affects. Leaking underground utilities can also impact subsurface water levels.

Provisions to intercept and divert “perched” or subsurface water should be made if subsurface water conditions become problematic. Dewatering during construction is considered means and methods and is solely the responsibility of the Contractor.

TRAIL PAVEMENT DESIGN CONSIDERATIONS

Potential Pavement Distress Due to Expansive Soil Movement

Pavement damage can be significant where expansive soils are present. Several methods exist for evaluating the swell potential of expansive soils. We have estimated the potential heave for this site utilizing the TxDOT method (Tex 124-E). Based on this method, we have estimated the PVR is approximately **4 – 5 inches** at this site.

The range of magnitude for heave at the site was estimated considering the moisture content at the time of the sampling activities. We recommend that site improvements and proper pavement section design account for these potential soil movement estimations. In the event that expansive soils are not treated to increase durability of the subgrade, there is a greater potential for soil movement related to soil shrink-swell.

Our experience indicates that the PVR method can sometimes underestimate the potential shrink/swell movements. Fluctuations in soil moisture content impacted by climatic conditions or from development (e.g., irrigation of landscaping in the immediate vicinity of the pavement, poor surface drainage, or leaking water lines) may result in greater shrink/swell movements than calculated.

Pavement heaving problems are often associated with the treatment of soils containing high sulfate concentrations. Heaving causes significant damage to the pavement surface. The laboratory results indicate that expansive clay is present throughout Borings B-2, B-3, and B-4, and that high plasticity clayey sand (borderline sandy clay) is present throughout Boring B-1. The potential pavement damage associated with the shrink-swell properties of near surface soils should be accounted for in the overall design.

Table 2: Soluble Sulfate Concentration Test Results

Boring No.	Approx. Sample Depth (feet)	Sulfate Result (ppm)
B-1	0 - 2	160
B-1	3½ - 5	140
B-2	2 – 3½	140
B-4	2 – 3½	140

The results above are indicative of relatively low soluble sulfate content at this site. Therefore, lime or cement treatment of the onsite soils can be considered for this site. We recommend traditional stabilization treatment of the subgrade as prescribed in the TxDOT 2005 Guidelines for Treatment of Sulfate-Rich Soils and Bases in Pavement Structures. According to the TxDOT guidelines, sulfate concentrations less than or equal to 3000 ppm pose a low potential for sulfate heave. This treatment approach minimizes sulfate induced heave associated with chemical reactions when calcium based additives are used to treat subgrade soils that contain sulfate/sulfide minerals. Our scope of work did not include material mix design testing to determine the optimum lime content for treatment of the subgrade. However, soil-additive mix design and construction standards are specified in TxDOT's 2004 Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges.

Effect of Trees and Vegetation

Soil moisture can be affected by the roots of vegetation that extend beneath pavements. Trees remove large quantities of water from the soil through their root systems during the growing season and cause localized drier areas in the vicinity of the roots. The limits of affected areas are typically related to the lateral extent of a root system, which are a function of the tree height and the spread of its branches. It is generally accepted that a root system will influence the soil moisture levels to a distance roughly equivalent to the drip line (extent of branches). Pavements constructed over a tree root system may shrink due to changes in moisture content and result in cracking. These types of movements result in concentric crack patterns in street pavements located near trees.

Pavement Parameters and Conditions

Traffic counts for various vehicle types traversing the trail have not been provided. Accordingly, we have assumed that the trail will handle primarily pedestrian and bicycle traffic and possibly an occasional automobile or light duty pickup. Therefore, we have assumed the design traffic to be equal to or less than 25,000 equivalent single axle loads (ESALs). If any of these assumptions are incorrect, we should be contacted in order to review and revise our recommendations accordingly.

Pavement Sections

We are aware that the CoSA intends to use a reinforced concrete pavement surface for the proposed trail. Given the potential movements noted above, we recommend conditioning of any untreated expansive subgrade soils along the trail with a Plasticity Index greater than 15 (PI > 15). The pavement surface material recommendations given subsequently are intended to handle pedestrian, bicycle and infrequent light duty motorized vehicle use on the pavement. We anticipate that substantial maintenance would be required over the life of pavements at this site, particularly where significant post-construction total and differential movements occur. We have based our recommendation on the expectation of recreational use of the trail. Should alternate or more stringent requirements be desired, we should be contacted to provide additional recommendations.

Table 3: Recommended Pavement Section

Layer	Material	Thickness
Concrete Pavement	Portland Cement Concrete	5”
Base Material	Crushed Limestone Flexible Base - TxDOT Item 247, Type A, Grade 1 or 2	6”
Subgrade	Lime Treatment See NOTES: 1 & 2	6”

NOTES:

1. Pavements founded on top of clayey soils will be subject to PVR soil movements estimated and presented in this report (*i.e.,* about 4 to 5 inches). These potential soil movements are typically activated to some degree during the life of the pavement. Consequently, pavements can be expected to crack and require periodic maintenance. Periodic/preventative maintenance and repair should be planned for to reduce deterioration of the pavement structure while aiding to preserve the investment.
2. The exposed subgrade materials should be tested for soluble sulfate content before using the lime treatment as an option.

We recommend placing at least 5 inches of reinforced concrete to surface the pathway. We also advise that site preparation and subgrade compaction should be performed in accordance with our recommendations. The actual performance life of concrete pavement material will be dependent upon providing routine maintenance, as well as, application of repair material in the future.

Rigid Concrete Pavement Joints

Placement of expansion joints in concrete paving on potentially expansive subgrade or on granular subgrade subject to piping often results in horizontal and vertical movement at the joint. Many times, concrete spalls adjacent to the joint and eventually a failed concrete area results. This problem is primarily related to water infiltration through the joint.

One method to mitigate the problem of water infiltration through the joints is to eliminate all expansion joints that are not absolutely necessary. It is our opinion that expansion or isolation joints are needed only adjacent where the pavement abuts intersecting drive lanes and other structures. Elimination of all expansion joints within the main body of the pavement area would significantly reduce access of moisture into the subgrade. Regardless of the type of expansion joint sealant used, eventually openings in the sealant occur resulting in water infiltration into the subgrade.

The use of sawed and sealed joints should be designed in accordance with current Portland Cement Association (PCA) or American Concrete Institute (ACI) guidelines. Research has proven that joint design and layout can have a significant effect on the overall performance of concrete pavement.

Recommendations presented herein are based on the use of reinforced concrete pavement. Local experience has shown that the use of distributed steel placed at a distance of 1/3 slab thickness from the top is of benefit in crack control for concrete pavements. Improved crack control also reduces the potential for water infiltration.

The concrete pavement should include as a minimum the following:

- Reinforcing Steel - #4 @ 16” each way placed D/3 from top of slab
- Construction Joint Dowels ⅝” diameter for 5” pavement, 14” long @ 12” on-center, lubricated both sides @ mid depth
- Maximum Control Joint Spacing 10 feet or less
- Control Joint Depth – D/4 from top
- Min. 28 day compressive strength – 3,500 psi
- A monolithically-poured, reinforced turn down beam at all edges penetrating through the flexible base and at least 3 inches into the underlying clay
- 6-inch lime treated subgrade
- 6-inches of compacted crushed limestone flexible base (8 inches if geogrid is substituted for lime treatment)

Performance Considerations

Our pavement recommendations have been developed to provide an adequate structural thickness to support the anticipated traffic volumes. Some shrink/swell movements due to moisture variations in the underlying soils, or potential movement from settling utility backfill

material, should be anticipated over the life of the pavements. The owner should recognize that over a period of time, pavements may crack and undergo some deterioration and loss of serviceability. We recommend the project budgets include an allowance for maintenance such as patching of cracks.

Site Preparation

The existing asphalt and other materials should be completely removed down to the subgrade in existing pavement areas. If pavement widening is required, topsoil stripping should be performed as needed to remove organic materials, loose soils, vegetation, roots, and stumps. A minimum depth of at least 4 to 6 inches of stripping should be planned . Additional excavation may be required due to encountering thicker asphalt/base sections and/or deleterious materials such as concrete, organics, debris, rubble, soft materials, etc. The exposed subgrade should then be proofrolled with a rubber tired vehicle weighing at least 20 tons (such as a loaded dump truck) with the Geotechnical Engineer's representative present during proofrolling. Pumping/rutting/weak/soft areas should be removed to firmer materials and replaced with compacted general fill under the observation of the Geotechnical Engineer's representative. General fill should be free of roots, debris and other deleterious materials and should have a maximum particle size of three (3) inches, a CBR ≥ 3, and a soluble sulfate content of less than 500 ppm. General fill should be placed in maximum loose lift thicknesses of eight (8) inches and compacted to at least 95% of the maximum dry density as evaluated by TEX-114-E at 0% to +4% of optimum moisture content. Compaction tests should be performed at the rate of at least one (1) test per 5,000 square feet per lift with a minimum of three (3) tests per lift.

Lime Stabilized Subgrade

The high plasticity clayey subgrade may be treated for the specified thickness with lime by dry weight in accordance with City of San Antonio Standard Specifications for Construction, Item 108, "Lime Treated Subgrade". The quantity of lime required should be determined after the site is stripped and the subgrade soils are exposed. **We anticipate that approximately 6 to 8 percent lime will be required depending upon the material encountered. However, the quantity of lime should be sufficient to: (1) result in a pH of at least 12.4 when tested in accordance with ASTM C977, Appendix XI; and (2) reduce the PI of the clay subgrade to less than 20.** The target lime content and optimum moisture content should be determined in accordance with TxDOT test procedures.

For the purposes of lime treatment, the dry weight of the high plasticity clay soils may be taken as 105 pounds per cubic foot (pcf). The amount of lime required may vary over the site. The limed soil should be compacted to at least 95 percent of the maximum dry density as evaluated by TEX-114-E at moisture contents ranging from optimum to plus four (+4) percentage points of optimum moisture content. Compaction tests should be performed at the rate of at least one (1) test per 5,000 square feet with a minimum of three (3) tests.

Flexible Base Material

Flexible base material should conform to TxDOT Item 247, Type A, Grade 1 or 2, and should be placed in maximum loose lift thicknesses of eight (8) inches and compacted to at least 95% of the maximum dry density as evaluated by TEX-113-E at -1% to +3% of optimum moisture content. Compaction tests should be performed at the rate of at least one (1) test per 5,000 square feet per lift with a minimum of three (3) tests per lift.

Drainage

Good positive drainage during and after construction is very important to reduce expansive soil volume changes that can detrimentally affect the performance of the planned development. Proper attention to surface and subsurface drainage details during the design and construction phase of development can aid in preventing many potential soil shrink-swell related problems

GENERAL COMMENTS

The scope of this study is to provide geotechnical engineering criteria for use by design engineers in preparing the pavement design for the pedestrian trail. Environmental and stability studies of any kind were not a part of our scope of work or services.

This report was prepared as an instrument of service for this project exclusively for the use of the City of San Antonio TCI and the project design team. If the development plans change relative to overall site layout, size, or anticipated pavement loads or if different subsurface conditions are encountered, we should be informed and retained to ascertain the impact of these changes on our recommendations. We cannot be responsible for the potential impact of these changes if we are not informed.

SUBSURFACE VARIATIONS

Soil and groundwater conditions may vary away from the sample boring locations. Transition boundaries or contacts, noted on the boring logs to separate soil types, are approximate. Actual contacts may be gradual and vary at different locations. The contractor should verify that similar conditions exist throughout the proposed area of excavation. If different subsurface conditions or highly variable subsurface conditions are encountered during construction, we should be contacted to evaluate the significance of the changed conditions relative to our recommendations.

QUALITY ASSURANCE TESTING

The long-term success of the project will be affected by the quality of materials used for construction and the adherence of the construction to the project plans and specifications. As Geotechnical Engineer of Record (GER), we should be engaged by the Owner to provide Quality Assurance (QA) testing. Our services will be to evaluate the degree to which constructors are achieving the specified conditions they're contractually obligated to achieve, and observe that the encountered materials during earthwork for foundation and pavement

installation are consistent with those encountered during this study. In the event that ARIAS is not retained to provide QA testing, we should be immediately contacted if differing subsurface conditions are encountered during construction. Differing materials may require modification to the recommendations that we provided herein. A message to the Owner with regard to the project QA is provided in the ASFE publication included in Appendix F.

ARIAS has an established in-house laboratory that meets the standards of the American Standard Testing Materials (ASTM) specifications of ASTM E-329 defining requirements for Inspection and Testing Agencies for soil, concrete, steel and bituminous materials as used in construction. We maintain soils, concrete, asphalt, and aggregate testing equipment to provide the testing needs required by the project specifications. All of our equipment is calibrated by an independent testing agency in accordance with the National Bureau of Standards. In addition, ARIAS is accredited by the American Association of State Highway & Transportation Officials (AASHTO), the United States Army Corps of Engineers (USACE) and the Texas Department of Transportation (TxDOT), and also maintains AASHTO Materials Reference Laboratory (AMRL) and Cement and Concrete Reference Laboratory (CCRL) proficiency sampling, assessments and inspections. Furthermore, ARIAS employs a technical staff certified through the following agencies: the National Institute for Certification in Engineering Technologies (NICET), the American Concrete Institute (ACI), the American Welding Society (AWS), the Precast/Prestressed Concrete Institute (PCI), the Mine & Safety Health Administration (MSHA), the Texas Asphalt Pavement Association (TXAPA) and the Texas Board of Professional Engineers (TBPE).

STANDARD OF CARE

Subject to the limitations inherent in the agreed scope of services as to the degree of care and amount of time and expenses to be incurred, and subject to any other limitations contained in the agreement for this work, ARIAS has performed its services consistent with that level of care and skill ordinarily exercised by other professional engineers practicing in the same locale and under similar circumstances at the time the services were performed.

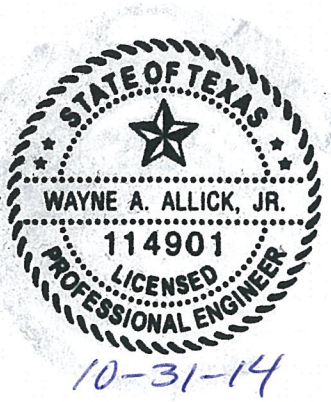
Information about this geotechnical report is provided in the ASFE publication included in Appendix E.

We look forward to working with the Project Design Team as additional geotechnical and/or construction materials testing needs develop.

Please let us know if you have any questions. We greatly appreciate the opportunity to be of service to you.

Cordially,
ARIAS & Associates, Inc.

TBPE Registration No. F-32



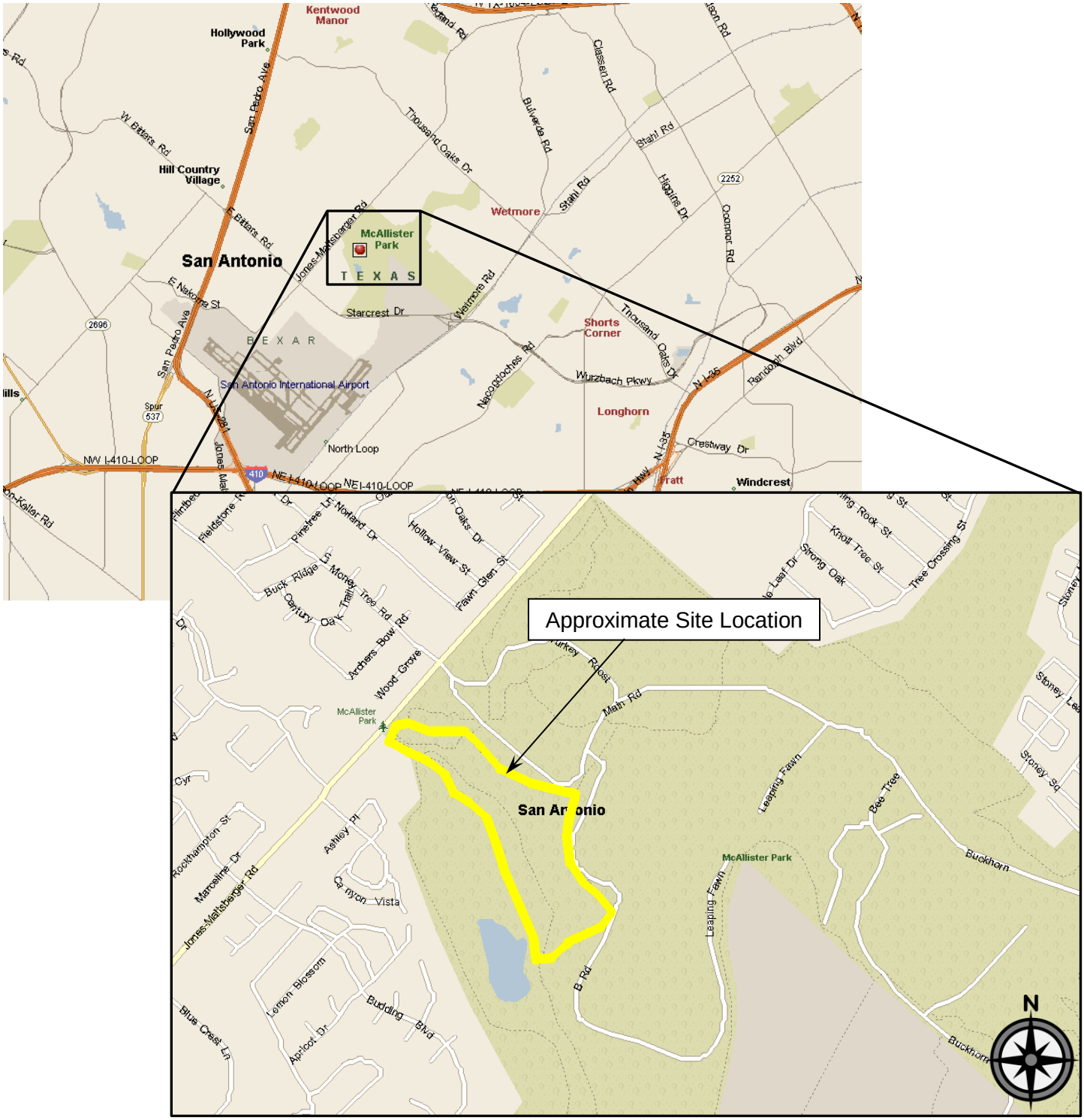
Wayne Allick Jr., P.E.
Geotechnical Engineer

Christopher M. Szymczak, P.E.
Senior Geotechnical Engineer

Attachments:

Figures
Boring Logs and Key to Terms
Laboratory and Field Test Procedures
Laboratory Test Results
ASFE Information – Geotechnical Report
Project Quality Assurance

APPENDIX A: FIGURES



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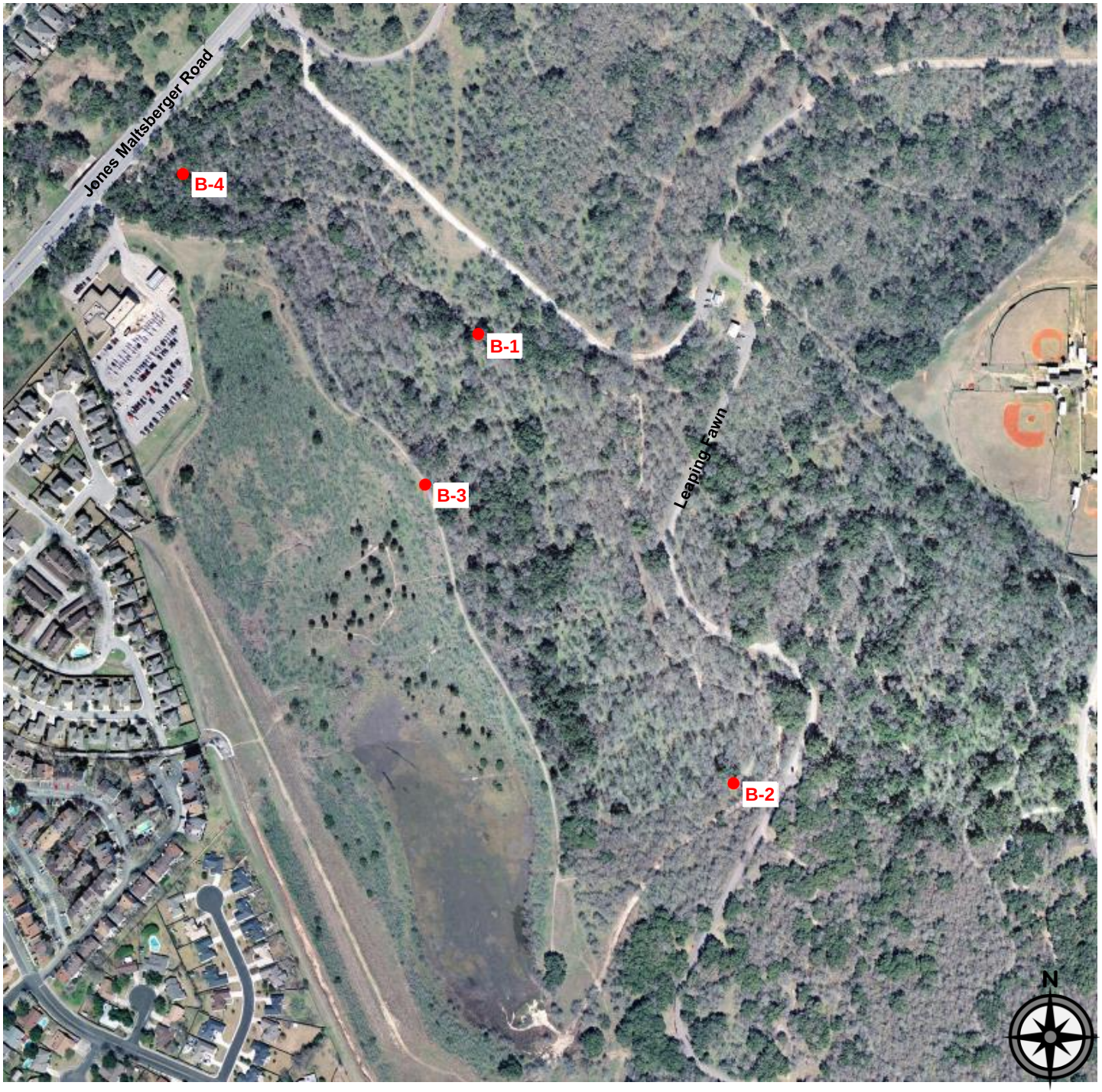
VICINITY MAP

Reconstruction of Al Becken Trail
McAllister Park Improvements
San Antonio, Texas

Date: October 29, 2014	Job No.: 2014-829
Drawn By: TAS	Checked By: WAA
Approved By: CMS	Scale: N.T.S.

Figure 1



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BORING LOCATION PLAN

Reconstruction of Al Becken Trail
McAllister Park Improvements
San Antonio, Texas

Date: October 29, 2014	Job No.: 2014-829
Drawn By: TAS	Checked By: WAA
Approved By: CMS	Scale: N.T.S.

REVISIONS:

No.:	Date:	Description:

Figure 2

Photo 1 – Approximate location of Boring B-1.

Photo 2 – Approximate location of Boring B-2.

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SITE PHOTOS

Reconstruction of Al Becken Trail
McAllister Park Improvements
San Antonio, Texas

Date: October 29, 2014	Job No.: 2014-829
Drawn By: TAS	Checked By: WAA
Approved By: CMS	Scale: N.T.S.

Appendix A

Photo 3 – Approximate location of Boring B-3.

Photo 4 – Approximate location of Boring B-4.

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SITE PHOTOS

Reconstruction of Al Becken Trail
McAllister Park Improvements
San Antonio, Texas

Date: October 29, 2014	Job No.: 2014-829
Drawn By: TAS	Checked By: WAA
Approved By: CMS	Scale: N.T.S.

Appendix A

APPENDIX B: BORING LOGS AND KEY TO TERMS

Boring Log No. B-1

Project: **Reconstruction of Al Becken Trail**
McAllister Park Improvements
San Antonio, Texas

Location: See Boring Location Plan

Sampling Date: 10/14/14

Coordinates: N29°33'34.4" W98°27'22.6"

Backfill: Cuttings

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	N	-200
ASPHALT, 1-inches BASE, 4-inches		GB						
CLAYEY SAND with Gravel (SC), medium dense, dark brown	1	SS	14	20	64	44	20	35
	2							
Dense below 2.5'	3	SS	2				31	
CLAYEY SAND with Gravel (SC), dense, reddish brown with white	4	SS	7	22	62	40	43	36
	5							
Borehole terminated at 5 feet								

Groundwater Data:
During drilling: Not encountered

Field Drilling Data:
Coordinates: Hand-held GPS Unit
Logged By: R. Arizola
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 5 ft

Nomenclature Used on Boring Log

Grab Sample (GB)
Split Spoon (SS)

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
N = SPT Blow Count

-200 = % Passing #200 Sieve

Arias & Associates, Inc.

Job No.: 2014-829

2014-829.GPJ 10/31/14 (BORING LOG SA13-02.ARIASSA12-01.GDT.LIBRARY2013-01.GLB)

Boring Log No. B-2

Project: **Reconstruction of Al Becken Trail**
McAllister Park Improvements
San Antonio, Texas

Location: See Boring Location Plan

Sampling Date: 10/14/14

Coordinates: N29°33'21.4" W98°27'14.2"

Backfill: Cuttings

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	N	-200
ASPHALT, 1-inch BASE, 4-inches		GB						
FAT CLAY (CH), stiff, dark brown	1	SS	18				15	95
	2							
CLAYEY GRAVEL with Sand (GC), dense, reddish brown with white	3	SS	10				42	26
Very dense below 4'	4	SS	5	25	80	55	54	16
	5							
Borehole terminated at 5 feet								

Groundwater Data:
During drilling: Not encountered

Field Drilling Data:
Coordinates: Hand-held GPS Unit
Logged By: R. Arizola
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 5 ft

Nomenclature Used on Boring Log

Grab Sample (GB)
Split Spoon (SS)

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
N = SPT Blow Count

-200 = % Passing #200 Sieve

2014-829.GPJ 10/31/14 (BORING LOG SA13-02.ARIASSA12-01.GDT.LIBRARY2013-01.GLB)

Arias & Associates, Inc.

Job No.: 2014-829

Boring Log No. B-3

Project: **Reconstruction of Al Becken Trail**
McAllister Park Improvements
San Antonio, Texas

Location: See Boring Location Plan

Sampling Date: 10/14/14

Coordinates: N29°33'30.1" W98°27'24.4"

Backfill: Cuttings

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	N	-200
ASPHALT, 1-inch BASE, 4-inches		GB						
FAT CLAY (CH), medium dense, dark brown	1	SS	14	27	81	54	20	
brown with white, hard below 2.5'	2 3	SS	15				38	
CLAYEY SAND with Gravel (SC), dense, reddish brown with white	4	SS	8				40	49
Borehole terminated at 5 feet	5							

Groundwater Data:
During drilling: Not encountered

Field Drilling Data:
Coordinates: Hand-held GPS Unit
Logged By: R. Arizola
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 5 ft

Nomenclature Used on Boring Log

Grab Sample (GB)
Split Spoon (SS)

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
N = SPT Blow Count

-200 = % Passing #200 Sieve

Arias & Associates, Inc.

Job No.: 2014-829

Boring Log No. B-4

Project: **Reconstruction of Al Becken Trail**
McAllister Park Improvements
San Antonio, Texas

Location: See Boring Location Plan

Sampling Date: 10/14/14

Coordinates: N29°33'39.1" W98°27'32.3"

Backfill: Cuttings

Soil Description	Depth (ft)	SN	WC	PL	LL	PI	N	-200
ASPHALT, 1-inch BASE, 4-inches		GB						
SANDY FAT CLAY (CH), hard, dark brown	1	SS	20	27	90	63	27	54
	2							
CLAYEY SAND (SC) with gravel, dense, brown with white	3	SS	10				39	
	4							
	5	SS	7	21	61	40	39	35
Borehole terminated at 5 feet								

Groundwater Data:
During drilling: Not encountered

Field Drilling Data:
Coordinates: Hand-held GPS Unit
Logged By: R. Arizola
Driller: Eagle Drilling, Inc.
Equipment: Truck-mounted drill rig

Single flight auger: 0 - 5 ft

Nomenclature Used on Boring Log

Grab Sample (GB)
Split Spoon (SS)

WC = Water Content (%)
PL = Plastic Limit
LL = Liquid Limit
PI = Plasticity Index
N = SPT Blow Count

-200 = % Passing #200 Sieve

Arias & Associates, Inc.

Job No.: 2014-829

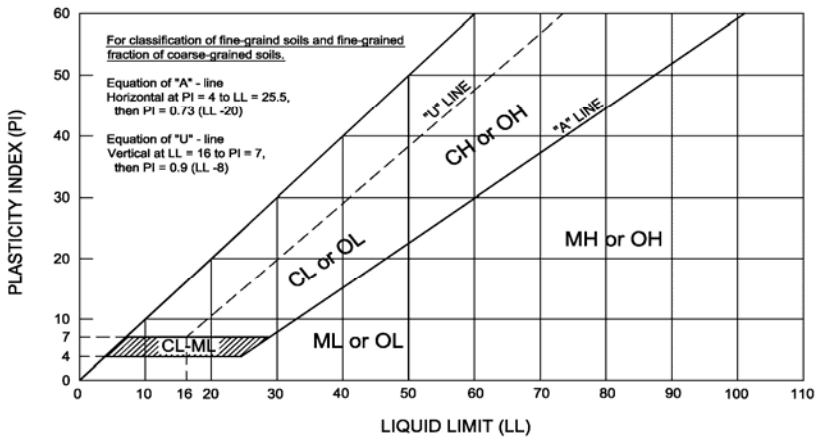
KEY TO TERMS AND SYMBOLS USED ON BORING LOGS

MAJOR DIVISIONS					GROUP SYMBOLS		DESCRIPTIONS
COARSE-GRAIND SOILS	More than half of material LARGER than No. 200 Sieve size	GRAVELS	More than Half of Coarse fraction is LARGER than No. 4 Sieve size	Clean Gravels (little or no Fines)	GW		Well-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
					GP		Poorly-Graded Gravels, Gravel-Sand Mixtures, Little or no Fines
				Gravels with Fines (Appreciable amount of Fines)	GM		Silty Gravels, Gravel-Sand-Silt Mixtures
					GC		Clayey Gravels, Gravel-Sand-Clay Mixtures
		SANDS	More than half of Coarse fraction is SMALLER than No. 4 Sieve size	Clean Sands (little or no Fines)	SW		Well-Graded Sands, Gravelly Sands, Little or no Fines
					SP		Poorly-Graded Sands, Gravelly Sands, Little or no Fines
				Sands with Fines (Appreciable amount of Fines)	SM		Silty Sands, Sand-Silt Mixtures
					SC		Clayey Sands, Sand-Clay Mixtures
GINE-GRAIND SOILS	More than half of material SMALLER than No. 200 Sieve size	SILTS & CLAYS		Liquid Limit less than 50	ML		Inorganic Silts & Very Fine Sands, Rock Flour, Silty or Clayey Fine Sands or Clayey Silts with Slight Plasticity
					CL		Inorganic Clays of Low to Medium Plasticity, Gravelly Clays, Sandy Clays, Silty Clays, Lean Clays
		SILTS & CLAYS		Liquid Limit greater than 50	MH		Inorganic Silts, Micaceous or Diatomaceous Fine Sand or Silty Soils, Elastic Silts
					CH		Inorganic Clays of High Plasticity, Fat Clays
FORMATIONAL MATERIALS		SANDSTONE					Massive Sandstones, Sandstones with Gravel Clasts
		MARLSTONE					Indurated Argillaceous Limestones
		LIMESTONE					Massive or Weakly Bedded Limestones
		CLAYSTONE					Mudstone or Massive Claystones
		CHALK					Massive or Poorly Bedded Chalk Deposits
		MARINE CLAYS					Cretaceous Clay Deposits
		GROUNDWATER					Indicates Final Observed Groundwater Level Indicates Initial Observed Groundwater Location

Density of Granular Soils	
Number of Blows per ft., N	Relative Density
0 - 4	Very Loose
4 - 10	Loose
10 - 30	Medium
30 - 50	Dense
Over 50	Very Dense

Consistency and Strength of Cohesive Soils		
Number of Blows per ft., N	Consistency	Unconfined Compressive Strength, q_u (tsf)
Below 2	Very Soft	Less than 0.25
2 - 4	Soft	0.25 - 0.5
4 - 8	Medium (Firm)	0.5 - 1.0
8 - 15	Stiff	1.0 - 2.0
15 - 30	Very Stiff	2.0 - 4.0
Over 30	Hard	Over 4.0

PLASTICITY CHART (ASTM D 2487-11)



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KEY TO TERMS AND SYMBOLS USED ON BORING LOGS

TABLE 1 Soil Classification Chart (ASTM D 2487-11)

Criteria of Assigning Group Symbols and Group Names Using Laboratory Tests[A]				Soil Classification	
				Group Symbol	Group Name[B]
COARSE-GRAIND SOILS	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines[C])	Cu ≥ 4 and 1 ≤ Cc ≤ 3[D]	GW	Well-Graded Gravel[E]
			Cu < 4 and/or [Cc < or Cc > 3][D]	GP	Poorly-Graded Gravel[E]
		Gravels with Fines (More than 12% fines[C])	Fines classify as ML or MH	GM	Silty Gravel[E,F,G]
			Fines classify as CL or CH	GC	Clayey Gravel[E,F,G]
More than 50% retained on No. 200 sieve	Sands (50% or more of coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines[H])	Cu ≥ 6 and 1 ≤ Cc ≤ 3[D]	SW	Well-Graded Sand[I]
			Cu < 6 and/or [Cc < or Cc > 3][D]	SP	Poorly-Graded Sand[I]
		Sands with Fines (More than 12% fines[H])	Fines classify as ML or MH	SM	Silty Sand[F,G,I]
			Fines classify as CL or CH	SC	Clayey Sand[F,G,I]
FINE-GRAINED SOILS	Silts and Clays	inorganic	PI > 7 and plots on or above "A" line[J]	CL	Lean Clay[K,L,M]
	Liquid limit less than 50		PI < 4 or plots below "A" line[J]	ML	Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid & #10 < 0.75	OL	Organic Clay[K,L,M,N]
					Organi Silt[K,L,M,O]
50% or more passes the No. 200 sieve	Silts and Clays	inorganic	PI plots on or above "A" line	CH	Fat Clay[K,L,M]
	Liquid limit 50 or more		PI plots on or above "A" line	MH	Elastic Silt[K,L,M]
		organic	Liquid limit - oven dried / Liquid & #10 < 0.75	OH	Organic Clay[K,L,M,P]
					Organic Silt[K,L,M,Q]
HIGHLY ORGANIC SOILS	Primarily organic matter, dark in color, and organic odor			PT	Peat

[A] Based on the material passing the 3-inch (75mm) sieve

[B] If field sample contained cobbles or boulders, or both, add "with cobbles or boulders, or both" to group name

[C] Gravels with 5% to 12% fines require dual symbols:
- GW-GM well-graded gravel with silt
- GW-GC well-graded gravel with clay
- GP-GM poorly-graded gravel with silt
- GP-GC poorly-graded gravel with clay

[D] $Cu = D_{60}/D_{10}$ $\quad Cc = \dfrac{(D_{30})^2}{D_{10} \times D_{60}}$

[E] If soil contains ≥ 15% sand, add "with sand" to group name

[F] If fines classify as CL-ML, use dual symbol GC-GM, or SC-SM

[G] If fines are organic, add "with organic fines" to group name

[H] Sand with 5% to 12% fines require dual symbols:
- SW-SM well-graded sand with silt
- SW-SC well-graded sand with clay
- SP-SM poorly-graded sand with silt
- SP-SC poorly-graded sand with clay

[I] If soil contains ≥ 15% gravel, add "with gravel" to group name

[J] If Atterberg limits plot in hatched area, soil is a CL-ML, silty clay

[K] If soil contains 15% to < 30% plus No. 200, add "with sand" or "with gravel," whichever is predominant

[L] If soil contains ≥ 30% plus No. 200, predominantly sand, add "sandy" to group name

[M] If soil contains ≥ 30% plus No. 200, predominantly gravel, add "gravelly" to group name

[N] PI ≥ 4 and plots on or above "A" line

[O] PI < 4 or plots below "A" line

[P] PI plots on or above "A" line

[Q] PI plots below "A" line

TERMINOLOGY

Boulders	Over 12-inches (300mm)	**Parting**	Inclusion < 1/8-inch thick extending through samples
Cobbles	12-inches to 3-inches (300mm to 75mm)	**Seam**	Inclusion 1/8-inch to 3-inches thick extending through sample
Gravel	3-inches to No. 4 sieve (75mm to 4.75mm)	**Layer**	Inclusion > 3-inches thick extending through sample
Sand	No. 4 sieve to No. 200 sieve (4.75mm to 0.075mm)		
Silt or Clay	Passing No. 200 sieve (0.075mm)		
Calcareous	Containing appreciable quantities of calcium carbonate, generally nodular		

Stratified	Alternating layers of varying material or color with layers at least 6mm thick
Laminated	Alternating layers of varying material or color with the layers less than 6mm thick
Fissured	Breaks along definite planes of fracture with little resistance to fracturing
Slickensided	Fracture planes appear polished or glossy sometimes striated
Blocky	Cohesive soil that can be broken down into small angular lumps which resist further breakdown
Lensed	Inclusion of small pockets of different soils, such as small lenses of sand scattered through a mass of clay
Homogeneous	Same color and appearance throughout

KEY TO TERMS AND SYMBOLS USED ON BORING LOGS

Hardness Classification of Intact Rock

Class	Hardness	Field Test	Approximate Range of Uniaxial Compression Strength kg/cm² (tons/ft²)
I	Extremely hard	Many blows with geologic hammer required to break intact specimen.	> 2,000
II	Very hard	Hand held specimen breaks with hammer end of pick under more than one blow.	2,000 – 1,000
III	Hard	Cannot be scraped or pealed with knife, hand held specimen can be broken with single moderate blow with pick.	1,000 – 500
IV	Soft	Can just be scraped or peeled with knife. Indentations 1mm to 3mm show in specimen with moderate blow with pick.	500 – 250
V	Very soft	Material crumbles under moderate blow with sharp end of pick and can be peeled with a knife, but is too hard to hand-trim for triaxial test specimen.	250 – 10

Rock Weathering Classifications

Grade	Symbol	Diagnostic Features
Fresh	F	No visible sign of Decomposition or discoloration. Rings under hammer impact.
Slightly Weathered	WS	Slight discoloration inwards from open fractures, otherwise similar to F.
Moderately Weathered	WM	Discoloration throughout. Weaker minerals such as feldspar decomposed. Strength somewhat less than fresh rock, but cores cannot be broken by hand or scraped by knife. Texture preserved.
Highly Weathered	WH	Most minerals somewhat decomposed. Specimens can be broken by hand with effort or shaved with knife. Core stones present in rock mass. Texture becoming indistinct, but fabric preserved.
Completely Weathered	WC	Minerals decomposed to soil, but fabric and structure preserved (Saprolite). Specimens easily crumbled or penetrated.
Residual Soil	RS	Advanced state of decomposition resulting in plastic soils. Rock fabric and structure completely destroyed. Large volume change.

Rock Discontinuity Spacing

Description for Structural Features: Bedding, Foliation, or Flow Banding	Spacing	Description for Joints, Faults or Other Fractures
Very thickly (bedded, foliated, or banded)	More than 6 feet	Very widely (fractured or jointed)
Thickly	2 – 6 feet	Widely
Medium	8 – 24 inches	Medium
Thinly	2½ – 8 inches	Closely
Very thinly	¾ – 2½ inches	Very closely
Description for Micro-Structural Features: Lamination, Foliation, or Cleavage	**Spacing**	**Descriptions for Joints, Faults, or Other Fractures**
Intensely (laminated, foliated, or cleaved)	¼ – ¾ inch	Extremely close
Very intensely	Less than ¼ inch	

Engineering Classification for in Situ Rock Quality

RQD %	Velocity Index	Rock Mass Quality
90 – 100	0.80 – 1.00	Excellent
75 – 90	0.60 – 0.80	Good
50 – 75	0.40 – 0.60	Fair
25 – 50	0.20 – 0.40	Poor
0 – 25	0 – 0.20	Very Poor

APPENDIX C: LABORATORY AND FIELD TEST PROCEDURES

FIELD AND LABORATORY EXPLORATION

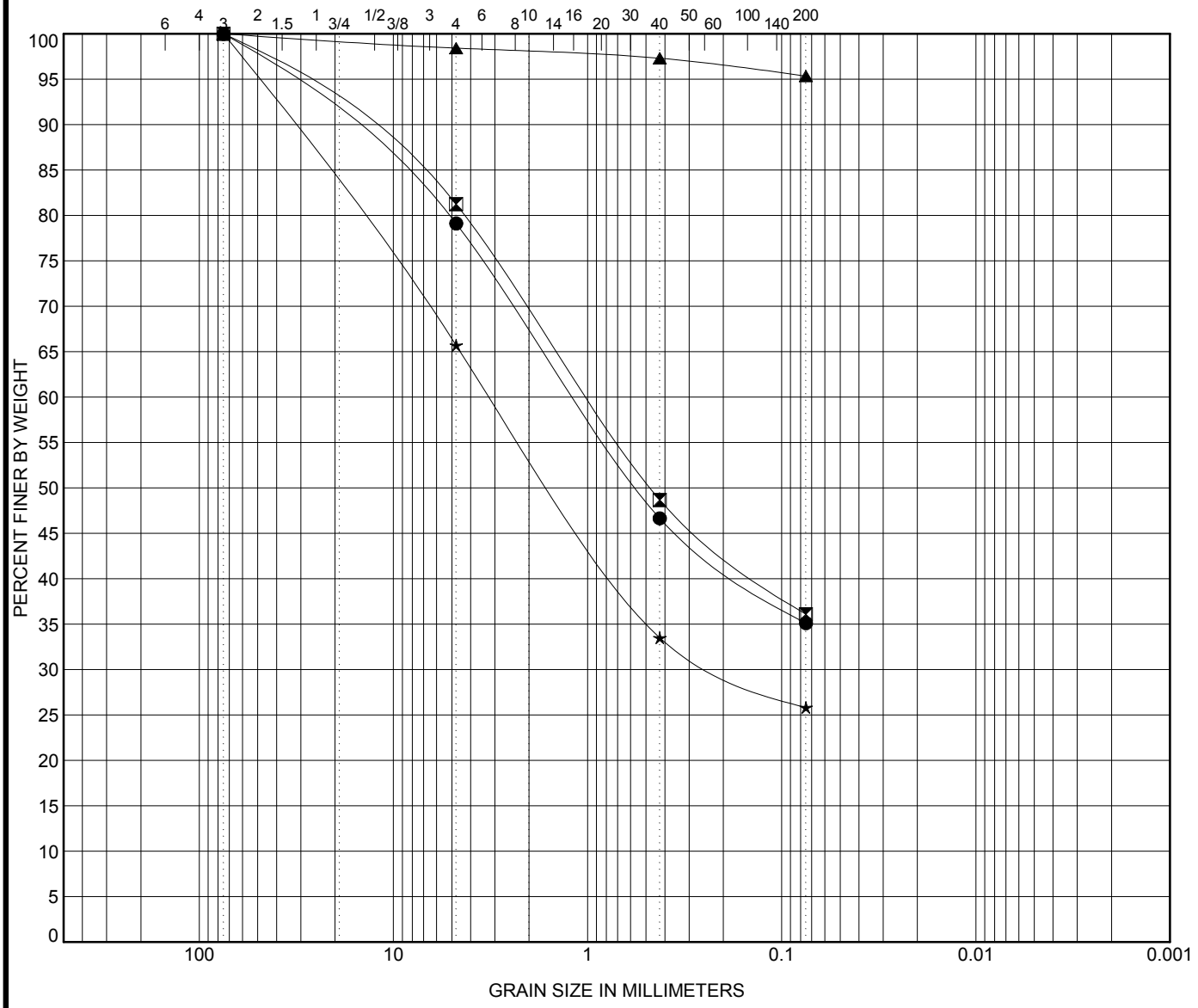
The field exploration program included drilling at selected locations within the site and intermittently sampling the encountered materials. The boreholes were drilled using single flight auger (ASTM D 1452). Samples of encountered material were generally obtained using a split-spoon sampler (ASTM D1586) or by taking material from the auger as it was advanced (ASTM D 1452). The sample depth interval and type of sampler used is included on the soil boring logs. ARIAS' field representative visually logged each recovered sample and placed a portion of the recovered sampled into a plastic bag for transport to our laboratory. N-values for SPT samples are shown on the soil boring logs.

ARIAS performed soil mechanics laboratory tests on selected samples to aid in soil classification and to determine engineering properties. Tests commonly used in geotechnical exploration, the method used to perform the test, and the column designations on the boring log where data are reported are summarized as follows:

Test Name	Test Method	Log Designation
Water (moisture) content of soil and rock by mass	ASTM D 2216	WC
Liquid limit, plastic limit, and plasticity index of soils	ASTM D 4318	PL, LL, PI
Amount of material in soils finer than the No. 200 sieve	ASTM D 1140	-200
Particle size analysis of soils (with or without fines fraction)	ASTM D 422	-200

The laboratory results are reported on the soil boring logs.

APPENDIX D: LABORATORY TEST RESULTS



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring	Elev	Depth	Classification	LL	PL	PI	Cc	Cu
●	1		0.5	**CLAYEY SAND with GRAVEL (SC)**	64	20	44		
⊠	1		3.5	**CLAYEY SAND with GRAVEL (SC)**	62	22	40		
▲	2		0.5						
★	2		2.0						

	Boring	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	1	0.5	75	1.147			20.9	44.0	35.1	
⊠	1	3.5	75	0.983			18.7	45.2	36.1	
▲	2	0.5	75				1.6	3.1	95.3	
★	2	2.0	75	3.098	0.193		34.3	39.9	25.8	

Silt and clay fractions were determined using 0.002 mm as the maximum particle size for clay.

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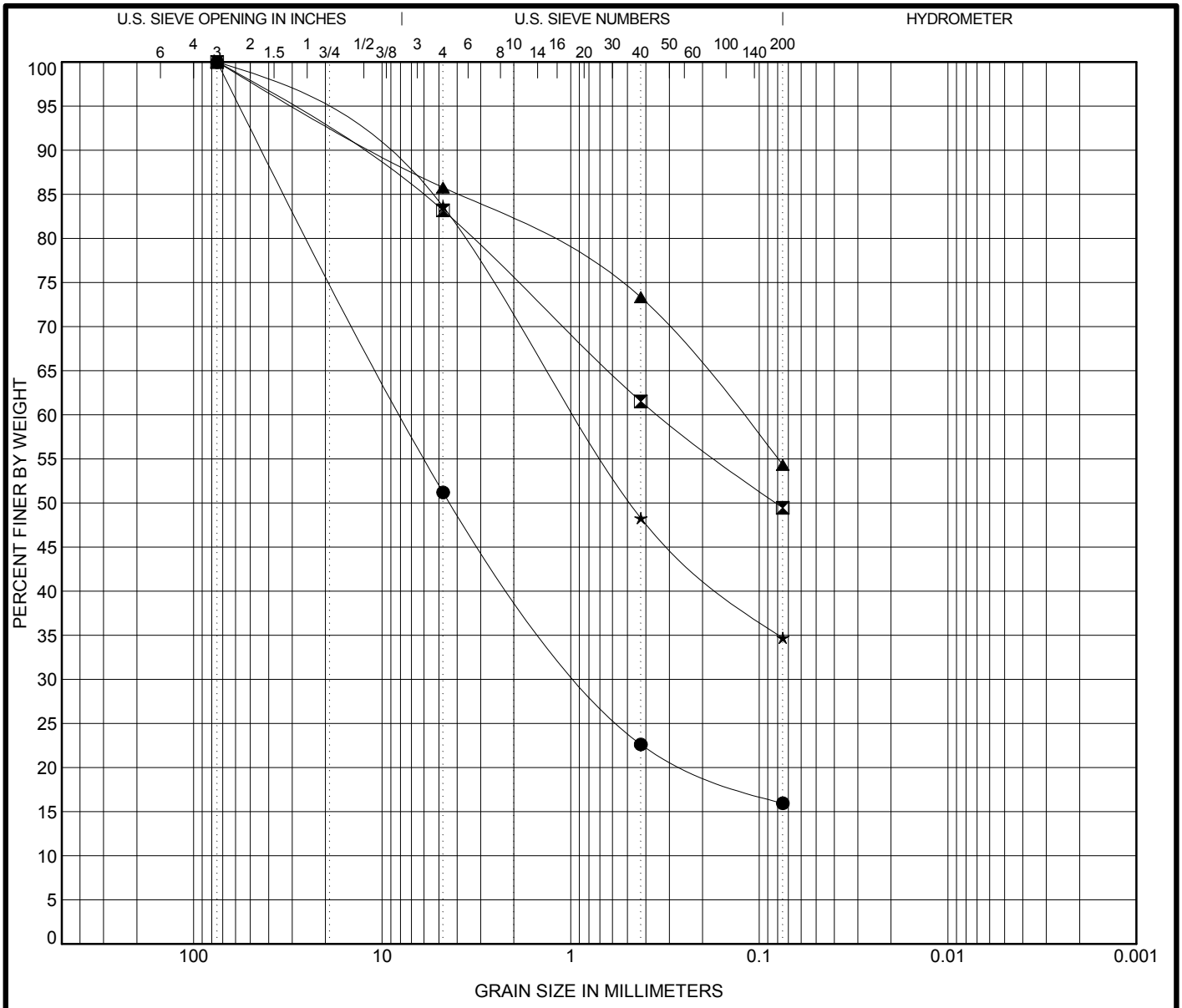
GRAIN SIZE DISTRIBUTION

Project: Reconstruction of Al Becken Trail

Location: See Boring Location Plan

Job No.: 2014-829



COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	Boring	Elev	Depth	Classification	LL	PL	PI	Cc	Cu
●	2		3.5	**CLAYEY GRAVEL with SAND (GC)**	80	25	55		
⊠	3		3.5						
▲	4		0.5	**SANDY FAT CLAY (CH)**	90	27	63		
★	4		3.5	**CLAYEY SAND with GRAVEL (SC)**	61	21	40		

	Boring	Depth	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	2	3.5	75	7.813	0.793		48.8	35.3	15.9	
⊠	3	3.5	75	0.342			16.8	33.7	49.4	
▲	4	0.5	75	0.126			14.2	31.5	54.3	
★	4	3.5	75	0.946			16.4	48.9	34.7	

Silt and clay fractions were determined using 0.002 mm as the maximum particle size for clay.

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GRAIN SIZE DISTRIBUTION

Project: Reconstruction of Al Becken Trail

Location: See Boring Location Plan

Job No.: 2014-829

APPENDIX E: ASFE INFORMATION – GEOTECHNICAL REPORT

Important Information about Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with your ASFE-member geotechnical engineer for more information.

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APPENDIX F: PROJECT QUALITY ASSURANCE

A Message to Owners

Construction materials engineering and testing (CoMET) consultants perform quality-assurance (QA) services to evaluate the degree to which constructors are achieving the specified conditions they're contractually obligated to achieve. Done right, QA can save you time and money; prevent unanticipated-conditions claims, change orders, and disputes; and reduce short-term and long-term risks, especially by detecting molehills before they grow into mountains.

Done right, QA can save you time and money; prevent claims and disputes; and reduce risks. Many owners don't do QA right because they follow bad advice.

Many owners don't do QA right because they follow bad advice; e.g., "CoMET consultants are all the same. They all have accredited facilities and certified personnel. Go with the low bidder." But there's no such thing as a standard QA scope of service, meaning that – to bid low – each interested firms *must* propose the cheapest QA service it can live with, jeopardizing service quality and aggravating risk for the entire project team. Besides, the advice is based on misinformation.

Fact: ***Most CoMET firms are not accredited***, and the quality of those that are varies significantly. Accreditation – which is important – nonetheless means that a facility met an accrediting body's minimum criteria. Some firms practice at a much higher level; others just barely scrape by. And what an accrediting body typically evaluates – management, staff, facilities, and equipment – can change substantially before the next review, two, three, or more years from now.

Most CoMET firms are not accredited. It's dangerous to assume CoMET personnel are certified.

Fact: ***It's dangerous to assume CoMET personnel are certified.*** Many have no credentials at all; some are certified by organizations of questionable merit, while others have a valid certification, but *not* for the services they're assigned.

Some CoMET firms – the "low-cost providers" – *want* you to believe that price is the only difference between QA providers. It's not, of course. Firms that sell low price typically lack the facilities, equipment, personnel, and insurance quality-oriented firms invest in to achieve the reliability concerned owners need to achieve quality in quality assurance.

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Firms that sell low price typically lack the facilities, equipment, personnel, and insurance quality-oriented firms invest in to achieve the reliability concerned owners need to achieve quality in quality assurance.

To derive maximum value from your investment in QA, require the CoMET firm's project manager to serve actively on the project team from beginning to end, a level of service that's relatively inexpensive and can pay huge dividends. During the project's planning and design stages, experienced CoMET professionals can help the design team develop uniform technical specifications and establish appropriate observation, testing, and instrumentation procedures and protocols. They can also analyze plans and specs much as constructors do, looking for the little errors, omissions, conflicts, and ambiguities that often become the basis for big extras and big claims. They can provide guidance about operations that need closer review than others, because of their criticality or potential for error or abuse. They can also relate their experience with the various constructors that have expressed interest in your project.

To derive maximum value, require the project manager to serve actively on the project team from beginning to end.

CoMET consultants' construction-phase QA services focus on two distinct issues: those that relate to geotechnical engineering and those that relate to the other elements of construction.

The geotechnical issues are critically important because they are essential to the "observational method" geotechnical engineers use to significantly reduce the amount of sampling they'd otherwise require. They apply the observational method by developing a sampling plan for a project, and then assigning field representatives to ensure samples are properly obtained, packaged, and transported. The engineers review the samples and, typically, have them tested in their own laboratories. They use the information they derive to characterize the site's subsurface and develop *preliminary* recommendations for the structure's foundations and for the specifications of various "geo" elements, like excavations, site grading, foundation-bearing grades, and roadway and parking-lot preparation and surfacing.

Geotechnical engineers cannot finalize their recommendations until they or their field representatives are on site to observe what's excavated to verify that the subsurface conditions the engineers predicted are those that actually exist.

When unanticipated conditions are observed, recommendations and/or specifications should be modified.

Responding to client requests, many geotechnical-engineering firms have expanded their field-services mix, so they're able to perform overall construction QA, encompassing – in addition to geotechnical issues – reinforced concrete, structural steel, welds, fireproofing, and so on. Unfortunately, that's caused some confusion. Believing that all CoMET consultants are alike, some owners take bids for the overall CoMET package, including the geotechnical field observation. *Entrusting geotechnical field observation to someone other than the geotechnical engineer of record (GER) creates a significant risk.*

Geotechnical engineers cannot finalize their recommendations until they are on site to verify that the subsurface conditions they predicted are those that actually exist. Entrusting geotechnical field observation to someone other than the geotechnical engineer of record (GER) creates a significant risk.

GERs have developed a variety of protocols to optimize the quality of their field-observation procedures. Quality-focused GERs meet with their field representatives before they leave for a project site, to brief them on what to look for and where, when, and how to look. (***No one can duplicate this briefing***, because no one else knows as much about a project's geotechnical issues.) And once they arrive at a project site, the field representatives know to maintain timely, effective communication with the GER, because that's what the GER has trained them to do. By contrast, it's extremely rare for a different firm's field personnel to contact the GER, even when they're concerned or confused about what they observe, because they regard the GER's firm as "the competition."

Divorcing the GER from geotechnical field operations is almost always penny-wise and pound-foolish. Still, because owners are given bad advice, it's commonly done, helping to explain why ***"geo" issues are the number-one source of construction-industry claims and disputes.***

Divorcing the GER from geotechnical field operations is almost always penny-wise and pound-foolish, helping to explain why "geo" issues are the number-one source of construction-industry claims and disputes.

To derive the biggest bang for the QA buck, identify three or even four quality-focused CoMET consultants. (If you don't know any, use the "Find a Geoprofessional" service available free at www.asfe.org.) Ask about the firms' ongoing and recent projects and the clients and client representatives involved; *insist upon receiving verification of all claimed accreditations, certifications, licenses, and insurance coverages.*

Insist upon receiving verification of all claimed accreditations, certifications, licenses, and insurance coverages.

Once you identify the two or three most qualified firms, meet with their representatives, preferably at their own facility, so you can inspect their laboratory, speak with management and technical staff, and form an opinion about the firm's capabilities and attitude.

Insist that each firm's designated project manager participate in the meeting. You will benefit when that individual is a seasoned QA professional familiar with construction's rough-and-tumble. Ask about others the firm will assign, too. There's no substitute for experienced personnel who are familiar with the codes and standards involved and know how to:

- read and interpret plans and specifications;
- perform the necessary observation, inspection, and testing;
- document their observations and findings;
- interact with constructors' personnel; and
- respond to the unexpected.

Important: Many of the services CoMET QA field representatives perform – like observing operations and outcomes – require the good judgment afforded by extensive training and experience, especially in situations where standard operating procedures do not apply. You need to know who will be exercising that judgment: a 15-year "veteran" or a rookie?

Many of the services CoMET QA field representatives perform require good judgment.

Also consider the tools CoMET personnel use. Some firms are passionate about proper calibration; others, less so. Passion is a good thing! Ask to see the firm's calibration records. If the firm doesn't have any, or if they are not current, be cautious. *You cannot trust test results derived using equipment that may be out of calibration.* Also ask a firm's representatives about their reporting practices, including report distribution, how they handle notifications of nonconformance, and how they resolve complaints.

Scope flexibility is needed to deal promptly with the unanticipated.

For financing purposes, some owners require the constructor to pay for CoMET services. ***Consider an alternative approach*** so you don't convert the constructor into the CoMET consultant's client. If it's essential for you to fund QA via the constructor, have the CoMET fee included as an allowance in the bid documents. This arrangement ensures that you remain the CoMET consultant's client, and it prevents the CoMET fee from becoming part of the constructor's bid-price competition. (Note that the International Building Code (IBC) *requires the owner to pay* for Special Inspection (SI) services commonly performed by the CoMET consultant as a service separate from QA, to help ensure the SI services' integrity. Because failure to comply could result in denial of an occupancy or use permit, having a contractual agreement that conforms to the IBC mandate is essential.)

If it's essential for you to fund QA via the constructor, have the CoMET fee included as an allowance in the bid documents. Note, too, that the International Building Code (IBC) requires the owner to pay for Special Inspection (SI) services.

CoMET consultants can usually quote their fees as unit fees, unit fees with estimated total (invoiced on a unit-fee basis), or lump-sum (invoiced on a percent-completion basis referenced to a schedule of values). No matter which method is used, estimated quantities need to be realistic. Some CoMET firms lower their total-fee estimates by using quantities they know are too low and then request change orders long before QA is complete.

Once you and the CoMET consultant settle on the scope of service and fee, enter into a written contract. Established CoMET firms have their own contracts; most owners sign them. Some owners prefer to use different contracts, but that can be a mistake when the contract was prepared for construction services. *Professional services are different.* Wholly avoidable problems occur when a contract includes provisions that don't apply to the services involved and fail to include those that do.

Some owners create wholly avoidable problems by using a contract prepared for construction services.

This final note: CoMET consultants perform QA for owners, not constructors. While constructors are commonly allowed to review QA reports as a *courtesy*, you need to make it clear that constructors do *not* have a legal right to rely on those reports; i.e., if constructors want to forgo their own observation and testing and rely on results derived from a scope created to meet *only* the needs of the owner, they *must do so at their own risk*. In all too many cases where owners have not made that clear, some constructors have alleged that they did have a legal right to rely on QA reports and, as a result, the CoMET consultant – not they – are responsible for their failure to deliver what they contractually promised to provide. The outcome can be delays and disputes that entangle you and all other principal project participants. Avoid that. Rely on a CoMET firm that possesses the resources and attitude needed to manage this and other risks as an element of a quality-focused service. Involve the firm early. Keep it engaged. And listen to what the CoMET consultant says. A good CoMET consultant can provide great value.

For more information, speak with your ASFE-Member CoMET consultant or contact ASFE directly.

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RFI #001 Response

Attachment 3

ITEM

108 LIME TREATED SUBGRADE

108.1. DESCRIPTION: *Treat the subgrade by pulverizing, adding lime, mixing, and compacting to the required density. This item applies to both natural ground and embankment subgrade and shall be constructed as specified herein and in conformance with the typical sections, lines and grades as shown on the plans or as established by the Engineer.*

108.2. MATERIALS: Lime for this item shall conform to the requirements of TxDOT Item No. 260, "Lime Treatment – Road Mixed" of the Texas Department of Transportation Standard Specifications (Latest Edition). Acceptable forms of lime shall be:

- "Type A, Hydrated Lime,"
- "Type B, Commercial Lime Slurry," or
- "Type C, Quicklime."

The Contractor shall select, prior to construction, the grade to be used and shall notify the Engineer in writing before changing from one grade to another. Lime shall be placed in slurry form only, unless written permission is granted by the Engineer and a safety and containment plan is submitted to the Engineer by the Contractor seven days prior to use. In circumstances where it would be beneficial to utilize lime for "drying" subgrade materials to expedite construction, the Contractor may request approval from the Engineer to use pelletized lime.

Provide materials in conformance with the following Items and requirements:

A. Lime. TxDOT DMS-6350 "Lime and Lime Slurry."

B. Mix Design. The Engineer will determine the target lime content and optimum moisture content in accordance with TxDOT Tex -121-E.

108.3. EQUIPMENT: The machinery, tools and equipment necessary for proper prosecution of the work shall be on the project and approved by the Engineer prior to the beginning of construction operations. All machinery, tools and equipment used shall be maintained in a satisfactory and workmanlike manner.

When lime is furnished in trucks, the weight of lime shall be determined on certified scales and delivered to the job site with exit ports sealed at the plant.

108.4. CONSTRUCTION:

A. General. The completed course shall be uniformly treated, free from loose or segregated areas, of uniform density and moisture content, well bound for its full depth and shall have a smooth surface.

B. Preparation of Subgrade or Existing Base. Prior to treating existing material, it shall be shaped to conform to the typical sections, as shown on the plans.

Before pulverizing or scarifying an existing material, when directed by the Engineer, the Contractor shall proof roll the roadbed in accordance with TxDOT Item 216, "Proof Rolling."

Soft spots shall be corrected as directed by the Engineer. When the Contractor elects to use a cutting and pulverizing machine that will process the material to the plan depth, the Contractor will not be required to excavate to the secondary grade or windrow the material. This method will be permitted only if a machine is provided which will insure that the material is cut uniformly to the proper depth and which has cutters that will plane the secondary grade to a uniform surface over the entire width of the cut. The machine shall provide a visible indication of the depth of cut at all times.

In lieu of using the cutting and pulverizing machine, the Contractor shall excavate and windrow the material to expose the secondary grade to the typical sections, lines and grades as shown on the plans or as established by the Engineer.

C. Pulverization. The existing pavement or base material shall be pulverized or scarified so that 100 % shall pass the 2-½ inch sieve.

D. Application. The percentage by weight or pounds per square yard of lime to be added will be as shown on the plans and may be varied by the Engineer if conditions warrant.

Lime shall be spread only on that area where the mixing operations can be completed during the same working day.

Unless otherwise approved by the Engineer, the lime operation shall not be started when the air temperature is below 40ºF and falling, but may be started when the air temperature is above 35ºF and rising. The temperature will be taken in the shade and away from artificial heat. Lime shall not be placed when weather conditions in the opinion of the Engineer are unsuitable.

The application and mixing of lime with the material shall be accomplished by the methods herein described as "Slurry Placing." "Dry Placing" is not allowed unless approved by the Engineer as described in Section 108.2, "Materials." Type A, Hydrated Lime shall be applied by "Slurry Placing" unless otherwise shown on the plans or approved by the Engineer. Type B Commercial Lime Slurry shall be applied by "Slurry Placing." Type C Quicklime shall be applied by "Slurry Placing" only. "Dry Placing" will not be allowed unless approved by the Engineer. When Type C Quicklime is used for dry placement, it shall be Grade "DS." When Type C Quicklime is used for slurry placement, it shall be either Grade "DS" or Grade "S." Grade "S" shall be used in slurry placement only.

CAUTION: Use of quicklime can be dangerous. Users should be informed of the recommended precautions in handling, storage and use of quicklime.

1. Slurry Placing. When Type A Hydrated Lime is specified and slurry placement is to be used, the Type A Hydrated Lime shall be mixed with water to form a slurry with a solids content approved by the Engineer.

Type B Commercial Lime Slurry shall be delivered to the project in slurry form at or above the minimum dry solids content approved by the Engineer. The distribution of lime at the rate(s) shown on the plans or approved by the Engineer shall be attained by successive passes over a measured section of roadway until the proper lime content has been secured.

When Type C Quicklime is applied as slurry, the amount of dry quicklime shall be 80 percent of the amount shown on the plans. The slurry shall contain at least the minimum

dry solids content approved by the Engineer. The residue from the slurrying procedure shall be spread uniformly over the length of the roadway currently being processed unless otherwise approved by the Engineer. This residue is primarily inert material with little stabilizing value, but may contain a small amount of quicklime particles that slake slowly. A concentration of these particles could cause the compacted stabilized material to swell during slaking.

Slurry shall be of such consistency that it can be applied uniformly without difficulty.

When the distributor truck is not equipped with an agitator, the Contractor shall have a standby pump available on the project for agitating the lime and water as required by the Engineer in case of undue delays in dispersing the slurry.

2. **Dry Placing.** Dry placing is not allowed unless approved by the Engineer as described in Section 108.2, "Materials." If allowed, the lime shall be distributed by an approved spreader at the rate shown on the plans or as directed by the Engineer. The lime shall be distributed at a uniform rate and in such a manner as to reduce the scattering of lime by the wind. The material shall be sprinkled as approved by the Inspector.

E. Mixing. The mixing procedure shall be the same for "Slurry Placing" or "Dry Placing" as herein described.

Begin Mixing within 6 hours of lime application. During the interval between application and mixing, hydrated lime that has been exposed to the open air for a period of six (6) hours or more or to excessive loss due to washing or blowing will not be accepted for payment.

1. **Initial Mixing.** The material and lime shall be thoroughly mixed. The material and lime shall be brought to the proper moisture content and left to mellow for 1 to 4 days. When pebble grade quicklime is used, allow the mixture to mellow for 2 to 4 days as approved by the Engineer.

   In addition to the above, when Type C Quicklime, Grade "DS," is approved for use by the Engineer under "Dry Placing," the material and lime shall be mixed as thoroughly as possible at the time of the lime application. Sufficient moisture shall be added during the mixing to hydrate the quicklime.

   During the mellowing period, the material shall be kept moist as directed by the Inspector.

   When shown on the plans or approved by the Engineer, the pulverization requirement may be waived when the material contains a substantial quantity of aggregate.

2. **Final Mixing.** After the required mellowing time, the material shall be uniformly mixed by approved methods. If the soil binder-lime mixture contains clods, they shall be reduced in size by the use of approved pulverization methods.

   Following mixing, a sample of the material at roadway moisture will be obtained for pulverization testing. All non-slaking aggregates retained on the ¾ inch sieve will be removed from the sample. The remainder of the material shall meet the following pulverization requirement when tested by TXDOT Test Method Tex-101-E, Part III:

Minimum passing 1 ¾" sieve	100
Minimum passing ¾" sieve	85
Minimum passing No. 4 sieve	60

F. Compaction. Prior to compaction, the material shall be aerated or sprinkled as necessary to provide the optimum moisture. Compaction of the mixture shall begin immediately after final mixing and in no case more than 24 hours after final mixing.

Compaction shall continue until the entire depth of the mixture is uniformly compacted. Throughout this entire operation, the shape of the course shall be maintained by blading, and the surface upon completion shall be smooth and in conformity with the typical sections, lines and grades as shown on the plans or as established by the Engineer.

1. **Ordinary Compaction.** Roll with approved compaction equipment, as directed. Correct irregularities, depressions, and weak spots immediately by scarifying the areas affected, adding or removing treated material as required, reshaping, and recompacting.

2. **Density Control.** Each course shall be sprinkled as required and compacted to the extent necessary to provide not less than 95 percent of the optimum density. Unless otherwise shown on the plans, the Engineer will determine roadway density of completed sections in accordance with TxDOT Test Method Tex-115-E. The Engineer may accept the section if no more than 1 of the 5 most recent density tests is below the specified density and the failing test is no more than 3 pcf below the specified density.

When the material fails to meet the density requirements, or should the material lose the required stability, density or finish before the next course is placed, or the project is accepted, it shall be reworked as specified below.

G. Reworking a Section. When a section is reworked within 72 hours after completion of compaction, the Contractor shall rework the section to provide the required compaction. When a section is reworked more than 72 hours after completion of compaction, the Contractor shall add 25 percent of the specified rate of lime. Reworking shall include loosening, road mixing as approved by the Engineer, compacting, and finishing. When a section is reworked, a new optimum density will be determined from the reworked material in accordance with TXDOT Test Method Tex-121-E, part II and shall compact in-place to a minimum of 95% of this density.

H. Finishing. Immediately after completing compaction, clip, skin, or tight-blade the surface of the lime treated material with a maintainer or subgrade trimmer to a depth of approximately ¼-inch. Remove loosened material and dispose of it at an approved location. Roll the clipped surface immediately with a pneumatic-tire roller until a smooth surface is attained. Add small increments of water as needed during rolling. Shape and maintain the course and surface in conformity with the typical sections, lines and grades shown on the plans or as directed.

Finish grade of constructed subgrade in accordance with the following grade tolerances

1. **Staged Construction.** Grade to within 0.1-foot in the cross-section and 0.1-foot in 16-feet measured longitudinally.

2. **Turnkey Construction.** Grade to within ½-inch in the cross-section and ½-inch in 16-feet measured longitudinally.

Do not surface patch.

I. Curing. After the final layer or course of the lime treated material has been compacted, it shall be brought to the required lines and grades in accordance with the typical sections.

The completed section shall then be finished by rolling with a pneumatic tire or other suitable roller. The completed section shall be moist cured or prevented from drying by addition of an asphalt material at the rate of 0.05 to 0.20 gallons per square yard. Curing shall continue for 2 to 5 days before further courses are added or traffic is permitted, unless otherwise approved by the Engineer.

However, the lime treated material may be covered by other courses, the day following finishing, when approved by the Engineer. When the plans provide for the treated material to be covered by other courses of material, the next course shall be applied within 14 calendar days after final compaction is completed, unless otherwise approved by the Engineer.

108.5. MEASUREMENT: When Lime is furnished in trucks, the weight of lime will be determined on certified scales, or the Contractor must provide a set of standard platform scales at a location approved by the Engineer. Scales must conform to the requirements of TxDOT Standard Specification Item 520, "Weighing and Measuring Equipment."

A. Hydrated Lime.

1. **Dry.** Lime will be measured by the ton (Dry Weight).

2. **Slurry.** Lime slurry will be measured by the ton (dry weight) of the hydrated lime used to prepare the slurry at the site.

3. **Commercial Lime Slurry.** Lime slurry will be measured by the ton (dry weight) as calculated from the minimum percent dry solids content of the slurry, multiplied by the weight of the slurry in tons delivered.

B. Quicklime.

1. **Dry.** Lime will be measured by the ton (dry weight) of the quicklime.

2. **Slurry.** Lime slurry will be measured by the ton (dry weight) of the quicklime used to prepare the slurry multiplied by a conversion factor of 1.28 to give the quantity of equivalent hydrated lime, which will be the basis of the payment

108.6. PAYMENT: Work performed and materials furnished as prescribed by this item and measured as provided under "Measurement" will be paid for as follows:

"Lime" will be paid for at the unit price bid per ton of 2,000 pounds for "Lime" of the type specified, not to exceed 1% of the calculated quantity (based on delivered weight), which price shall be full compensation for furnishing all lime.

"Lime Treatment for Subgrade" will be paid for at the contract unit price bid per square yard, which price shall be full compensation for all correction of secondary subgrade, for loosening, mixing, pulverizing, spreading, drying, application of lime, water content of the slurry, shaping

and maintaining, for all sprinkling and rolling, for all manipulations required, for all hauling and freight involved, for all tools, equipment, labor and incidentals necessary to complete the work.

108.7. BID ITEM:

Item 108.1 - Lime Treated Subgrade - (___inches compacted depth) - per square yard

Item 108.2 - Lime - per ton

RFI #001 Response

Attachment 4

020

BID FORM

Total construction budget for this Project is: ……... $ 800,000

I. BASE BID

Provide and install all materials, labor and construction operations necessary to complete the intended work described and shown in the plan-drawings and technical specifications, which includes but not limited to; demolition and hauling, site preparation and earthwork, excavation and backfill, concrete forming, concrete pouring and finishes, asphalt paving, electrical and plumbing work, specialty shade structures, site furniture and accessories, specialty masonry, landscape, cleanup, maintenance, and warranty, complete-in-place per:

Total Amount of Base Bid:_____ **$**_____

(Insert Total Amount of Base Bid in Words and Numbers)

II. ALTERNATES

Additive Alternate #1 –Trail repair 1

Total Amount of Alternate #1 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Additive Alternate #2 – Trail repair 2

Total Amount of Alternate #2 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #1 – New wildlife water trough

Total Amount of Deductive Alternate #1 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #2 –Lower Baseball Field Parking, complete

Total Amount of Deductive Alternate #2 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #3 – Upper Bee Tree Soccer Field Parking

Total Amount of Deductive Alternate #3 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #4 –Existing wildlife water trough automatic fill

Total Amount of Deductive Alternate #4 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #5 –Accessible picnic units (3 total)

Total Amount of Deductive Alternate #5 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

Deductive Alternate #6 –Overflow parking area at dog park & practice field

Total Amount of Deductive Alternate #6 Bid:_____ **$**_____

(Insert Total Amount in Words and Numbers)

III. UNIT PRICES

Bidders shall complete and submit the unit pricing requested on the **Section 025 Unit Pricing Form** and it shall be attached immediately following this sheet. The unit prices bid shall be the **'complete-in-place unit costs'** that is necessary and required to complete the unit bid item work described.

The unit prices bid may be used by the City of San Antonio to change the intended scope and/or the final contract amount for this project by applying "additions-to" or "deletions-form" the scope of work, at the sole discretion of the City of San Antonio.

IV. ALLOWANCES

No Allowance Given for this Bid Request, N/A.

Official Name of Company (legal)	Telephone No.
Address	Fax No.
City, State and Zip Code	E-mail Address

Name of the Company **Project Manager:** _____

Name of the Company **Site Superintendent:** _____

Addendum No. 04

Attachment 2

Poligon Steel Shelters by PorterCorp
4240 136th Ave., Holland, MI 49424

DIVISION 107300

SPECIALTIES MANUFACTURERS OF PROTECTIVE COVERS

PART 1 - GENERAL

[reference CSI 2004 MasterFormat™ Division 10
(Specialties Manufacturers) category 7300 (Protective Covers)]

1.1 DESCRIPTION OF PRODUCT

A. RAM 30x44 TG/SS and CWC 14x15 SS

B. ROOF SLOPE: RAM – 4:12, CWC - 2:12

C. Minimum Clearance Height (MCH): RAM 30x44 10’ and CWC 1416 7’-10”. Minimum clearance height under the structure indicates the lowest height of a member from finish grade for clearance under the structure. This is generally the clearance under roof eave or frame, whichever is lower.

1.2 REFERENCES

A. REFERENCE STANDARDS:
1. AISC - American Institute of Steel Construction Manual of Steel Construction.
2. ASTM - American Society for Testing and Materials.
3. AWS - American Welding Society.
4. LEED - Leadership in Energy and Environmental Design.
5. OSHA – Occupational Safety and Health Administration Steel Erection Standard 29 CFR 1926 Subpart R-Steel Erection.
6. PCI - Powder Coating Institute.
7. SSPC - Steel Structures Painting Council.

1.3 SUBMITTALS

A. GENERAL SUBMITTAL:
Submit 4 sets of submittal drawings and 2 sets of calc books, both signed and sealed by a Professional Engineer licensed in the State of Texas.

B. PRODUCT DESIGN REQUIREMENTS:
The building shall meet the following design requirements as shown on the drawings:
1. Building Code: IBC 2009
2. Ground Snow Load (Pg): 20 psf
3. Basic Wind Speed (V): 90 mph
4. Seismic Design: D

C. SUBMITTAL REQUIREMENTS:
Calculations and Submittal drawings shall include, at a minimum:
1. Calculations:
   a. References to building codes and design manuals used for calculations.
   b. Identification of lateral force resisting system.
   c. Formulas used for determining snow, wind, and seismic loads to specific project location.
   d. Three dimensional modeling input, model geometry, and analysis results.
   e. Member design results and controlling load combinations.
   f. Connection design for structural bolts, welds, plate thicknesses, and anchorage to the foundation.
   g. Foundation designs must include the required combinations of gravity and lateral loads.
2. Submittal Drawings:
   a. Anchor bolt layout.
   b. Foundation design.
   c. Three dimensional views of frame.
   d. Member sizes and locations.
   e. Structural connection details, including bolt sizes and plate thicknesses.
   f. Roof trim and connection details.

D. FOUNDATION DESIGN:
1. The shelter shall be set on foundations designed by manufacturer.
2. Foundation materials shall be provided by contractor.
3. Owner shall provide manufacturer with complete information about the site including soil bearing capacity and lateral load capacity.
4. If soil data are not provided, foundations will be designed to the minimum values identified in the governing building code.

E. ANCHOR BOLTS:
Anchor bolts shall be provided by manufacturer.

1.4 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS:
1. Minimum of 10 years in the shelter construction industry.
2. Full time on-staff Licensed Engineer.
3. Full time on-staff AWS Certified Welding Inspector.
4. Full time on-staff Quality Assurance Manager.
5. Full time on-staff LEED AP.
6. All welders AWS Certified.
7. Manufacturer owned and controlled finishing system to include shot blast, pretreatment, primer, and top coat.
8. Published Quality Management System.
9. Annual audit of Quality System and Plant Processes by Third Party Agency.
10. Annual audit of powder coat finish system by Third Party Agency (PCI).

B. MANUFACTURER'S CERTIFICATONS:
1. PCI 4000 S Certified, Certification thru PCI for original equipment manufacturers (OEMs) to evaluate process on entire finish system to add powder coat over steel.
2. City of Los Angeles, CA Approved Fabricator Type I Steel.
3. Clark County, NV Approved Fabricator steel.
4. City of Houston, TX Approved Fabricator Structural Steel and Structural Insulated Panels.
5. Miami Dade County Certificate of Competency for Structural Steel and Miscellaneous Metal Products and Assemblies.
6. State of Utah Approved Fabricator for Medium and High Strength Steel.
7. City of Riverside, CA Approved Fabricator Type I Steel.
8. City of Phoenix, AZ Approved Steel Fabricator.

1.5 FIELD OR SITE CONDITIONS

A. Foundations shall be at the same elevation unless specifically noted otherwise on the drawings.

1.6 MANUFACTURER WARRANTY

A. Shelter must have a 10-year limited warranty on steel frame members.

B. Shelter must have a 10-year limited warranty on paint system.

C. Pass through warranty of Metal Roof manufacturer shall be provided upon request.

PART 2 - PRODUCTS

2.1 SHELTER SYSTEM AND MATERIALS

A. MANUFACTURERS:
1. Acceptable Manufacturer: Poligon, a Product of PorterCorp, 4240 N 136th Ave., Holland, MI 49424; 616.399.1963; E-mail: info@poligon.com; www.poligon.com. Receive pricing from BJ's Park & Recreation Products, 4003 Briar Lane, Magnolia, TX 77354, 281.356.2110, E-mail: kevin@bjspark.com, www.bjspark.com
2. The product shall be designed, produced, and finished at a facility operated and directly supervised by the supplier who has a minimum of ten years in the business making pre-manufactured shelters.

B. SUBSTITUTION LIMITATIONS:
1. Substitutions must be approved a minimum of ten (10) days before bid. All approved manufacturers shall be notified in writing before the bid date and shall not be allowed to bid without written notification.
2. Alternate suppliers must meet the qualifications and provide proof of certifications listed under Section 1.4 QUALITY ASSURANCE.

3. Alternate suppliers must provide an equivalent paint system to Poligon's Poli-5000 listed under Section 2.1 C. 8. FINISHES.
4. Staff members' cumulative experience in fabrication will not be an acceptable alternative for manufacturer's experience in the shelter construction industry.

C. PRODUCT REQUIREMENTS AND MATERIALS:
1. GENERAL: The pre-engineered package shall be pre-cut unless otherwise noted and pre-fabricated which will include all parts necessary to field construct the shelter. The shelter shall be shipped knocked to minimize shipping expenses. Field labor will be kept to a minimum by pre-manufactured parts. Onsite welding is not necessary.
2. REINFORCED CONCRETE:
   a. Concrete shall have minimum 28-day compressive strength of 3,000 psi and slump of 4" (+/- 1"), unless otherwise noted on the drawings.
   b. Reinforcing shall be ASTM A615, grade 60.
3. STEEL COLUMNS:
   a. Hollow structural steel tube minimum ASTM A500 grade B with a minimum wall thickness of 3/16".
   b. Unless columns are direct buried, columns shall be anchored directly to concrete foundation with a minimum of four anchor rods to meet OSHA requirement 1926.755(a)(1).
   c. CUSTOM STEEL COLUMNS:
4. STRUCTURAL FRAMING:
   Hollow Structural Steel tube minimum ASTM500 grade B. "I" beams, tapered columns, or open channels shall not be accepted for primary beams. Frame will have a E-COAT BASE COAT finish. Color chosen from manufacturer's standard color chart: [_____].
5. COMPRESSION MEMBERS:
   Compression rings of structural channel or welded plate minimum ASTM A36 or compression tubes or structural steel tube minimum ASTM A500 grade B shall only be used.
6. CONNECTION REQUIREMENTS:
   a. Anchor bolts shall be ASTM F1554 (Grade 36) unless otherwise noted.
   b. Structural fasteners shall be zinc plated ASTM A325 high strength bolts and A563 high strength nuts.
   c. All structural fasteners shall be hidden within framing members wherever possible.
   d. No field welding shall be required to construct the shelter.
   e. All welds shall be free of burrs and inconsistencies.
   f. All exposed fasteners shall be painted by manufacturer prior to shipment to match frame or roof colors as applicable.
   g. Manufacturer shall provide extra structural and roofing fasteners.
7. ROOFING MATERIALS:

RAM 30x44 TG/SS

   a. PRIMARY ROOF DECK: FACTORY PRE-STAINED TONGUE AND GROOVE (TG):
      1) T&G shall beof 2x6 tongue and groove, Hem Fir, Select Structural KD 15. Factory stained **[ ]**
      2) Manufacturer shall supply 30 pound felt and drip edge if both primary and secondary roofs are being supplied by the manufacturer.

3) Contractor shall cut T&G down to required lengths.

CWC 14x16 SS

a. PRIMARY ROOF DECK OF STANDING SEAM METAL ROOFING:
   1) Standing seam metal roofing to be 24-gauge galvalume 16" wide with ribs 1-3/4" high.
   2) Roof surface shall be painted with Kynar 500 to the manufacturer's standard color: **[**_____**]**. Ceiling surface shall be a "wash coat" primer.
   3) Angles shall be cut in the field.
   4) Metal roofing trim shall match the color of the roof and shall be factory made of 26 gauge Kynar 500 painted steel.
   5) Trim shall include panel ridge caps, hip caps, eave trim, splice channels, rake trim, roof peak cap, and corner trim as applicable for model selected. Trim may need to be cut to length and notched. Reference drawings for additional information.
   6) Ridge, hip, and valley caps shall be pre-formed with a single central bend to match the roof pitch and shall be hemmed on the sides.
   7) Roof peak cap shall be pre-manufactured.
   8) Manufacturer must supply painted screws and butyl tape.

RAM 30x44 TG/SS

b. SECONDARY ROOF SYSTEM OF STANDING SEAM METAL ROOFING:
   1) Standing seam metal roofing to be 24-gauge galvalume 16" wide with ribs 1-3/4" high.
   2) Roof surface shall be painted with Kynar 500 to the manufacturer's standard color: **[**_____**]**. Ceiling surface shall be a "wash coat" primer.
   3) Angles shall be cut in the field.
   4) Metal roofing trim shall match the color of the roof and shall be factory made of 26 gauge Kynar 500 painted steel.
   5) Trim shall include panel ridge caps, hip caps, eave trim, splice channels, rake trim, roof peak cap, and corner trim as applicable for model selected. Trim may need to be cut to length and notched. Reference drawings for additional information.
   6) Ridge, hip, and valley caps shall be pre-formed with a single central bend to match the roof pitch and shall be hemmed on the sides.
   7) Roof peak cap shall be pre-manufactured.
   8) Manufacturer must supply painted screws and butyl tape.

8. FINISHES:
   a. E-COAT BASE COAT FINISH:
      1) Entire building under Super Durable Polyester TGIC powder coat shall have an E-Coat Base Coat.
      2) Steel shall be shot blasted to SSPC-SP10 near-white blast cleaning prior to adding E-Coat. SSPC-SP2 hand tool cleaning will not be an acceptable alternative.
      3) Top powder coat of Super Durable TGIC powder coat shall be applied.
9. ACCESSORIES
   b. ELECTRICAL ACCESS:
      1) Electrical access to be provided per manufacturer's electrical access sheet.

2) Electrical cutouts shall be marked as height above finish floor and size of cutout required.

PART 3 - EXECUTION

3.1 INSTALLERS STORAGE AND HANDLING

A. Protect building products after arrival at destination from weather, sunlight, and damage.

B. Installer shall store product elevated from soils to allow air circulation and to not introduce mold, fungi decay or insects to the product.

C. Product must be handled with protective straps or padded forks if lifting with mechanical equipment. Use of chain or cable to lift product into place will not be accepted.

D. To curtail warping of lumber, all units shall remain packaged while being stored.

E. The secondary roof shall be installed immediately after the primary roof to prevent moisture damage to wood.

3.2 ERECTION

A. FOUNDATIONS:
The shelter shall be placed on foundations designed by PorterCorp, with materials by others. Design approved by the Engineer of Record identified in Section 1.3 D. FOUNDATION DESIGN.

B. INSTALLATION:
Install all components according to manufacturer's installation instructions and these specifications.

C. GENERAL CONTRACTOR:
Interface with other work is to be coordinated by the customer or the customer's agent. Certain designs have electrical or other plumbing requirements that are not supplied by Poligon.

D. TOLERANCES:
Tolerances on steel structural members are set according to AISC construction practices, abided in the factory, and cannot be increased. No field slotting or opening of holes will be allowed. It is therefore essential that contractors conform to the tolerances specified on the installation drawings for anchor bolt or column layout details.

E. OSHA COMPLIANCE:
OSHA Compliance to Steel Erection Standard 29CRF 1926 Subpart R-Steel Erection.

3.3 REPAIR

A. Do not attempt any field changes without first contacting Poligon.

3.4 FIELD OR SITE QUALITY CONTROL

A. Field or Site Tests and Inspections are not required by Poligon but may be required by the customer or by the local building inspector.

END OF SECTION

2014A

poligon®

A Division of PORT RCORP 4240 N. 136th AV O AND, MI 49424 (616) 399-1963

PROJ CT: MCA IST R PAR

OCATION: SAN ANTONIO, T

B I DIN T P : IP ROOF 30 44

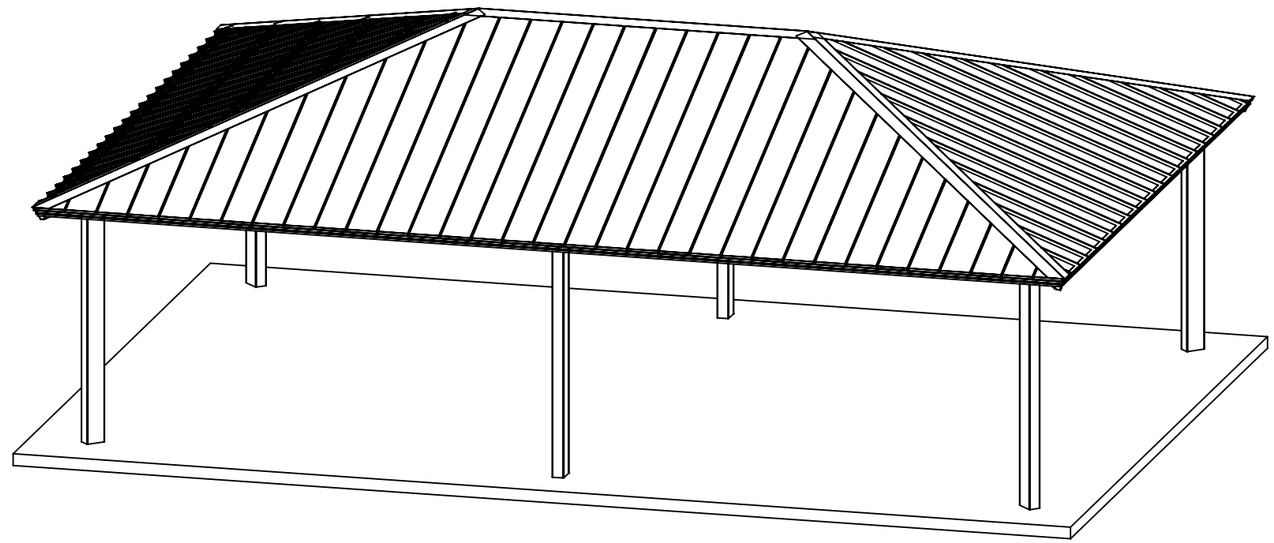
ROOF T P : STANDIN S AM OV R T

F AT R S: 10 MC

JOB N MB R: 52872

DRAWIN IST:

SHEET NUMBER	DRAWING DESCRIPTION
CS	COVER SHEET
1	ARCHITECTURAL ELEVATIONS
2	STRUCTURAL FRAMING PLAN
3	COLUMN LAYOUT
4	BASE PLATE STYLES
5	ELECTRICAL ACCESS AND CUTOUTS



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FABRICATOR APPROVALS:
CIT OF P O NI , A APPROV D FABRICATOR C08-2010
CIT OF OS AN S, CA APPROV D FABRICATOR 1596
CIT OF RIV RSID , CA APPROV D FABRICATOR SP06-0033
CIT OF O STON, T APPROV D FABRICATOR 470
C AR CO NT , NV APPROV D FABRICATOR 264
STAT OF TA APPROV D FABRICATOR 02008-14

CERTIFICATES:
MIAMI-DAD CO NT C RTIFICAT OF COMP T NC NO. 13-0813.16
PCI (POWD R COATIN INSTIT T) 4000 C RTIFI D

MATERIALS:

D SCRIPTION	ASTM D SI NATION
T B ST	A500 (RAD B)
SC D PIP	A53 (RAD B)
RMT PIP	A519
I T A CO D FORM D	A1003 (RAD 50)
STR CT RA ST P AT	A36
ROOF PAN S (ST)	A653

GENERAL NOTES:
N SS NOT D OT RWIS , T IS STR CT R WAS D SI N D TO ON S PPORT W AT IS S OWN ON T S DRAWIN S. PO I ON M ST B CONTACT D IF AN T IN S IS TO B ATTAC D TO T IS STR CT R (WA S, CO MN WRAPS, RAI IN S, TC.) SO T D SI N OF T IS STR CT R CAN B R VI W D AND POSSIB R VIS D.

N SS NOT D OT RWIS , T IS STR CT R WAS D SI N D ASS MIN A 20 S PARATION B TW N AN ADJAC NT STR CT R WIT AN AV I T A TO OR R AT R T AN T AV I T OF T IS STR CT R . IF T AT S PARATION DO S NOT IST, PO I ON M ST B CONTACT D SO T D SI N OF T IS STR CT R CAN B R VI W D AND POSSIB R VIS D.

STR CT RA ST S A B D TAI D, FABRICAT D, AND R CT D IN ACCORDANC WIT T AT ST DITION OF T AM RICAN INSTIT T OF ST CONSTR CTION (AISC) SP CIFICATION MAN A .

A W DIN IS P RFORM D B AM RICAN W DIN SOCI T C RTIFI D W D RS AND CONFORMS TO T AT ST DITION OF AWS D1.1 OR D1.3 AS R IR D.

PARTS S OWN MA B P RAD D D TO STANDARDI D FABRICATION. R F R TO T S IPPIN BI OF MAT RIA S FOR POSSIB S BSTIT TIONS.

FOR PROP R FI D INSTA ATION OF T B I DIN IT IS R COMM ND D T AT T PRIMAR FRAM INSTA R AND T ROOF INSTA R AV A MINIM M FIV (5) ARS DOC M NT D P RI NC INSTA IN T IS T P OF PROD CT.

FOR PROP R FI D INSTA ATION OF T B I DIN IT IS R COMM ND D T AT CTRIC WIRIN , IF R IR D, B R N T RO T STR CT RA M MB RS B FOR T B I DIN IS R CT D.

CUSTOMER APPROVAL

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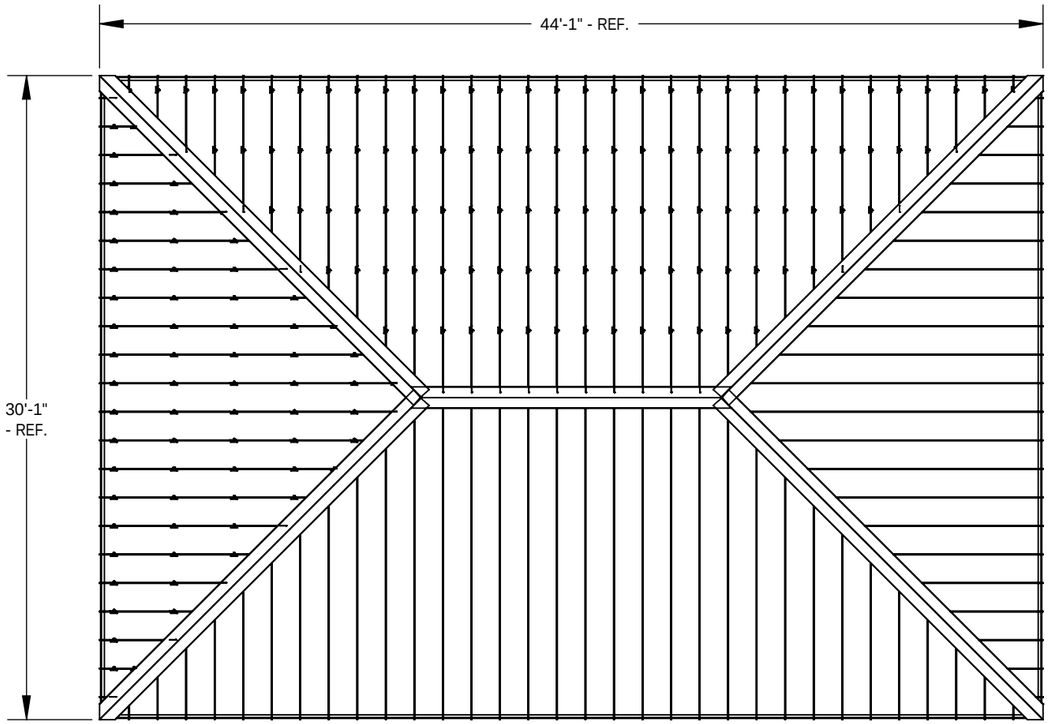
byPORTERCORP

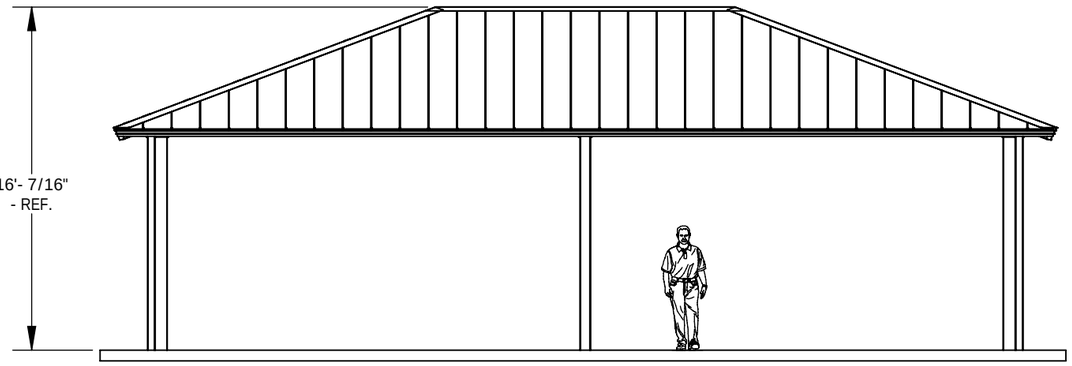
PORTERCORP 4240 N. 136th AVE HOLLAND, MI 49424

REV LEVEL: A
SCALE: 1:75
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: COVER SHEET
SHEET
CS

2014A



TOP VIEW



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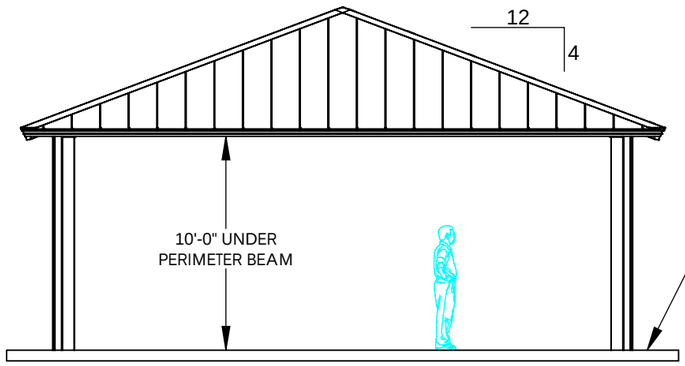
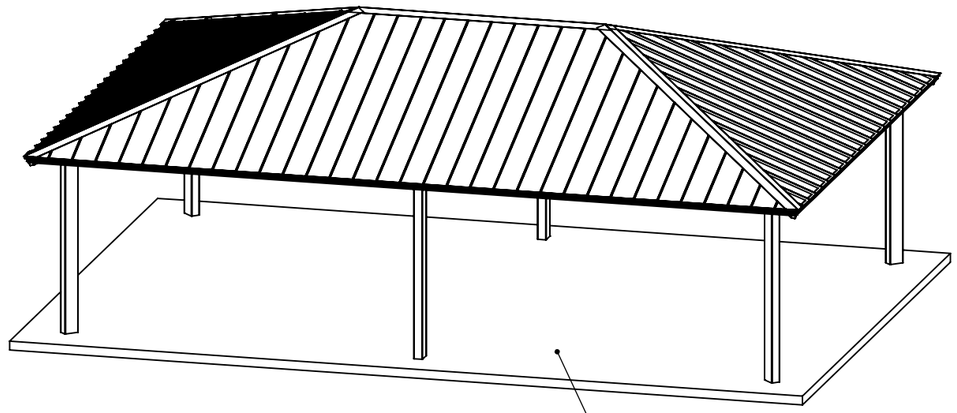


ELEVATION B

GENERAL ROOF NOTES:

1. METAL ROOFING:
   - Å 24 GAUGE
   - Å GALVALUME COATED
   - Å KYNAR 500 PAINTED
2. TRIM COLOR MATCHES ROOF
3. SEE POLIGON.COM FOR COLOR OPTIONS



AUXILIARY VIEW

BASE IS ILLUSTRATIVE, N.I.C.

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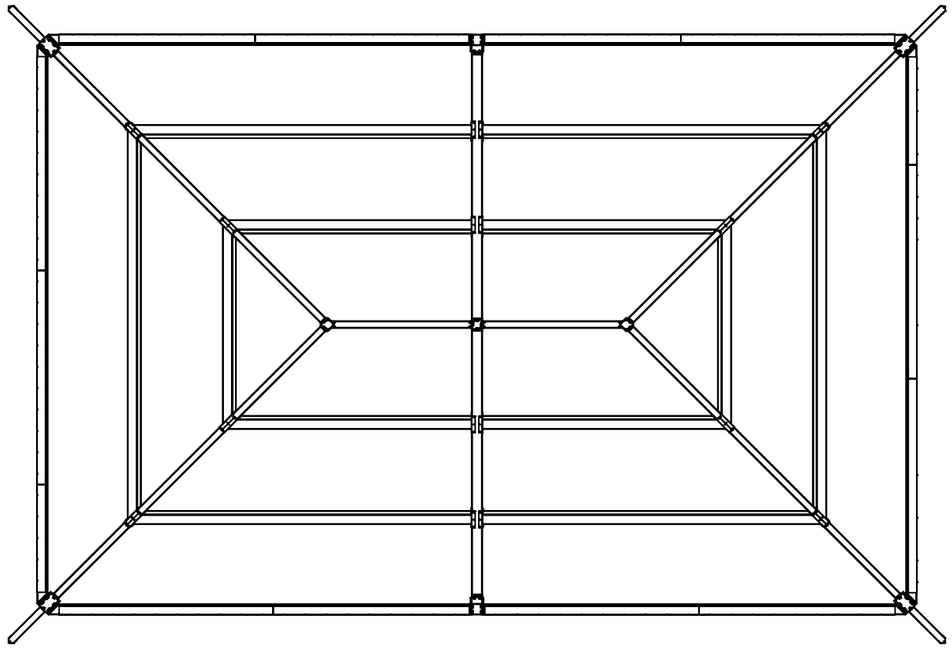
REV LEVEL: A
SCALE: 1:85
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: ARCHITECTURAL ELEVATIONS
SHEET 1

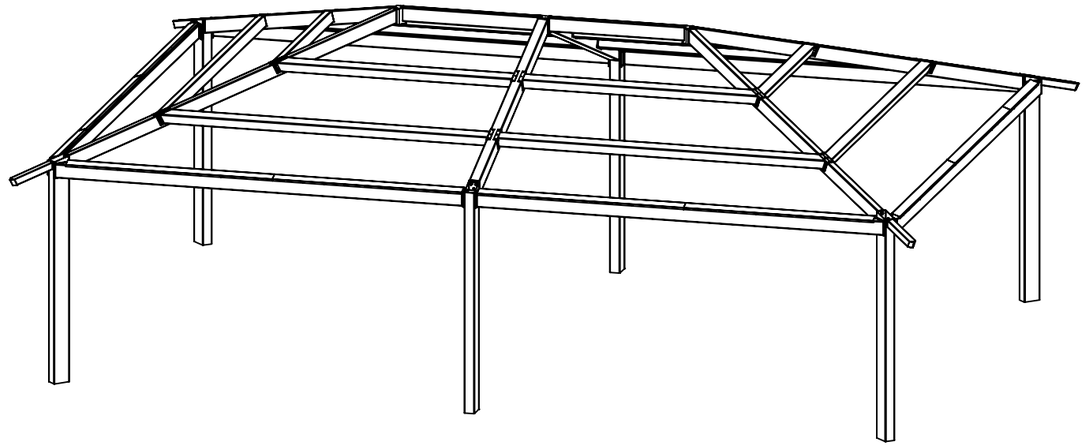
2014A

GENERAL FRAME NOTES:

1. ALL STEEL COMPONENTS (STRUCTURAL MEMBERS, ORNAMENTATION, RAILING, ETC.) ARE POWDER COATED IN THE FOLLOWING MANNER (UNLESS REQUESTED OTHERWISE):
   - Å SHOT BLASTED TO NEAR WHITE CONDITION (SSPC SP-10)
   - Å WASHED AND SEALED IN A PHOSPHATE SPRAY
   - Å PRIME-COATED WITH POLI-5000 HIGH PERFORMANCE POWDER APPLIED EPOXY
   - Å TOP-COATED WITH SUPER-DURABLE TGIC POLYESTER POWDER AND OVEN CURED
2. SEE POLIGON.COM FOR COLOR OPTIONS



TOP VIEW



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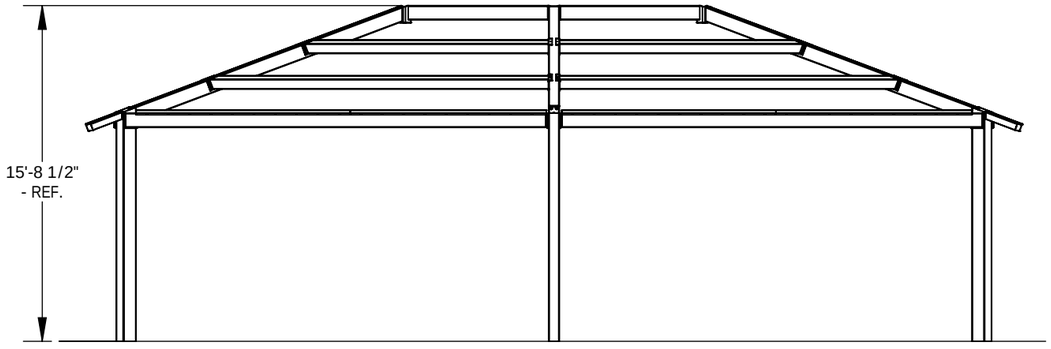

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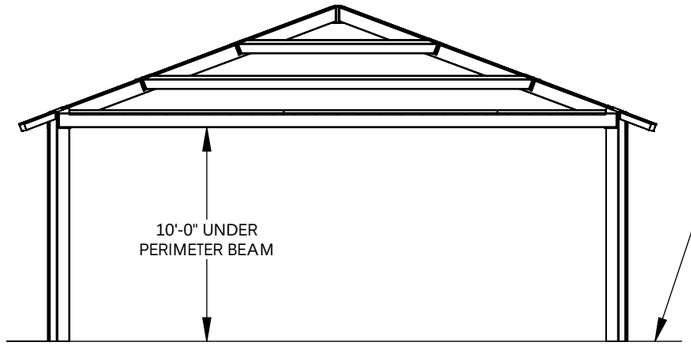

ELEVATION B

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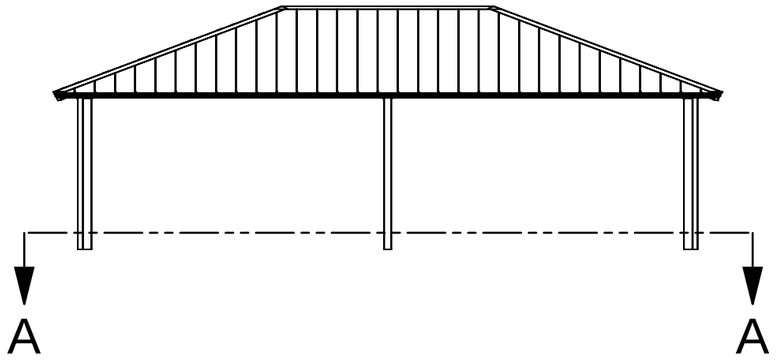
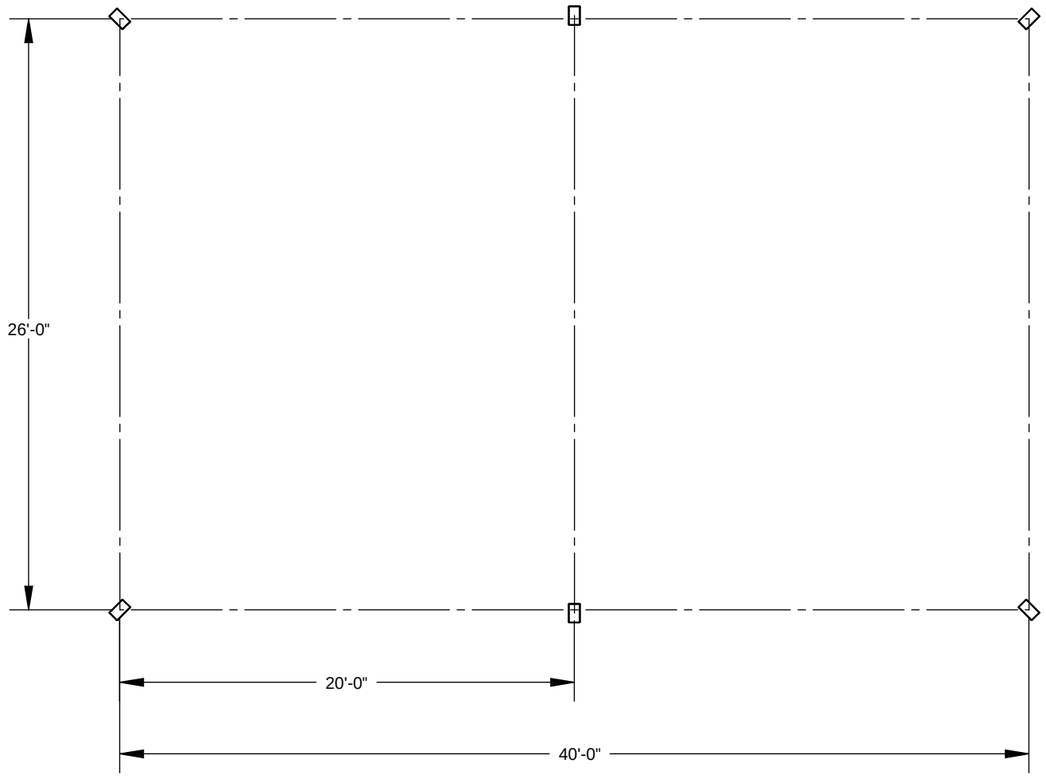
REV LEVEL: A
SCALE: 1:85
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: STRUCTURAL FRAMING PLAN
SHEET 2

2014A





SECTION A-A

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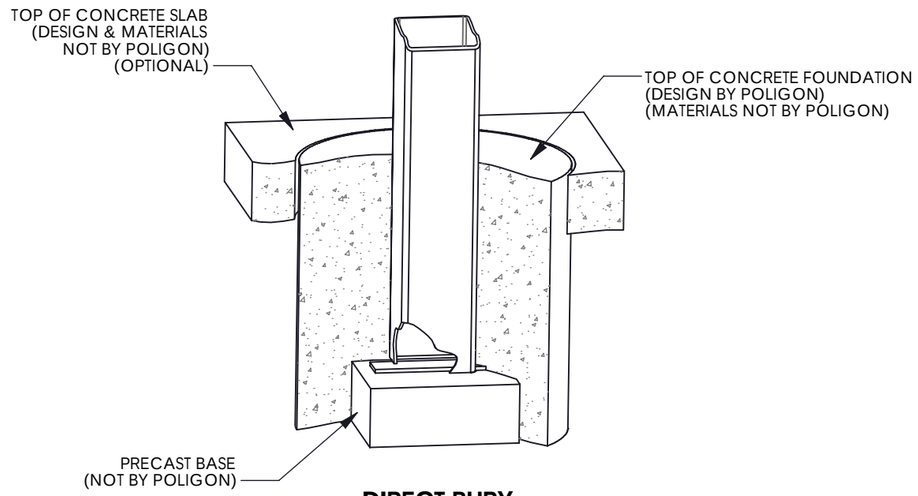
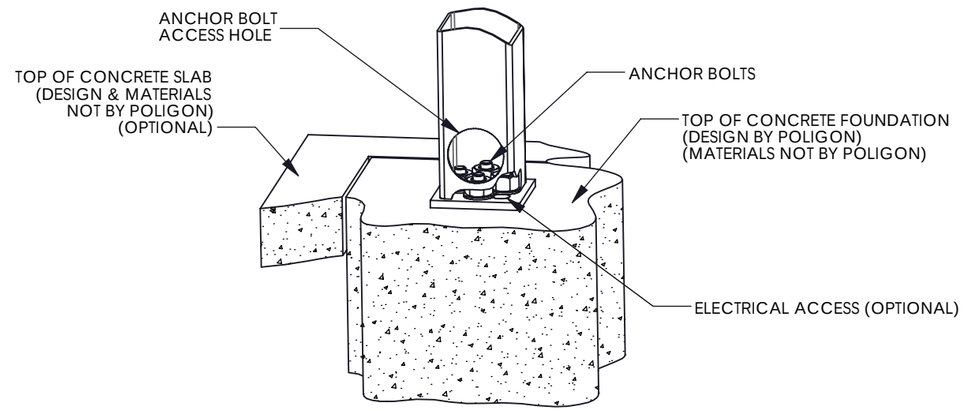
DRAWN BY: betdue
REV LEVEL: A
SCALE: 1:80
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: COLUMN LAYOUT
SHEET 3

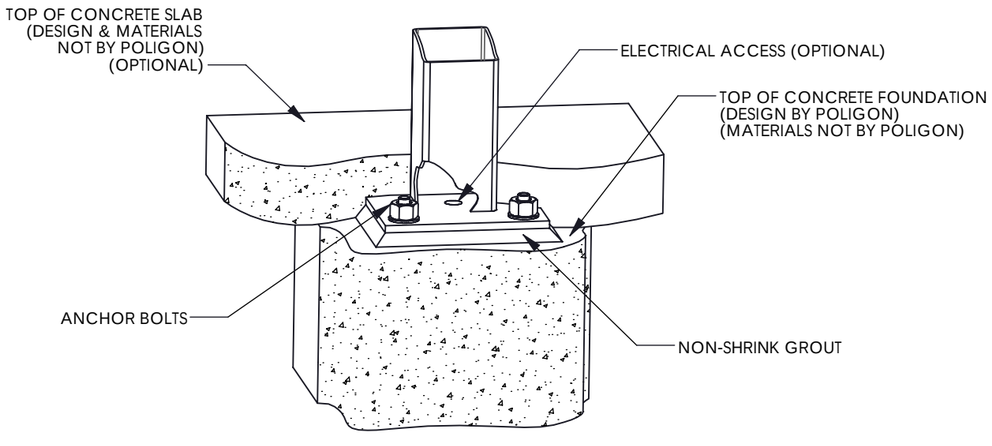
POLIGON ENGINEERING WILL DETERMINE THE REQUIRED BASE PLATE STYLE WHEN DESIGNING THIS STRUCTURE.



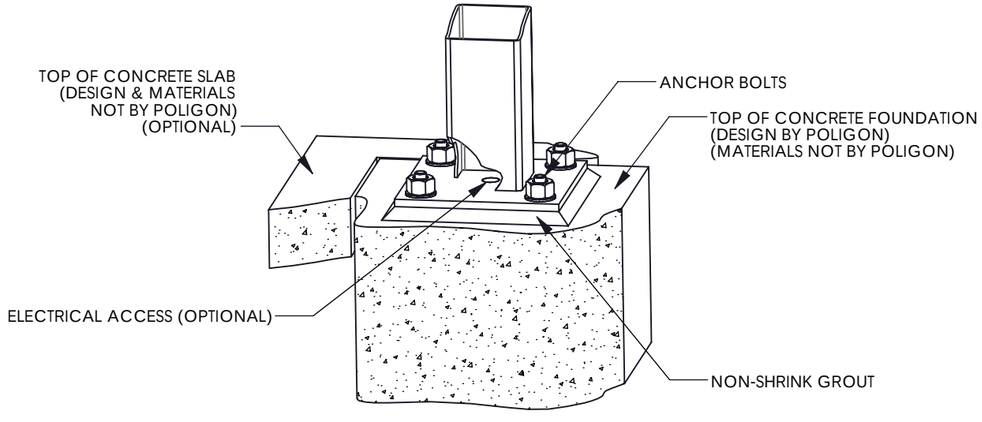
DIRECT BURY



PINNED BASE



FIXED BASE
(WITH CONCEALING SLAB)



FIXED BASE
(WITHOUT CONCEALING SLAB)

NOTES:
1. THE REQUIRED BASE PLATE STYLE IS A FUNCTION OF THE PROJECT SPECIFIC ENGINEERING REQUIREMENTS.
2. POLIGON ENGINEERING WILL DETERMINE THE REQUIRED BASE PLATE STYLE BECAUSE IT CAN DRAMATICALLY AFFECT THE STRUCTURE'S DESIGN AND PERFORMANCE.
3. WE UNDERSTAND THE BASE PLATE STYLE CAN IMPACT THE CONSTRUCTION SEQUENCE (I.E. THE TIMING OF THE SLAB INSTALLATION), SO PLEASE USE THE FOLLOWING INFORMATION AS A GENERAL GUIDE:
   - Â PINNED BASE PLATES ARE PROVIDED ON THE MAJORITY OF POLIGON STRUCTURES
   - Â FIXED BASE PLATES ARE TYPICALLY ONLY REQUIRED IN HIGH SEISMIC REGIONS, ON SOME LARGE STRUCTURES (> 2000 SQ FT), AND ON CANTILEVERED STRUCTURES.
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REV LEVEL: A
SCALE: 1:6
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: BASE PLATE STYLES
SHEET 4

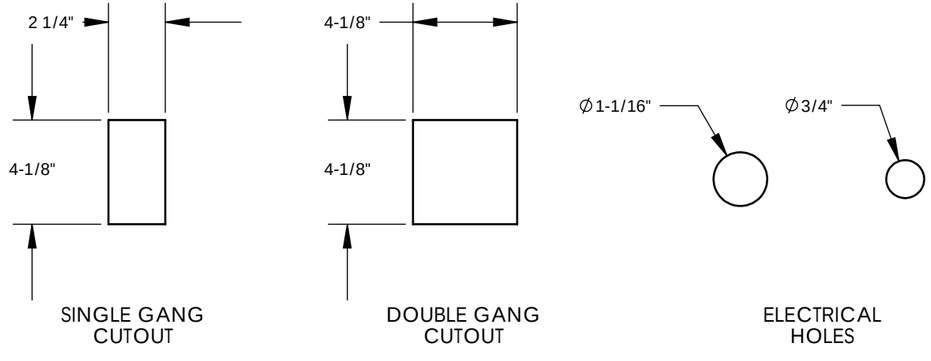
ELECTRICAL ACCESS AND CUTOUTS

WHAT IS ELECTRICAL ACCESS?
- A 1-1/8" ∅ HOLE IS PROVIDED THROUGH COLUMN BASEPLATE.
- 3/4" ∅ HOLES ARE PROVIDED THROUGH CONNECTION PLATES TO ALLOW WIRE ACCESS UP INTO COMPRESSION TUBE/RING OR RIDGE BEAM.
- ELECTRICAL ACCESS INTO ADDITIONAL MEMBERS IS AVAILABLE UPON REQUEST.

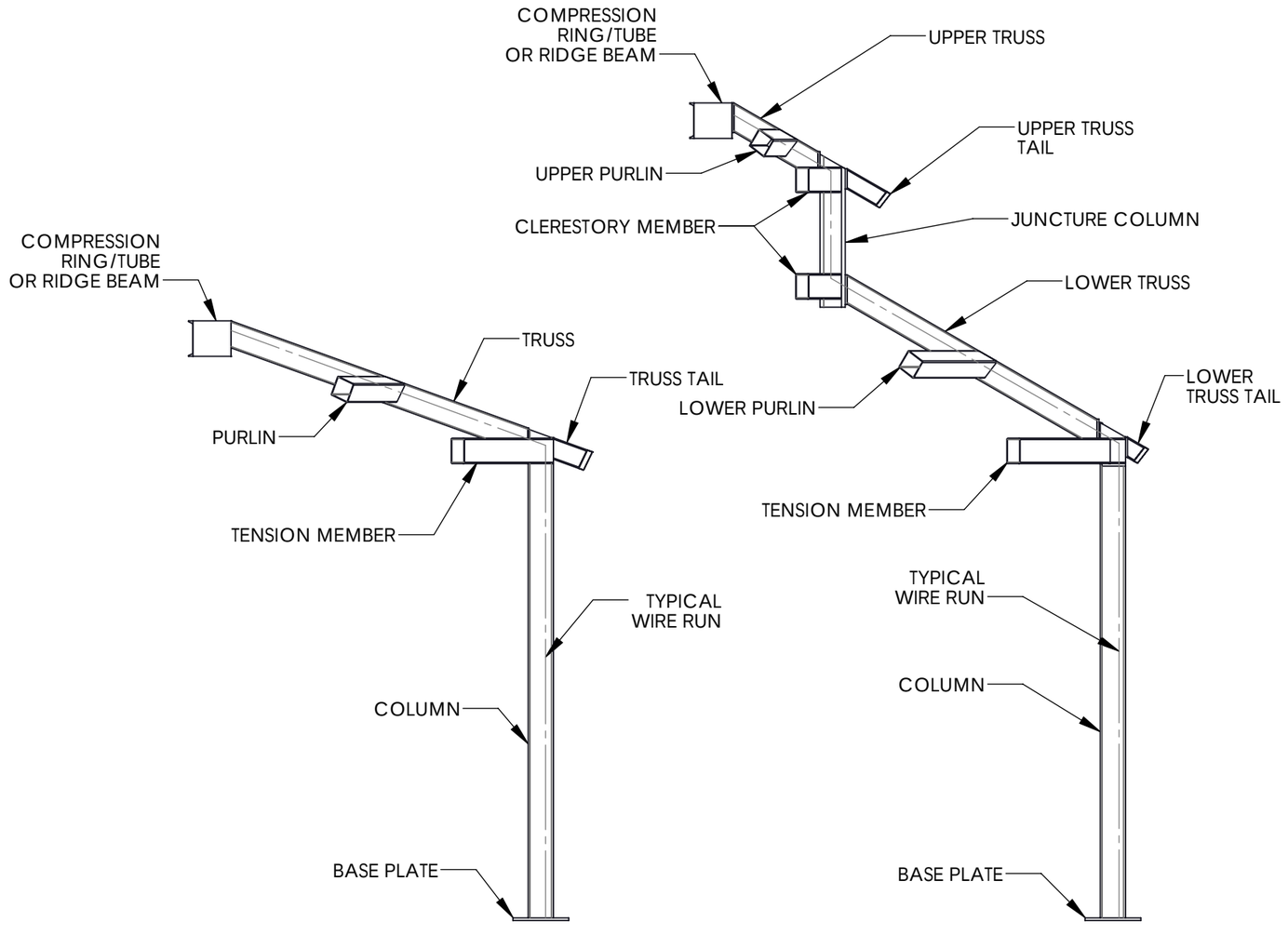
WHAT ARE ELECTRICAL CUTOUTS?
- ROUND HOLE OR RECTANGULAR CUTOUTS IN MEMBERS, REQUIRED FOR INSTALLATION OF ELECTRICAL FIXTURES OR WIRE ACCESS.
- ALL CUTOUT REQUESTS MUST BE REVIEWED BY OUR ENGINEERING DEPARTMENT (THEIR PLACEMENT MAY AFFECT STRUCTURAL INTEGRITY).
- POLIGON IS NOT RESPONSIBLE FOR UNAUTHORIZED CUTOUTS MADE IN THE FIELD.
- UNAUTHORIZED ELECTRICAL CUTOUTS MADE IN THE FIELD WILL VOID THE SHELTER'S WARRANTY.
- TO ENSURE FLUSH MOUNTING OF AN ELECTRICAL FIXTURE, ROUND COLUMNS WILL BE EQUIPPED WITH A WELDED IN ENCLOSURE THAT ACCOMMODATES A STANDARD UL LISTED BOX.

HOW TO COMMUNICATE CUTOUT REQUIREMENTS
- WHEN ORDERING THE STRUCTURE, MARK UP THE SUBMITTAL DRAWINGS TO ACCURATELY COMMUNICATE CUTOUTS WITH EXACT DIMENSION(S) AND LOCATION(S).
- IF THE SUBMITTAL SET IS NOT AVAILABLE, MARK UP THE SKETCHES ON THIS SHEET SHOWING CUTOUTS WITH EXACT DIMENSION(S) AND LOCATION(S).
- CUTOUT SIZE MUST BE COMMUNICATED AT TIME OF ORDER.
- INDICATE ON WHICH SIDE OF MEMBER THE CUTOUT IS TO BE LOCATED.
- IF NOT SPECIFIED TO THE BOTTOM, CENTER, OR TOP OF CUTOUT, DIMENSION WILL BE TAKEN TO THE BOTTOM OF THE CUTOUT.

WHERE CAN CUTOUTS BE LOCATED?
- OUTLET CUTOUTS ARE TYPICALLY LOCATED 18" ABOVE GRADE ON THE INSIDE FACE OF THE COLUMN.
- LIGHT SWITCH CUTOUTS ARE TYPICALLY LOCATED 48" ABOVE GRADE ON THE INSIDE FACE OF THE COLUMN.
- ALL CUTOUTS ARE TYPICALLY AT LEAST 12" FROM ANY STRUCTURAL JOINTS.
- ALL CUTOUTS ARE TYPICALLY CENTERED ON THE MEMBER WALL (NOT CLOSE TO THE CORNERS).
- CONTACT LOCAL POLIGON REPRESENTATIVE WITH ANY ADDITIONAL QUESTIONS.
- CUTOUTS CAN BE LOCATED THROUGH COVER PLATES.



TYPICAL ELECTRICAL CUTOUTS



TYPICAL WIRE RUNS

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SCALE: 1:32
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52872
CAD MODEL: ~E1-RAM-30X44-TGSS-H10-52872
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: ELECTRICAL ACCESS AND CUTOUTS
SHEET 5

2014A

FRAME COLOR: **GLACIER WHITE**
ROOF COLOR: **EVERGREEN**
COLORS SHOWN ARE FOR REFERENCE ONLY.
CONTACT INFO@POLIGON.COM TO REQUEST ACTUAL COLOR SAMPLES.

MCALLISTER PARK
SAN ANTONIO, TX
HIP ROOF 30X44

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A Division of PORTERCORP 4240 N. 136th AVE HOLLAND, MI 49424 (616) 399-1963

PROJECT: MCALLISTER PARK

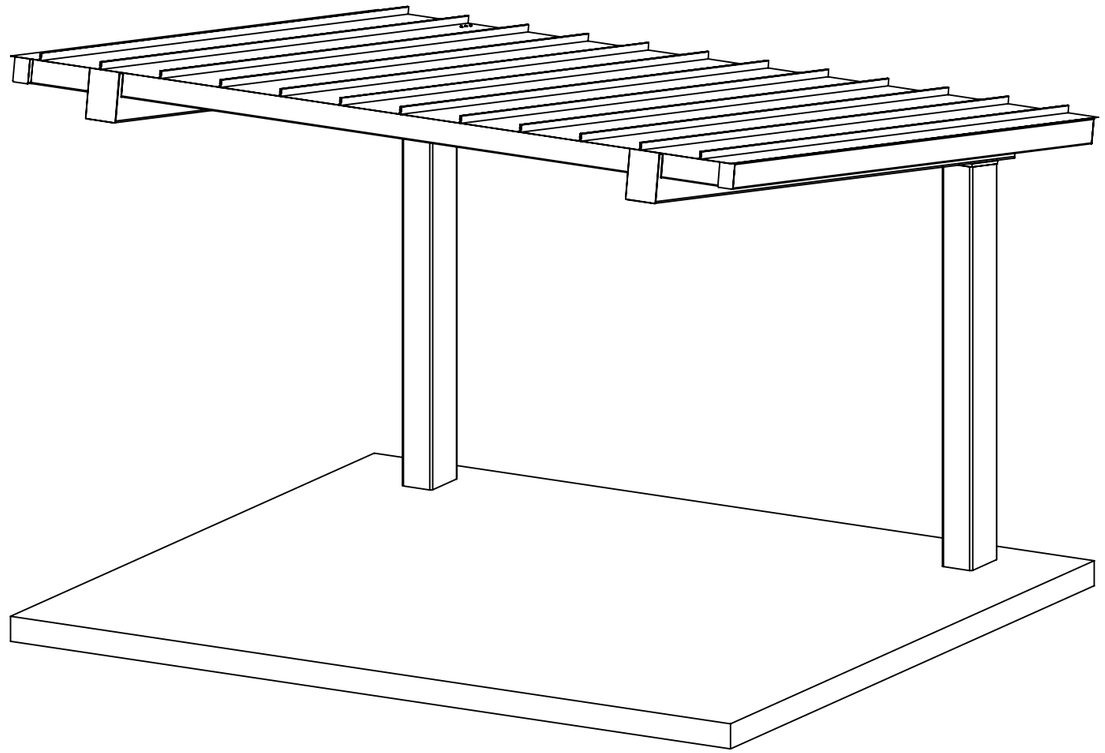
LOCATION: SAN ANTONIO, TX

BUILDING TYPE: CANTILEVERED WALL WALL COVERED 14 16

ROOF TYPE: STANDING SEAM

FEATURES: N/A

JOB NUMBER: 52873



DRAWING LIST:

SHEET NUMBER	DRAWING DESCRIPTION
CS	COVER SHEET
1	ARCHITECTURAL ELEVATIONS
2	STRUCTURAL FRAMING PLAN
3	COLUMN LAYOUT
4	BASE PLATE STYLES
5	ELECTRICAL ACCESS AND CUTOUTS

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FABRICATOR APPROVALS:
CITY OF PONY, A APPROVED FABRICATOR C08-2010
CITY OF OSAN S, CA APPROVED FABRICATOR 1596
CITY OF RIVERSIDE, CA APPROVED FABRICATOR SP06-0033
CITY OF OSTON, T APPROVED FABRICATOR 470
CARSON, NV APPROVED FABRICATOR 264
STATE OF TA APPROVED FABRICATOR 02008-14

CERTIFICATES:
MIAMI-DADE CONTRACTOR NO. 13-0813.16
PCI (POWDER COATING INSTITUTE) 4000 CERTIFIED

MATERIALS:

DESCRIPTION	ASTM DESIGNATION
STEEL	A500 (GRADE B)
SCHEDULE PIPE	A53 (GRADE B)
RMT PIPE	A519
ITEM A COLUMN FORM DESIGN	A1003 (GRADE 50)
STRUCTURAL STEEL PLATE	A36
ROOF PANELS (STEEL)	A653

GENERAL NOTES:
ANY DISCREPANCIES FOUND IN THESE DRAWINGS SHALL BE DESIGNED TO ON SITE SUPPORT WORK AT IS SHOWN ON THE DRAWINGS. POSITION OF MEMBERS AND CONNECTIONS SHALL BE CONTACTED IMMEDIATELY AND ANY DISCREPANCIES SHALL BE ATTACHED TO THE STRUCTURE (WALLS, COLUMNS, RAILINGS, ETC.) SO THAT DESIGN OF THE STRUCTURE CAN BE REVISED.

ANY DISCREPANCIES FOUND IN THESE DRAWINGS SHALL BE ASSUMED AVERAGE 20 SEPARATION BETWEEN ANY ADJACENT STRUCTURE WITH AN AVERAGE OF THE STRUCTURE. IF THAT SEPARATION DOES NOT EXIST, POSITION MEMBERS AND CONNECTIONS SHALL BE CONTACTED SO THAT DESIGN OF THE STRUCTURE CAN BE REVISED.

STRUCTURAL STEEL SHALL BE FABRICATED, AND ERECTED IN ACCORDANCE WITH THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) SPECIFICATION MANUAL.

ALL WELDING ISSUES PERFORMED BY AMERICAN WELDING SOCIETY CERTIFIED WELDERS AND CONFORMS TO THE AWS D1.1 OR D1.3 AS REQUIRED.

PARTS SHOWN MAY BE PREFABRICATED TO STANDARDIZED FABRICATION. REFER TO THE SHIPPING BILL OF MATERIALS FOR POSSIBLE SUBSTITUTIONS.

FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT PRIMARY FRAME INSTALLER AND THE ROOF INSTALLER HAVE A MINIMUM FIVE (5) YEARS DOCUMENTED PRIOR INSTALLATION IN THIS PRODUCT.

FOR PROPER FIELD INSTALLATION OF THE BUILDING IT IS RECOMMENDED THAT ELECTRICAL WIRING, IF REQUIRED, BE RUN THROUGH THE STRUCTURAL MEMBERS AS NOTED.

CUSTOMER APPROVAL

MANUFACTURING CANNOT START UNTIL PORTERCORP RECEIVES A SIGNED AND APPROVED COPY.

☐ APPROVED AS SUBMITTED

☐ APPROVED AS NOTED

☐ REVISE AND RESUBMIT AS NOTED

SIGNATURE:

PRINT NAME:

DATE:

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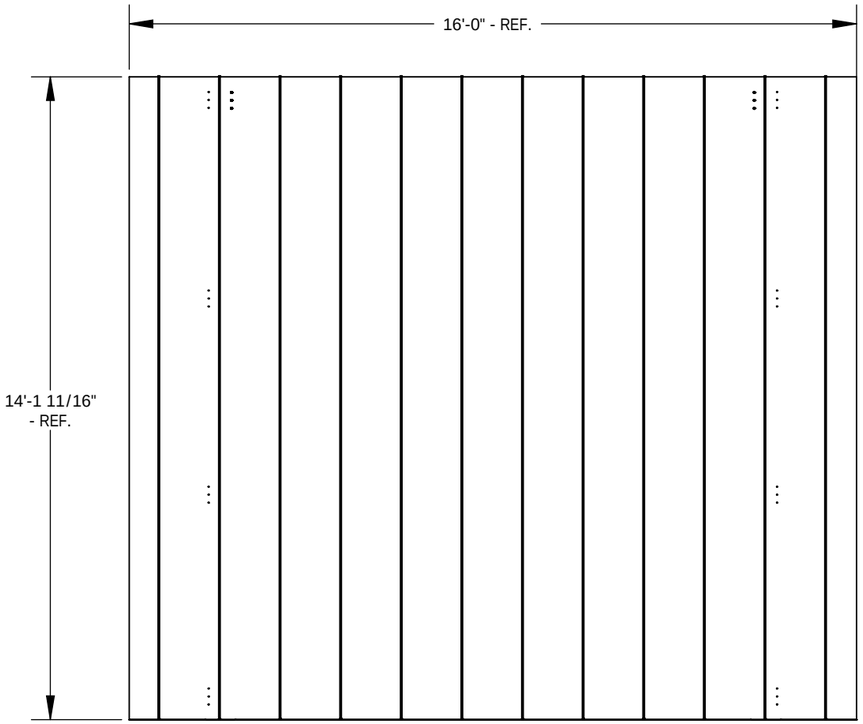
REV LEVEL: A
SCALE: 1:35
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: COVER SHEET
SHEET
CS

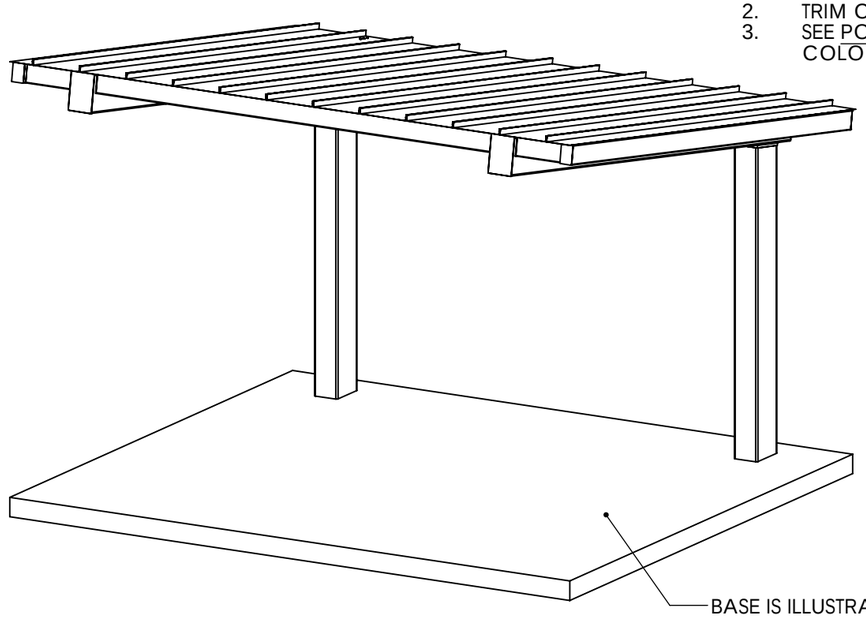
2014A



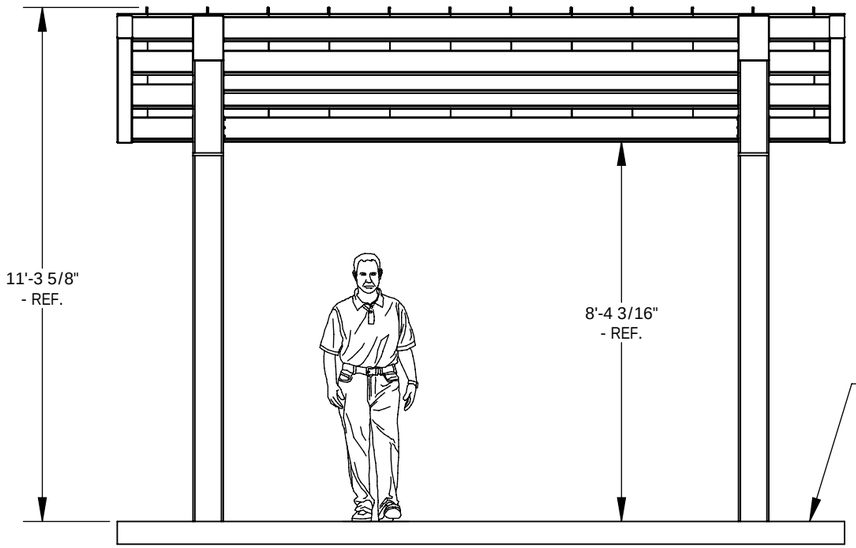
TOP VIEW

GENERAL ROOF NOTES:

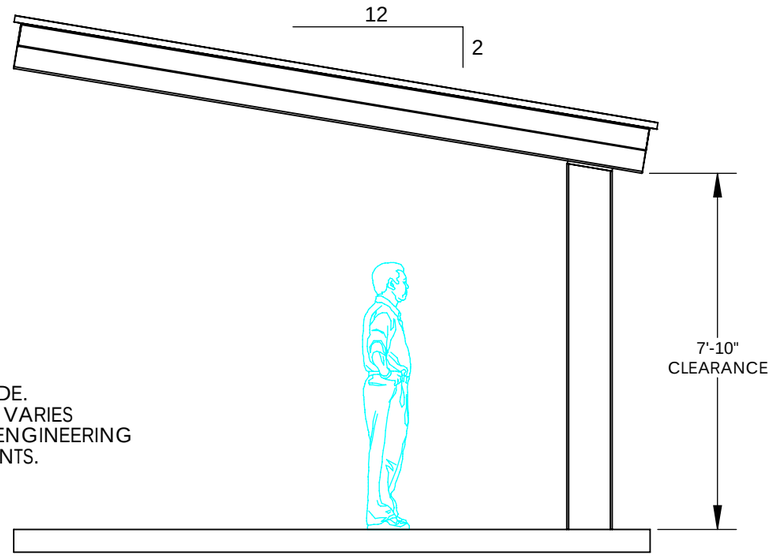
1. METAL ROOFING:
   - 24 GAUGE
   - GALVALUME COATED
   - KYNAR 500 PAINTED
2. TRIM COLOR MATCHES ROOF
3. SEE POLIGON.COM FOR COLOR OPTIONS



AUXILIARY VIEW



ELEVATION A



ELEVATION B

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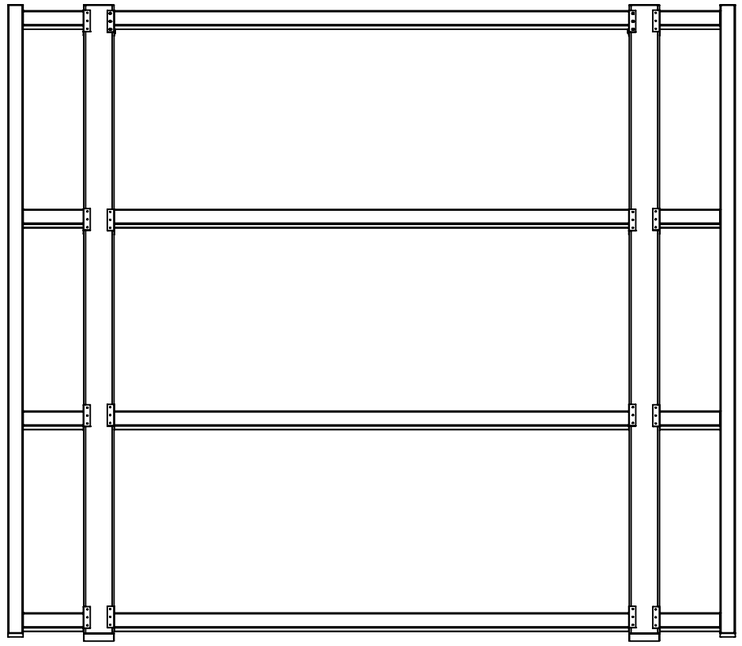
REV LEVEL: A
SCALE: 1:40
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: ARCHITECTURAL ELEVATIONS
SHEET 1

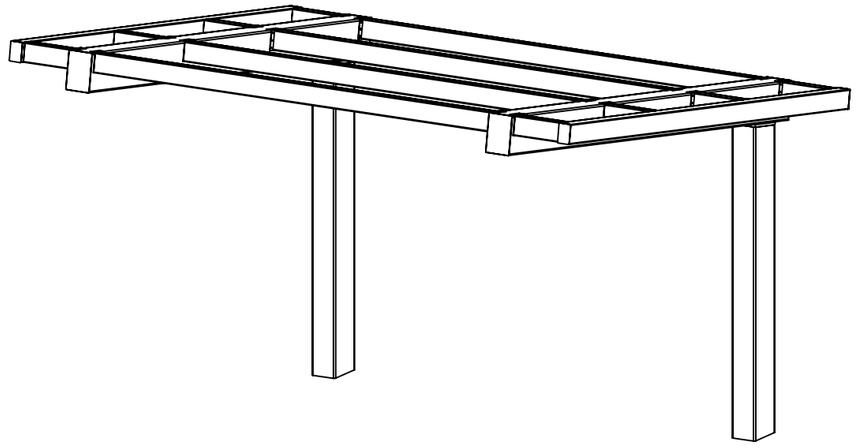
2014A

GENERAL FRAME NOTES:

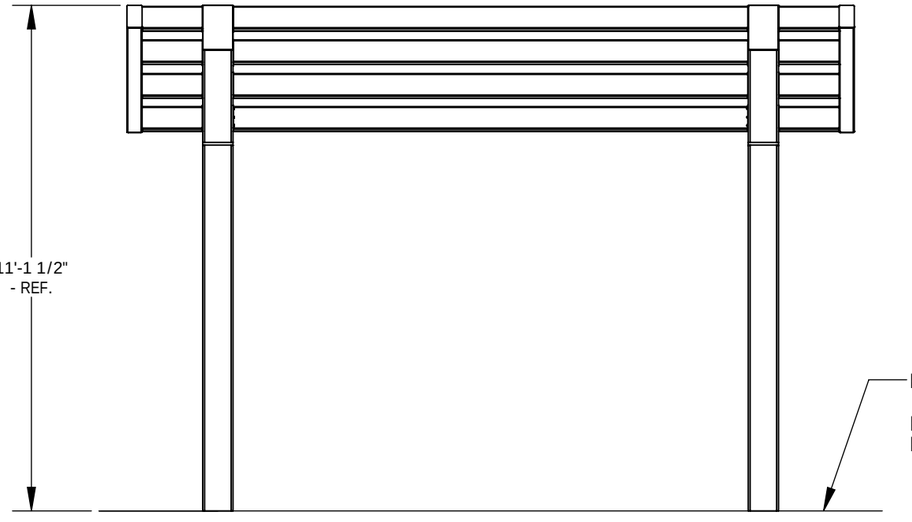
1. ALL STEEL COMPONENTS (STRUCTURAL MEMBERS, ORNAMENTATION, RAILING, ETC.) ARE POWDER COATED IN THE FOLLOWING MANNER (UNLESS REQUESTED OTHERWISE):
   - Å SHOT BLASTED TO NEAR WHITE CONDITION (SSPC SP-10)
   - Å WASHED AND SEALED IN A PHOSPHATE SPRAY
   - Å PRIME-COATED WITH POLI-5000 HIGH PERFORMANCE POWDER APPLIED EPOXY
   - Å TOP-COATED WITH SUPER-DURABLE TGIC POLYESTER POWDER AND OVEN CURED
2. SEE POLIGON.COM FOR COLOR OPTIONS



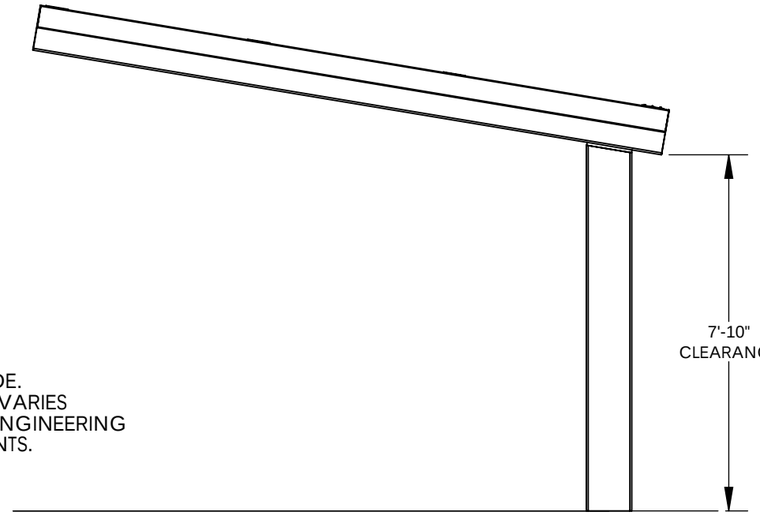
TOP VIEW



AUXILIARY VIEW



ELEVATION A



ELEVATION B

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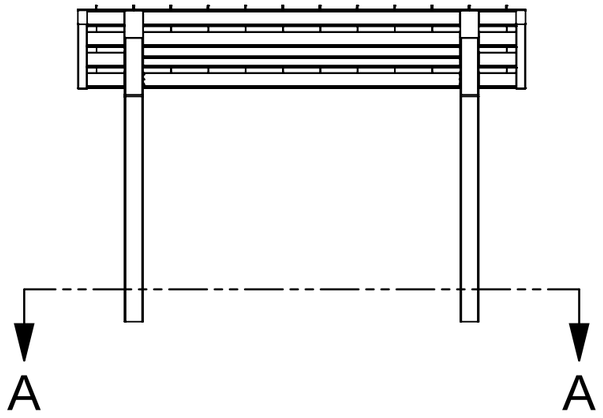
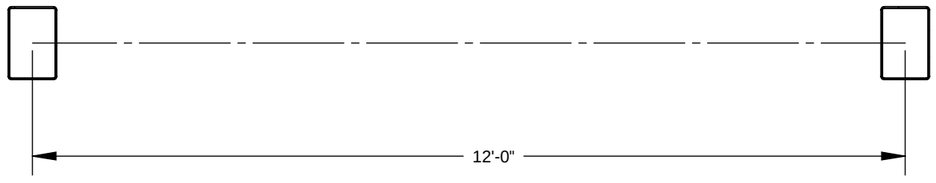
SCALE: 1:40
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: STRUCTURAL FRAMING PLAN
SHEET 2

2014A





SECTION A-A

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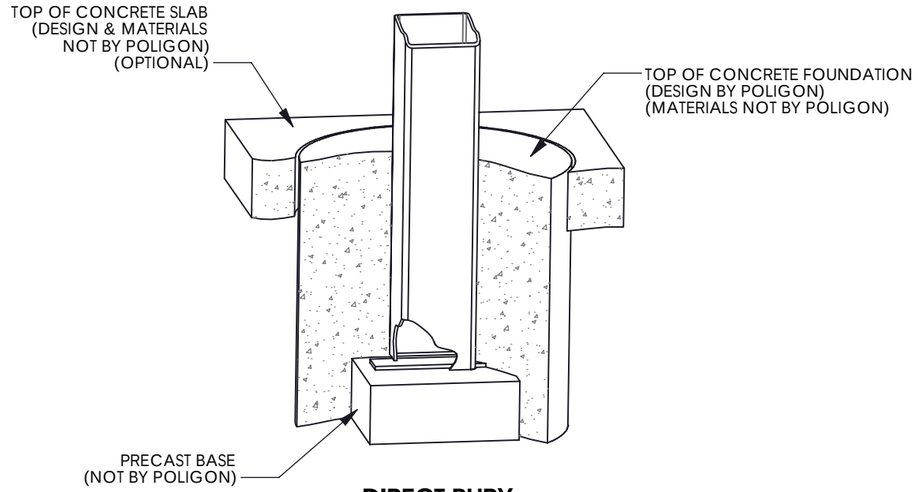
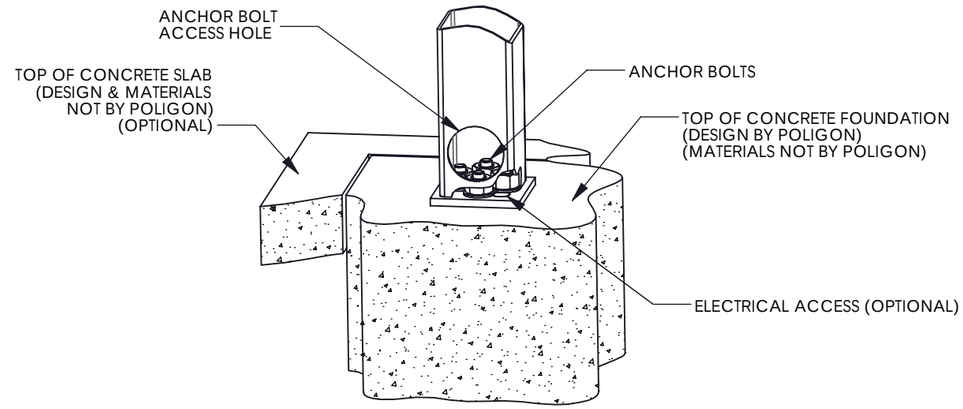
SCALE: 1:25
PRINT DATE: 2/5/2015
JOB NO.: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: COLUMN LAYOUT
SHEET 3

POLIGON ENGINEERING WILL DETERMINE THE REQUIRED BASE PLATE STYLE WHEN DESIGNING THIS STRUCTURE.



DIRECT BURY



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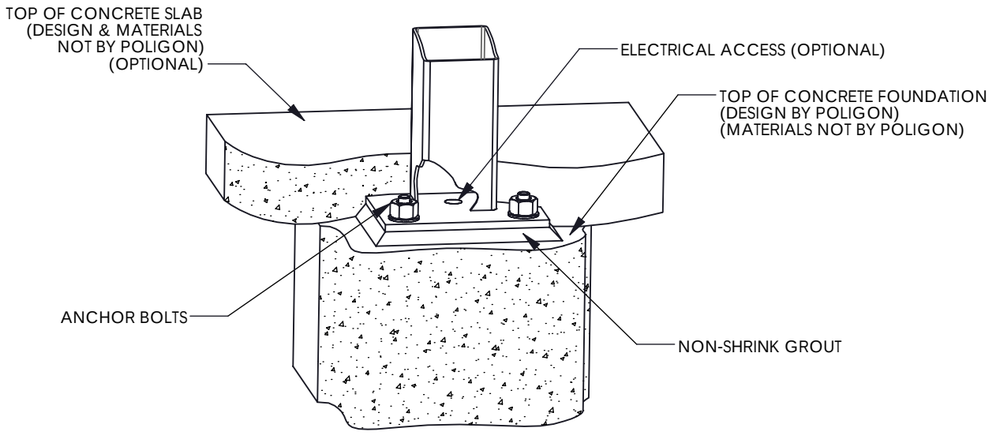
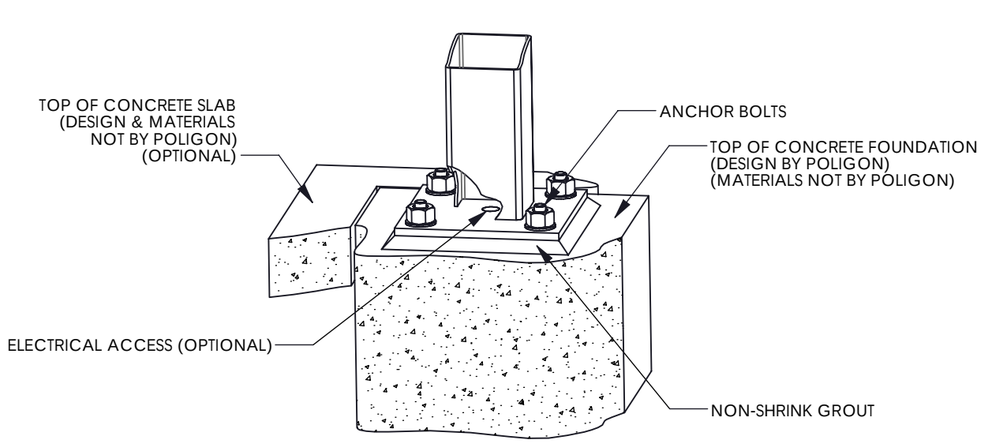


FIXED BASE
(WITH CONCEALING SLAB)



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JOB NO: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: BASE PLATE STYLES
SHEET 4

2014A

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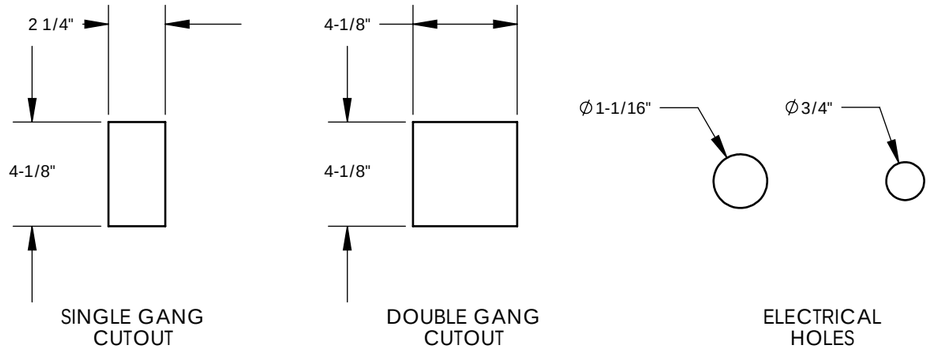
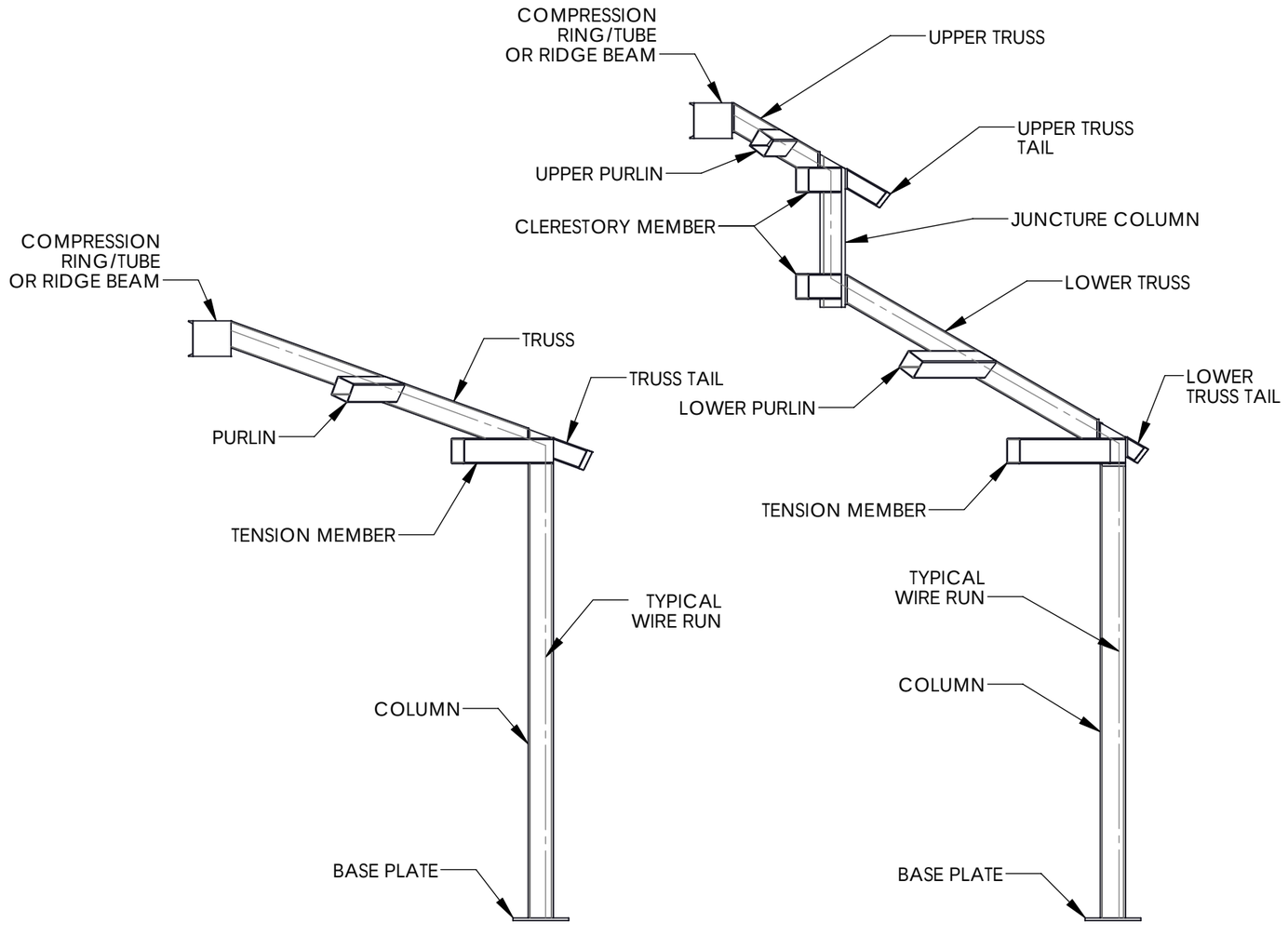


TYPICAL ELECTRICAL CUTOUTS



TYPICAL WIRE RUNS

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SCALE: 1:32
DRAWN BY: betdue
PRINT DATE: 2/5/2015
JOB NO: 52873
CAD MODEL: CWC-14X16-SS-52873
PROJECT: MCALLISTER PARK
PROJECT LOCATION: SAN ANTONIO, TX
DRAWING: ELECTRICAL ACCESS AND CUTOUTS
SHEET 5

2014A

FRAME COLOR: **GLACIER WHITE**
ROOF COLOR: **EVERGREEN**
COLORS SHOWN ARE FOR REFERENCE ONLY.
CONTACT INFO@POLIGON.COM TO REQUEST ACTUAL COLOR SAMPLES.

MCALLISTER PARK
SAN ANTONIO, TX
CANTILEVERED WALKWAY COVER 14X16

poligon®

Addendum No. 04

Attachment 3

DIVISION 107300.2

SPECIALTIES MANUFACTURER OF PROTECTIVE COVERS
Icon Shelter Systems Inc. (or approved equal)

PART 1 – GENERAL

1.1 DESCRIPTION OF PRODUCT
- A. Shelter Type: **14'x 16 Monoslope Cantilever style shelter with Standing Seam roof panels.**
- B. Roof Slope: 2**:12**
- C. Clear height under Tie Beam (UTB): **8'-0".** This is the clearance under the tie beam which spans between the columns.

1.2 REFERENCES
- A. Referenced Standards
  1. AISC – American Institute of Steel Construction
     - a. AISC Steel Construction Manual – 14th edition
     - b. AISC 360-10 Specification for Structural Steel Buildings
  2. ASTM – American Society for Testing and Materials
     - a. ASTM A36/A36M – Standard Specification for Carbon Structural Steel; 2008
     - b. ASTM A325 – Standard Specification for Structural Steel Bolts, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2010
     - c. ASTM A563 – Standard Specification for Carbon and Alloy Steel Nuts; 2007a
     - d. ASTM A500 – Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes; 2010a
     - e. ASTM A653/A653M – Standard Specification for Sheet Steel, Zinc-Coated (Galvanized) or Zinc-Iron Alloy Coated (Galvanealed) by the Hot Dip Process; 2010
     - f. ASTM A792/A792M – Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy Coated by the Hot-Dip Process; 2010
     - g. ASTM F1554 – Standard Specification for Anchor Bolts, Steel, 36, 50 and 105 ksi Yield Strength; 2007a
  3. AWS – American Welding Society
     - a. D1.1
     - b. D1.3
     - c. D1.8
  4. OSHA – Occupational Safety and Health Administration
     - a. Steel Erection Standard 29 CFR 1926.750 Part R
  5. SSPC – Steel Structures Painting Council
     - a. SSPC-SP 2 – Hand Tool Cleaning; 2004
     - b. SSPC-SP 10/NACE No. 2 – Near White Blast Cleaning; 2007
  6. LEED – Leadership in Energy and Environmental Design
  7. ISO – International Organization for Standardization

1.3 SYSTEM DESCRIPTION
- A. The structure shall be a pre-engineered package and shall be shipped as a pre-cut (excluding standing seam roof panels) and pre-fabricated package that shall include the structural framing members, roof panels, fasteners and roof trim as well as job specific installation instructions. The structure will be shipped in an un-assembled package for ease of shipment and minimum shipping charges.

1.4 SUBMITTALS
- A. Submit a minimum of four (4) sets of submittal drawings and (2) sets of structural calculations signed and sealed by a Professional Engineer licensed in the state of Texas.
- B. Product Design Requirements:

1. The structure shall meet the following design requirements
    a. Building Code: IBC 2009
    b. Ground Snow Load: 20
    c. Live Load: 20
    d. Wind Speed: 90
    e. Seismic Design Category: D

C. Submittal Requirements
1. Calculations:
    a. Design according to the requirements of the national, state or local building codes as indicated in Section 1.04.B.
    b. Calculations shall include all member design for each different member type.
    c. Connection design for each different connection that will determine the design of the bolts, welds, plate thickness and anchorage to the foundation.
    d. Foundation design shall be for the loads applied and not a generic foundation design, taking into account all soils information.
2. Submittal Drawings:
    a. Anchor bolt layout with all appropriate dimensions for installation.
    b. Site specific foundation design.
    c. Isometric as well as elevation and plan views of the farming members along with the member sizes and locations indicated on the drawings.
    d. Connection details for every connection on the frame.
    e. Roof panel connections and trim installation details.
    f. All accessories on the structure shall have an installation detail as well as connection details.

D. Foundation Design
1. The foundation design shall be supplied by the manufacturer.
2. Anchor bolts shall be supplied by the manufacturer.
3. Foundation materials and labor shall be provided by the structure contractor.
4. Owner should provide site specific soils information for proper foundation design, if that data is not provided the foundation will be design for the minimum soil values allowed by code.

1.5 QUALITY ASSURANCE

A. Manufacturer Qualifications
1. The product shall be designed, engineered and fabricated at a facility operated and directly supervised by the manufacturer.
2. The manufacturer shall have a minimum of 9 years in steel shelter fabrication.
3. Full Time on Staff Quality Assurance Manager.
4. All welders must be AWS certified for welding steel structures.
5. Membership in the American Welding Society (AWS).
6. Membership in the American Institute of Steel Construction (AISC).
7. Full Time on Staff Licensed Engineer.
8. Published Quality Control System manual.
9. Quality Control System must pass an annual audit by a Third Part Agency.
10. ISO 9001 certification for Powder Coating System.

B. Manufacturer’s Certifications
1. Clark County, NV Approved Fabricator.
2. City of Riverside, CA Approved Fabricator.
3. City of Houston, TX Approved Fabricator Structural Steel.

1.6 FIELD OR SITE CONDITIONS

A. Foundations shall be installed per the ICON installation drawings.
1. All foundations shall be cast at the same elevation unless specifically noted on the ICON installation drawings.

B. Anchor bolts shall be placed in the foundation as per the ICON installation drawings utilizing the anchor bolt template supplied with the anchor bolts.

1. Anchor bolts shall be installed per the dimensions and orientation shown on the drawings.

1.7 MANUFACTURER WARRANTY

A. Shelter shall have a 10 year limited warranty on the steel framing members.
B. Shelter shall have a 10 year limited warranty on the powder-coated elements.
C. For all Metal Roofing there will be a pass through warranty direct from the metal Roofing supplier, warranty shall be provided on request.

PART 2 – PRODUCTS

2.1 SHELTER SYSTEM AND MATERIALS

A. Manufacturers:
   1. Acceptable Manufacturer: ICON Shelter Systems, Inc., 1455 Lincoln Rd., Holland, MI, 49423. Email: info@iconshelters.com, Website: www.iconshelters.com.
   2. Pricing for this specific project and specified shelter can be requested from:
      The Playwell Group
      4743 Iberia Avenue
      Suite C
      Dallas, TX 75207
      Ph: 972-488-9355 Fax: 972-488-0642
   3. The product shall be designed and fabricated at a facility operated and directly supervised by the manufacturer.
B. Substitution Limitations:
   1. Substitutions must be approved a minimum of ten (10) business days prior to bid. All approved manufacturers shall be notified on writing before the bid date and shall not be allowed to bid without written notification. Any approval of an alternate manufacturer shall be through and official bid addendum prior to the bid date.
   2. Alternate suppliers shall meet the requirements, qualifications and provide proof of certifications listed under Section 1.05 QUALITY ASSURANCE.
   3. Alternate suppliers shall provide documentation that the power-coat system being provided meets or exceeds the ICON supplied powder-coat system listed under Section 2.01(c)(8).
C. Product Requirements and Materials:
   1. General
      a. The pre-engineered and pre-fabricated package of parts shall be pre-cut and packaged unless noted otherwise. These packages will include all parts and pieces necessary to field assemble the shelter at the jobsite. The shelter shall be shipped in knocked down format to minimize shipping expenses. Field labor will be kept to a minimum with no on-site welding required.
   2. Concrete for Foundations
      a. Concrete shall have a minimum 28-day compressive strength of 2,500 psi unless noted otherwise on the foundation detail.
      b. Reinforcing steel shall be ASTM A615, Grade 60.
   3. Columns
      a. Hollow Structural Section (HSS) columns shall meet ASTM A500, Grade B with a minimum wall thickness of 3/16” (0.1875”).
      b. Unless the columns are direct buried in the foundation the columns shall attach to the foundation with a minimum of four (4) anchor rods and shall meet OSHA Steel Erection Standard 29 CFR 1926.755(a)(1).
   4. Structural Framing
      a. All Hollow Structural Sections (HSS) shall meet ASTM A500, Grade B. “I” Beams, tapered columns or open channel sections shall not be accepted for primary members.
   5. Compression Rings

a. Compression rings shall be made of ASTM A36 structural plate or of structural channel welded together to form the ring. All connections not requiring compression rings shall use ASTM A500, Grade B HSS sections for these connections.

6. Connection Requirements
   a. Anchor rods shall be ASTM F1554, Grade 36 unless otherwise noted.
   b. Structural fasteners shall be ASTM A325 high strength bolts and A563 nuts.
   c. All structural fasteners shall be hidden within the framing members whenever possible.
   d. No field welding shall be required to finish the construction of the shelter.
   e. Manufacturer shall supply extra fasteners.
7. Roofing Materials
   a. PRIMARY ROOF DECK – MEDALLION-LOK STANDING SEAM ROOFING
      (1) Roofing shall be a minimum of 24 gauge Galvalume steel sheet with ribs that are 1 3/4” tall and the panels are 16” wide. Ribs shall run with the slope of the roof for proper drainage.
      (2) Roof outside surface shall be a baked on Kynar 500 paint finish and shall be supplied in one of the manufacturer’s standard colors: TBD. Ceiling color to be a “wash coat” primer.
      (3) All roof panel angles shall be cut in the field.
      (4) Metal roofing trim shall match the color of the roof and shall be factory made from 26 gauge Kynar 500 painted Galvalume sheet steel.
      (5) Trim includes panel ridge caps, hip caps, eave “J” trim, splice channels, rake trim, roof peak cap and corner trim as applicable for the model selected. Trim may need to be field cut to length. Please refer to the installation drawings for additional information and detail.
      (6) Ridge, hip and valley caps shall be pre-formed with a single central bend to match the roof slope and shall be hemmed on both edges.
      (7) Roof peak caps shall be pre-fabricated with no field assembly required.
      (8) Roofing is attached to sub-framing with clips.
8. Factory Frame Finish
   a. All structural steel shall be cleaned, pre-treated and finished in the following manner:
      (1) The steel shall be shot-blasted to the specification of SSPC-SP10 near white blast cleaning. SSPC-SP2 hand tool cleaning will not be an acceptable alternative.
      (2) The shot-blasted parts are then washed with zinc-phosphate in an eight (8) stage washer.
      (3) The steel is then immersed in a liquid epoxy and coated through an electro-deposition process (E-coat), this is coated both inside and out to a uniform cover of 0.7-0.9 mils. The E-coat totally encapsulates the part for superior corrosion protection.
      (4) The parts are then coated with a color coat of TGIC polyester powder and then one clear coat for a final finish thickness of 8 to 12 mils.
9. Factory Prime Paint
   a. All steel shall be cleaned to the specification of SSPC-SP2 (Hand Tool cleaning) or better. This removes all loose mill scale, loose rust and any other loose foreign matter. The clean steel will then be primed with a quick dry, lead and chromate free alkyd primer.
10. Accessories
    a. Electrical Access
       (1) Standard in all column bases is a 1 3/4" diameter hole, located in the center of the plate. This allows electrical wiring into the column base.

PART 3 - EXECUTION

3.1 STORAGE AND HANDLING

A. When the shelter arrives at the jobsite protect the products from weather, sunlight and damage.
B. When unloading, pad the forks and use other precautions to protect the powder-coated finish. Do not use chains to move the materials, use straps. Handle all materials carefully in the field to avoid scratching the powder-coat finish.
C. Contractor shall store the product elevated from the soil to allow full air circulation around the materials as do not introduce mold, decay, fungi or insects into or on the materials. One end of the materials shall be elevated higher than the other end if storage will be longer than a few days as to allow the water to run off the materials.

3.2 INSTALLATION OF MATERIALS

A. The shelter shall be placed on prepared foundations that were designed by the manufacturer (unless otherwise noted). Materials for these foundations are not supplied by ICON but by the foundation installation contractor. Foundation shall be constructed to all local building code requirements and per good construction practices for the specific site conditions.
    1. In accordance with OSHA Steel Erection Standard 29 CFR 1926.750 Part R, anchor rods shall be installed for proper column stability and shall have a minimum of four (4) anchor bolts per column. Therefore no single anchor rod column base connections shall be allowed.
B. Install all parts and pieces per the manufacturer's supplied installation instructions and these specifications.
C. The interface with other work required is to be coordinated by the customer or the customer's agent. Some design may have electrical or plumbing requirements that are not supplied by ICON.
D. Tolerances on structural steel members are set according to AISC Code of Standard Practice for Steel Buildings and Bridges and have been used for the fabrication of this product. These tolerances will not and cannot be increased. No field slotting or opening of holes will be allowed without proper guidance from the ICON Engineering Department.

3.3 REPAIR

A. No field modifications or corrections are allowed without authorization from the ICON Engineering Department.

3.4 SITE QUALITY CONTROL

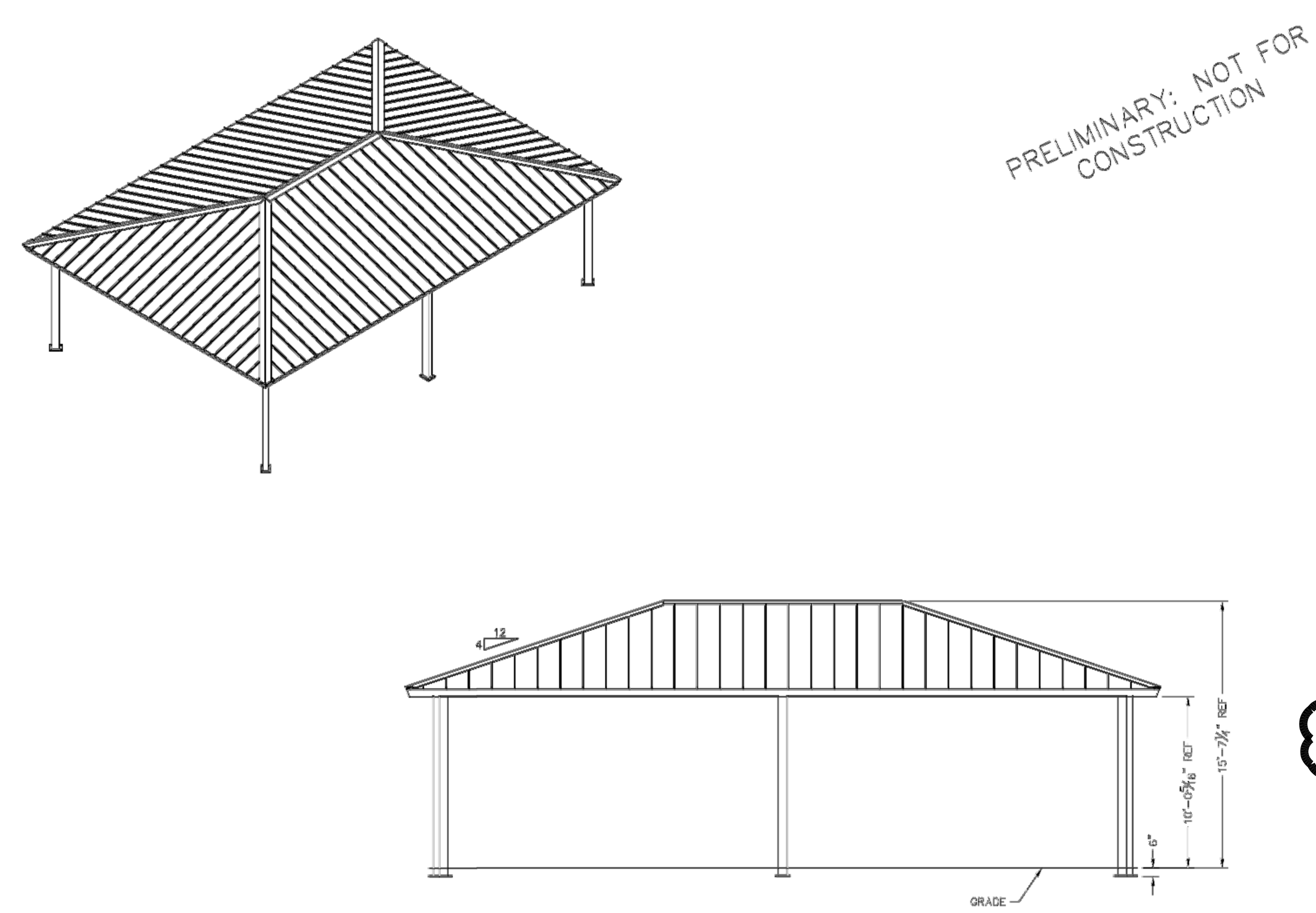
B. ICON does not require any on-site inspections or testing but these may be required by local authorities and the local building inspector. Please be aware of any on-site requirements prior to starting installation.

END OF SECTION

Addendum No. 04

Attachment 4

PRELIMINARY: NOT FOR CONSTRUCTION



ICON Shelter Systems Inc

Elevation

DRAWN BY: LB
DATE: 9/3/14
JOB NO.: STANDARD
REVISION:
BUILDING TYPE: RH30x44S-P4
PROJECT NAME: -20-90-30 10' U'B
SHEET 1.0

LOADS TO FOUNDATION (KIPS, IN-KIPS)	FOUNDATION LOADS				
LOAD COMBINATION	AXIAL (Fx)	SHEAR (Fy)	SHEAR (Fz)	MOMENT (My)	MOMENT (Mz)
DL	2.44	0.08	0.28	-13.23	3.49
SL	5.03	0.20	0.65	-30.35	8.28
W-UPLIFT	-1.34	0.12	-0.17	0.71	11.88
W-FY	-0.07	-0.71	-0.30	26.78	-44.73
W-FZ	-0.07	0.71	-0.30	26.78	44.73
E-FY	0.08	-0.14	0.13	-10.82	-11.03
E-Z	-0.08	0.14	-0.16	12.50	11.87

CL1

LOADS TO FOUNDATION (KIPS, IN-KIPS)	FOUNDATION LOADS				
LOAD COMBINATION	AXIAL (Fx)	SHEAR (Fy)	SHEAR (Fz)	MOMENT (My)	MOMENT (Mz)
DL	1.87	0.00	0.38	-20.58	0.00
SL	3.93	0.00	0.88	-46.94	0.00
W-UPLIFT	-2.24	0.00	0.11	-20.69	0.00
W-FY	-2.09	-0.34	-0.35	18.27	-24.47
W-FZ	-0.07	0.00	0.66	-49.04	0.00
E-FY	0.02	-0.24	0.00	0.00	-17.96
E-Z	-0.08	0.00	-0.19	18.70	0.00

CL2

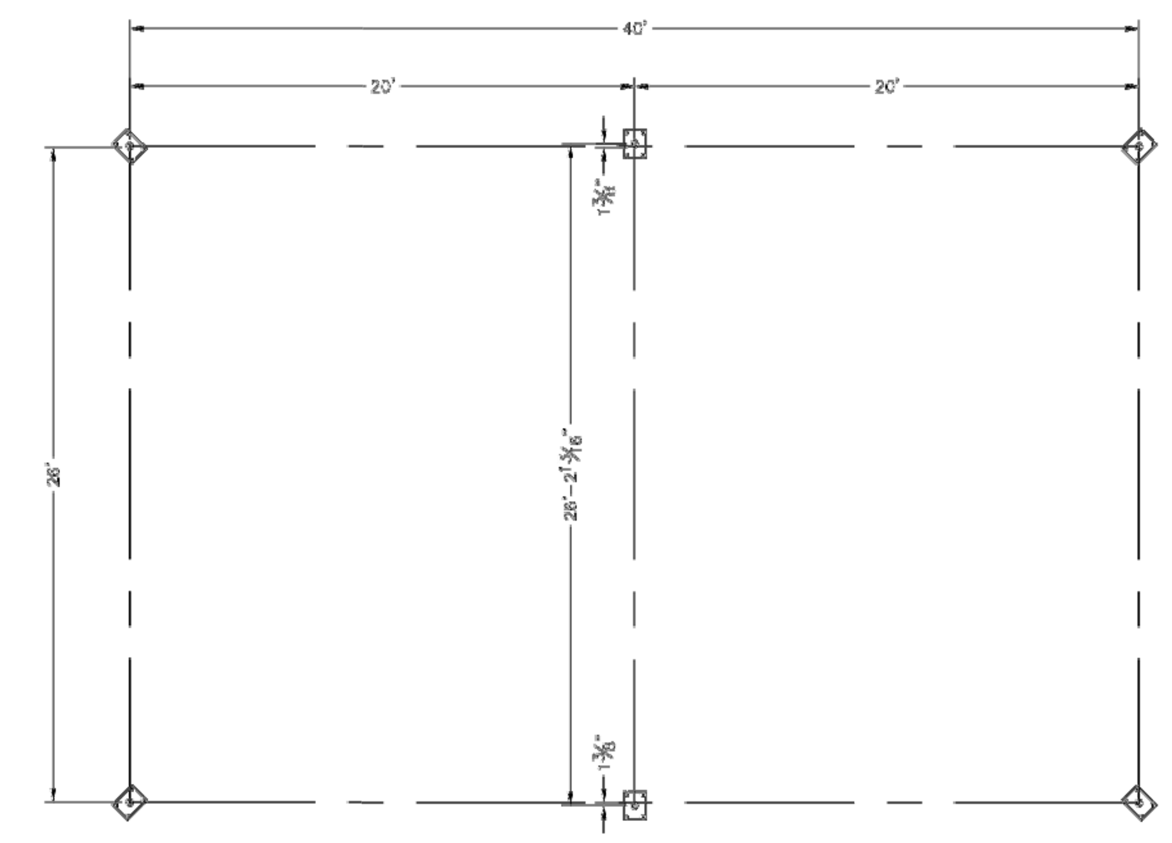
Z (INSIDE OF BUILDING)

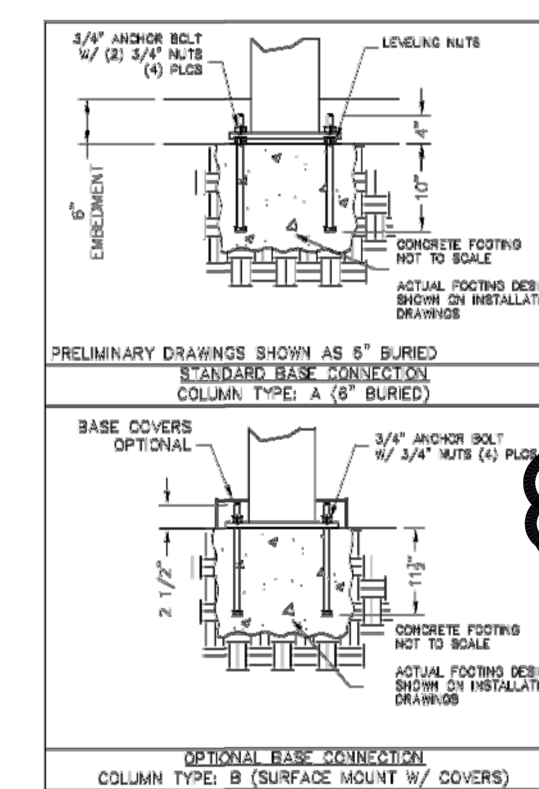
Y

THESE FOUNDATION LOADS ARE FOR ESTIMATING PURPOSE ONLY.
THE ACTUAL LOADS WILL BE DETERMINED IN THE FINAL ENGINEERING

NOTES:
- TABLE SHOWS UNFACTORED SERVICE LOADS
- A FOUNDATION DESIGN HAS NOT BEEN PERFORMED BY ICON SHELTER SYSTEMS INC.
- A LICENSED ENGINEER FAMILIAR WITH SOIL CONDITIONS AT CONSTRUCTION SITE MUST PERFORM A FOUNDATION DESIGN.
- THE STRUCTURE HAS BEEN ENGINEERED AS AN OPEN STRUCTURE.
- CONSULT ICON SHELTER SYSTEMS INC. IF THE STRUCTURE IS TO BE ENCLOSED.
- COORDINATES ARE LOCAL TO THE COLUMN

DEFINITIONS:
DL = SERVICE LEVEL DEAD LOAD REACTION WITH THE GREATEST AXIAL LOAD
SL = SERVICE LEVEL SNOW LOAD REACTION WITH THE GREATEST AXIAL LOAD
W-UL = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST UPLIFT LOAD
W-Y = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Y DIRECTION
W-Z = SERVICE LEVEL WIND LOAD REACTION WITH THE GREATEST SHEAR VALUE ACTING IN THE SAME DIRECTION AS THE DL SHEAR LOAD
E-Y = SERVICE LEVEL SEISMIC LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Y DIRECTION
E-Z = SERVICE LEVEL SEISMIC LOAD REACTION WITH THE GREATEST MAGNITUDE OF SHEAR IN THE LOCAL Z DIRECTION



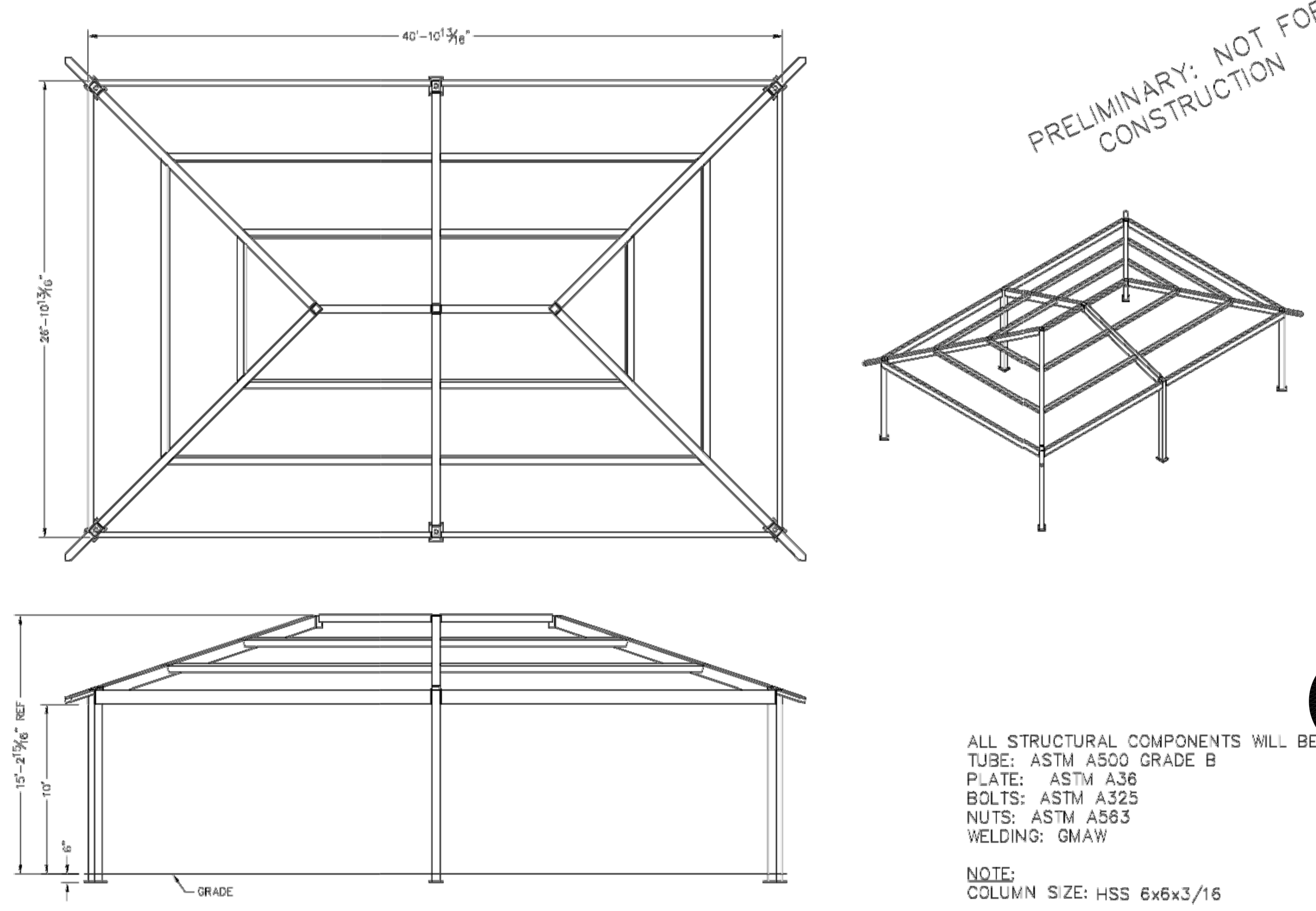


PRELIMINARY: NOT FOR CONSTRUCTION

Anchor Bolt Layout

DRAWN BY: LB
DATE: 9/3/14
JOB NO.: STANDARD
REVISION:
BUILDING TYPE: RH30x44S-P4
PROJECT NAME: -20-90-30 10' U'B
SHEET 2.0

PRELIMINARY: NOT FOR CONSTRUCTION



ALL STRUCTURAL COMPONENTS WILL BE:
TUBE: ASTM A500 GRADE B
PLATE: ASTM A36
BOLTS: ASTM A325
NUTS: ASTM A563
WELDING: GMAW

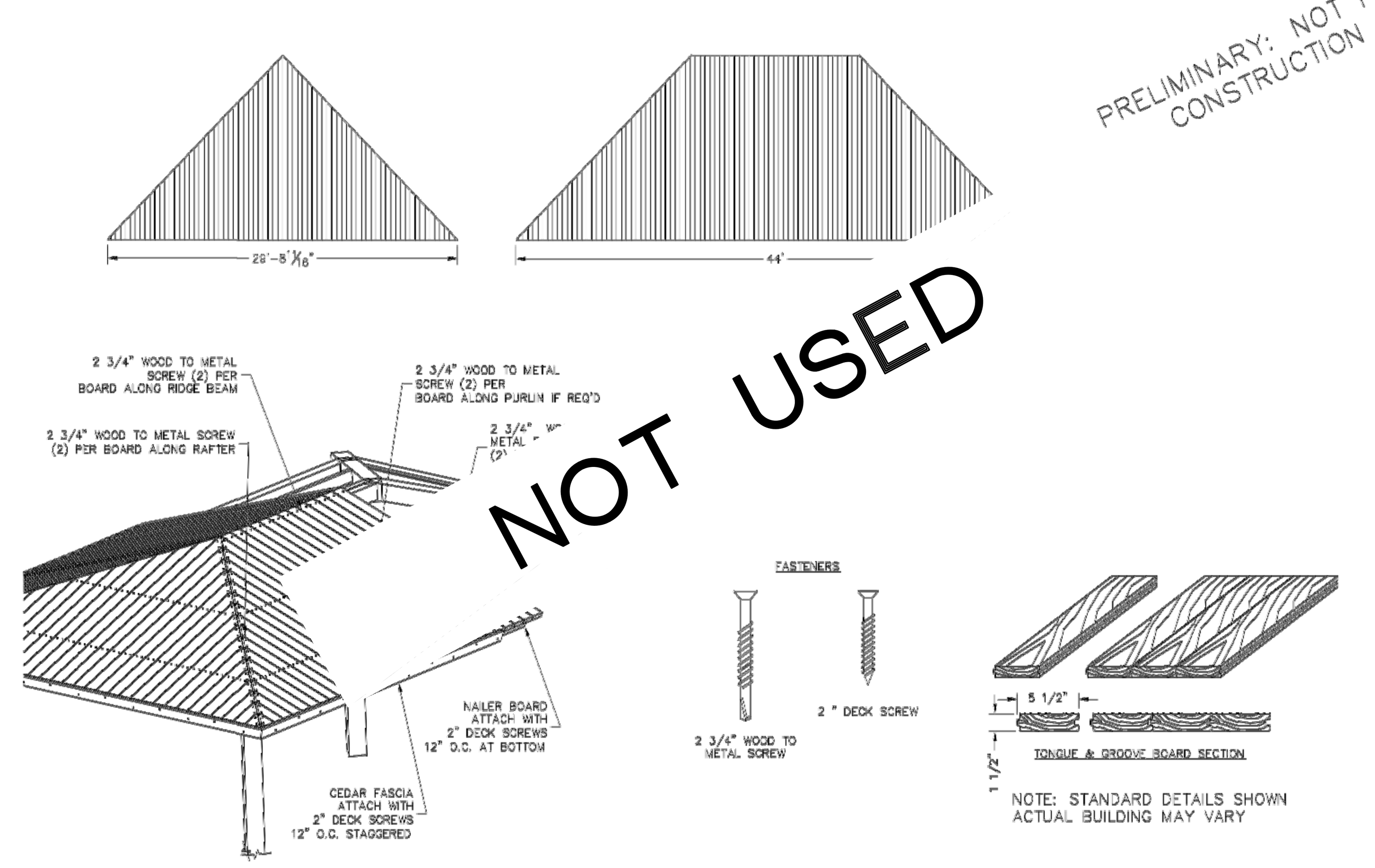
NOTE:
COLUMN SIZE: HSS 6x6x3/16

Frame

DRAWN BY: LB
DATE: 9/3/14
JOB NO.: STANDARD
REVISION:
BUILDING TYPE: RH30x44S-P4
PROJECT NAME: -20-90-30 10' U'B
SHEET 3.0

PRELIMINARY: NOT FOR CONSTRUCTION

NOT USED

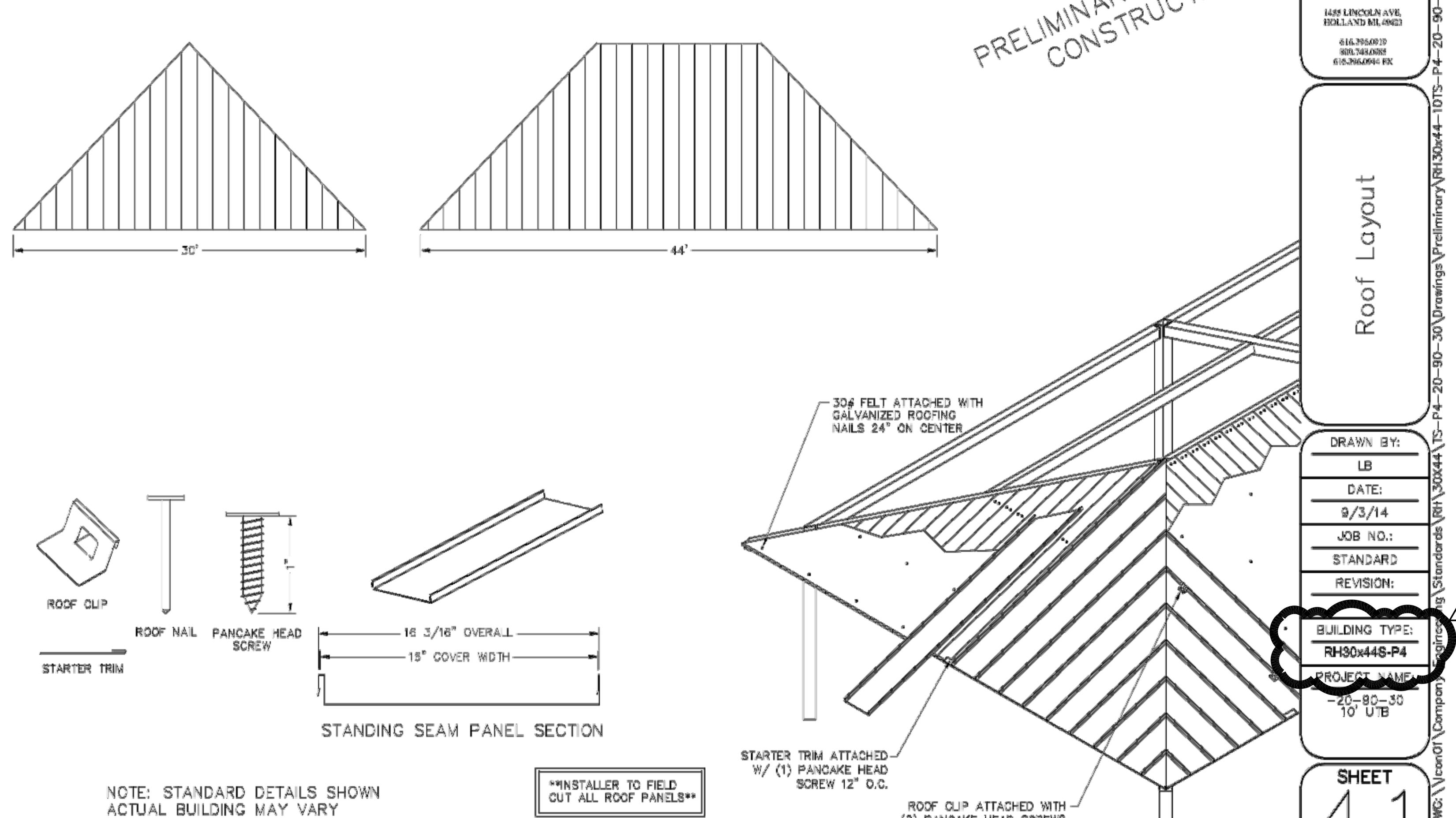


NOTE: STANDARD DETAILS SHOWN ACTUAL BUILDING MAY VARY

Roof Layout

DRAWN BY: LB
DATE: 9/3/14
JOB NO.: STANDARD
REVISION:
BUILDING TYPE: RH30x44TS-P4
PROJECT NAME: -20-90-30 10' U'B
SHEET 4.0

PRELIMINARY: NOT FOR CONSTRUCTION

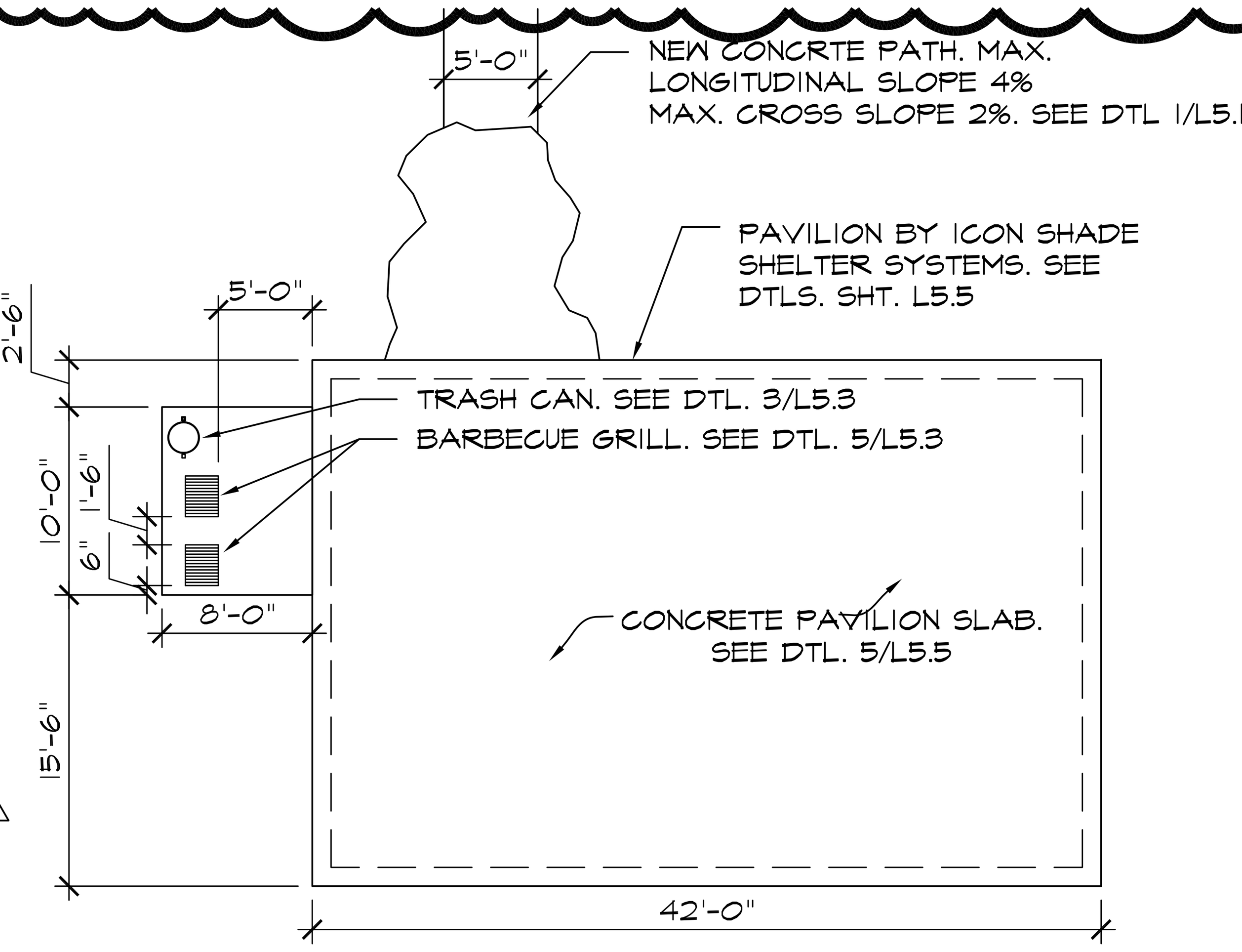


NOTE: STANDARD DETAILS SHOWN ACTUAL BUILDING MAY VARY

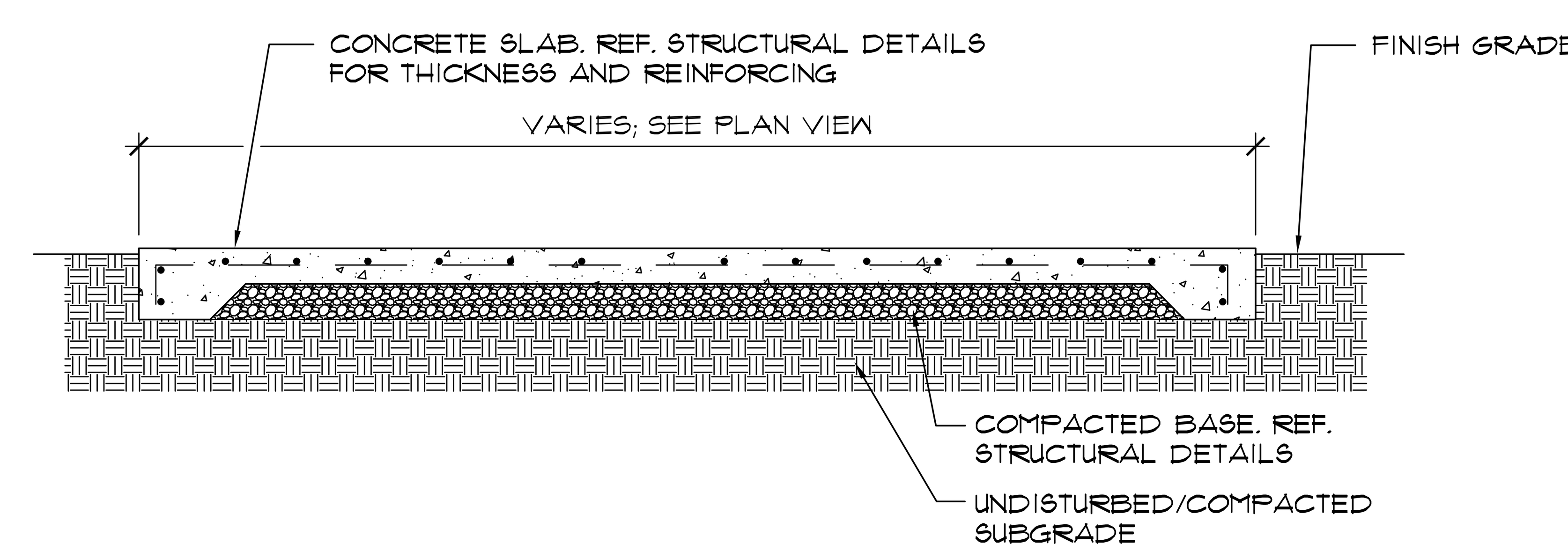
INSTALLER TO FIELD CUT ALL ROOF PANELS

Roof Layout

DRAWN BY: LB
DATE: 9/3/14
JOB NO.: STANDARD
REVISION:
BUILDING TYPE: RH30x44S-P4
PROJECT NAME: -20-90-30 10' U'B
SHEET 4.1



6 PAVILION LAYOUT
SCALE: 1/8"=1'-0"



7 PAVILION SLAB
SCALE: 1/2"=1'-0"

CFZ Group LLC
Landscape Architecture & Planning
4242 Medical Drive, Suite 5200
San Antonio, Texas 78229
210-366-1911/210-366-0044 fax

STATE OF TEXAS
ALBERT R. FERNANDEZ JR.
1218
REGISTERED LANDSCAPE ARCHITECT
11/20/2014

CITY OF SAN ANTONIO 2012-2017 BOND PROGRAM
MCALLISTER PARK IMPROVEMENTS
WBS NO. 40-00375
13102 Jones Maltsberger Rd, San Antonio, TX 78247

CITY OF SAN ANTONIO
TRANSPORTATION & CAPITAL IMPROVEMENTS

DRAWN: SDT
CHECKED: ABF
DATE: 11-20-14
JOB NO. 12-783
REVISIONS :
4 02/11/15 ADDENDUM NO. 4

SHEET TITLE
PAVILION DETAILS

SHEET NO.
L5.5

SHEET ____ OF ____

FILE: L5.DWG DATE: