

-CITY OF PORT ARTHUR, TEXAS

ADDENDUM NO. SIX (6)

MAY 28, 2026

BID FOR: CONSTRUCTION OF EV BUS PARKING, BUS CANOPIES AND ROADWAY

BID: P26-030

The following clarifications, amendments, deletions, additions, revision and/or modifications are made a part of the contract documents and change the original documents only in the manner and to the extent hereinafter stated and shall be incorporated in the contract documents.

Provisions of this addendum shall take precedence over requirements of the original contract documents and all **BIDDERS ARE REQUESTED TO ACKNOWLEDGE SAID PROVISIONS IN THE SUBMISSION OF THEIR BID.**

Addendum as follows

1. A revised Cover Sheet.
2. Clarification that Bid Items 55 and 56 are for rough-in only and that EV charging dispensers are not included in this project.
3. A lighting cut sheet to establish the basis of design and maintain consistency with the existing Transit Maintenance Facility fixtures.
4. A Traffic Control Plan added to the drawing set.
5. Responses to seven contractor pre-bid questions, including:
 - Updated Jefferson County prevailing wage rates;
 - Pre-bid meeting sign-in sheet;
 - The Braun Intertec Geotechnical Report;
 - Foundation subgrade and select fill requirements;
 - A revised Project Bid Schedule;
 - Clarification that the Contractor is responsible for IBC special inspections; and
 - Confirmation that the Contractor is responsible for all required materials testing
6. Attached is Add-Alternate No. 1 for the EV Bus Parking, Bus Canopies and Roadway Project (Bid No. P26-030) for your review and consideration. This add-alternate is intended to obtain separate pricing for an architecturally integrated solar photovoltaic (PV) roof system to be installed on the new EV bus canopy and associated roof areas.
7. The proposed substitution of TK-AirMax 2104 Vapor Permeable fluid-applied air and weather barrier is not approved as an acceptable substitute for this project.

If you have any questions, please contact the Purchasing Division at 409-983-8160.

NOTE: ALL PAGES OF ADDENDA MUST BE SIGNED AND SUBMITTED WITH YOUR BID DOCUMENTS.

Clifton Williams
Purchasing Manager

Signature of Proposer

Date

Company Vendor Name

CITY OF PORT ARTHUR TEXAS - BID SCHEDULE - P26-030**Construct EV Bus Transit Canopy and Reconstruct Existing Parking Lot****LEGAL NAME OF BIDDING ENTITY**

Pay Item	Spec No.	Description	Units	Estimated Bid QTY	QTY (Unit Price)	Pay Item Total Price
1	DIV 01	General Requirements	LS	1		
2	DIV 02	Existing Conditions	LS	1		
3	DIV 03	Concrete	LS	1		
4	DIV 04	Masonry	LS	1		
5	DIV 05	Metals	LS	1		
6	DIV 06	Woods and Plastics	LS	1		
7	DIV 07	Thermal & Moisture Protection	LS	1		
8	DIV 08	Openings	LS	1		
9	DIV 09	Finishes	LS	1		
10	DIV 010	Specialties	LS	1		
11	DIV 011	Equipment	LS	1		
12	DIV 012	Furnishings	LS	1		
13	DIV 013	Special Construction	LS	1		
14	DIV 014	Conveying Equipment	LS	1		
15	DIV 021	Fire Suppression	LS	1		
16	DIV 022	Plumbing	LS	1		
17	DIV 023	Heating, Ventilation, and Air Conditioning	LS	1		
18	DIV 026	Electrical	LS	1		
19	DIV 027	Communications	LS	1		
20	DIV 031	Earthwork	LS	1		
21	DIV 032	Exterior Improvements	LS	1		
22	DIV 033	Utilities	LS	1		
23	DIV 034	Electrical Power Generation	LS	1		
CIVIL SITEWORK						
24	TxDOT 500	Mobilization	LS	1		
25	TxDOT 502	Barricades, Signs, and Traffic Handling	LS	1		
26	TxDOT 104	Sawcut, Remove and Dispose Existing Concrete Foundation Full Depth (9 inches Slab and Footings)	SY	1551		
27	TxDOT 104	Sawcut, Remove and Dispose Existing Sidewalk Full Depth	SF	520		
28	TxDOT 110	Unclassified Excavation	CY	3570		
29	TxDOT 110	Select Fill	CY	3570		
30	TxDOT 247	Flexible Base - Type A, Grade 1 (8 Inches)	SY	1020		
31	TxDOT 360	Reinforced Portland Cement Concrete (8.5 Inches)	SY	1020		
32	TxDOT 496	Sawcut, Remove and Dispose Existing Concrete Curb (Type II) (6"-8" Height)	LF	35		
33	TxDOT 531	Sidewalk	SY	50		
34	TxDOT 550	Remove Existing Chain Link Fence	LF	140		

35	TxDOT 550	New 7' Wrought Iron Fence	LF	140		
36	5084	Bollards	EA	14		
37	00741	Gravel Bag Curb Inlet Protection Barrier	LF	16		
38	SS 5706	1" HDPE Water Line	LF	75		
39	SS 5706	3/4" HDPE Water Line to Hose Bib	LF	10		
40	Product 2	Backflow Preventer/installation	EA	1		
41	TxDOT 104	Sawcut, Remove and Dispose Existing Concrete Pavement Full Depth	SY	689		
42	TxDOT 275	Cement Treated (Mix Existing Material) (6 - 8 Inches)	SY	689		
43	TxDOT 360	Reinforced Portland Cement Concrete (5 Inches)	SY	689		
44	TxDOT 610	Trenching and Installation of Conduit for Fiber Optic Cable	LF	225		
45	TxDOT 550	Remove and Relocate existing 7' Wrought Iron Fence In Alley	LF	30		
46		Protect Existing Underground Utilities	LS	1		
ELECTRICAL WORK						
47	260519-1	Electrical Feeder, (3) 300KCMIL, #1/0G, 3-Wire/Phase in 3-Way, 3" Sch 40 PVC, Concrete Encased	LF	10		
48	260519-2	Electrical Feeder, (3) 300KCMIL, #1/0G, 3-Wire/Phase in 6-Way, 3" Sch 40 PVC, Concrete Encased	LF	139		
49	260519-3	3-Way, 3" Sch 40 PVC, Concrete Encased	LF	75		
50	260533-1	4'x4'x4' Traffic Rated Handhole	EA	2		
51	263416-1	Electrical Service Modifications	LS	1		
52	265600-1	Interior Canopy Lighting and Power	LS	1		
53	265600-2	Exterior Canopy Lighting	LS	1		
54	262416-1	Electrical Distribution Equipment	LS	1		
55	262416-2	Bus Charging Station W/ 2 Dispensers Rough In Only	EA	4		
56	262416-3	Bus Charging Station W/ 1 Dispenser Rough In Only	EA	1		
					PROJECT TOTAL	

COMPANY NAME

SIGNATURE OF BIDDER

PRINT OR TYPE NAME

TITLE

EMAIL

STREET ADDRESS

P.O. BOX

CITY STATE ZIP

AREA CODE TELEPHONE NO

FAX NO

Contingency \$30,000

Total plus Contingency \$

CITY OF PORT ARTHUR, TEXAS
BID SHEET – ALTERNATE BID

BID FOR: CONSTRUCTION OF EV BUS PARKING, BUS CANOPIES AND ROADWAY

BID DUE DATE: JUNE 3, 2026

DESCRIPTION	COST
ARCHITECTURALLY INTEGRATED SOLAR PHOTOVOLTAIC (PV) ROOF SYSTEM, INCLUDING ALL LABOR, MATERIALS, EQUIPMENT, ENGINEERING COORDINATION, STRUCTURAL MODIFICATIONS, ELECTRICAL INTERCONNECTION, TESTING, COMMISSIONING, AND ALL INCIDENTALS NECESSARY TO FURNISH A COMPLETE AND OPERATIONAL SYSTEM	\$
TOTAL COST	\$

Description	Bidder Response
PROPOSED MANUFACTURER	
PROPOSED PRODUCT / SYSTEM NAME	
ESTIMATED INSTALLED DC CAPACITY (KW)	
ESTIMATED ANNUAL ENERGY PRODUCTION (KWH/YEAR)	
ROOF WEATHER-TIGHTNESS WARRANTY (YEARS)	
PV MODULE WARRANTY (YEARS)	
INVERTER WARRANTY (YEARS)	

WORK WILL BE COMPLETE IN _____ CALENDAR DAYS .

COMPANY NAME

STREET ADDRESS

SIGNATURE OF BIDDER

P.O. BOX

PRINT OR TYPE NAME

CITY STATE ZIP

TITLE

AREA CODE TELEPHONE NO

EMAIL

FAX NO

Geotechnical Evaluation Report

New Bus Charging Station
Port Arthur Transit Station
301 4th Street
Port Arthur, Texas

Prepared for

The Solco Group, LLC

Mr. Kelvin Solco
10480 Jordan Avenue
Beaumont, Texas 77713



Eric T. McClanahan, P.E.
Business Unit Manager
License Number: 130303
October 29, 2021

Project B2109330
Braun Intertec Corporation
TBPE Firm Registration No. F-12228

October 29, 2021

Project B2109330

The Solco Group, LLC

Mr. Kelvin Solco
10480 Jordan Avenue
Beaumont, Texas 77713

Re: Geotechnical Evaluation Report
New Bus Charging Station
Port Arthur Transit Station
301 4th Street
Port Arthur, Texas

Dear Mr. Kelvin:

We are pleased to present this Geotechnical Evaluation Report for the proposed bus charging station at Port Arthur Transit Station in Port Arthur, Texas. The attached report contains a descriptive review of available information, our field exploration program, engineering evaluation, interpretation of the results with respect to the project characteristics, our geotechnical site development, foundation recommendations, and construction guidelines for the planned project.

Thank you for making Braun Intertec your geotechnical consultant for this project. If you have any questions about this report, or if we can provide other services in support of our work to date, please contact Eric McClanahan (emcclanahan@braunintertec.com).

Sincerely:

BRAUN INTERTEC CORPORATION
TBPE Firm Registration No. F-12228



Eric T. McClanahan, P.E.
Project Geotechnical Engineer



Alexander J. Brochard
Geotechnical Consultant

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Appendix

Plan of Borings and Pavement Cores

Logs of Borings

Descriptive Terminology of Soil

Ultimate Drilled Shaft Capacity Charts

A. Introduction

A.1. Project Description

On September 23, 2021, the Solco Group, LLC contracted Braun Intertec Corporation (Braun) to perform a geotechnical evaluation for the new Port Arthur electric bus charging station and appurtenant improvements to be constructed at 301 4th Street in Port Arthur, Texas. Based on the information provided in the request and subsequent phone conversations, Braun understands that the project comprises construction of a new EV bus charging station canopy with tilt-up panels and newly constructed rigid pavements. We understand the new structure will replace the previous structure footprint after the previous foundation components are demolished and removed from the site.

Based on the RFP, we understand that the previous building was supported at grade and will match the newly constructed bus station features located toward the north. Details regarding anticipated bus traffic and as-built plans of the recently constructed building and features were provided to Braun Intertec for our use in this geotechnical evaluation. You have indicated the new bus lanes will be subjected to an average daily traffic (ADT) maximum of 25 vehicles per day. We understand the nearby newly constructed building is supported on a combination of concrete drilled shaft foundations and shallow, spread footing foundations.

A.2. Purpose

The purpose of our geotechnical evaluation was to characterize subsurface soil conditions at the selected exploration locations and evaluate their impact on the design and construction of the proposed structures and equipment associated with the new bus charging station.

A.3. Site Conditions and History

The project site is situated on a 15,000 SF tract at the northwestern corner of Dallas Avenue and 4th Street, located directly adjacent to the Port Arthur Ship Channel. At the time of our field evaluation, the previous building foundation was still in existence; however, all structural components above slab grade had recently been demolished. The existing foundation appeared to consist of an original cast concrete slab overlain by a mildly distressed secondary leveling slab, installed post original construction.

Based on the available satellite imagery via Google EarthTM, it appears that the previous brick veneer building occupying the site was originally constructed prior to 1989. Since that time, the site conditions

appear to have remained relatively unchanged. Within the northeastern area of the subject site, an 80-ft diameter abandoned water tower structure and existing bus parking pavements occupied the remaining 30,000 SF footprint of the subject tract.

A.4. Scope of Services

Our scope of services for this project was to perform field exploration in general accordance with Braun Intertec's Proposal No. QTB146834 dated September 29, 2021. Our proposal was authorized by Mr. Kelvin Solco (President/CEO) of the Solco Group, LLC on September 30, 2021. The following list describes the geotechnical tasks completed in accordance with our authorized scope of services.

- Drilling and sampling a total of three soil borings in the approximate footprint of the new bus terminal structure footprint and two paving cores within areas of proposed paving.
- Performing laboratory testing on selected soil samples collected during the field exploration program to aid in soil classification and engineering analysis.
- Providing geotechnical engineering evaluation based on the subsurface soil conditions observed at the boring locations.
- Preparing this report containing a boring location sketch, logs of soil borings, a summary of the soils encountered, results of laboratory tests, recommendations for subgrade preparation and the design of shallow and deep foundations, and recommendations for other engineering aspects to support the proposed structures and features.

Our scope of services does not include environmental services. Braun Intertec personnel performing the geotechnical evaluation are not trained to provide environmental services or testing. However, we can provide these services or testing at your request. A fault study was also beyond our scope of services for this project.

A.4.a. Subsurface Exploration

Originally, Braun Intertec's proposed scope of services included drilling two 40-ft soil borings and two 20-ft soil borings within the footprint of the proposed structure. However, due to the presence of 30 inches of concrete at the proposed location of Boring B-4, this boring could not advance. Additionally, our scope included performance of two pavement cores to evaluate the existing pavement thicknesses and conditions present within adjacent roadways, where overlay is proposed. A Boring/Pavement Core

Location Plan and the individual boring logs are provided in the Appendix of this report. Boring depths are referenced from the existing ground surface at the time of our field exploration.

A.4.b. Laboratory Testing

We performed the following tests on selected soil samples obtained from the soil borings:

- *Moisture content tests (ASTM D2216)* – intended to aid in classification, evaluation of moisture condition, and estimation of engineering parameters;
- *Atterberg limits tests (ASTM D4318)* – intended to evaluate the soil plasticity, estimate whether the materials have the potential for shrink/swell, and to aid in estimation of engineering parameters;
- *Percent Passing #200 sieve (ASTM D1140)*– intended to aid in classification and determination of the sand and fine sized particle distribution; and
- *Unconfined compression tests (ASTM D2166) and Unconsolidated-undrained triaxial compression tests (ASTM D2850)* – tests performed to measure the soil undrained shear strength.

B. Results

B.1. Coring & Soil Boring Results

The Appendix includes log of borings sheets for our test borings. The logs present the results of laboratory tests performed on selected soil samples, detailed descriptions of the soils, and groundwater information as encountered during the time of our field exploration. A descriptive terminology key in the Appendix can be used to interpret terms used in the logs.

Stratigraphy boundaries were inferred from observations in the field, review of the samples and laboratory test results. These boundaries should be considered approximate and will likely vary away from the specific boring locations and may also occur as gradual rather than abrupt transitions.

Prior to sampling advancement in the borings, cores were cut through the existing foundation as well as in adjacent roadway paving areas. In Borings B-1 through B-3, a consistent concrete thickness of 9-inches was encountered. At the proposed position of Boring B-4, 30-inches of concrete was encountered at a presumed footing, therefore further advancement was terminated.

Per requests of The Solco Group during the project exploration, additional cores denoted as C-1 and C-2 were taken within Dallas Avenue and Fort Worth Avenue, respectively, at which 2-inches of surficial asphalt was encountered. These asphaltic overlay materials were underlain by 7-inches of concrete at C-1 and 9-inches of concrete at C-2.

Table 1 provides a generalized subsoil strata summary of the materials encountered during the subsurface exploration performed at the site.

Table 1: Subsoil Strata Summary

Strata	Soil Type – ASTM Classification	Depth (Feet)	Commentary and Details
Existing Concrete Foundation & Sand Fill	--	0 - 2	<ul style="list-style-type: none"> Existing concrete slab consistently 9 inches thick Fill consists of loose dark gray and black sand with clay
Lean and Fat Clays	CL/CH	2 – 15/20	<ul style="list-style-type: none"> Moisture condition: moderate Generally stiff consistency Generally tan, gray, light gray, and dark brown in color Contained silt pockets and silt layers
Clayey and Silty Sand	SC/SM	15/20 – 30	<ul style="list-style-type: none"> Moisture condition: moderate Generally loose to medium dense in relative density Tan and light gray in color Contained silt and interspersing lean clays
Lean Clay	CL	30 - 40	<ul style="list-style-type: none"> Moisture condition: moderate Generally medium to stiff consistency Light gray and tan in color

B.2. Groundwater

During the time of drilling, groundwater levels were explored within Borings B-1 through B-3. Groundwater was initially encountered within Boring B-1 at approximately 6 feet below the top of the existing concrete at which drilling fluids were introduced. At this depth in the subsequent borings, wet rotary drilling was implemented to stabilize the boreholes for further advancement.

Due to our limited time to complete the subsurface exploration, additional groundwater observations were not made. Project planning should anticipate seasonal and annual fluctuations of groundwater. Groundwater levels should be expected to fluctuate in response to tidal fluctuations in the nearby Port Arthur Ship Channel, rainfall, flooding, irrigation, surface drainage modifications and other seasonal and annual factors.

B.3. Laboratory Test Results

Braun Intertec performed Unconfined Compression tests (ASTM D 2166), Unconsolidated-Undrained Triaxial compression tests (ASTM D2166), Atterberg Limit tests (ASTM D4318), Moisture Content tests (ASTM D2216), and Percent Passing the No. 200 sieve (ASTM D1140) on selected soil samples obtained in the borings. The individual test results are presented on the log of boring sheet in the Appendix.

C. Recommendations

C.1 Design and Construction Technical Discussion

Canopy and Wall Loads:

Based on information provided by the Solco Group, LLC, we understand that consideration is being given to support the proposed bus station tilt-up walls and canopies on concrete drilled shaft foundations. The supporting shafts for their respective application should also be installed to the same approximate tip embedment below the existing ground surface to reduce effects of differential settlement. To reduce the effects of differential settlement between shaft and grade supported features, consideration may be given to cast the shaft caps integrally with the floor slab and grade beams.

Shallow Footing Foundations:

As an alternate, lightly loaded interior columns, walls, and other features may be supported on shallow continuous or square isolated footing foundations, provided loads do not exceed the allowable bearing intensities presented herein and the structure design can accommodate the associated potential settlements estimated. If shallow footing foundations are considered for foundation design, we recommend the footings be poured monolithically with the shaft caps and floor slab.

Floor Slabs:

The floor slabs may be placed directly atop compacted structural fill, provided the recommendations contained herein regarding site preparation and compaction are adhered to, the slab can accommodate potential vertical (settlement and shrink-swell) movements between the shaft features, and the

sustained load pressure intensities anticipated are not exceeded. The slab should be cast monolithically with shaft caps and grade beams and also be designed as rigidly as possible to minimize the effects of settlement and differential settlement.

Additional Foundation Considerations:

Should consideration be given to utilizing a mixture of grade-supported slabs, shallow footings and/or deep foundations to support anticipated loads for the planned structures, the effects of differential settlements should be taken into account. Estimated settlements for foundation types and load intensities contained within this report assume the individual foundations act as isolated units, and do not account for closely spaced foundations or load transfer between rigidly connected foundations. Where a combination of shallow and deep foundations is used to support the same structure, differential settlements should be considered, and appropriately designed flexible connections utilized. We also recommend that flexible utility connections (piping and other utilities sensitive to movement) be utilized to accommodate settlement and differential settlement movements.

We recommend special care be taken to locate and remove any remaining foundations, utilities, or debris encountered prior to fill placement. These may decay over time, hence creating void spaces beneath the building foundation. If encountered, these should be removed and backfilled with select structural fills soils and should be compacted in accordance with the site preparation recommendations in this report. Additionally, any existing foundations from the previous building and structures on site should be addressed in accordance with our recommendations in the *Demolition Considerations* section of this report.

Based on information furnished regarding grades, we understand little, or no fill will be required to achieve the proposed design grade. Should more than one 12 inches of fill be required to reach design grade and/or dead load pressure intensities assumed in our analyses exceeded, Braun should be contacted to reevaluate the recommendations contained herein.

C.1.a. PVR Discussion

The soil types as encountered in the borings and the results of the laboratory testing indicate that the surficial soils to a depth of about 6-feet (considered as the zone of influence for this site) generally have low to moderate potential to swell or shrink.

Potential Vertical Rise (PVR) values were estimated using Texas Department of Transportation method (Test Procedure TEX-124-E). Based on the soil types encountered, the estimated PVR value for this site is expected to be 1.5-inch or less.

C.2. Rainwater Management

The initial step to prepare the construction site is to account for potential rainfall during construction. We recommend maintaining construction grades to intercept surface water flow into the area and drain water from the area to an appropriate collection point. Sumps and pumps may be required to remove rainwater from ditches, shallow foundations, and excavations. After grading, the contractor should compact the soil surface with a smooth drum roller to attempt to lower the infiltration potential of the compacted soil. After rain events, the contractor should limit construction traffic until the surface is dry enough that construction traffic will not mix accumulated surface water into lower portions of the soil.

The near surface soils encountered at the site are subject to reduction in shear strength, erosion, washout, and excessive settlement should these soils be allowed to become saturated. Therefore, Braun Intertec recommends adequate permanent drainage be provided to collect all rainfall away from the proposed foundation and pavements. Permanent drainage should be constructed to quickly discharge rainwater away from all structures.

The contractor should also note that the on-site clayey soils are highly susceptible to rutting, disturbance and a loss of shear strength due to moisture intrusion and repeated construction traffic. Disturbance of these soils may cause areas that were previously prepared, or that were suitable for pavement and/or structure support, to become unstable and require moisture conditioning and compaction.

It is important to control potential moisture variation in the shallow subsurface soils by adhering to the following recommendations:

- Extend paving or other impervious coverings, such as sidewalks, to the slab edge;
- Direct surface runoff away from structures by sloping the subgrade away from the slabs;
- Extend roof drain downspouts so that the discharge is at least 5 feet from the slab;
- Avoid excessive drying of soil around the structure foundations;
- Avoid placing trees or shrubs adjacent to slab (Note: Trees of significant maturing size should be planted no closer than two mature canopy diameters from the proposed foundation); and
- Provide vapor barrier protection as later discussed in Section C.5.b.

C.3. Site Preparation

C.3.a. Demolition Considerations

As stated previously, the proposed structures are located within areas where old foundations and other features will be demolished during site preparation for the new construction. Special care should be exercised during site preparation since existing foundations and utilities may be encountered. Checks should be performed for the presence and depth of any foundation remnants. Depending on what is found, our recommendations may change.

During demolition, removal of existing underground structures could disturb the surrounding subgrade soils and cause detrimental effects on construction of the proposed development at this site. Demolition activities at this site may result in pockets of loose soils or deleterious materials that remain below grade. Care should be exercised during site development to identify loose or disturbed soils and to remove and replace them with properly compacted select fill.

Existing shallow foundations encountered should be removed. However, if deep foundations are observed, we recommend that the shaft be cut off at an elevation at least 24 inches below the bottom of the proposed new foundations and/or 24 inches below final grade, whichever is deeper. The remainder of the shaft should be left in place. Foundation elements to remain should be surveyed. The existing foundations should be superimposed on the proposed development plans to evaluate the potential for obstructions to new construction.

All existing utilities that are within the footprint of any planned structure should be completely removed and the excavation properly backfilled. As an alternate to complete removal, the existing utilities may be abandoned in place if they do not interfere with the planned development. If the utilities are abandoned in place, they should be properly pressure grouted to completely fill the utility.

The excavations resulting from foundation and utility removal should be backfilled in accordance with the recommendations provided in Section C.3.h. If situations are encountered where compaction of fill would not be efficient because of the size or location of an excavation, the use of cement stabilized sand or flowable fill may be considered as a suitable alternative to select fill. The compressive strength of the cement stabilized sand or flowable fill utilized should be between 50 and 100 psi.

C.3.b. Subgrade Preparation for Grade Supported Structures

The fill materials present to the 2-foot depth at the project site were visually characterized as relatively wet, gray and black sand fills containing clay. It is Braun Intertec's opinion that these materials be

stripped and removed until firm, undisturbed clay soils are encountered prior to the application of new select fills. Specifically, subgrade preparation for this project should include removal of soils containing organics, soft soils, wet soils, weak soils, and/or otherwise deleterious soils to a depth where suitable firm to stiff cohesive native soils are encountered.

C.3.c. Proofrolling

After demolition, clearing, stripping, and removal of any existing deleterious soils as stated previously, the exposed soil should be proofrolled to locate any additional soft areas. This may be accomplished by implementing a loaded tandem-axle haul truck or similar rubber-tired vehicle exerting a minimum ground pressure of 15 psi. Any localized stumps, depressions, or soft soils should be removed to the surface of firm to stiff cohesive soils and replaced and compacted under controlled conditions with select structural fill. The structural fill material should conform with recommendations as shown in Section C.3.h., Table 2 of this report. All clearing and proof rolling should be performed during dry periods of weather.

C.3.d. Ditches and Swales

Care should be given to locate and demuck any existing drainage features that may have been abandoned and backfilled. These features may require relocation to provide adequate drainage for the site. Once demucked to the surface of firm undisturbed soil, the drainage features should be backfilled with select fill and compacted under controlled conditions.

C.3.e. Fill Placement

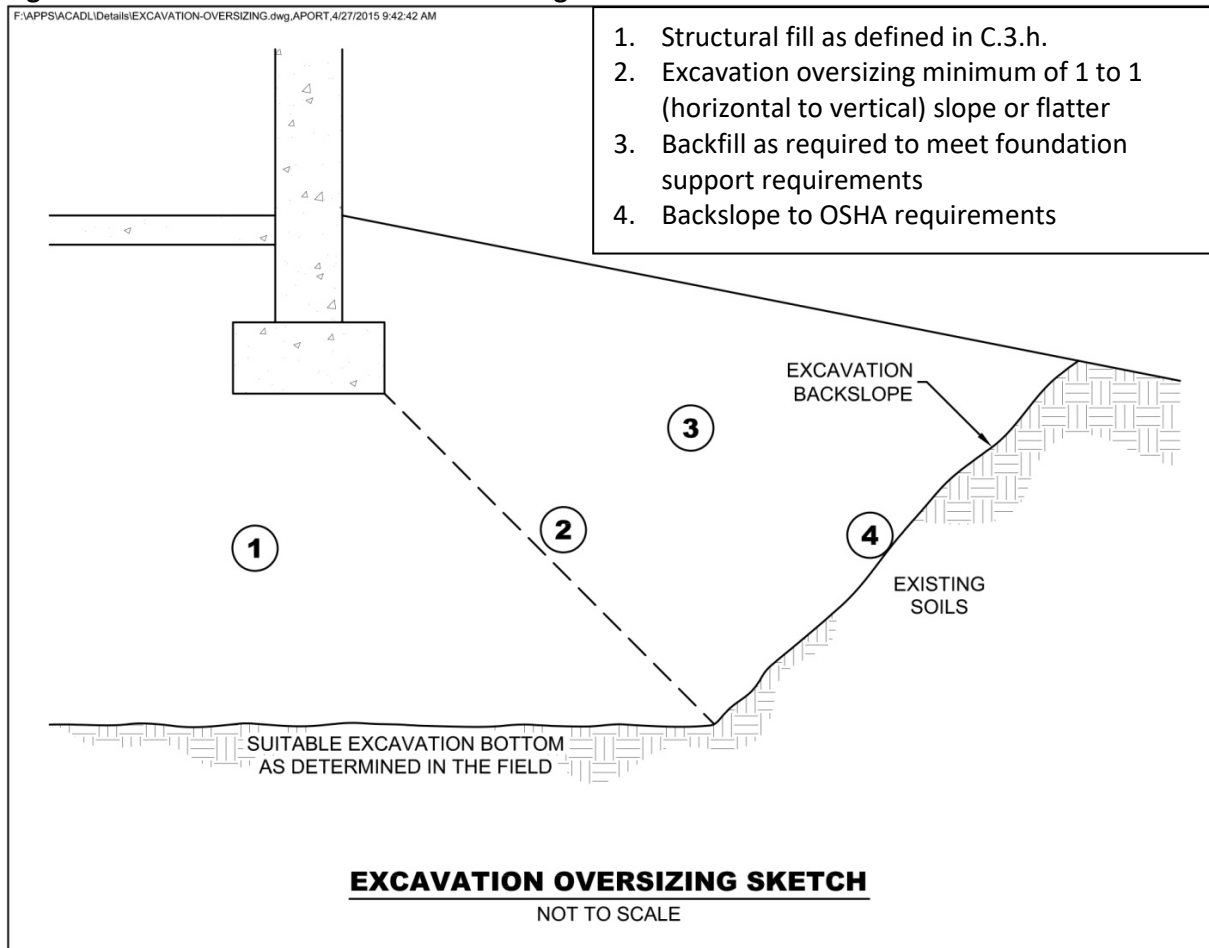
The structural fill should be placed in loose lifts, no greater than 8 inches. Each lift should be compacted to a minimum of 95% of the Standard Proctor Maximum Dry Density (ASTM D 698) at 0 to + 3 percentage points of the soil optimum moisture content as later discussed in Table 3 of Section C.3.h. The contractor should use equipment and techniques to minimize soil disturbance. If soils become disturbed or are wet, we recommend scarifying and exposing the soils to facilitate drying or excavation and replacement of the soils. All clearing, proofrolling, and compaction operations should be performed only during periods of dry weather. Motorized wheeled equipment should not be allowed within the foundation areas during periods of inclement weather to prevent rutting of the subgrade.

C.3.f. Excavation Oversizing

Based on the borings, we anticipate on-site soils in shallow excavations will primarily encounter existing cohesive fill materials or natural, cohesive soils. The cohesive subsurface soils should be classified as Type B soils during construction activities. Groundwater could be encountered in shallow excavations. In accordance with OSHA (Occupational Safety and Health Administration) guidelines, when removing

unsuitable materials below foundations, we recommend the excavation extend outward and downward at a slope of 1H:1V (horizontal: vertical) or flatter. See Figure 1 for an illustration of excavation oversizing.

Figure 1. Generalized Illustration of Oversizing



Slopes constructed in this manner may still exhibit surface sloughing. OSHA requires an engineer to evaluate slopes or excavations over 20 feet in depth.

An OSHA-approved qualified person should review the soil classification in the field. Excavations must comply with the requirements of OSHA 29 CFR, Part 1926, Subpart P, "Excavations and Trenches." This document states excavation safety is the responsibility of the contractor. The project specifications should reference these OSHA requirements.

C.3.g. Dewatering Plan

As stated in Section B.2, groundwater levels were encountered at the approximate 6-ft depth in the borings. Dewatering and pressure relief measures should be anticipated to remove groundwater from excavations at or near this depth. Based on the conditions encountered at the site, groundwater infiltration into excavations exceeding this depth will likely occur. Prior to excavation construction, a qualified and experienced dewatering contractor should be retained to develop an appropriate plan. Braun Intertec recommends that this system be designed, installed, and operated by this selected contractor.

Dewatering may be accomplished by a system of sumps and pumps to relieve excess pressures and maintain the stability of the excavation base. The duration of dewatering should be as quick as possible to minimize settlement of the adjacent ground surface because of groundwater lowering. Braun Intertec may be retained to assist in the development of a dewatering plan.

C.3.h. Fill Materials and Compaction

Table 2 below contains our recommendations for select structural fill materials.

Table 2. Fill Materials

Locations To Be Used	Fill Classification	USCS Soil Type Classification	Gradation	Additional Requirements
<ul style="list-style-type: none"> Below Foundations and Pavements 	Select structural fill	CL	1. 100% passing 2-inch sieve 2. Minimum 60% passing -#200 sieve	1. Liquid Limit <40 2. Plasticity Index between 10 and 20 3. < 2% Organic Content (OC) 4. Silt Content 60% or less
<ul style="list-style-type: none"> Pavement Base Course 	Crushed Stone	GP	Refer to TxDOT Item 247-Type A, Grade 1	

We recommend placing structural fill in loose lifts of approximately 8-inch thickness and compacting fill in accordance with the criteria presented below in Table 3.

Table 3. Compaction Recommendations Summary

Reference	Relative Compaction, percent (ASTM D698 – Standard Proctor)	Moisture Content Variance from Optimum, percentage points
Select fill soils below foundations and pavements	95	0 to +3
Pavement Base Course	Refer to TxDOT Item 247 Section 4.3	

We recommend performing moisture-density tests in the area where fill is placed to evaluate if the contractors are effectively compacting the soil and meeting project requirements.

C.3.i. Special Inspections of Soils

Prior to transporting any structural fill to the site, Braun recommends a sample from the borrow source be tested to verify conformance with the project specifications. We recommend that the site grading and placement of fill within the construction areas be tested to confirm earthwork is performed in accordance with our recommendations. A licensed geotechnical engineer should direct the inspection of site grading and fill placement. The purpose of the inspection is to evaluate whether the work is in accordance with the approved Geotechnical Report for the project. The inspection services should include evaluation of the subgrade, observing preparation of the subgrade (surface compaction, placement procedures, and materials used for fill, etc.) and compaction testing of the fill.

C.4. Shallow Foundation Recommendations

C.4.a. Allowable Soil Bearing Capacity

Provided the site preparation recommendations are followed and movements associated with settlement are tolerable, lightly to moderately loaded foundation elements may be supported on shallow spread footing foundations bearing on natural cohesive soils. Foundations should be placed at a minimum depth of 2 feet below the finished grade within the natural cohesive soils encountered at the site.

The bearing capacity is a measure of the resistance of the soil mass beneath the foundation against shear failure due to the applied vertical load at the foundation-soil interface. The bearing capacity of the soils are presented in Table 4 below for continuous (strip) footings (width 1 to 3-ft) and square, isolated footings (width up to 10-feet) bearing on natural soils at a minimum depth of 2-feet below final grade. These values were generally limited by resulting settlements at these sustained bearing pressures and assume dead plus sustained live loads which include a factor of safety of 3.0. The bearing capacity for dead load plus transient live load includes a factor of safety of 2.0.

Table 4: Bearing Capacity

Foundation	Bearing Capacity for Dead Load plus Sustained Live Loads	Bearing Capacity for Dead Load plus Transient Live Loads
Strip Footings	1,600-psf	2,400-psf
Square Isolated Spread Footings	2,000-psf	3,000-psf

C.4.b. Settlement of Footings

Detailed settlement analyses for shallow foundations associated with this project were performed using the program Settle3, developed by Rocscience, Inc. Our settlement estimates are based on published correlations relating soil index properties to soil compressibility characteristics, and our experience.

Settlement analyses were performed for square isolated spread footings with an embedment depth of 2 feet below existing grade and bearing on natural cohesive soils. Table 5 presents total consolidation settlement results for three sizes of square isolated spread footings at three bearing intensities. The applied loading presented represent the loading on the foundation due to dead loads ranging from 500 to 2,000-psf. The settlement estimates for shallow rigid spread footings assume that the site is prepared in accordance with the recommendations outlined in Section C.3. Additionally, the settlements in Table 5 assume the footings acts as individual, isolated elements.

Table 5: Total Consolidation Settlements for Footings

Spread Footing Size	Applied Loading			
	500-psf	1,000-psf	1,500-psf	2,000-psf
1-ft strip	0.1	0.3	0.4	--
2-ft strip	0.2	0.4	0.6	--
3-ft strip	0.3	0.5	0.7	--
5 feet x 5 feet	0.3	0.5	0.7	0.8
8 feet x 8 feet	0.4	0.6	0.9	1.0
10 feet x 10 feet	0.4	0.7	1.0	1.2

C.4.c. Lateral Loading Conditions for Footings

Horizontal loads on shallow foundations bearing on natural clay soils or select structural fill will provide some resistance to horizontal loads through base adhesion between the bearing surface and soil as well as passive soil resistance. For short-term transient loads, ultimate base adhesion value of 300-psf can be used. For long-term static loadings, a coefficient of friction of 0.33 can be used and a density value of 120-psf per foot of bearing depth (D_f) can be used to calculate ultimate passive resistance. A minimum factor of safety of 2.0 is recommended for base adhesion and passive resistance. Passive resistance from the upper 2 feet, as well as any uncompacted fill material, may be neglected in these calculations. All recommendations for shallow foundations assume that the site is prepared in accordance with the recommendations outlined in Section C.3.

C.4.d. Footing Resistance to Uplift

Shallow foundation uplift resistance should be calculated using the weight of the foundation concrete and the weight of the soil backfilled directly above foundation concrete, if applicable. For uplift calculations, a buoyant unit weight of 90-pcf for reinforced concrete and 55-pcf for newly placed fill materials should be used. These values assume water levels approach the existing ground surface. We recommend a design factor-of-safety against uplift of 1.2.

C.5. Floor Slabs

The floor slab may be placed directly atop compacted structural fill or competent in-situ natural clay soils provided the recommendations contained herein regarding site preparation and compaction are followed. Grade-supported floor slabs and grade beams may be designed for an allowable net bearing pressure of 1,000 psf. The slab must be able to accommodate the potential differential settlement movements between the column-supported features. We recommend slabs be designed as rigidly as possible to minimize the effects of settlement and differential settlement. We recommend the designers include grade beams below load bearing walls and at regular intervals. Perimeter grade beams should bear at a minimum nominal depth of at least 24 inches below the planned adjacent grade. Interior grade beams and cross or “stiffener” beams should extend at least 12 inches below the bottom of the slab, or deeper as required by the structural design.

Braun recommends that flexible utility connections (piping and other utilities sensitive to movement) be utilized to accommodate settlement and differential settlement movements. As discussed in the site preparation section of this report, we recommend the floor slab bear on select structural fill soils, or in-situ natural clay soils. Further, we recommend special care be taken to locate and remove any remaining tree roots or debris encountered prior to fill placement. These may decay over time, hence creating void spaces beneath the foundation. If encountered, these should be removed and backfilled with select structural fills soils; and be compacted in accordance with the site preparation recommendations in this report.

C.5.a. Settlement Considerations Due to Fill Placement

As previously discussed, minimal fill is expected to match the surrounding site grades. If a grade raise greater than 12 inches is anticipated, Braun Intertec should be contacted to evaluate the impacts, as additional settlements would be additive to those discussed previously for footings.

C.5.b. Moisture Vapor Protection

Excess transmission of water vapor could cause floor dampness, certain types of floor bonding agents to separate, or mold to form under floor coverings. Therefore, Braun recommends placing a vapor retarder or vapor barrier immediately beneath slabs and grade beams. In addition, Braun recommends consulting with floor covering manufacturers regarding the appropriate type, use, and installation of the vapor retarder or barrier to preserve warranty assurances.

C.6. Drilled Shaft Foundations

C.6.a. Ultimate Shaft Load Capacities

Analyses have been completed to estimate allowable compressive and tensile load capacities for 12, 18, and 24-inch diameter drilled cast-in-place concrete shafts. These capacities assume a 5-ft shaft cutoff to consider removal of the upper fills and for installation of a shaft cap. Further, the shaft capacities do not consider the weight of the shaft. The net load of the shaft material (i.e. weight of concrete minus weight of soil removed) should be reduced from the capacities presented herein. Below the water table, the full buoyant weight (i.e. $150 \text{ lb/ft}^3 - 62.4 \text{ lb/ft}^3$) may be used.

C.6.b. Factor of Safety

Braun recommends a factor of safety of 2 in compression and 3 in tension (uplift) be implemented against single shaft failure through the soil. These factors of safety assume the quality control programs, as subsequently discussed, are followed. However, Braun recommends static load testing of the shafts be performed.

C.6.c. Axial Capacity

The ultimate axial capacity curves for cast-in-place drilled shaft are presented in the Appendix. The values presented in the axial capacity curve for the drilled shafts are based on the static method of analysis, which provides ultimate axial capacity values in compression and tension for the drilled shaft at a given depth below existing grade. The calculations were performed using SHAFT for Windows, Version 2017.8.5. We recommend that a minimum factor of safety of 2.0 be applied to obtain allowable compressive capacities for design. A factor of safety of 3.0 should be used to obtain allowable tension (uplift) capacities. Sufficient reinforcing steel must be provided for the shaft length of anticipated tensile loads.

The capacity of a drilled shaft is highly dependent on proper installation methods and construction practices being followed. Reported capacities assume drilled shafts are installed in accordance with installation guidelines presented in Section C.6.e.

C.6.d. Lateral Capacity

The lateral capacity of the drilled shafts and the resistance of the shaft to lateral loading is a function of the rigidity of the shaft and the properties of the surrounding soil strata. Table 6 presents the lateral design parameters for use in the L-Pile program, including the soil depths below existing grade, soil types, effective unit weight, cohesion (c), and elastic modulus (E_{50}). Once design shaft sizes are selected, Braun Intertec may be retained to perform lateral shaft load analyses.

Table 6: Lateral Design Parameters for L-Pile

Depth Below Existing Grade, in feet	L-Pile Soil Type	Effective Unit Weight, in pcf	Cohesion (c), in psf	Elastic Modulus (E_{50})	Soil Modulus (k) in pci
0 to 2	Soft Clay	(Upper 5-ft neglected in analysis)			
2 to 5	Stiff Clay without Free Water				
5 to 8	Stiff Clay without Free Water	65	1,640	0.007	N/A
8 to 15	Stiff Clay without Free Water	69	1,350	0.007	N/A
15 to 20	Medium Clay	62	680	0.010	N/A
20 to 30	Sand	66	0	N/A	20
30 to 40	Stiff Clay without Free Water	66	1,100	0.007	N/A

C.6.e. Drilled Shaft Installation

The performance of drilled shaft foundations is highly dependent on construction practices, appropriate equipment and methods, and the skill of the contractor. The drilled shafts should be installed in accordance with ACI 336.1 Specifications or in accordance with the guidelines provided in FHWA-IF-99-025. Shafts should be constructed in a sequence that minimizes the amount of time that the excavation remains open. Shafts should be installed by contractors having successful experience in installing shafts in similar soil conditions. A test shaft should be drilled outside the structure footprint to determine the requirements for temporary casing and drill mud. Quality control supervision should be maintained by experienced personnel to ensure the shafts are installed vertically and to the required depth and diameter.

Groundwater levels recorded on the boring logs indicate that groundwater should be expected at depths ranging from about 4 feet to 8 feet during drilled shaft excavation and installation. The presence of the interbedded clayey sand and silty sand strata encountered between depths ranging from 15 to 30 feet in the borings will also allow water infiltration and caving in an open hole during excavation. Therefore, we recommend that the slurry displacement method or shaft casing be utilized to install the drilled shafts at the project site.

Quality testing utilizing cross-hole sonic logging (CSL), or single-hole sonic logging (SSL) should be considered during drilled shaft installation. Thermal Integrity Profiling (TIP) may also be performed to determine the shaft overall integrity and quality. CSL testing requires the installation of PVC tubes within the shaft and, therefore, should be arranged ahead of concrete placement. These tests may be performed on production shafts. If anomalies are encountered during performance of these tests, pile integrity testing (PIT) may also be utilized to evaluate the production shafts.

C.6.f. Static Load Testing for Shafts

As previously discussed, Braun recommends shaft capacities be confirmed by load testing. The test shaft should be allowed to set for at least 14 days before installing the reaction frame. Test shafts should then be loaded in accordance with ASTM D1143. Similar methods may also be performed to evaluate lateral (ASTM D3966) or tensile (ASTM D3689) capacity if deemed appropriate by the structural engineer. These services are typically performed as an extension of our geotechnical services.

C.6.g. Shaft Group Effects

The spacing between drilled shafts can affect the capacities and settlements presented in this report. For the values reported in the axial capacity curves and estimated settlements to remain valid, the shafts must maintain a center-to-center spacing of at least 3 feet or 3 times the diameter of the shaft, whichever is greater. Closer spacing will require reductions in the skin friction values of the axial capacities presented. The published results indicate that the efficiency factor of a single isolated shaft in a group may range from 0.5 to 1.0 depending on the number of shafts in a group or their spacing. If shaft spacings closer than 3 feet or 3 times the diameter are anticipated, we should be contracted to review the shaft configuration and provide axial capacity reduction factors accordingly.

A group of shafts subjected to lateral loads may not have the same capacity as the sum of the capacity of the individual shafts. For estimates of the group spacing/sizing under lateral loading, Table 7 shows some empirical equations based on experimental studies conducted on group efficiencies by various researchers, as presented in the manual for pile group analyses program Group 7 by Ensoft, Inc.:

Table 7: Shaft Group Efficiency for Lateral Loads

Pile/Shaft Configuration	Lateral Load Group Efficiency Factor (β)
Piles/Shfts in a row (side-by-side)	$\beta = 0.64 (s/D)^{0.34}$ for $1 \leq (s/D) < 3.75$ $\beta = 1$ for $(s/D) \geq 3.75$
Piles/Shfts in a line (leading shafts)	$\beta = 0.70 (s/D)^{0.26}$ for $1 \leq (s/D) < 4.0$ $\beta = 1$ for $(s/D) \geq 4.0$
Piles/Shfts in a line (trailing shafts)	$\beta = 0.48 (s/D)^{0.38}$ for $1 \leq (s/D) < 7.0$ $\beta = 1$ for $(s/D) \geq 7.0$

Note: β = group efficiency factor; s = center-to-center spacing of shafts; D = shaft diameter.

The above reduction factors are best estimates, from empirical data, as a function of shaft spacing regardless of the soil type.

C.6.h. Shaft Settlement from Structural Loads

Braun recommends consideration be given to cast the slab integrally with the shaft caps and grade beams to reduce the effects of differential settlement. It should be noted that settlement of shafts having embedments of 25 feet or more may settle 1/4 to 1/2-inch under sustained structural loading. Elastic strain/deformation should also be considered when evaluating the potential vertical movements for shaft founded structures.

C.7. Pavements

C.7.a. Pavement Subgrade Preparation

It is recommended that the vegetation, fill soils, roots, organic material, shells, gravel, and other deleterious materials be removed from the site and disposed. Voids created after removal of previous foundations, tree stumps and roots should be backfilled with properly compacted structural fill soils.

The results of laboratory plasticity tests indicate that the subsurface soils within proposed pavement areas at this site are generally lean clay (CL) soils. If these upper materials are allowed to become wet and heavily saturated, their ability to provide subgrade support will be reduced. Therefore, positive drainage should be maintained after stripping such that water is not allowed to pond on the subgrade.

After stripping is accomplished to the desired grade, the exposed subgrade should be proof rolled to locate any weak areas. Soils that are observed to rut or deflect under the moving load should be undercut and replaced with properly compacted structural fill. The proofrolling and undercutting

activities should be witnessed by a Braun Intertec representative and should be performed during periods of dry weather.

Structural fill materials should be lean clay (CL) soils as defined in Table 2. Structural fill should be compacted as outlined in Table 3 above. Each lift of structural fill should be compacted and tested by a representative of the geotechnical engineer prior to placement of subsequent lifts. Care should be taken to apply uniform compactive effort throughout the fill and fill scope areas. The moisture content and the degree of compaction of the structural fill soils should be maintained until the subgrade areas are paved.

C.7.b. Assumed Traffic and Pavement Design

Information provided indicates the new bus lanes will experience a maximum ADT of 25 buses per day. Furnished specifications for the proposed 6-tire Catalyst electric bus indicate the gross weight (at full passenger capacity) weighs up to 42,000-lbs. We have further estimated this weight will result in an 18-kip (single tire) front axle load and 24-kip (dual tire) rear axle load. For our analyses, we have considered a 20-year design life without anticipated growth.

Rigid pavement thickness components and thicknesses were estimated using methods presented in AASHTO Guide for Design of Pavement Structures. A subgrade modulus (k) value was estimated based on the subgrade materials encountered (general plasticity and consistency), moisture contents of the near surface soils, and our engineering experience in this area. This estimated k-value also assumes adequate drainage is maintained during and after construction and aggregate surface pavements are prepared for asphalt in accordance with the Site Preparation sections subsequently discussed in this report.

To support the anticipated bus traffic, Braun Intertec recommends the new bus lane pavements comprise 8.5-inches of PCC underlain by at least 8-inches of stone base course. Braun has assumed all paving materials will comply with respective sections outlined in the Texas Department of Transportation Specifications for Construction and Maintenance of Highways, Streets and Bridges. Portland cement concrete (PCC) for pavements should meet TxDOT Item 360 requirements. The stone base course materials should meet TxDOT Item 247-Type A for Grade 1 stone materials and be compacted per Section 4.3 of Item 247.

Related civil design factors such as drainage, cross-sectional configurations, surface elevations and environmental factors which will significantly affect the service life of the pavement, must be included in the preparation of the construction drawings and specifications. Concrete pavement slabs should be provided with adequate steel reinforcement. Proper finishing of concrete pavements requires the use of sawed and sealed joints. Joint spacing is recommended at maximum 15-foot intervals for plain concrete.

Dowel bars should be used to transfer loads at the transverse joints. Normal periodic maintenance will be required.

Surface water infiltration to the pavement subgrade layers may soften the subgrade soils. Considering several factors in the pavement design can reduce surface infiltration. To summarize, the following are some of the factors that need to be emphasized in order to maintain proper drainage.

- Appropriate slopes away from the driveways should be provided;
- Joints should be properly sealed and maintained;
- Side drains or sub drains along a pavement section may be provided;
- Proper pavement maintenance programs such as sealing surface cracks, and immediate repair of distressed pavement areas should be adopted;
- During and after the construction, site grading should be kept in such a way that the water drains freely off the site and off any prepared or unprepared subgrade soils;
- Excavations should not be kept open for a prolonged period of time.

D. Procedures

D.1. Boring and Piezometer Drilling and Sampling

Braun Intertec drilled the soil borings with an all-terrain mounted drill rig using solid flight auger drilling techniques. Cohesive soil samples were obtained by hydraulically pushing a thin-walled tube about 24 inches into the bottom of the drilled hole. The field sampling procedure for cohesive soils was conducted in general accordance with ASTM D 1587.

In Boring B-2, samples were also obtained by performance of Standard Penetration Testing (SPT). This test is performed by driving a 2-inch diameter split spoon sampler 12 inches after initially seating 6 inches. The sampler is advance by repeatedly dropping a 140-lb hammer 30 inches. The resulting number of blows per foot (N-Value) is indicative of the relative density of the soil. These recorded blow counts are shown on the logs of the borings in the Appendix.

D.2. Boring Logs

The Appendix includes Log of Boring sheets for our soil borings. The logs identify and describe the penetrated subsurface materials and present the results of pocket penetrometer readings and other in-situ tests performed.

Braun inferred strata boundaries from changes in the penetration test samples and the auger cuttings. Because we did not perform continuous sampling, the strata boundary depths are only approximate. The boundary depths likely vary away from the boring locations, and the boundaries themselves may occur as gradual rather than abrupt transitions.

D.3. Material Classification and Testing

The soil samples were visually classified in accordance with ASTM procedures (ASTM D2487 and D2488). The Appendix includes a chart explaining the classification system used. The logs of borings located in the Appendix note the results of the laboratory tests performed on geologic material samples. Braun Intertec performed the tests in general accordance with ASTM procedures.

E. Qualifications

E.1. Variations in Subsurface Conditions

Braun Intertec has developed our evaluation, analyses, and recommendations from a limited amount of site and subsurface information. It is not standard engineering practice to retrieve material samples from exploration locations continuously with depth. Therefore, we must infer strata boundaries and thicknesses to some extent. Strata boundaries may also be gradual transitions, and project planning should expect the strata to vary in depth, elevation, and thickness, away from the exploration locations.

Variations in subsurface conditions present between exploration locations may not be revealed until performing additional exploration work or starting construction. If future activity for this project reveals any such variations, you should notify us so that we may reevaluate our recommendations. Such variations could increase construction costs, and we recommend including a contingency to accommodate them.

E.2. Continuity of Professional Responsibility

We based this report on a limited amount of information, and we made a number of assumptions to help us develop our recommendations. Braun Intertec should be retained to review all geotechnical aspects of the designs and specifications. This review will allow us to evaluate whether we anticipated the design correctly, if any design changes affect the validity of our recommendations, and if the design and specifications correctly interpret and implement our recommendations.

We recommend retaining Braun Intertec to perform the required observations and testing during construction as part of the ongoing geotechnical evaluation. This will allow us to correlate the subsurface conditions exposed during construction with those encountered by the borings and provide professional continuity from the design phase to the construction phase. If we do not perform observations and testing during construction, it becomes the responsibility of others to validate the assumption made during the preparation of this report and to accept the construction-related geotechnical engineer-of-record responsibilities.

E.3. Use of Report

This report is for the exclusive use of the addressed parties. Without written approval, we assume no responsibility to other parties regarding this report. Our evaluation, analyses and recommendations may not be appropriate for other parties or projects.

E.4. Standard of Care

In performing its services, Braun Intertec used that degree of care and skill ordinarily exercised under similar circumstances by reputable members of its profession currently practicing in the same locality. No warranty, express or implied, is made.

Appendix



APPROXIMATE LOCATION OF SOIL BORING



APPROXIMATE LOCATION OF PAVEMENT CORE



30' 0 60'

SCALE: 1" = 60'

**BRAUN
INTERTEC**
The Science You Build On.

11001 Hampshire Avenue S
Minneapolis, MN 55438
952.995.2000
braunintertec.com

Project No:
B2109330

Drawing No:
B2109330

Drawn By: BJB
Date Drawn: 10/27/21
Checked By: AB
Last Modified: 10/27/21

New Bus Charging Station

301 4th Street

Port Arthur, Texas

**Soil Boring
Location Sketch**

See Descriptive Terminology sheet for explanation of abbreviations

[illegible]

Water not observed while drilling.

Project Number B2109330 Geotechnical Evaluation New Bus Charging Station Port Arthur, Texas						BORING: B-2					
						LOCATION: See attached sketch					
						LATITUDE: 29.86949			LONGITUDE: -93.93551		
DRILLER: O. Millings		LOGGED BY: E. McClanahan		START DATE: 10/01/21		END DATE: 10/01/21					
SURFACE ELEVATION:		RIG:		METHOD: SSA		SURFACING:		WEATHER:			

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock- USACE EM 1110-1-2908)	Sample	Blows (Blows/ft) Recovery	q _p tsf	MC %	%Pass No. 200	Atterberg Limits			Dry Unit Wt., pcf	Un. Com. Str. tsf	Tests or Remarks
								LL	PL	PI			
0.8		CONCRETE, 9 inches											
2.0		FILL: CLAYEY SAND (SC), gray and black		1-2-2 (4)									
		LEAN CLAY (CL), light gray and tan, stiff to very stiff		SH	1.50	28				92	1.46		
6.0			5	SH	1.75								
8.0		FAT CLAY (CH), gray and brown, stiff		SH	2.25	23		52	11	41	104	1.78	Drilling method switched to mud rotary at 6 feet
		LEAN CLAY (CL), tan and light gray, stiff		SH	2.50	25					100	1.3	
15.0			15	SH	2.50								
20.0		CLAYEY SAND (SC), with Silt layers and interspersing Lean Clay layers, tan and light gray, loose		SH	0.25	24	48	26	14	12			
		CLAYEY SAND (SC), with Silt layers, light gray and tan, medium dense		SH	0.50	24					106	0	UU = 1.77 tsf
30.0		SANDY LEAN CLAY (CL), light gray and tan, soft to medium		3-3-7 (10)									

Continued on next page

Water not observed while drilling.

See Descriptive Terminology sheet for explanation of abbreviations

Project Number B2109330 Geotechnical Evaluation New Bus Charging Station Port Arthur, Texas										BORING: B-2						
										LOCATION: See attached sketch						
										LATITUDE: 29.86949		LONGITUDE: -93.93551				
DRILLER: O. Millings			LOGGED BY: E. McClanahan			START DATE: 10/01/21		END DATE: 10/01/21								
SURFACE ELEVATION:			RIG:		METHOD: SSA		SURFACING:		WEATHER:							
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock- USACE EM 1110-1-2908)				Sample	Blows (Blows/ft) Recovery	q _p tsf	MC %	%Pass No. 200	Atterberg Limits			Dry Unit Wt. pcf	Un. Com. Str. tsf	Tests or Remarks
											LL	PL	PI			
35.0		SANDY LEAN CLAY (CL), light gray and tan, soft to medium					SH	0.50	23					105		UU = 1.10 tsf
40.0		LEAN CLAY (CL), gray, medium					3-4-4 (8)									
		END OF BORING														
		Boring immediately backfilled														

Project Number B2109330 Geotechnical Evaluation New Bus Charging Station Port Arthur, Texas							BORING: B-3					
							LOCATION: See attached sketch					
							LATITUDE: 29.86978			LONGITUDE: -93.93564		
DRILLER: O. Millings		LOGGED BY: E. McClanahan		START DATE: 10/01/21		END DATE: 10/01/21						
SURFACE ELEVATION:		RIG:		METHOD: SSA		SURFACING:		WEATHER:				

Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock- USACE EM 1110-1-2908)	Sample	Blows (Blows/ft) Recovery	q _p tsf	MC %	%Pass No. 200	Atterberg Limits			Dry Unit Wt., pcf	Un. Com. Str. tsf	Tests or Remarks
								LL	PL	PI			
0.8		CONCRETE, 9 inches											
2.0		FILL: CLAYEY SAND (SC), black and dark gray, loose to very soft											
4.0		LEAN CLAY (CL), tan and light gray, very stiff		SH	2.50	23		43	12	31			
5.0		LEAN CLAY (CL), gray and light brown, stiff	5	SH	2.00	24		70	12	58	100	1.64	
8.0		LEAN CLAY (CL), tan and light gray, stiff		SH	2.25								
10.0		LEAN CLAY (CL), tan and light gray, stiff	10	SH	1.75	24					100	1.4	Drilling method switched to mud rotary at 6 feet
15.0		SANDY LEAN CLAY (CL), with Silt pockets and layers, tan and light gray, stiff	15	SH	1.50	29					95	1.72	
20.0		SILTY SAND (SM), tan, loose	20	SH	0.50	21					103		UU = 1.03 tsf
25.0		CLAYEY SAND (SC), with Silt, tan and light gray, loose	25	SH	0.00		24				27		UU = 0.81 tsf
30.0		LEAN CLAY (CL), light gray and tan, stiff	30	SH	0.25	24					102		
Continued on next page													

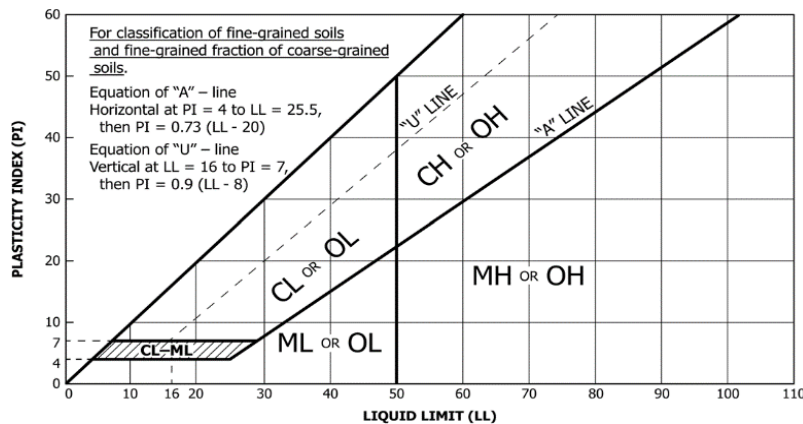
Water not observed while drilling.

Project Number B2109330 Geotechnical Evaluation New Bus Charging Station Port Arthur, Texas						BORING: B-3							
						LOCATION: See attached sketch							
						LATITUDE: 29.86978			LONGITUDE: -93.93564				
DRILLER: O. Millings		LOGGED BY: E. McClanahan		START DATE: 10/01/21		END DATE: 10/01/21							
SURFACE ELEVATION:		RIG:		METHOD: SSA		SURFACING:		WEATHER:					
Elev./ Depth ft	Water Level	Description of Materials (Soil-ASTM D2488 or 2487; Rock- USACE EM 1110-1-2908)	Sample	Blows (Blows/ft) Recovery	q _p tsf	MC %	%Pass No. 200	Atterberg Limits			Dry Unit Wt. pcf	Un. Com. Str. tsf	Tests or Remarks
								LL	PL	PI			
40.0		LEAN CLAY (CL), light gray and tan, stiff		SH	1.75								
				SH	1.50								
		END OF BORING											
		Boring immediately backfilled											

Water not observed while drilling.

Criteria for Assigning Group Symbols and Group Names Using Laboratory Tests ^A				Group Symbol	Soil Classification
					Group Name ^B
Coarse-grained Soils (more than 50% retained on No. 200 sieve)	Gravels (More than 50% of coarse fraction retained on No. 4 sieve)	Clean Gravels (Less than 5% fines ^C)	$C_u \geq 4$ and $1 \leq C_c \leq 3^D$	GW	Well-graded gravel ^E
			$C_u < 4$ and/or ($C_c < 1$ or $C_c > 3$) ^D	GP	Poorly graded gravel ^E
		Gravels with Fines (More than 12% fines ^C)	Fines classify as ML or MH	GM	Silty gravel ^{EFG}
			Fines Classify as CL or CH	GC	Clayey gravel ^{EFG}
	Sands (50% or more coarse fraction passes No. 4 sieve)	Clean Sands (Less than 5% fines ^H)	$C_u \geq 6$ and $1 \leq C_c \leq 3^D$	SW	Well-graded sand ^I
			$C_u < 6$ and/or ($C_c < 1$ or $C_c > 3$) ^D	SP	Poorly graded sand ^I
		Sands with Fines (More than 12% fines ^H)	Fines classify as ML or MH	SM	Silty sand ^{FGI}
			Fines classify as CL or CH	SC	Clayey sand ^{FGI}
Fine-grained Soils (50% or more passes the No. 200 sieve)	Silts and Clays (Liquid limit less than 50)	Inorganic	PI > 7 and plots on or above "A" line ^J	CL	Lean clay ^{KLM}
			PI < 4 or plots below "A" line ^J	ML	Silt ^{KLM}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OL	Organic clay ^{KLMN} Organic silt ^{KLMQ}
			PI plots on or above "A" line	CH	Fat clay ^{KLM}
	Silts and Clays (Liquid limit 50 or more)	Inorganic	PI plots below "A" line	MH	Elastic silt ^{KLM}
			Liquid Limit – oven dried Liquid Limit – not dried <0.75	OH	Organic clay ^{KLMP} Organic silt ^{KLMQ}
		Organic	Liquid Limit – oven dried Liquid Limit – not dried <0.75	OH	Organic clay ^{KLMP} Organic silt ^{KLMQ}
			Highly Organic Soils		Primarily organic matter, dark in color, and organic odor

- A. Based on the material passing the 3-inch (75-mm) 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. $C_u = D_{60} / D_{10}$ $C_c = (D_{30})^2 / (D_{10} \times D_{60})$
E. If soil contains $\geq 15\%$ 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. Sands 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 $\geq 15\%$ gravel, add "with gravel" to group name.
J. If Atterberg limits plot in hatched area, soil is 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 $\geq 30\%$ plus No. 200, predominantly sand, add "sandy" to group name.
M. If soil contains $\geq 30\%$ plus No. 200 predominantly gravel, add "gravelly" to group name.
N. $PI \geq 4$ 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.



DD Dry density, pcf
WD Wet density, pcf
P200 % Passing #200 sieve
MC Moisture content, %
OC Organic content, %

Laboratory Tests

q_p Pocket penetrometer strength, tsf
q_u Unconfined compression test, tsf
LL Liquid limit
PL Plastic limit
PI Plasticity index

Particle Size Identification

Boulders..... over 12"
Cobbles..... 3" to 12"
Gravel
Coarse..... 3/4" to 3" (19.00 mm to 75.00 mm)
Fine..... No. 4 to 3/4" (4.75 mm to 19.00 mm)
Sand
Coarse..... No. 10 to No. 4 (2.00 mm to 4.75 mm)
Medium..... No. 40 to No. 10 (0.425 mm to 2.00 mm)
Fine..... No. 200 to No. 40 (0.075 mm to 0.425 mm)
Silt..... No. 200 (0.075 mm) to .005 mm
Clay..... < .005 mm

Relative Proportions^{L M}

trace..... 0 to 5%
little..... 6 to 14%
with..... $\geq 15\%$

Inclusion Thicknesses

lens..... 0 to 1/8"
seam..... 1/8" to 1"
layer..... over 1"

Apparent Relative Density of Cohesionless Soils

Very loose 0 to 4 BPF
Loose 5 to 10 BPF
Medium dense..... 11 to 30 BPF
Dense..... 31 to 50 BPF
Very dense..... over 50 BPF

Consistency of Cohesive Soils

Very soft..... 0 to 1 BPF..... < 0.25 tsf
Soft..... 2 to 4 BPF..... 0.25 to 0.5 tsf
Medium..... 5 to 8 BPF..... 0.5 to 1 tsf
Stiff..... 9 to 15 BPF..... 1 to 2 tsf
Very Stiff..... 16 to 30 BPF..... 2 to 4 tsf
Hard..... over 30 BPF..... > 4 tsf

Moisture Content:

Dry: Absence of moisture, dusty, dry to the touch.
Moist: Damp but no visible water.
Wet: Visible free water, usually soil is below water table.

Drilling Notes:




Blows/N-value: Blows indicate the driving resistance recorded for each 6-inch interval. The reported N-value is the blows per foot recorded by summing the second and third interval in accordance with the Standard Penetration Test, ASTM D1586.

Partial Penetration: If the sampler could not be driven through a full 6-inch interval, the number of blows for that partial penetration is shown as #/x" (i.e. 50/2"). The N-value is reported as "REF" indicating refusal.









Recovery: Indicates the inches of sample recovered from the sampled interval. For a standard penetration test, full recovery is 18", and is 24" for a thinwall/shelby tube sample.

WOH: Indicates the sampler penetrated soil under weight of hammer and rods alone; driving not required.

WOR: Indicates the sampler penetrated soil under weight of rods alone; hammer weight and driving not required.

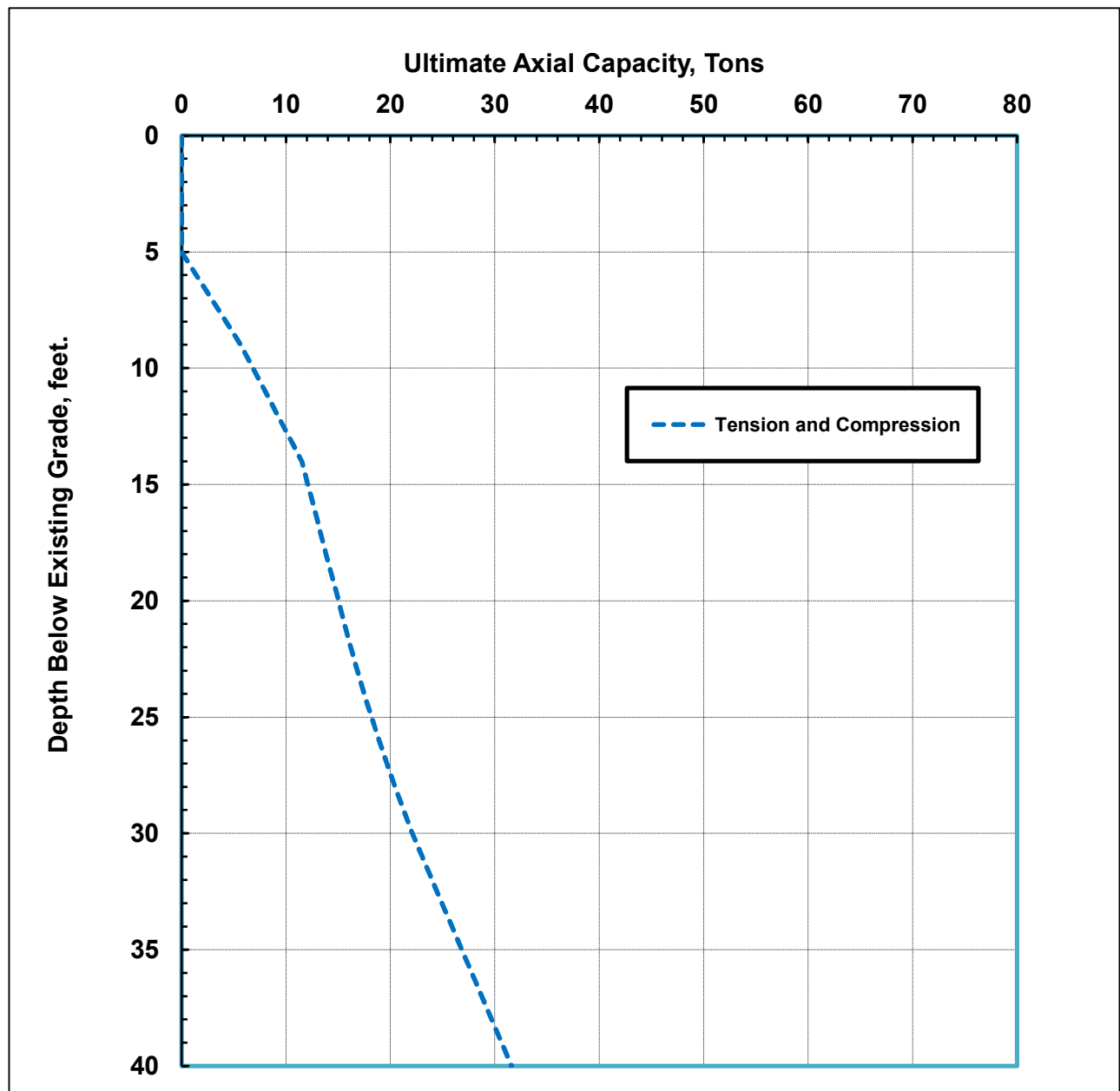
Water Level: Indicates the water level measured by the drillers either while drilling (, at the end of drilling (, or at some time after drilling ().

Sample Symbols

 Standard Penetration Test
 Modified California (MC)
 Auger
 Grab Sample
 Rock Core
 Thinwall (TW)/Shelby Tube (SH)
 Texas Cone Penetrometer
 Dynamic Cone Penetrometer

DRILLED SHAFT PILE CAPACITY (TONS)

ULTIMATE AXIAL CAPACITY IN TENSION AND COMPRESSION



Note: 1. See report Section C.6.b for discussions on safety factors associated with drilled shafts.
2. Adequate reinforcement should be provided in the shaft for tension load.

12-inch Diameter Cast In Place Drilled Shaft

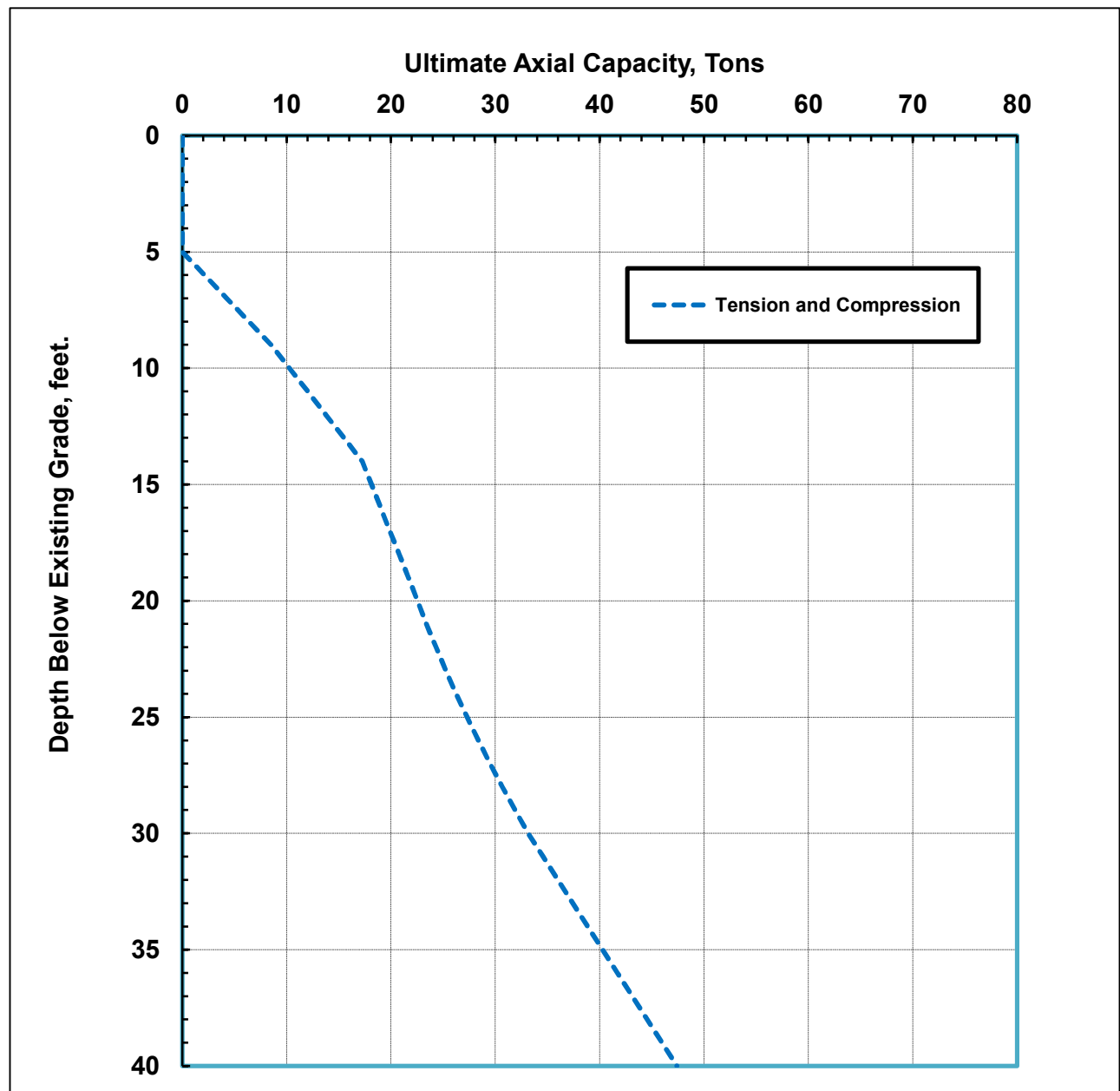
Port Arthur Transit Station

Port Arthur, Louisiana

Braun Project No. B2109330

DRILLED SHAFT PILE CAPACITY (TONS)

ULTIMATE AXIAL CAPACITY IN TENSION AND COMPRESSION



Note: 1. See report Section C.6.b for discussions on safety factors associated with drilled shafts.
2. Adequate reinforcement should be provided in the shaft for tension load.

18-inch Diameter Cast In Place Drilled Shaft

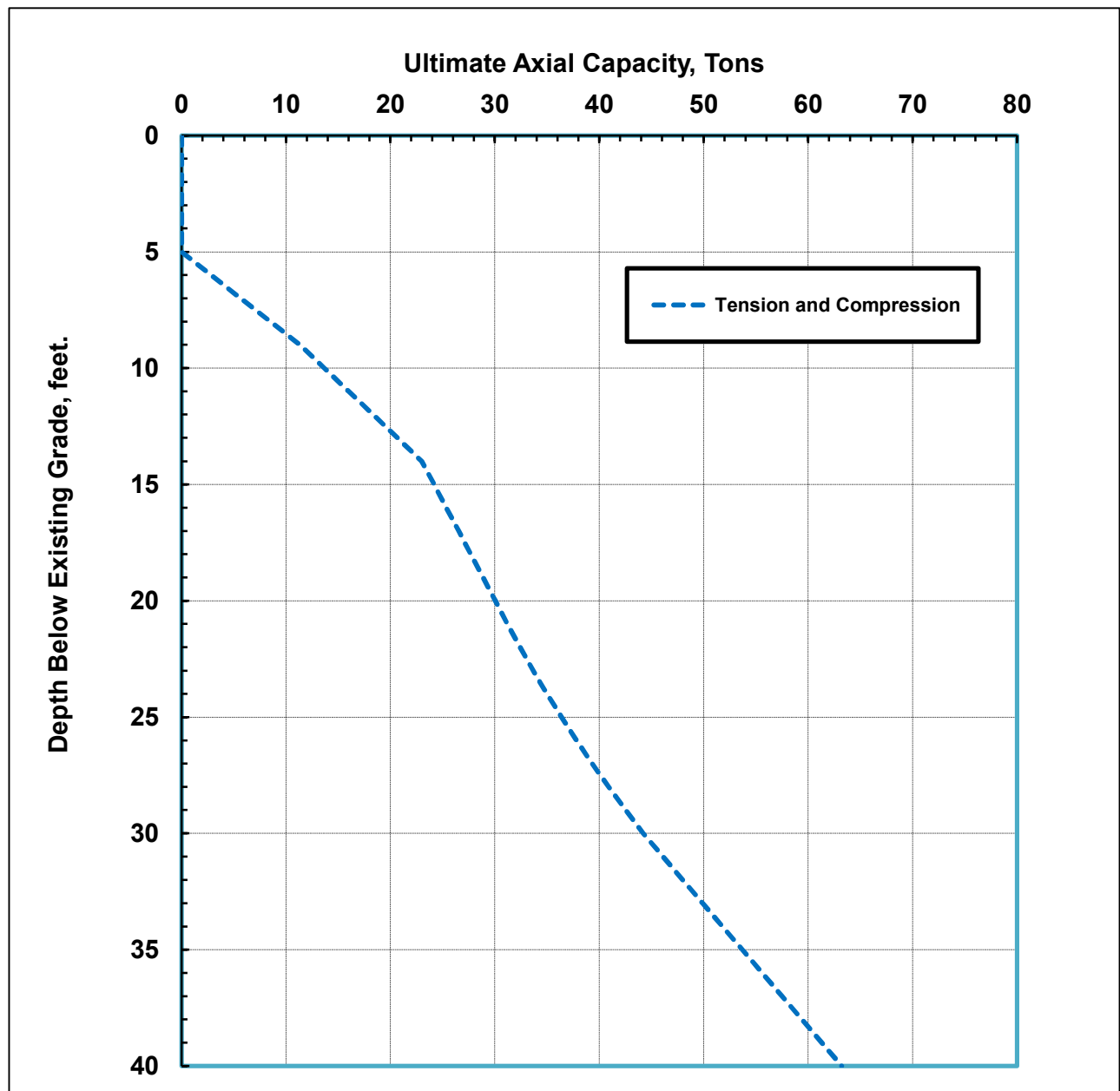
Port Arthur Transit Station

Port Arthur, Louisiana

Braun Project No. B2109330

DRILLED SHAFT PILE CAPACITY (TONS)

ULTIMATE AXIAL CAPACITY IN TENSION AND COMPRESSION



Note: 1. See report Section C.6.b for discussions on safety factors associated with drilled shafts.
2. Adequate reinforcement should be provided in the shaft for tension load.

24-inch Diameter Cast In Place Drilled Shaft

Port Arthur Transit Station

Port Arthur, Louisiana

Braun Project No. B2109330

ADDENDUM NO. 4

DATE: May 15, 2026

OWNER: City of Port Arthur, Texas

PROJECT: EV Bus Parking, Bus Canopies and Roadway Project

CITY OF PORT ARTHUR PROJECT NO.: P26-030

TSG PROJECT NO.: 2021-06-1087

SUBMITTAL DEADLINE: Sealed bids will be received until **3:00 p.m., Central Standard Time, on Wednesday, May 20, 2026**. All bids received will be publicly opened and read aloud at **3:15 p.m.** in the **City Council Chambers, City Hall, 5th Floor, Port Arthur, Texas**. Interested parties are invited to attend.

The additions, omissions, clarifications, and corrections contained herein shall become part of the Contract Documents, Plans, and Specifications for the **EV Bus Parking, Bus Canopies and Roadway Project**. **All Bidders shall acknowledge receipt of this Addendum in the appropriate location on the Bid Form and include the acknowledgment with their Bid Proposal.**

A. PLANS AND SPECIFICATIONS

1. Replace **Drawing Sheet 1 – Cover Sheet** with the revised Cover Sheet attached to this Addendum.
2. **Bid Schedule Clarification:** Bid Items 55 and 56 are for **rough-in only**. EV charging dispensers are **not included** in this project.
3. **Lighting Cut Sheet:** Attached for reference. Proposed fixtures shall match the existing lighting currently used in the Transit Maintenance Facility or approved equal.
4. **Traffic Control Plan:** Added to the Contract Drawings.

B. PRE-BID QUESTIONS AND RESPONSES

Question 1: Prevailing Wages Update?

Response: The current Jefferson County Prevailing Wage Rates are attached.

Question 2: Will the Pre-Bid Sign-In Sheet be provided?

Response: Yes. The Pre-Bid Meeting Sign-In Sheet is attached.

Question 3: Can you provide the geotechnical report?

Response: Yes. The Braun Intertec Geotechnical Evaluation Report dated October 29, 2021, is attached.

Question 4: Is any select fill or subgrade work required under the building foundation?

Response: Yes. Refer to the attached geotechnical report. The report recommends removal of the upper approximately two (2) feet of existing fill until firm, undisturbed clay soils are encountered. Any soft, wet, weak, organic, or otherwise unsuitable materials shall be removed and replaced with select structural fill meeting the report requirements.

Question 5: The Bid Schedule shown on Plan Sheet 3 does not correspond with the quantities in the Bid Form. Can you update the quantities?

Response: Refer to the revised **Project Bid Schedule** attached to this Addendum. The attached schedule supersedes the Bid Schedule shown on Plan Sheet 3 and shall govern for bidding purposes.

Question 6: Will the Engineer handle IBC special inspections?

Response: No. Refer to Structural Drawing Sheet **S1.04 – Statement of Special Inspections** (Sheet 40 of 59). The General Contractor shall coordinate and include in its Bid all costs associated with required International Building Code (IBC) special inspections and testing unless otherwise specifically stated in the Contract Documents.

Question 7: Is the City paying for materials testing?

Response: No. The Contractor shall provide and pay for all materials testing necessary to demonstrate compliance with the Contract Documents. The City may, at its sole discretion, retain an independent third-party testing firm for its own quality assurance and quality control purposes; however, such testing does not relieve the Contractor of its responsibilities.

C. ATTACHMENTS

1. Revised Cover Sheet (Drawing Sheet 1)
2. Revised Project Bid Schedule
3. Jefferson County Prevailing Wage Rates
4. Pre-Bid Meeting Sign-In Sheet
5. Braun Intertec Geotechnical Evaluation Report (October 29, 2021)
6. Lighting Cut Sheet
7. Traffic Control Plan

Addendum Prepared By:



Kelvin L. Solco, P.E., MBA
Principal Project Manager

BID SCHEDULE FORM INSTRUCTIONS

DATE: May 14, 2026

OWNER: City of Port Arthur

PROJECT: EV Bus Parking, Bus Canopies and Roadway Project

City of Port Arthur Project No.: P26-030

TSG Project No.: 2021-06-1087

TO: All Prospective Bidders

SUBJECT: Instructions for completing the Bid Schedule Form

The Bid Schedule (also referred to as the Bid Form or Schedule of Prices) is the official pricing form to be used in preparing your proposal. All bidders must complete the Bid Schedule in its entirety and submit it as part of their sealed bid package.

The purpose of the Bid Schedule is to ensure that all bidders provide pricing on a consistent basis so that the city may fairly compare proposals and determine the lowest responsive and responsible bidder. Upon award, the completed Bid Schedule will become a part of the Contract and will serve as the basis for progress payments, change orders, and final accounting.

Please follow the instructions below when completing the Bid Schedule:

1. Enter the full legal name of the bidding entity and all requested company information.
2. Provide pricing for every bid item listed. Do not leave any item blank unless specifically instructed otherwise.
3. For each item, enter the Unit Price and the corresponding Total Price (Extended Amount), where applicable.
4. Unit prices and lump sum amounts shall include all labor, materials, equipment, tools, supervision, overhead, profit, insurance, taxes, permits, transportation, mobilization, testing, and all incidental costs necessary to complete the work.
5. Estimated quantities are provided for bid comparison purposes only unless otherwise stated in the Contract Documents.

6. Payments during construction will generally be based on actual quantities of work completed and accepted by the City of Port Arthur.
7. In the event of an arithmetic discrepancy, the Unit Price will govern, and the Total Price will be corrected accordingly.
8. Complete all additive or deductive alternates, if included.
9. Acknowledge receipt of all issued addenda in the space provided.
10. Attach all required supporting documents, including bid security and certifications, as specified in the solicitation.
11. Bidders are responsible for reviewing the drawings, specifications, and all addenda to ensure that their pricing includes the complete scope of work.
12. If any discrepancy is noted between planning tables shown on the drawings and the official Bid Schedule, the Bid Schedule shall govern for bidding purposes, unless modified by formal addendum.
13. Careful and complete preparation of the Bid Schedule is essential. Failure to provide pricing for all required items or failure to properly execute the form may result in the bid being deemed non-responsive.
14. Forward all questions, requests for clarification, and substitution requests to the City of Port Arthur Purchasing Department prior to the bid closing date and time. Questions submitted after the deadline established by the City may not be answered.

Prepared By:



Kelvin L. Solco, PE
Principal Project Manager

PORT ARTHUR TRANSIT PARKING LOT
EV BUS PARKING CANOPY AND DRIVEWAY PROJECT
342 DALLAS AVE, PORT ARTHUR, TX 77640



CITY OF PORT ARTHUR, TEXAS

CITY OF PORT ARTHUR PN: 21-287
THE SOLCO GROUP PN: 2021-06-1087
MARCH 2026

100% DESIGN



LOCATION MAP

N.T.S.



CITY OFFICIALS

MAYOR: CHARLOTTE M. MOSES
 DISTRICT 1: WILLIE LEWIS, JR.
 DISTRICT 2: TIFFANY L. HAMILTON EVERFIELD
 DISTRICT 3: DONEANE BECKOM
 DISTRICT 4: HAROLD DOUCET, SR. - MAYOR PRO TEM
 THOMAS KINLAW III
 POSITION 5 - AT LARGE: DONALD FRANK, SR.
 POSITION 6 - AT LARGE:

CITY OF PORT ARTHUR APPROVAL

BY: Sudhail Kumar
DIRECTOR OF ENGINEERING

CITY OF PORT ARTHUR APPROVAL

BY: _____
DIRECTOR OF TRANSIT

DWG NO.		SHEET NO.	SHEET INDEX	SHEET TITLE
CIVIL PLANS				
G0.01	1	COVER SHEET AND SHEET INDEX		
G0.02	2	GENERAL NOTES		
G0.03	3	BID SCHEDULE		
C1.01	4	SURVEY PLANS		
C2.01	5	DEMOLITION PLAN		
C3.01	6	PAVING PLAN		
C3.01A	7	1-LINE DETAIL WATER SERVICE TO EXT. HOSE BIB		
C3.02	8	LOT AND DRIVEWAY TYPICAL SECTION		
C3.03	9	CONCRETE PAVING DETAILS		
C3.04	10	CONCRETE PAVING DETAILS		
CCC-22	11	CONCRETE CURB AND CUR AND GUTTER		
MCPSSMD-19	12	MISCELLANEOUS CURB, PATH, SIDEWALK & MEDIAN DETAILS		
JS-14	13	CONCRETE PAVING DETAILS JOINT SEALS		
C4.01	14	GRADING DRAINAGE AND EROSION CONTROL PLAN		
C4.02	15	DRAINAGE SUMMARY		
C4.03	16	DRAINAGE DETAILS		
C5.01	17	STORM WATER POLLUTION PREVENTION PLAN		
EC (1)-16	18	SWPPP – FENCE & VERTICAL TRACKING		
EC (9)-16	19	SWPPP – EROSION CONTROL LOG		
BC (1)-21	20	BARRICADE & CONSTRUCTION GENERAL NOTES & REQUIREMENTS		
BC (8)-21	21	BARRICADE AND CONSTRUCTION CHANNELING DEVICES		
BC (10)-21	22	BARRICADE AND CONSTRUCTION CHANNELING DEVICES		
C6.01	23	FENCING DETAILS		
ARCHITECTURAL PLANS				
G1.01	24	LIFE SAFETY INFORMATION		
A0.01	25	GENERAL ARCHITECTURAL INFORMATION		
AS1.01	26	ARCHITECTURAL SITE PLAN		
A1.01	27	FLOOR PLAN		
A1.02	28	ROOF PLAN		
A2.01	29	EXTERIOR ELEVATIONS		
A3.01	30	BUILDING SECTION		
A3.02	31	WALL SECTIONS		
A3.03	32	WALL SECTIONS		
A5.01	33	ENLARGED WALL DETAILS		
A7.01	34	REFLECTED CEILING PLAN		
A9.01	35	3D PERSPECTIVE		
STRUCTURAL PLANS				
S0.01	36	STRUCTURAL ABBREVIATIONS		
S1.01	37	GENERAL NOTES		
S1.02	38	GENERAL NOTES		
S1.03	39	GENERAL NOTES		
S1.04	40	SPECIAL INSPECTIONS		
S1.05	41	SPECIAL INSPECTIONS		
S2.01	42	PLANS		
S3.01	43	TYPICAL DETAILS – FOUNDATION		
S3.02	44	TYPICAL DETAILS – STEEL FRAMING		
S4.01	45	TYPICAL DETAILS – CONCRETE TILT WALLS		
S4.02	46	TILT PANEL ELEVATIONS		
S4.03	47	TILT PANEL ELEVATIONS		
S5.01	48	FOUNDATION DETAILS		
S6.01	49	FRAMING DETAILS		
ELECTRICAL PLANS				
E0.01	50	ELECTRICAL LEGEND AND ABBREVIATIONS		
E1.01	51	ELECTRICAL SITE PLAN		
E2.01	52	BUS CANOPY LIGHTING PLAN		
E2.02	53	BUS CANOPY POWER PLAN		
E3.01	54	ENLARGED POWER PLAN		
E4.01	55	ELECTRICAL ONE-LINE DIAGRAM		
E5.01	56	ELECTRICAL HANDHOLE & DUCT BANK DETAILS		
E5.02	57	POWER EQUIPMENT RACK DETAILS		
E5.03	58	UTILITY TRANSFORMER PAD LAYOUT		
C-100	59	FIBER CONDUIT DETAIL RUN		



TBPE FIRM #22626

NO	DATE	REVISION



DATE: MAR 2026

PROJECT TITLE:

PORT ARTHUR TRANSIT
PARKING LOT

DRAWING TITLE:

COVER PAGE

DRAWING NUMBER:

SHEET NUMBER: SHEET TOTAL:

SCALE: N.T.

DRAWN BY:	SK	CHECKED BY:	KS
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Industrial Low Profile Canopy

PROJECT INFORMATION

JOB NAME	
FIXTURE TYPE	Industrial Low Profile Canopy
CATALOG NUMBER	ILCS
APPROVED BY	

SPECIFICATIONS

Construction:

Designed for commercial and industrial applications, providing cooler operating temperatures, brighter light and longer LED life. Apertures for continuous wiring. Housing is hinged for quick and easy mounting and entrance.

Lens:

Injection molded polycarbonate lens for high impact resistance. Lens is frosted to minimize glare.

Electrical:

AC Input: 120-277V 50-60Hz

0-10 V Dimming

Off-State Power: 0 Watts

Temperatures: Min Start: -40°C Max: 45°C

LEDs:

Atlas LEDs provide higher lumen output, greater energy efficiency and more reliable fixture performance.

100,000+ hrs.¹ lifespan

Selectable with 3000K, 4000K and 5000K CCTs.

80 CRI minimum

Listings:

Luminaire is certified to UL/cUL Standards for Wet Locations

DesignLights Consortium qualified luminaire, eligible for rebates from DLC member utilities. *See chart on other next page for qualifying products.*

IP65 Rated

Testing:

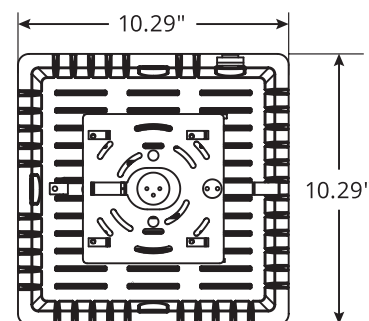
Atlas LED luminaires have been tested by an independent laboratory in accordance with IESNA LM-79 & LM-80.

Warranty: Five-year limited warranty



DIMENSIONS

Weight: 6.4 lbs.



¹Lumen maintenance values at 25°C are calculated per TM-21 based on LM-80 data and in-situ luminaire testing

Rebates and Incentives are available in many areas. Contact an Atlas Representative for more information.



Industrial Low Profile Canopy





ORDERING INFORMATION

ILC	S	5-9L				
PRODUCT SERIES	SELECTABILITY	LUMEN PACKAGE	COLOR TEMP.	CONTROLS	VOLTAGE	FIXTURE COLOR
ILC = Industrial Low Profile Canopy	S = Selectable	5-9L = 5,000 - 9,000 Lumens	blank = Selectable (3000K, 4000K, 5000K)	Blank = Dimming (0-10V)	Blank = 120-277V	Blank = Bronze

PERFORMANCE DATA

LUMEN PACKAGE	CRI	3000K CCT		4000K CCT		5000K CCT		WATTAGE
		DELIVERED LUMENS	EFFICACY (LPW)	DELIVERED LUMENS	EFFICACY (LPW)	DELIVERED LUMENS	EFFICACY (LPW)	
5-9L	80	5,095	155	5,356	167	5,208	159	33
		6,373	153	6,699	164	6,514	157	41
		9,027	145	9,489	157	9,227	148	62

ACCESSORY ORDERING INFORMATION

		PART NUMBER	DESCRIPTION	STD. PKG.
		891660	Quick Connect Microwave Sensor	1
		891661	Microwave Sensor Remote Programmer*	1

* One remote can program multiple sensor

IP RATING

	DESCRIPTION	DEFINITION
6	Dust-tight	No ingress of dust
5	Protects against water jets	Water projected from a nozzle against the enclosure from any direction shall have no harmful effect

DLC PRODUCT INFORMATION

LUMEN PACKAGE	DLC PRODUCT ID	CLASSIFICATION
ILCS5-9L	S-XHFNRP	Premium

"General Decision Number: TX20250256 08/08/2025

Superseded General Decision Number: TX20240256

State: Texas

Construction Type: Building

County: Jefferson County in Texas.

BUILDING CONSTRUCTION PROJECTS (does not include single family homes or apartments up to and including 4 stories).

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022: The contractor must pay all covered workers at least \$17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.

_____	_____	
If the contract was awarded on	. Executive Order 13658	
or between January 1, 2015 and	generally applies to the	
January 29, 2022, and the	contract.	
contract is not renewed or	. The contractor must pay all	
extended on or after January	covered workers at least	
30, 2022:	\$13.30 per hour (or the	
	applicable wage rate listed	
	on this wage determination,	
	if it is higher) for all	
	hours spent performing on	
	that contract in 2025.	
_____	_____	

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at <http://www.dol.gov/whd/govcontracts>.

Modification Number	Publication Date
0	01/03/2025
1	03/07/2025
2	03/14/2025
3	03/21/2025
4	05/16/2025
5	08/08/2025

ASBE0022-009 07/01/2024

	Rates	Fringes
ASBESTOS WORKER/HEAT & FROST INSULATOR (Duct, Pipe and Mechanical System Insulation)....	\$ 30.20	12.38

BOIL0074-003 01/01/2025

	Rates	Fringes
BOILERMAKER.....	\$ 33.17	24.92

* BRTX0005-006 06/01/2025

	Rates	Fringes
BRICKLAYER.....	\$ 25.50	8.12

ELEC0479-005 09/30/2024

	Rates	Fringes
ELECTRICIAN.....	\$ 33.76	13.56

ENGI0450-002 04/01/2024

	Rates	Fringes
POWER EQUIPMENT OPERATOR Cranes.....	\$ 39.47	10.39

IRON0084-011 06/01/2024

	Rates	Fringes
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IRONWORKER, ORNAMENTAL.....	\$ 28.26	8.13
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IRON0135-002 09/01/2022

Rates	Fringes
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IRONWORKER, STRUCTURAL.....	\$ 34.35	14.44
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PLUM0068-001 10/01/2024

Rates	Fringes
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PLUMBER.....	\$ 35.96	11.68
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PLUM0211-009 10/01/2024

Rates	Fringes
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PIPEFITTER.....	\$ 41.14	11.86
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SHEE0054-007 04/01/2020

Rates	Fringes
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SHEET METAL WORKER (Excludes HVAC Duct Installation).....	\$ 28.69	14.13
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* SUTX2014-032 07/21/2014

Rates	Fringes
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CARPENTER.....	\$ 17.98	3.72
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CEMENT MASON/CONCRETE FINISHER...	\$ 13.44 **	0.00
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FORM WORKER.....	\$ 13.02 **	0.00
IRONWORKER, REINFORCING.....	\$ 12.95 **	0.00
LABORER: Common or General.....	\$ 12.04 **	0.00
LABORER: Mason Tender - Brick...	\$ 12.90 **	0.00
LABORER: Mason Tender - Cement/Concrete.....	\$ 10.50 **	0.00
LABORER: Pipelayer.....	\$ 13.47 **	0.00
LABORER: Roof Tearoff.....	\$ 11.28 **	0.00
LABORER: Landscape and Irrigation.....	\$ 11.04 **	0.36
OPERATOR: Backhoe/Excavator/Trackhoe.....	\$ 18.65	0.00
OPERATOR: Bobcat/Skid Steer/Skid Loader.....	\$ 13.93 **	0.00
OPERATOR: Bulldozer.....	\$ 18.88	0.00
OPERATOR: Drill.....	\$ 16.22 **	0.34
OPERATOR: Forklift.....	\$ 17.69 **	0.00
OPERATOR: Grader/Blade.....	\$ 13.37 **	0.00
OPERATOR: Loader.....	\$ 13.55 **	0.94

OPERATOR: Mechanic.....	\$ 17.52 **	3.33
OPERATOR: Paver (Asphalt, Aggregate, and Concrete).....	\$ 16.03 **	0.00
OPERATOR: Roller.....	\$ 16.00 **	0.00
PAINTER (Brush, Roller, and Spray).....	\$ 16.75 **	4.51
ROOFER.....	\$ 15.40 **	0.00
SHEET METAL WORKER (HVAC Duct Installation Only).....	\$ 26.89	10.38
TILE FINISHER.....	\$ 12.00 **	0.00
TILE SETTER.....	\$ 16.17 **	0.00
TRUCK DRIVER: Dump Truck.....	\$ 12.39 **	1.18
TRUCK DRIVER: Flatbed Truck.....	\$ 19.65	8.57
TRUCK DRIVER: Semi-Trailer Truck.....	\$ 12.50 **	0.00
TRUCK DRIVER: Water Truck.....	\$ 12.00 **	4.11

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$17.75) or 13658 (\$13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates. EXAMPLE:

UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h). Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

- a) a survey underlying a wage determination
- b) an existing published wage determination
- c) an initial WHD letter setting forth a position on a wage determination matter
- d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor

200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
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U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION"

"General Decision Number: TX20260053 01/02/2026

Superseded General Decision Number: TX20250053

State: Texas

Construction Type: Heavy

Counties: Hardin, Jefferson and Orange Counties in Texas.

HEAVY CONSTRUCTION PROJECTS (Including Water and Sewer Lines
and Excluding Industrial and Processing Plants, and Refineries)

Modification Number Publication Date

0 01/02/2026

ELEC0479-003 09/30/2024

	Rates	Fringes
ELECTRICIAN.....	\$ 33.76	13.56

SUTX2000-002 02/11/2000		

	Rates	Fringes
Carpenters:		
Form Building/Form Setting..	\$ 13.15	
All Other Work.....	\$ 13.56	
Concrete Finisher.....	\$ 13.50	

Laborers:

Common.....\$ 7.41
Pipelayer.....\$ 8.29

Painters:

Spray and Brush.....\$ 12.07

PILEDRIVERMAN.....\$ 13.65

PLUMBER.....\$ 18.28 4.69

Power equipment operators:

Backhoe.....\$ 15.55 1.89
Bulldozer.....\$ 15.00
Crane.....\$ 13.77
Front End Loader.....\$ 10.63
Trackhoe.....\$ 15.60

Truck drivers:

Dump.....\$ 10.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at <https://www.dol.gov/agencies/whd/government-contracts>.

Note: Executive Order 13658 generally applies to contracts subject to the Davis-Bacon Act that were awarded on or between January 1, 2015 and January 29, 2022, and that have not been renewed or extended on or after January 30, 2022. Executive Order 13658 does not apply to contracts subject only to the Davis-Bacon Related Acts regardless of when they were awarded. If a contract is subject to Executive Order 13658, the contractor must pay all covered workers at least \$13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025. The applicable Executive Order minimum wage rate will be adjusted annually. Additional information on contractor requirements and worker protections under Executive Order 13658 is available at www.dol.gov/whd/govcontracts.

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Administrative Review Board
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210.

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END OF GENERAL DECISION

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SIGN-IN SHEET FOR PRE-BID MEETING

Construction Of EV Bus Parking, Bus Canopies and Roadway

April 23, 2026 @ 10 A.M.

PLEASE PRINT CLEARLY

13) Name: <u>McCLAIN McDonald</u>	Phone: <u>409-796-1340</u>
Address: <u>11988 FM 365</u>	Fax: <u>409-796-1341</u>
City/State/Zip: <u>BMT, TX, 77705</u>	Cell: <u>830-486-8380</u>
Company: <u>LIL GENERAL CONTRACTORS</u>	Email: <u>landline@att.net</u>
14) Name: <u>Tom Cockrell</u>	Phone: <u>409-223-1420</u>
Address: <u>6710 Easter Fryway</u>	Fax: <u>409-223-1420</u>
City/State/Zip: <u>Beaumont, Texas, 77708</u>	Cell: <u>409-338-1174</u>
Company: <u>DRC-Construction LLC</u>	Email: <u>Tom@DRC-construction.com</u>
15) Name: <u>APEX ALLIANCE / CESAR CHAVEZ</u>	Phone: <u>(409) 853-1120</u>
Address: <u>3171 SUMMIT DR.</u>	Fax:
City/State/Zip: <u>GROVES TX</u>	Cell:
Company: <u>APEX ALLIANCE</u>	Email: <u>estimating@apexalliancegroup.com</u>
16) Name: <u>Suhail Kanwar</u>	Phone: <u>701-770-6000</u>
Address: <u>City Hall</u>	Fax:
City/State/Zip:	Cell:
Company: <u>COPA</u>	Email: <u>suhail.kanwar@portlandtx.gov</u>
17) Name: <u>Kelvin Solco^{FE} Almira Martin</u>	Phone:
Address:	Fax: <u>409-237-0700 FAX</u>
City/State/Zip:	Cell: <u>Kelvin - 409 237 0200</u> <u>Almira - 409 539 6266</u>
Company: <u>The Solco Group</u>	Email:
18) Name:	Phone:
Address:	Fax:
City/State/Zip:	Cell:
Company:	Email:

SIGN-IN SHEET FOR PRE-BID MEETING

Construction Of EV Bus Parking, Bus Canopies and Roadway

April 23, 2026 @ 10 A.M.

PLEASE PRINT CLEARLY

7) Name: RUSSEL A BOURGEOIS	Phone: 409-748-0054
Address: 1701 PN AVE	Fax:
City/State/Zip: P.N. TX 1	Cell: SAME
Company: MIKE BARNETT CONST.	Email: rbourgeoismbc@gmail.com
8) Name: IAN GARRETT	Phone: 409 883.5465
Address: 3260 EAST EXHAWAY	Fax:
City/State/Zip: Beaumont, TX, 77702	Cell:
Company: G+G ENTERPRISES	Email: I.GARRETT@GANDGENTERPRISES.COM
9) Name: Juan Hernandez	Phone: 409-828-2205
Address: 5520 Gorman Rd.	Fax:
City/State/Zip: Beaumont, Tx 77705	Cell:
Company: Construction Managers of SE TX	Email: jhernandez@civdiv.com
10) Name: Joaquin Rodriguez	Phone: 409 983 0305
Address:	Fax:
City/State/Zip: PN. TX	Cell:
Company: Mike Barnett Const	Email: je-construction@outlook.com
11) Name: MARCUS CATO	Phone: 409-724-0304
Address: 2920 N TWIN CITY HWY	Fax:
City/State/Zip: NEDERLAND TX 77627	Cell: 409-350-1945
Company: ABSOLUTE ROOFING + FENCING	Email: marcus@shabsolute.com
12) Name: Ernest Dugas	Phone:
Address:	Fax:
City/State/Zip:	Cell:
Company: PAT Transit Maintenance	Email:

SIGN-IN SHEET FOR PRE-BID MEETING

Construction Of EV Bus Parking, Bus Canopies and Roadway

April 23, 2026 @ 10 A.M.

PLEASE PRINT CLEARLY

1) Name: Brent Sauls	Phone:
Address: 920 N. Garden Tex. 77705	Fax:
City/State/Zip: Beaumont, TX. 77705	Cell:
Company: Elite Contractors	Email:
2) Name: Efosa Egbuomwan	Phone:
Address:	Fax:
City/State/Zip: Port Arthur, TX, 77640	Cell:
Company: COPA	Email: Efosa.Egbuomwan@PortArthurTX.gov
3) Name: Chris Watts	Phone: 409-718-3911
Address: 235 E Courtland ST	Fax:
City/State/Zip: Vidor TX	Cell:
Company: RNR Constructors	Email: Chris.Watts950@aol.com
4) Name: Clay Jenkins	Phone: (409)-201-8873
Address: 1356 S. Major Dr	Fax:
City/State/Zip: Beaumont TX, 77707	Cell:
Company: Triangle Civil Services	Email: clay@tcsinc.build
5) Name: Daniel Dotson	Phone: 409-832-7232
Address: 1405 Cornerstone CT	Fax:
City/State/Zip: Beaumont TX 77706 77706	Cell: 409-988-1511
Company: Fittz & Shipman, Inc	Email: ddotson@fittzshipman.com
6) Name: Craty Nellison	Phone: 409-783828
Address: 344 Proctor St.	Fax:
City/State/Zip: Port Arthur	Cell:
Company: Transit	Email:

ADD-ALTERNATE NO. 1

DATE: May 10, 2026

BID NUMBER: P26-030

ALTERNATE: ADD AN ARCHITECTURALLY INTEGRATED SOLAR PHOTOVOLTAIC (PV) ROOF SYSTEM

PROJECT BID TITLE: CONSTRUCTION OF EV BUS PARKING, BUS CANOPIES AND ROADWAY

Description:

Provide all labor, materials, equipment, engineering, structural coordination, electrical coordination, utility coordination, testing, commissioning, and incidentals necessary to furnish and install a complete and operational architecturally integrated solar photovoltaic (PV) roof system for the new Transit Maintenance Facility EV bus canopy and associated roof areas, as shown on the Drawings and as specified herein.

Intent:

The purpose of this Add-Alternate is to obtain competitive pricing for a roof-mounted solar photovoltaic system that is architecturally integrated into, or directly attached to, the standing seam metal roof system and designed to generate renewable electrical energy while preserving the appearance, performance, and weather-tight integrity of the roof assembly.

The photovoltaic system, roof panels, and all attachments **shall be designed by a licensed Professional Engineer registered in the State of Texas** to resist all applicable wind loads in accordance with the governing building code for the city of Port Arthur, Texas, including all required structural reinforcements.

Performance-Based Requirements:

1. The specification is strictly performance-based and non-proprietary. Any manufacturer's system may be provided, provided it satisfies all requirements of the Contract Documents.
2. The roof system shall consist of a standing seam metal roof compatible with an architecturally integrated photovoltaic system.
3. The photovoltaic system may be factory-integrated into the roof panels or directly attached to the standing seams using non-penetrating or minimally penetrating methods acceptable to the roof manufacturer.

4. The proposed system shall maintain the roof manufacturer's weather-tightness warranty.
5. The photovoltaic system shall provide a minimum installed DC generating capacity of 60 kW. Bidders may propose a larger system if compatible with the available roof area and structural capacity.
6. The system shall include all photovoltaic modules, mounting components, wiring, connectors, combiner boxes, inverters, disconnects, monitoring equipment, structural supports, and all other appurtenances necessary for a complete and operational installation.
7. The system shall be designed for utility interconnection and net-metering compatibility, subject to the requirements of the serving electric utility.
8. The system shall comply with all applicable building codes, electrical codes, fire codes, utility interconnection requirements, and manufacturer recommendations.
9. The roofing and photovoltaic components shall be designed to withstand the applicable wind loads, corrosion exposure, and environmental conditions for Port Arthur, Texas.
10. The system shall include manufacturer warranties for both the roofing and photovoltaic components.

Contractor Responsibilities:

The Contractor shall be fully responsible for all design coordination, structural analysis, electrical design coordination, utility coordination, permitting, testing, startup, and commissioning required to furnish a complete and operational photovoltaic system. The Contractor shall also provide all supplemental framing, conduit, wiring pathways, electrical equipment, and interconnections necessary to integrate the system with the building electrical service.

Submittal Requirements:

The Contractor shall submit product data, shop drawings, structural calculations (if required), electrical one-line diagrams, estimated system capacity, anticipated annual energy production, warranty information, and manufacturer certifications demonstrating compliance with these requirements. All submittals shall be transmitted to the City Engineering Department and the Project Design Team (including the Project Architect and Engineers) and shall allow sufficient time for review, comments, and approval prior to procurement, fabrication, or installation of the proposed system.

Bid Proposal:

Bidders shall provide a separate lump-sum price for Add-Alternate No. 1. The Owner reserves the right to accept or reject this Add-Alternate in whole based on available funding, lifecycle cost considerations, and evaluation of anticipated energy savings.

Measurement and Payment:

Payment for Add-Alternate No. 1 shall be on a lump-sum basis and shall constitute full compensation for all labor, materials, equipment, engineering coordination, structural modifications, electrical interconnection, testing, commissioning, and all incidentals necessary to furnish a complete and operational architecturally integrated solar photovoltaic roof system.

Item No.	Description	Unit	Quantity	Lump Sum Amount
AA-1	Architecturally Integrated Solar Photovoltaic (PV) Roof System, including all labor, materials, equipment, engineering coordination, structural modifications, electrical interconnection, testing, commissioning, and all incidentals necessary to furnish a complete and operational system	LS	1	\$ _____

Additional Information to Be Provided by Bidder:

Description	Bidder Response
Proposed Manufacturer	_____
Proposed Product / System Name	_____
Estimated Installed DC Capacity (kW)	_____
Estimated Annual Energy Production (kWh/year)	_____
Roof Weather-Tightness Warranty (Years)	_____

PV Module Warranty (Years)

Inverter Warranty (Years)

Estimated Lead Time (Calendar Days)

Serving Utility Interconnection Assumptions:

Exceptions or Clarifications:

Notes:

1. The Owner reserves the right to accept or reject Add-Alternate No. 1 in whole based on available funding, lifecycle cost considerations, and evaluation of anticipated energy savings.
2. This Add-Alternate is included for pricing comparison and feasibility evaluation purposes only.
3. If the Add-Alternate is not accepted, the Contractor shall provide the base-bid roofing system as otherwise specified in the Contract Documents.
4. The Contractor shall be responsible for obtaining all required approvals and coordinating with the serving utility regarding interconnection requirements.