

Bidding Requirements, Contract Forms and Conditions of the Contract
ADDENDUM
Section 00900

ADDENDUM No. 3

Date May 16, 2013

City of Austin

Project Name: Annual Traffic Signal Installation/Modification 2013

C.I.P. No. 5828.010

This Addendum forms a part of Contract and clarifies, corrects or modifies original Bid Documents, dated April 22, 2013 . Acknowledge receipt of this addendum in space provided on bid form. Failure to do so may subject bidder to disqualification.

Project Manual Revisions:

1. Replace Section 00300U in its entirety with the attached Section 00300U.
2. Replace Special Specification SS1005 in its entirety with the attached SS1005.

This addendum consists of 24 page(s)/sheet(s).

Approved by OWNER

Brian W. Craig

Approved by ENGINEER/ARCHITECT

END



Bidding Requirements, Contract Forms and Conditions of the Contract
UNIT PRICE BID FORM
Section 00300U

The undersigned, in compliance with the Invitation for Bids for construction of the following Project: **Annual Traffic Signal Installation/ Modification 2013**

(CIP ID# 5828.010) (IFB# 6100 CLMC424) for the City of Austin, Texas, having examined the Project Manual, Drawings and Addenda, the site of the proposed Work and being familiar with all of the conditions surrounding construction of the proposed Project, having conducted all inquiries, tests and investigations deemed necessary and proper; hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment, and incidentals, and to perform all Work required for construction of the Project in accordance with the Project Manual, Drawings and Addenda within the time indicated for the following prices of:

Note: The Bidder will enter the line item subtotal in the "Amount" column below, which is the product of the estimated "Quantity" multiplied by the "Unit Price". Any mathematical errors will be corrected for the purpose of determining the correct Amount to be entered in the Bid Form. The Amounts, including any corrected Amounts, will then be totaled to determine the actual amount of the Bid.

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
104S-A	50	LF	Remove Portland Cement Concrete Curb	\$_____	\$_____
104S-C	50	SF	Remove Portland Cement Concrete Sidewalks and Driveways	\$_____	\$_____
110S-A	50	CY	Street Excavation	\$_____	\$_____
111S-A	50	CY	Excavation	\$_____	\$_____
315S-A	50	SY	Surface Milling	\$_____	\$_____
315S-D	50	SY	Edge Milling	\$_____	\$_____
340S-B	50	SY	Hot Mix Asphaltic Concrete Pavement, 3 in, Type C	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
360S-A	50	SY	7 In. Concrete Pavement	\$_____	\$_____
360S-AH	50	SY	7 In. Concrete Pavement (High Early Strength)	\$_____	\$_____
430S-A	50	LF	Portland Cement Concrete Curb and Gutter (Excavation)	\$_____	\$_____
430S-B	50	LF	Portland Cement Concrete Curb and Gutter (Fine Grading)	\$_____	\$_____
432S-4	200	SF	New Portland Cement Concrete Sidewalks, 4 Inch Thickness	\$_____	\$_____
432S-5	200	SF	New Portland Cement Concrete Sidewalks, 5 Inch Thickness	\$_____	\$_____
432SR-4	500	SF	Reconstruct Concrete Sidewalks to 4 Inch Thickness, Including Removal of Existing Sidewalk	\$_____	\$_____
432SR-5	100	SF	Reconstruct Concrete Sidewalks to 5 Inch Thickness, Including Removal of Existing Sidewalk	\$_____	\$_____
434S	100	SF	6 Inch Concrete Medians and Islands	\$_____	\$_____
480S-RP-1	3	EA	Curb Ramp With Paver (Type I)	\$_____	\$_____
480S-RP-1A	3	EA	Curb Ramp With Paver (Type IA)	\$_____	\$_____
480S-RP-1B	3	EA	Curb Ramp With Paver (Type IB)	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
620S	100	SY	Filter Fabric	\$_____	\$_____
628S-B	10	LF	Sediment Containment Dikes With Filter Fabric	\$_____	\$_____
628S-D	10	EA	Filter Curb Inlet Protection (Existing Inlet)	\$_____	\$_____
803-WD	30	WD	Barricades, Signs, and Traffic Handling	\$_____	\$_____
835S-LT1	1000	LF	Installing Traffic Signal Conduit With Conduit 1 Inch in Diameter	\$_____	\$_____
835S-LT2	7500	LF	Installing Traffic Signal Conduit With Conduit 2 Inch in Diameter	\$_____	\$_____
835S-LT3	6000	LF	Installing Traffic Signal Conduit With Conduit 3 Inch in Diameter	\$_____	\$_____
835S-LT4	1000	LF	Installing Traffic Signal Conduit With Conduit 4 Inch in Diameter	\$_____	\$_____
836S-R2	10	EA	Traffic Signal Risers, 2 Inch in Diameter	\$_____	\$_____
836S-R3	10	EA	Traffic Signal Risers, 3 Inch in Diameter	\$_____	\$_____
837S-TSLD	20,000	LF	Traffic Signal Loop Detector	\$_____	\$_____
SP830S- SCFA	20	EA	Traffic Signal Controller Foundation Type A	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SP830S-SCFB	5	EA	Traffic Signal Controller Foundation Type B	\$_____	\$_____
SP834S-A(i)	4	EA	Traffic Signal Pull Box, Type A East of IH 35	\$_____	\$_____
SP834S-A(ii)	4	EA	Traffic Signal Pull Box, Type A West of IH 35	\$_____	\$_____
SP834S-A(iii)	4	EA	Traffic Signal Pull Box, Type A Downtown	\$_____	\$_____
SP834S-B(i)	20	EA	Traffic Signal Pull Box, Type B East of IH 35	\$_____	\$_____
SP834S-B(ii)	20	EA	Traffic Signal Pull Box, Type B West of IH 35	\$_____	\$_____
SP834S-B(iii)	10	EA	Traffic Signal Pull Box, Type B Downtown	\$_____	\$_____
SP834S-C(i)	10	EA	Traffic Signal Pull Box, Type C East of IH 35	\$_____	\$_____
SP834S-C(ii)	10	EA	Traffic Signal Pull Box, Type C West of IH 35	\$_____	\$_____
SP834S-C(iii)	10	EA	Traffic Signal Pull Box, Type C Downtown	\$_____	\$_____
SP834S-CT(i)	2	EA	Traffic Signal Pull Box, Traffic Bearing Type C East of IH 35	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SP834S-CT(ii)	2	EA	Traffic Signal Pull Box, Traffic Bearing Type C West of IH 35	\$_____	\$_____
SP834S-CT(iii)	2	EA	Traffic Signal Pull Box, Traffic Bearing Type C Downtown	\$_____	\$_____
SP834S-D(i)	1	EA	Traffic Signal Pull Box, Type D East of IH 35	\$_____	\$_____
SP834S-D(ii)	1	EA	Traffic Signal Pull Box, Traffic Bearing Type D West of IH 35	\$_____	\$_____
SP834S-D(iii)	1	EA	Traffic Signal Pull Box, Traffic Bearing Type D Downtown	\$_____	\$_____
SP837S-LSO	20	EA	Loop Stub-out	\$_____	\$_____
SP844S-1BC(i)	1000	LF of Trench	Class 1 Trenching for Traffic Signal Conduit Behind Curb East of IH 35	\$_____	\$_____
SP844S-1BC(ii)	1500	LF of Trench	Class 1 Trenching for Traffic Signal Conduit Behind Curb West of IH 35	\$_____	\$_____
SP844S-1BC(iii)	250	LF of Trench	Class 1 Trenching for Traffic Signal Conduit Behind Curb Downtown	\$_____	\$_____
SP844S-2BC(i)	1000	LF of Trench	Class 2 Trenching for Traffic Signal Conduit Behind Curb East of IH 35	\$_____	\$_____
SP844S-2BC(ii)	2500	LF of Trench	Class 2 Trenching for Traffic Signal Conduit Behind Curb West of IH 35	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SP844S-2BC(iii)	500	LF of Trench	Class 2 Trenching for Traffic Signal Conduit Behind Curb Downtown	\$_____	\$_____
SP844S-3BC(i)	500	LF of Trench	Class 3 Trenching for Traffic Signal Conduit Behind Curb East of IH 35	\$_____	\$_____
SP844S-3BC(ii)	500	LF of Trench	Class 3 Trenching for Traffic Signal Conduit Behind Curb West of IH 35	\$_____	\$_____
SP844S-3BC(iii)	200	LF of Trench	Class 3 Trenching for Traffic Signal Conduit Behind Curb Downtown	\$_____	\$_____
SP844S-1IS(i)	50	LF of Trench	Class 1 Trenching for Traffic Signal Conduit In Street East of IH 35	\$_____	\$_____
SP844S-1IS(ii)	50	LF of Trench	Class 1 Trenching for Traffic Signal Conduit In Street West of IH 35	\$_____	\$_____
SP844S-1IS(iii)	50	LF of Trench	Class 1 Trenching for Traffic Signal Conduit In Street Downtown	\$_____	\$_____
SP844S-2IS(i)	100	LF of Trench	Class 2 Trenching for Traffic Signal Conduit In Street East of IH 35	\$_____	\$_____
SP844S-2IS(ii)	100	LF of Trench	Class 2 Trenching for Traffic Signal Conduit In Street West of IH 35	\$_____	\$_____
SP844S-2IS(iii)	100	LF of Trench	Class 2 Trenching for Traffic Signal Conduit In Street Downtown	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SP844S-3IS(i)	200	LF of Trench	Class 3 Trenching for Traffic Signal Conduit In Street East of IH 35	\$_____	\$_____
SP844S-3IS(ii)	200	LF of Trench	Class 3 Trenching for Traffic Signal Conduit In Street West of IH 35	\$_____	\$_____
SP844S-3IS(iii)	200	LF of Trench	Class 3 Trenching for Traffic Signal Conduit In Street Downtown	\$_____	\$_____
SP16550S-S	30	EA	Small Street Light Foundation – 25/30/35FT	\$_____	\$_____
SP16550S-L	10	EA	Large Street Light Foundation – 45FT	\$_____	\$_____
SS1000-1	10	EA	Locate & expose Pull Box in grass/dirt	\$_____	\$_____
SS1000-2	10	EA	Locate & expose Pull Box in asphalt/concrete	\$_____	\$_____
SS1000-3	6	EA	Vertical Adjustment 24" Pull Box	\$_____	\$_____
SS1000-4	6	EA	Vertical Adjustment 36" Pull Box	\$_____	\$_____
SS1000-5	6	EA	Vertical Adjustment TXDOT pull Box	\$_____	\$_____
SS1000-6	6	EA	Converting 24" Pull Box to 36"	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SS1000-7	4	EA	Converting TXDOT Pull Box to M60	\$_____	\$_____
SS1000-8	8	EA	Converting TXDOT Pull Box to 24"	\$_____	\$_____
SS1000-9	4	EA	Converting TXDOT Pull Box to 36"	\$_____	\$_____
SS1000-10	4	EA	Demolition 24" Pull Box	\$_____	\$_____
SS1000-11	4	EA	Demolition 36" Pull Box	\$_____	\$_____
SS1000-12	4	EA	Demolition TXDOT Pull Box	\$_____	\$_____
SS1001-1	5	EA	Install 30' Timber Pole	\$_____	\$_____
SS1001-2	5	EA	Install 40' Timber Pole	\$_____	\$_____
SS1002	5	EA	Remove Timber Pole	\$_____	\$_____
SS1003-1	60	EA	Set Pole	\$_____	\$_____
SS1003-2	60	EA	Hang Mast Arm	\$_____	\$_____
SS1004-1	4	EA	Remove Pole	\$_____	\$_____
SS1004-2	4	EA	Remove Mast Arm	\$_____	\$_____
SS1004-3	8	EA	Remove Pole Foundation	\$_____	\$_____
SS1004-4	20	EA	Remove Ped Pole Foundation	\$_____	\$_____
SS1004-5	8	EA	Remove Controller Foundation	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SS1005-024(i)	20	LF	24" Diameter Traffic Signal Drilled Shaft Foundations East of IH 35	\$_____	\$_____
SS1005-024(ii)	20	LF	24" Diameter Traffic Signal Drilled Shaft Foundations West of IH 35	\$_____	\$_____
SS1005-024(iii)	20	LF	24" Diameter Traffic Signal Drilled Shaft Foundations Downtown	\$_____	\$_____
SS1005-130(i)	20	LF	30" Diameter Traffic Signal Drilled Shaft Foundations East of IH 35	\$_____	\$_____
SS1005-130(ii)	20	LF	30" Diameter Traffic Signal Drilled Shaft Foundations West of IH 35	\$_____	\$_____
SS1005-130(iii)	20	LF	30" Diameter Traffic Signal Drilled Shaft Foundations Downtown	\$_____	\$_____
SS1005-236(i)	100	LF	36" Diameter Traffic Signal Drilled Shaft Foundations East of IH 35	\$_____	\$_____
SS1005-236(ii)	250	LF	36" Diameter Traffic Signal Drilled Shaft Foundations West of IH 35	\$_____	\$_____
SS1005-236(iii)	50	LF	36" Diameter Traffic Signal Drilled Shaft Foundations Downtown	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SS1005-342(i)	50	LF	42" Diameter Traffic Signal Drilled Shaft Foundations East of IH 35	\$_____	\$_____
SS1005-342(ii)	50	LF	42" Diameter Traffic Signal Drilled Shaft Foundations West of IH 35	\$_____	\$_____
SS1005-342(iii)	50	LF	42" Diameter Traffic Signal Drilled Shaft Foundations Downtown	\$_____	\$_____
SS1005-448(i)	125	LF	48" Diameter Traffic Signal Drilled Shaft Foundations East of IH 35	\$_____	\$_____
SS1005-448(ii)	30	LF	48" Diameter Traffic Signal Drilled Shaft Foundations West of IH 35	\$_____	\$_____
SS1005-448(iii)	30	LF	48" Diameter Traffic Signal Drilled Shaft Foundations Downtown	\$_____	\$_____
SS1005-5(i)	10	EA	4" Diameter Pedestrian Signal Foundation East of IH 35 Type A	\$_____	\$_____
SS1005-5(ii)	10	EA	4" Diameter Pedestrian Signal Foundation West of IH 35 Type A	\$_____	\$_____
SS1005-5(iii)	10	EA	4" Diameter Pedestrian Signal Foundation Downtown Type A	\$_____	\$_____
SS1005-6(i)	5	EA	4" Diameter Pedestrian Signal Foundation East of IH 35 Type B	\$_____	\$_____

Bid Item	Quantity	Unit	Item Description	Unit Price	Amount
SS1005-6(ii)	5	EA	4" Diameter Pedestrian Signal Foundation West of IH 35 Type B	\$_____	\$_____
SS1005-6(iii)	5	EA	4" Diameter Pedestrian Signal Foundation Downtown Type B	\$_____	\$_____
SS1006	1	EA	Retrofit Torsion Assisted Lids to Type D Pull Box	\$_____	\$_____
SS1007	1	EA	HUB Cabinet Foundation	\$_____	\$_____
SS1008-PH(i)	4	EA	Pot Hole for Utilities - East of IH-35	\$_____	\$_____
SS1008-PH(ii)	4	EA	Pot Hole for Utilities - West of IH-35	\$_____	\$_____
SS1008-PH(iii)	4	EA	Pot Hole for Utilities - Downtown	\$_____	\$_____
SS1008-PHE(i)	4	EA	Pot Hole for Utilities - East of IH-35 - Additional 12"	\$_____	\$_____
SS1008-PHE(ii)	4	EA	Pot Hole for Utilities - West of IH-35 - Additional 12"	\$_____	\$_____
SS1008-PHE(iii)	4	EA	Pot Hole for Utilities - Downtown - Additional 12"	\$_____	\$_____

Allowance to perform miscellaneous directed work as directed by the Engineer, including overhead and profit associated therewith **\$200,000.00**

TOTAL BID (INCLUDING ALLOWANCE) \$_____

In the event of a mathematical error, the correct product, determined by using the "Unit Price" and "Quantity", and the correct sum, determined by totaling the correct line item Amounts, will prevail over the amount entered by the Bidder. The unit prices shown above will be the unit prices used to tabulate the Bid and used in the Contract, if awarded by the City.

- For a more detailed explanation of Bid allowances, see Section 1020.

Optional Information on Bid Prices Submitted by Computer Printout

In lieu of handwritten unit prices in figures in ink on the Bid forms above, Bidders, at their option, may submit an original computer printout sheet bearing certification by, and signature for, the Bidding firm. The unit prices shown on acceptable printouts will be the unit prices used to tabulate the Bid and used in the Contract if awarded by the City. As a minimum, computer printouts must contain all information and in the format shown on the attached page: "Example of Bid Prices Submitted by Computer Printout" form.

If a computer printout is used, the Bidder must still execute that portion of the unit price Bid form which acknowledges the Bid Guaranty, Time of Completion, Liquidated Damages, and all addenda that may have been issued.

Bids with unit prices by computer printout may be rejected, if:

1. The computer printout does not include the required certification, set forth in the attached "Example".
2. The computer printout is not signed in the name of the firm to whom the Project Manual was issued.
3. The computer printout is non-responsive or otherwise omits required Bid items or includes items not shown on the Bid forms in the Project Manual.
4. The other required Bid documents issued by the City are not fully executed as provided above.
5. The signed Section 00300U is not returned with the signed computer printout.

If the Bid submitted by the Bidder contains both the form furnished by the City, completed according to the instructions, and also a computer printout, completed according to the instructions, unit prices of only one will be considered. In this situation, the unit Bid prices shown on the computer printout will be used to determine the Bid.

BID GUARANTY: A Bid guaranty must be enclosed with this Bid, as required in Section 00020 or Section 00020S, in the amount of not less than five percent (5%) of the total Bid. Following the Bid opening, submitted Bids may not be withdrawn for a period of (90) Calendar Days. Award of Contract will occur within this period, unless mutually agreed between the parties. The Bid guaranty may become the property of the OWNER, or the OWNER may pursue any other action allowed by law, if:

- Bidder withdraws a submitted Bid within the period stated above;
- Bidder fails to submit the required post Bid information within the period specified in Section 00020S or 00100, or any mutually agreed extension of that period;
- or Bidder fails to execute the Contract and furnish the prescribed documentation (bonds, insurance, etc.) needed to complete execution of the Contract within five (5) calendar days after notice of award, or any mutually agreed extension of that period.

TIME OF COMPLETION: The Contract duration is for one (1) year, with two (2) twelve month extensions, depending on funding. Each separate project location will be issued under a work assignment given to the contractor. The undersigned Bidder agrees to commence work within five

(5) Working Days of the date specified in a written "Notice to Proceed" to be issued by the OWNER for each work assignment and to finally complete all work described in the Notice to Proceed, as required by the Project Manual, Drawings AND Addenda for the Work within the duration established by the OWNER for each assignment. The OWNER will consult with the Contractor on each assignment's duration, but the OWNER will have the ultimate discretion on duration which shall not be unreasonably stipulated, in accordance with the BID Form, Section 00300. The Bidder further agrees that should the Bidder fail to finally complete the work within the number of days allowed for each assignment or as subsequently adjusted, Bidder shall pay the liquidated damages for each consecutive day thereafter as provided below; unless the OWNER elects to pursue any other action allowed by law. Liquidated damages are \$100 per Working Day, in accordance with the Bid Form, Section 00300.

WAIVER OF ATTORNEY FEES: In submitting its bid, in consideration for the waiver of its right to attorney's fees by the OWNER, the Bidder knowingly and intentionally agrees to and shall waive the right to attorney's fees under Section 271.153 of the Texas Local Government Code in any administrative proceeding, alternative dispute resolution proceeding, or litigation arising out of or connected to any Contract awarded pursuant to this solicitation process.

LIQUIDATED DAMAGES: The Bidder understands and agrees that the timely completion of the described Work is of the essence. The Bidder and OWNER further agree that the OWNER's actual damages for delay caused by failure to timely complete the Project are difficult, if not impossible to measure. However, with respect to the additional administrative and consultant costs to be incurred by OWNER, the reasonable estimate of such damages has been calculated and agreed to by OWNER and Bidder. Therefore, the Bidder and the OWNER agree that for each and every **Working Day** the Work or any portion thereof, remains incomplete after the **Final Completion** date as established by the above paragraph, "Time of Completion", payment will be due to the Owner in the amount of one hundred dollars (\$100.00) per **Working Day** as liquidated damages, not as a penalty, but for delay damages to the OWNER. Such amount shall be deducted by the OWNER from any Contract payment due. In the event of a default or breach by the CONTRACTOR and demand is made upon the surety to complete the project, in accordance with the Contract Documents, the surety shall be liable for liquidated damages pursuant to the Contract Documents in the same manner as the CONTRACTOR would have been.

OWNER reserves the right to reject any or all Bids and to waive any minor informality in any Bid or solicitation procedure (a minor informality is one that does not affect the competitiveness of the Bids).

The undersigned acknowledges receipt of the following addenda:

- Addendum No. 1 dated _____ Received _____
- Addendum No. 2 dated _____ Received _____
- Addendum No. 3 dated _____ Received _____
- Addendum No. 4 dated _____ Received _____
- Addendum No. 5 dated _____ Received _____

Secretary, * if Bidder is a Corporation Bidder

(Seal) _____
 Authorized Signature

Title

Date

Address

Telephone Number / FAX Number

Email Address for Person Signing Bid

Email Address for Bidder's Primary Contact Person

* Copy of Corporate Resolution and minutes with certificate of officer of Bidder as to authority of signatory to bind Bidder is to be signed and dated no earlier than one week before Bid date, and attached to this document.

EXAMPLE: BID PRICES SUBMITTED BY COMPUTER PRINTOUT

Project Name:
CIP ID #:
IFB #:

Bid Item #	Bid Item Description	Unit	Qty	Unit Bid Price	Total Amount
Total Bid:					

(YOUR FIRM'S NAME) certifies that the unit prices shown on this completed computer printout for all of the bid items and the alternates contained in this proposal are the unit prices intended and that its Bid will be tabulated using these unit prices and no other information from this printout. (YOUR FIRM'S NAME) acknowledges and agrees that the total bid amount shown will be read as its total bid. In the event of a mathematical error, the correct product, determined by using the "Unit Price" and "Quantity", and the correct sum, determined by totaling the correct line item Amounts, will prevail over the amount entered by the Bidder.

Signed: _____

Title: _____

Date: _____

End

Item No. SS1005
Traffic Signal Foundations

SS1005.1 Description

This item shall govern furnishing and installation of traffic signal foundations in accordance with the specifications herein, Special Detail 2, "Standard Traffic Signal Drilled Shaft Foundation", Special Detail 3 "Type "W" Signal Pole Foundation", Special Detail 4 "Type "OS" Signal pole Foundation", Standard Detail No. 831S-2, "Solar Powered Flasher Assembly", Special Detail 11 "AC Powered School Flasher Assembly", Special Detail 12 "CCTV Signal Pole Foundations", the Drawings and/or as approved by the Engineer or designated representative.

Traffic signal pole foundation types shall be as designated on the Drawings and shall be one of the following:

Type 0	24"	diameter drilled shaft
Type 1	30"	diameter drilled shaft
Type 2	36"	diameter drilled shaft
Type 3	42"	diameter drilled shaft
Type 4	48"	diameter drilled shaft
Type 5	4"	signal pole foundation Type A
Type 6	4"	signal pole foundation Type B

This specification is applicable for projects or work involving inch-pound

SS1005.2 Submittals

The submittal requirements of this specification item may include:

- A. The foundation plan and drilling/excavation details;
- B. Class A p.c. concrete mix design;
- C. Anchor bolt plan and details;
- D. Reinforcing steel details and placement drawings and
- E. Casing plan and details (if required).

SS1005.3 Materials

A. General

All Portland cement (p.c.) concrete, materials, anchor bolts, ground rod, conduits and construction methods shall conform to Standard Detail SS1005-1, "Traffic Signal Drilled Shaft Foundation Details".

B. Traffic Signal Pole Types 0, 1, 2, 3 and 4

Materials for Types 0, 1, 2, 3, and 4 pole foundations include p.c. concrete, anchor bolt assemblies, reinforcing steel, conduits, and copper clad ground rod.

SPECIAL SPECIFICATION

Additional information on the types of material for use in Foundation Types 0,1,2,3, and 4 pole foundations is provided in:

1. Special Detail #2 "Standard Traffic Signal Drilled Shaft Foundation".
2. Special Detail #3 "Type "W" Signal Pole Foundations"
3. Special Detail #4 "Type "OS" Signal Pole Foundations"
4. Special detail #12 "CCTV Signal pole Foundation"

C. Pedestrian Signal Pole Type 5 & 6

Materials for Type 5 & 6 pedestrian signal pole foundations include p.c. concrete, 4" threaded coupling, 10' X 4" intermediate metal pole (for pedestrian signals) or a 10' X 4" intermediate metal pole (for vehicle signals), and 4" rigid metal sweep with plug.

Additional information on the types of material for use in Type 5 & 6 pedestrian pole foundation is provided in Standard Detail No. 831S-2 "Solar Powered Flasher Assembly" and Special Detail 11 "CCTV Signal Pole Foundations".

D. Portland Cement Concrete

The p.c. concrete for foundations shall be Class A, conforming to Standard Specification Item No. 403S, "Concrete for Structures". The p.c. concrete mix design shall consist of a minimum of 5 sacks of cement per cubic yard (280 kilograms of cement per cubic meter) and shall attain a minimum compressive strength of 3000 psi (20.7 mPa) at 28 days unless noted otherwise on the Drawings. Slump of the p.c. concrete shall be between 4" and 5".

The fine and coarse aggregate shall meet the requirements of Standard Specification Item No. 403S, "Concrete for Structures". The maximum nominal size of coarse aggregate shall be 1 1/2 inches. The cement shall meet the requirements for a Type 1 of ASTM C-150. The water shall be clear, potable and free of all substances, which may be harmful to the p.c. concrete. A retarder or water reducing agent (Standard Specification Item 405S, "Concrete Admixtures") will be required in all p.c. concrete when casing is required in unstable soil conditions.

E. Reinforcing Steel

Reinforcing steel, when required shall conform to the sizes and dimensions shown on the Drawings. The reinforcing steel shall be new domestic deformed billet steel conforming to ASTM A-615/615M, grade 60 (SI grade 400) and shall conform to Standard Specification Item No. 406S, "Reinforcing Steel". If necessary the reinforcing steel may be spliced as long as the splice involves overlapping a minimum of 40 bar diameters.

F. Anchor Bolts

Unless noted otherwise on the Drawings, anchor bolts shall be medium strength, mild steel or alloy steel with maximum design yield strength of 55 ksi (380 mPa). Alloy anchor bolts shall conform to the requirements of ASTM A 193 Grade B7. Medium strength, mild steel anchor bolts shall conform to the requirements of a modified ASTM A-36 [with a 55 ksi (380 mPa) yield strength] or ASTM A 572.

Welded splicing of rod material for anchor bolts will not be permitted.

SPECIAL SPECIFICATION

Each anchor bolt shall have a 6-inch “L” bend at the bottom end and shall be threaded at the top end. The anchor bolts shall have the threaded end galvanized a minimum of 12 inches.

Threads for anchor bolts shall be rolled or cut threads of unified coarse thread series in accordance with ANSI B1.1. For rolled threads, the diameter of the unthreaded portion shall not be less than the minimum pitch diameter nor more than the maximum major diameter of the threads.

All threads for bolts and nuts shall have Class 2 fit tolerances in accordance with ANSI B1.1.

Each foundation shall consist of four anchor bolt assemblies. The size of the anchor bolts for each foundation shall be shown on the drawings or specified by the Engineer.

The typical anchor bolt assemblies are shown below:

Anchor Bolt Dimension	Anchor Bolt Assembly Parts
1 ¼" x 48"	One (1) 1-1/4" X 48" anchor bolt
	Two (2) 1-1/4" heavy hex nuts
	Two (2) 1-1/4" hardened flat washers
	One (1) 1-1/4" split lock washer
1 ½" x 60"	One (1) 1-1/2" X 60" anchor bolt
	Two (2) 1-1/2" heavy hex nuts
	Two (2) 1-1/2" hardened flat washers
	One (1) 1-1/2" split lock washer
1 ¾" x 90"	One (1) 1-3/4" X 90" anchor bolt
	Two (2) 1-3/4" heavy hex nuts
	Two (2) 1-3/4" hardened flat washers
	One (1) 1-3/4" split lock washer
2" x 90"	One (1) 2" X 90" anchor bolt
	Two (2) 2" heavy hex nuts
	Two (2) 2" hardened flat washers
	One (1) 2" split lock washer

G. Nuts and washers

Nuts for alloy steel anchor bolts shall conform to ASTM A-194 Grade 2H or ASTM A-563, heavy hex, Class 12. Nuts for medium strength, mild steel anchor bolts shall conform to ASTM A-194 Grade 2H or ASTM A-563, Grade D or better. All threads for nuts shall have a Class 2b tolerance in accordance with ANSI B1.1. When nuts are to be galvanized, the untapped blanks shall be galvanized prior to cutting the threads.

Exposed nuts shall be galvanized or coated with a zinc-rich coating if the anchor bolts are not galvanized.

Washers installed with anchor bolts of any type shall conform to the requirements of ASTM F-436 and shall have the same finish or coating as the bolt and nut.

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H. Grout Cap

The cement grout cap to cover the anchor bolts and conduit shall consist of a mixture of 5 sacks of sand for every 1 sack of cement.

SS1005.4 Construction Methods

A. General

The traffic signal drilled shaft foundation shall be constructed in accordance with the details and instructions provided on the Drawings, in conformance with: Special Detail 2, "Standard Traffic Signal Drilled Shaft Foundation", Special Detail 3" Type "W" Signal Pole Foundation", Special Detail 4 "Type "OS" Signal pole Foundation" and in accordance with the specification requirements described herein.

B. Foundation Location

The foundation shall be located as shown on the Drawings; however the Engineer or designated representative may within design guidelines shift a foundation where necessary to secure a more desirable location or to avoid conflict with utilities. Unless otherwise indicated on the Drawings, the Contractor shall stake and the Engineer or designated representative will verify all foundation locations.

C. Safety

Construction near any underground or overhead utilities shall be accomplished using established industry and utility safety practices.

D. Construction Requirements.

The Contractor shall adhere to the following requirements:

1. The Contractor shall verify existing underground utilities through review of record data, use of one-call utility locates, collection/observation of visible surface evidence, consultation with utility facility owners and application of subsurface utility engineering techniques (e.g., potholing, ground penetrating radar, etc.) to determine the location of existing utilities and structures.
2. The use of explosives will not be permitted.
3. Any damage to utilities and/or structures that occurs as a result of any construction activity performed by the Contractor shall be repaired by the Contractor's at his sole expense. Foundations shall only be paid for once, regardless of extra work caused by obstructions and/or Contractor damage.
4. All loose material shall be removed from the bottom of the excavation before p.c. concrete is placed. Any water that accumulates in the bottom of the excavated foundation shall be removed by pumping or bailing, prior to p.c. concrete placement.
5. Anchor bolts, posts, conduits, ground rods or other hardware to be embedded in the foundation shall be held in place with templates during p.c. concrete placement or by other means approved by the Engineer or designated representative. Conduit when used shall be capped prior to placement of p.c. concrete. Conduit shall be reamed to remove burrs and sharp edges. Bell ends or bushings shall be installed on the conduit.
6. The p.c. concrete shall be placed as soon as possible after excavation is completed, the reinforcing steel placed and other hardware (anchor bolts, conduits, ground rod,

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etc.) installed. Reinforcing steel and concrete shall be placed during the same work day that the drilled shaft is excavated. Drilled shafts that cannot be completed the same work day as they are excavated shall be backfilled that same day with material removed from the excavation, subject to the approval of the Engineer or designated representative. Unless permission is provided by the Engineer or designated representative the p.c. concrete shall not be placed when the atmospheric temperature (temperature reading taken in the shade away from artificial heat) drops below 35°F (2°C).

7. The p.c. concrete shall be continuously placed in the drilled shaft until the construction joint indicated on the Drawings is attained. The p.c. concrete shall be placed with a suitable tremie or tube at a free fall height limited to 3 to 4 feet. A mechanical vibrator shall be used for consolidating the wet p.c. concrete. During consolidation of the p.c. concrete, the Contractor shall insure that there is minimal contact of the vibrator with the reinforcing steel.
8. After p.c. concrete placement is completed and the top struck off, the exposed surface shall be cured for a minimum of 96 hours using wet cotton or burlap mats. All external bracing and templates for anchor bolts shall also remain in place for 96 hours after the p.c. concrete is placed. During this curing time, anchor bolts and conduit shall not be subjected to any applied strain. Springing or racking of anchor bolts or posts to secure proper alignment shall not be permitted.
9. Placement and compaction of backfill shall be performed in accordance with Standard Specifications Item Nos. 201S, "Subgrade Preparation" and 132S, "Embankment". Each layer shall be compacted to the required density by any method, and/or type and size of equipment, which will produce the required compaction. Prior to and in conjunction with the compaction operation, each layer shall be brought to the moisture content necessary to obtain the required density and shall be kept leveled with suitable equipment to insure uniform compaction over the entire layer.
10. Unless directed otherwise, earth embankments shall be constructed in successive layers, with a thickness of 8 inches or less in loose measure, for the full width of the individual cross section in a length that is best suited to the sprinkling and compaction methods utilized, while rock embankments shall be constructed in successive layers of 18 inches or less in thickness for the full width of the cross section.
11. Where excavation is undertaken in the roadway shoulder, the shoulder shall be replaced with material equal to the original composition. All backfill shall be completed prior to erection of any structure on the foundation.
12. All excavated material, not required for backfill, shall be known as "Waste" and shall become the property of the Contractor. It shall be the Contractor's responsibility to promptly remove and dispose of the material outside the limits of the project. The work site shall be kept clean and neat at all times.
13. A cap of cement grout shall completely cover the anchor bolts and conduits on traffic signal pole foundations (Standard Detail SS1005-1) that have been earmarked to receive such protection on the individual project drawings. Anchor bolts and conduits shall be covered with plastic film prior to construction of the dome to prevent the cement grout from adhering to these items.

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SS1005.5 Measurement

Traffic signal drilled shaft foundations shall be measured by each type of traffic signal pole foundation, complete in place:

Type 0	24"	diameter traffic signal pole foundation
Type 1	30"	diameter traffic signal pole foundation
Type 2	36"	diameter traffic signal pole foundation
Type 3	42"	diameter traffic signal pole foundation
Type 4	48"	diameter traffic signal pole foundation
Type 5	4"	pedestrian signal pole foundation Type A
Type 6	4"	pedestrian signal pole foundation Type B

SS1005.6 Payment

The unit bid price shall include full compensation for a) locating utilities, b) all excavations, c) any necessary removal of loose material and pumping of standing water; d) proper disposal of waste materials, e) furnishing and installation of anchor bolts, conduits and ground rods, f) placement and removal of required casings; g) furnishing and placing all p.c. concrete and reinforcing steel, h) all backfilling, i) procurement of materials and covering the foundation with a grout cap (if required), j) curing of exposed p.c. concrete and k) furnishing all tools, labor, equipment and incidentals necessary to complete the work.

All foundations will be paid for only once, regardless of the need to abandon and reinstall a foundation due to unforeseen utility conflicts or any other reason

Extra payment will not be made for casings left in place.

Payment will be made under one of the following:

Pay Item No. SS1005-024(i): 24" diameter Traffic Signal Drilled Shaft Foundations
East of IH 35 per LF.

Pay Item No. SS1005-024(ii): 24" diameter Traffic Signal Drilled Shaft Foundations
West of IH 35 per LF.

Pay Item No. SS1005-024(iii): 24" diameter Traffic Signal Drilled Shaft Foundations
Downtown per LF.

Pay Item No. SS1005-130(i): 30" diameter Traffic Signal Drilled Shaft Foundations
East of IH 35 per LF.

Pay Item No. SS1005-130(ii): 30" diameter Traffic Signal Drilled Shaft Foundations
West of IH 35 per LF.

Pay Item No. SS1005-130(iii): 30" diameter Traffic Signal Drilled Shaft Foundations
Downtown per LF.

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Pay Item No. SS1005-236(i): 36" diameter Traffic Signal Drilled Shaft Foundations
East of IH 35 per LF.

Pay Item No. SS1005-236(ii): 36" diameter Traffic Signal Drilled Shaft Foundations
West of IH 35 per LF.

Pay Item No. SS1005-236(iii): 36" diameter Traffic Signal Drilled Shaft Foundations
Downtown per LF.

Pay Item No. SS1005-342(i): 42" diameter Traffic Signal Drilled Shaft Foundations
East of IH 35 per LF.

Pay Item No. SS1005-342(ii): 42" diameter Traffic Signal Drilled Shaft Foundations
West of IH 35 per LF.

Pay Item No. SS1005-342(iii): 42" diameter Traffic Signal Drilled Shaft Foundations
Downtown per LF.

Pay Item No. SS1005-448(i): 48" diameter Traffic Signal Drilled Shaft Foundations
East of IH 35 per LF.

Pay Item No. SS1005-448(ii): 48" diameter Traffic Signal Drilled Shaft Foundations
West of IH 35 per LF.

Pay Item No. SS1005-448(iii): 48" diameter Traffic Signal Drilled Shaft Foundations
Downtown per LF.

Pay Item No. SS1005-5(i): 4" diameter Pedestrian Signal Foundation Type A
East of IH 35 per EA.

Pay Item No. SS1005-5(ii): 4" diameter Pedestrian Signal Foundation Type A
West of IH 35 per EA.

Pay Item No. SS1005-5(iii): 4" diameter Pedestrian Signal Foundation Type A
Downtown per EA.

Pay Item No. SS1005-6(i): 4" diameter Pedestrian Signal Foundation Type B
East of IH 35 per EA.

Pay Item No. SS1005-6(ii): 4" diameter Pedestrian Signal Foundation Type B
West of IH 35 per EA.

Pay Item No. SS1005-6(iii): 4" diameter Pedestrian Signal Foundation Type B
Downtown per EA.

End

SPECIAL SPECIFICATION

<i>SPECIFIC</i> Cross Reference Materials
Standard Specification Item No. SS1005, "Traffic Signal Drilled Shaft Foundations"

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 132S	Embankment
Item No. 201S	Subgrade Preparation
Item No. 403S	Concrete for Structures
Item No. 405S	Concrete Admixtures
Item No. 406S	Reinforcing Steel

City of Austin Standard Details

<u>Designation</u>	<u>Description</u>
Detail No. SS1005-1	Traffic Signal Drilled Shaft Foundation
Detail No. SS1005-2	Solar Powered Flasher Assembly

American Society for Testing and Materials, ASTM

<u>Designation</u>	<u>Description</u>
A 36	Standard Specification for Carbon Structural Steel
A 193/193M	Specification for Alloy-Steel and Stainless Steel Bolting Materials for High Temperature Service
A 194/194M	Specification for Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and for High Temperature Service
A 563/563M	Specification for Carbon and Alloy-Steel Nuts
A 572/572M	Specification for High-Strength Low-Alloy Columbium-Vanadium Steels of Structural Quality
A 615/615M	Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
C-150/150M	Specification for Portland Cement
F 436	Hardened Steel Washers

American National Standards Institute (ANSI) and ANSI/ASME/AWWA

<u>Designation</u>	<u>Description</u>
ANSI/ASME B1.1	Unified Inch Screw Threads (UN and UNR Thread Form)

<i>RELATED</i> Cross Reference Materials
Standard Specification Item No. SS1005, "Traffic Signal Drilled Shaft Foundations"

City of Austin Standard Specifications

<u>Designation</u>	<u>Description</u>
Item No. 104S	Removing Concrete
Item No. 111S	Excavation
Item No. 130S	Borrow
Item No. 401S	Structural Excavation Backfill
Item No. 410S	Concrete Structures
Item No. 420S	Drilled Shaft Foundations
Item No. 430S	Concrete Curb and Gutter
Item No. 432S	Concrete Sidewalks
Item No. 433S	Concrete Driveways